

CALL 001  
AMENDMENT NUMBER 05  
STATE PROJECT NUMBER; S335-70-0.01 00  
FEDERAL PROJECT NUMBER; NFA-2317(008)  
I-70 BRIDGES  
OHIO COUNTY  
REQUEST FOR PROPOSALS (RFP)

I hereby acknowledge the receipt of this amendment by checking the appropriate space in Section J of the Notice OR by attaching this Instruction for Revision(s) to the Contractor's Proposal. By signing this Proposal, I certify that I have made the necessary revision(s) to this Proposal, Plans, and/S or Specifications or other applicable documents and have CONSIDERED the amendment(s) in the calculation of my bid. I further acknowledge that failure to confirm receipt of the amendment(s) will cause my bid to be rejected.

This amendment is necessary to revise the West Virginia Division of Highways Request for Proposals (RFP); Contractor's Bidding Proposal and Exhibits.

**Proposal:**

The Proposal Schedule of Items has been revised dated July 24, 2019. This revision is attached to this amendment.

The following Special Provision(s) are being revised and/or added and are attached to this amendment.

- Special Provision 601; Structural Concrete dated May 3, 2018.
- Special Provision 601; Rapid Set Cementitious Patching dated May 6, 2010.
- Special Provision 601; Structural Concrete, Ultra High Performance Concrete dated October 4, 2018.
- Special Provision 627; Modular Expansion Joint System dated May 18, 2016.

**Plan(s):**

A total of 47 Plan Sheet(s) have been revised and are being added to the ftp site.

PLEASE PRINT OUT THE ATTACHED AMENDMENT REVISIONS AND INSERT  
THEM INTO YOUR PRINTED COPY.



Division of Highways

7/24/2019

Proposal Schedule of Items

Page: 1 of 100

Proposal ID: 1628026R4

State Project Number: S335-70-0.01 00

Federal Project Number: NFA-2317(008)

SECTION: 0001 GRADE, DRAIN & PAVE

Alt Set ID:

Alt Mbr ID:

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0005	201001-000 CLEARING AND GRUBBING	LUMP SUM	LUMP SUM		_____.	_____.
0006	202001-000 BUILDING DEMOLITION NUMBER, 7-A/1	LUMP SUM	LUMP SUM		_____.	_____.
0010	204001-000 MOBILIZATION	LUMP SUM	LUMP SUM		_____.	_____.
0015	207001-001 UNCLASSIFIED EXCAVATION	47,870.000 CY			_____.	_____.
0020	207034-000 FABRIC FOR SEPARATION	130,222.000 SY			_____.	_____.
0025	211001-000 UNCLASSIFIED BORROW EXCAVATION	6,672.000 CY			_____.	_____.
0026	211002-000 ROCK BORROW EXCAVATION	357.000 CY			_____.	_____.
0030	219001-001 CONTROLLED LOW STRENGTH MATERIAL, TYPE A	5.000 CY			_____.	_____.
0035	307001-000 AGGREGATE BASE COURSE, CLASS 1	33,884.000 CY			_____.	_____.
0040	307001-000 AGGREGATE BASE COURSE, CLASS 8	234.000 CY			_____.	_____.
0045	307001-000 AGGREGATE BASE COURSE, CLASS 10	6,061.000 CY			_____.	_____.



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			Dollars	Cents	Dollars	Cents
0050	408002-001 ASPHALT MATERIAL	3,829.000 GA	_____.	_____.	_____.	_____.
0055	415005-001 STANDARD MILLING	39,391.000 SY	_____.	_____.	_____.	_____.
0060	498001-001 ULTRATHIN ASPHALT OVERLAY	116.000 TN	_____.	_____.	_____.	_____.
0062	601003-001 CLASS K CONCRETE	21.000 CY	_____.	_____.	_____.	_____.
0065	605001-001 TYPE A MANHOLE	1.000 EA	_____.	_____.	_____.	_____.
0070	605003-001 TYPE A INLET	8.000 EA	_____.	_____.	_____.	_____.
0075	605012-001 ADJUST INLET TYPE, B	4.000 EA	_____.	_____.	_____.	_____.
0080	606029-001 FREE DRAINING BASE TRENCH	3,253.000 LF	_____.	_____.	_____.	_____.
0085	607001-001 TYPE 1 GUARDRAIL, CLASS I	11,022.000 LF	_____.	_____.	_____.	_____.
0090	607006-001 THRIE BEAM GUARDRAIL BRIDGE TRANSITION	73.000 EA	_____.	_____.	_____.	_____.
0095	607010-020 GUARDRAIL REMOVAL	12,015.000 LF	_____.	_____.	_____.	_____.
0100	607025-001 CUT SLOPE TERMINAL, TYPE A	1.000 EA	_____.	_____.	_____.	_____.
0105	607030-001 SPECIAL TRAILING END TERMINAL	14.000 EA	_____.	_____.	_____.	_____.

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			Dollars	Cents	Dollars	Cents
0110	607066-001 TANGENT END TERMINAL	12.000 EA	_____.	_____.	_____.	_____.
0115	609001-001 CONCRETE SIDEWALK	270.000 SY	_____.	_____.	_____.	_____.
0120	609002-001 BED COURSE MATERIAL	45.000 CY	_____.	_____.	_____.	_____.
0125	610001-003 PLAIN CONCRETE CURBING, TYPE III	442.000 LF	_____.	_____.	_____.	_____.
0130	610006-010 MEDIAN, TYPE X	1,023.000 LF	_____.	_____.	_____.	_____.
0135	610021-001 SINGLE FACED BARRIER	141.000 LF	_____.	_____.	_____.	_____.
0140	633004-001 GROUTED DUMPED ROCK GUTTER	93.000 CY	_____.	_____.	_____.	_____.
0145	636005-001 TEMPORARY STRUCTURE FOR MAINTAINING TRAFFIC ,DECK REPAIR A	LUMP SUM	LUMP SUM		_____.	_____.
0150	636005-001 TEMPORARY STRUCTURE FOR MAINTAINING TRAFFIC ,DECK REPAIR B	LUMP SUM	LUMP SUM		_____.	_____.
0155	636005-001 TEMPORARY STRUCTURE FOR MAINTAINING TRAFFIC ,DECK REPAIR C	LUMP SUM	LUMP SUM		_____.	_____.
0160	636007-001 ERADICATION OF PAVEMENT MARKING	160,000.000 LF	_____.	_____.	_____.	_____.

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**SECTION:** 0001

GRADE, DRAIN & PAVE

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0165	636008-002 TEMPORARY PAVEMENT MARKING-PAINT 6 IN	405,000.000 LF	_____.	_____.	_____.	_____.
0170	636008-011 TEMPORARY PAVEMENT MARKING-PAINT 8 IN	60,000.000 LF	_____.	_____.	_____.	_____.
0175	636009-002 TEMPORARY PAVEMENT MARKING-TAPE 6 IN, TY VII C	150,000.000 LF	_____.	_____.	_____.	_____.
0180	636009-011 TEMPORARY PAVEMENT MARKING-TAPE 8 IN, TY VII C	25,000.000 LF	_____.	_____.	_____.	_____.
0185	636011-001 TRAFFIC CONTROL DEVICE	550,150.000 UN	_____.	_____.	_____.	_____.
0190	636012-010 PROJECT TRAFFIC CONTROL DEVICE CLEANING	6.000 EA	_____.	_____.	_____.	_____.
0195	636013-001 INDIVIDUAL TRAFFIC CONTROL DEVICE CLEANING	6,000.000 EA	_____.	_____.	_____.	_____.
0200	636014-001 FLAGGER	5,000.000 HR	_____.	_____.	_____.	_____.
0205	636014-002 TRAFFIC DIRECTOR	10,000.000 HR	_____.	_____.	_____.	_____.
0210	636017-005 TEMPORARY BARRIER, TL-3, I	26,000.000 LF	_____.	_____.	_____.	_____.
0215	636017-005 TEMPORARY BARRIER, TL-3, I, STRUCTURE MOUNTED	22,000.000 LF	_____.	_____.	_____.	_____.

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			Dollars	Cents	Dollars	Cents
0220	636018-003 REMOVE AND RESET TEMPORARY BARRIER	20,000.000 LF	_____.	_____.	_____.	_____.
0225	636018-003 REMOVE AND RESET TEMPORARY BARRIER ,STRUCTURE MOUNTED	23,000.000 LF	_____.	_____.	_____.	_____.
0230	636019-001 TEMPORARY GUARDRAIL BARRIER	3,075.000 LF	_____.	_____.	_____.	_____.
0235	636020-001 REMOVE AND RESET TEMPORARY GUARDRAIL BARRIER	3,075.000 LF	_____.	_____.	_____.	_____.
0240	636021-001 ELECTRIC ARROW	2,500.000 DA	_____.	_____.	_____.	_____.
0245	636022-001 CHANGEABLE MESSAGE SIGN	6,000.000 DA	_____.	_____.	_____.	_____.
0250	636023-001 TEMPORARY TRAFFIC SIGNAL ,01	LUMP SUM	LUMP SUM		_____.	_____.
0255	636023-001 TEMPORARY TRAFFIC SIGNAL ,02	LUMP SUM	LUMP SUM		_____.	_____.
0260	636023-001 TEMPORARY TRAFFIC SIGNAL ,03	LUMP SUM	LUMP SUM		_____.	_____.
0265	636023-001 TEMPORARY TRAFFIC SIGNAL ,04	LUMP SUM	LUMP SUM		_____.	_____.
0270	636024-001 TEMPORARY PIPE FOR MAINTAINING TRAFFIC	2,000.000 LF	_____.	_____.	_____.	_____.
0275	636025-001 WARNING LIGHTS, TYPE B	120,000.000 DA	_____.	_____.	_____.	_____.

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			Dollars	Cents	Dollars	Cents
0280	636025-001 WARNING LIGHTS, TYPE C	102,000.000 DA	_____.	_____.	_____.	_____.
0285	636026-001 TEMPORARY LIGHTING ,01	LUMP SUM	LUMP SUM		_____.	_____.
0290	636026-001 TEMPORARY LIGHTING ,02	LUMP SUM	LUMP SUM		_____.	_____.
0295	636026-001 TEMPORARY LIGHTING ,03	LUMP SUM	LUMP SUM		_____.	_____.
0300	636026-001 TEMPORARY LIGHTING ,04	LUMP SUM	LUMP SUM		_____.	_____.
0305	636026-001 TEMPORARY LIGHTING ,05	LUMP SUM	LUMP SUM		_____.	_____.
0310	636028-002 SHADOW VEHICLE	18.000 MO	_____.	_____.	_____.	_____.
0315	636029-001 ROADSIDE ASSISTANCE SERVICE	1,100.000 DA	_____.	_____.	_____.	_____.
0320	636030-001 SPEED MONITORING TRAILER	3,300.000 DA	_____.	_____.	_____.	_____.
0325	636035-001 TEMPORARY CCTV ,01	36.000 MO	_____.	_____.	_____.	_____.
0330	636035-001 TEMPORARY CCTV ,02	36.000 MO	_____.	_____.	_____.	_____.
0335	636035-001 TEMPORARY CCTV ,03	18.000 MO	_____.	_____.	_____.	_____.
0340	636060-001 TEMPORARY IMPACT ATTENUATING DEVICE	40.000 EA	_____.	_____.	_____.	_____.

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			Dollars	Cents	Dollars	Cents
0345	636060-002 REMOVE AND RESET ATTENUATOR DEVICE	40.000 EA	_____.	_____.	_____.	_____.
0349	637001-001 WATER FOR DUST PALLIATIVE	100.000 MG	_____.	_____.	_____.	_____.
0350	638002-001 RIGHT OF WAY MARKER	8.000 EA	_____.	_____.	_____.	_____.
0355	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
0360	640001-001 STANDARD FIELD OFFICE AND STORAGE BUILDING	36.000 MO	_____.	_____.	_____.	_____.
0365	640002-001 LARGE FIELD OFFICE AND STORAGE BUILDING	36.000 MO	_____.	_____.	_____.	_____.
0370	640003-001 BUILDING EQUIPMENT	LUMP SUM	LUMP SUM		_____.	_____.
0375	640003-001 BUILDING EQUIPMENT	LUMP SUM	LUMP SUM		_____.	_____.
0380	642001-001 TEMPORARY BERM	750.000 LF	_____.	_____.	_____.	_____.
0385	642002-001 SLOPE DRAIN	100.000 LF	_____.	_____.	_____.	_____.
0390	642004-001 SEED MIXTURE, TEMPORARY	1,527.000 LB	_____.	_____.	_____.	_____.
0395	642005-001 MULCH, STRAW OR HAY	26.000 TN	_____.	_____.	_____.	_____.



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GRADE, DRAIN & PAVE

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			Dollars	Cents	Dollars	Cents
0400	642006-001 FERTILIZER	5.000 TN	_____.	_____.	_____.	_____.
0405	642010-001 AGRICULTURAL LIMESTONE	20.000 TN	_____.	_____.	_____.	_____.
0410	642012-001 SILT FENCE	6,750.000 LF	_____.	_____.	_____.	_____.
0415	642031-001 DITCH CHECK	20.000 EA	_____.	_____.	_____.	_____.
0420	642033-001 SEDIMENT TRAP (SEDIMENT SUMP)	25.000 CY	_____.	_____.	_____.	_____.
0425	642036-001 SEDIMENT REMOVAL	12.000 CY	_____.	_____.	_____.	_____.
0430	642040-001 INLET PROTECTION	22.000 EA	_____.	_____.	_____.	_____.
0435	642042-001 FLOCCULANT BLOCK	2.000 EA	_____.	_____.	_____.	_____.
0440	642043-001 PREMANUFACTURED DITCH CHECK	46.000 EA	_____.	_____.	_____.	_____.
0445	652001-001 AGRICULTURAL LIMESTONE	24.000 TN	_____.	_____.	_____.	_____.
0450	652002-001 FERTILIZER, 10-20-10	6.000 TN	_____.	_____.	_____.	_____.
0455	652003-001 SEED MIXTURES, B, C-1, OR C-2	3,102.000 LB	_____.	_____.	_____.	_____.
0460	652004-001 STRAW OR HAY MULCH	32.000 TN	_____.	_____.	_____.	_____.

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0465	661001-001 0.080 IN FLAT SHEET SIGN	6,703.000 SF	_____.	_____.	_____.	_____.
0470	661001-003 0.08 IN FLAT SHEET SIGN OVERLAY	2,831.000 SF	_____.	_____.	_____.	_____.
0475	664001-003 IMPACT ATTENUATING DEVICE, TYPE I	2.000 EA	_____.	_____.	_____.	_____.
0480	664002-001 EDGE LINE RUMBLE STRIP, ASPHALT	50,147.000 LF	_____.	_____.	_____.	_____.
0485	664006-010 GLARE BARRIER, TYPE V	38,000.000 LF	_____.	_____.	_____.	_____.
0490	675017-001 ABANDONING MANHOLE	8.000 EA	_____.	_____.	_____.	_____.
0495	900020-001 SITE FURNISHINGS ,TEMPORARY RAILROAD CROSSING	2.000 EA	_____.	_____.	_____.	_____.
0500 AA 1	401001-023 MARSHALL ASPHALT BASE CRSE, SG, TY II	347.000 TN	_____.	_____.	_____.	_____.
0505 AA 2	401001-024 MARSHALL ASPHALT BASE CRSE, S, TY II	331.000 TN	_____.	_____.	_____.	_____.
0510 BB 1	401001-040 SUPERPAVE ASPHALT BASE CRSE, SG, TY 19	9,688.000 TN	_____.	_____.	_____.	_____.
0515 BB 2	401001-041 SUPERPAVE ASPHALT BASE CRSE, S, TY 19	9,261.000 TN	_____.	_____.	_____.	_____.

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			Dollars	Cents	Dollars	Cents
0520 CC 1	401001-050 SUPERPAVE ASPHALT BASE CRSE, SG, TY 37.5	17,377.000 TN	_____.	_____.	_____.	_____.
0525 CC 2	401001-051 SUPERPAVE ASPHALT BASE CRSE, S, TY 37.5	15,561.000 TN	_____.	_____.	_____.	_____.
0530 DD 1	402001-040 SUPERPAVE ASPHALT SKID PVT, SG, TY 9.5	9,338.000 TN	_____.	_____.	_____.	_____.
0535 DD 2	402001-041 SUPERPAVE ASPHALT SKID PVT, S, TY 9.5	8,925.000 TN	_____.	_____.	_____.	_____.
0540 EE 1	604050-116 18 INCH HIGH DENSITY POLYTHYLENE PIPE, PROFILE WALL, IN TYPE F TRENCH	122.000 LF	_____.	_____.	_____.	_____.
0545 EE 2	604037-016 18 INCH REINFORCED CONCRETE PIPE, CLASS II	122.000 LF	_____.	_____.	_____.	_____.
0550 FF 1	604050-016 18 INCH HIGH DENSITY POLYETHYLENE PIPE, PROFILE WALL	95.000 LF	_____.	_____.	_____.	_____.
0555 FF 2	604037-016 18 INCH REINFORCED CONCRETE PIPE, CLASS II	95.000 LF	_____.	_____.	_____.	_____.
0560 GG 1	636002-001 AGGREGATE FOR MAINTAINING TRAFFIC, STONE OR GRAVEL	20.000 TN	_____.	_____.	_____.	_____.

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**SECTION:** 0001                      GRADE, DRAIN & PAVE

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0565 GG 2	636002-002 AGGREGATE FOR MAINTAINING TRAFFIC, SLAG	19.000 TN	_____.	_____.	_____.	_____.
0570 HH 1	307005-001 AGGREGATE BASE COURSE, STONE OR GRAVEL, CLASS 2	48.000 TN	_____.	_____.	_____.	_____.
0575 HH 2	307005-002 AGGREGATE BASE COURSE, SLAG, CLASS 2	46.000 TN	_____.	_____.	_____.	_____.
0580 JJ 1	307005-001 AGGREGATE BASE COURSE, STONE OR GRAVEL, CLASS 9	275.000 TN	_____.	_____.	_____.	_____.
0585 JJ 2	307005-002 AGGREGATE BASE COURSE, SLAG, CLASS 9	263.000 TN	_____.	_____.	_____.	_____.
0590 KK 1	401001-020 MARSHALL ASPHALT BASE CRSE, SG, TY I	20.000 TN	_____.	_____.	_____.	_____.
0595 KK 2	401001-021 MARSHALL ASPHALT BASE CRSE, S, TY I	19.000 TN	_____.	_____.	_____.	_____.
0596 LL 1	401001-042 SUPERPAVE ASPHALT BASE CRSE, SG, TY 25	1,523.000 TN	_____.	_____.	_____.	_____.
0597 LL 2	401001-043 SUPERPAVE ASPHALT BASE CRSE, S, TY 25	1,453.000 TN	_____.	_____.	_____.	_____.
<b>Section: 0001</b>			<b>Total:</b>		_____.	

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

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**SECTION:** 0002                      SIGNING

**Alt Set ID:**    **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0600	657010-001 3.00 LB CHANNEL POST	1,010.000 LF	_____	_____	_____	_____
0605	657018-001 SUPPORT OR BRACKET REMOVAL	108.000 EA	_____	_____	_____	_____
0610	657050-001 BRIDGE OR RETAINING WALL BRACKET, TYPE K	20.000 EA	_____	_____	_____	_____
0615	657060-001 BARRIER WALL BRACKET, TYPE D	36.000 EA	_____	_____	_____	_____
0620	658005-001 OVERHEAD SIGN, TWO TUBE SPAN ,REINSTALL ASSY E006	1.000 EA	_____	_____	_____	_____
0625	658005-001 OVERHEAD SIGN, TWO TUBE SPAN ,REINSTALL ASSY E012	1.000 EA	_____	_____	_____	_____
0630	658005-001 OVERHEAD SIGN, TWO TUBE SPAN ,REINSTALL ASSY E031	1.000 EA	_____	_____	_____	_____
0635	658007-001 OVERHEAD SIGN, DOUBLE ARM CANTILEVER ,REINSTALL ASSY E004	1.000 EA	_____	_____	_____	_____
0640	658007-001 OVERHEAD SIGN, DOUBLE ARM CANTILEVER ,REINSTALL ASSY E008	1.000 EA	_____	_____	_____	_____
0645	658007-001 OVERHEAD SIGN, DOUBLE ARM CANTILEVER ,REINSTALL ASSY E061	1.000 EA	_____	_____	_____	_____
0650	658007-001 OVERHEAD SIGN, DOUBLE ARM CANTILEVER ,REINSTALL ASSY E088	1.000 EA	_____	_____	_____	_____

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**SECTION:** 0002                      SIGNING

**Alt Set ID:**    **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0655	658011-001 OVERHEAD SIGN, STEEL BOX TRUSS SPAN ,ASSY 009	1.000 EA	_____	_____	_____	_____
0660	658011-001 OVERHEAD SIGN, STEEL BOX TRUSS SPAN ,ASSY 010	1.000 EA	_____	_____	_____	_____
0665	661003-001 REFLECTIVE SIGN SUPPORT STRIP	15.000 EA	_____	_____	_____	_____
0670	661011-001 INSTALLATION OF REUSABLE SIGN	132.000 EA	_____	_____	_____	_____
0675	661020-001 DELINEATOR, TYPE B-1	114.000 EA	_____	_____	_____	_____
<b>Section: 0002</b>			<b>Total:</b>		_____	_____









**Proposal Schedule of Items**

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**SECTION:** 0004                      LIGHTING

**Alt Set ID:**    **Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0845	662010-001 LIGHTING SUPPORT, TYPE I, ,REINSTALL ONLY	27.000 EA	_____	_____	_____	_____
0850	662013-001 SERVICE AND CONTROL STATION, (LC2)	LUMP SUM	LUMP SUM		_____	_____
0855	662013-001 SERVICE AND CONTROL STATION, (301), REMOVAL	LUMP SUM	LUMP SUM		_____	_____
0860	662014-001 INCIDENTAL ELECTRICAL WORK	LUMP SUM	LUMP SUM		_____	_____
0865	662015-001 ELECTRICAL TEST, .	LUMP SUM	LUMP SUM		_____	_____
<b>Section: 0004</b>			<b>Total:</b>		_____	_____



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**SECTION:** 0006

ODOT BRIDGE BEL-070-26.84 #0703095

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0915	203001-000 DISMANTLING STRUCTURE (0703095)	LUMP SUM	LUMP SUM		_____.	_____.
0920	212001-000 STRUCTURE EXCAVATION	210.000 CY	_____.	_____.	_____.	_____.
0925	212005-000 SELECT MATERIAL FOR BACKFILLING	210.000 CY	_____.	_____.	_____.	_____.
0930	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
0935	502001-018 18 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	327.000 SY	_____.	_____.	_____.	_____.
0940	601015-005 FRP WRAP SYSTEM	18,801.000 SF	_____.	_____.	_____.	_____.
0945	601019-001 CONCRETE PROTECTIVE COATING - EPOXY URETHANE	37,652.000 SF	_____.	_____.	_____.	_____.
0950	601025-003 MODIFIED CONCRETE, CLASS B ,ODOT CONCRETE CLASS QC1 - SUBSTRUCTURE	163.000 CY	_____.	_____.	_____.	_____.
0955	601025-007 MODIFIED CONCRETE, CLASS H ,ODOT CONCRETE CLASS QC2 - DECK	1,499.000 CY	_____.	_____.	_____.	_____.
0960	601025-008 MODIFIED CONCRETE, CLASS K ,ODOT CONCRETE CLASS QC2 - PARAPET	404.000 CY	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0006

ODOT BRIDGE BEL-070-26.84 #0703095

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0965	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	63.000 SF	_____.	_____.	_____.	_____.
0970	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	126.000 SF	_____.	_____.	_____.	_____.
0975	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	63.000 SF	_____.	_____.	_____.	_____.
0980	601031-001 EPOXY INJECTION CRACK REPAIR	218.000 LF	_____.	_____.	_____.	_____.
0985	601037-001 DOWEL HOLE, VARIABLE	1,294.000 EA	_____.	_____.	_____.	_____.
0990	602002-001 EPOXY COATED REINFORCING STEEL BAR	524,627.000 LB	_____.	_____.	_____.	_____.
0995	615001-001 STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
1000	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
1005	615028-001 GUIDED BEARING, ELASTOMERIC	10.000 EA	_____.	_____.	_____.	_____.
1010	615029-001 NON-GUIDED BEARING, ELASTOMERIC	50.000 EA	_____.	_____.	_____.	_____.
1015	615030-001 FIXED BEARING, ELASTOMERIC	20.000 EA	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0006

ODOT BRIDGE BEL-070-26.84 #0703095

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1020	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	63.000 EA	_____.	_____.	_____.	_____.
1025	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	98.000 LF	_____.	_____.	_____.	_____.
1030	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
1035	662003-001 POLYVINYLCHLORIDE CONDUIT, 4 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM		_____.	_____.
1040	662006-001 JUNCTION BOX, TYPE A	11.000 EA	_____.	_____.	_____.	_____.
1045	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____.
1050	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____.
<b>Section: 0006</b>			<b>Total:</b>		_____.	

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0007

BACK CHANNEL BRIDGE #2034.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1055	203001-000 DISMANTLING STRUCTURE (2034.1)	LUMP SUM	LUMP SUM		_____.	_____.
1060	211002-000 ROCK BORROW EXCAVATION	4,068.000 CY	_____.	_____.	_____.	_____.
1065	211003-000 SELECT BORROW EXCAVATION	2,510.000 CY	_____.	_____.	_____.	_____.
1070	212001-000 STRUCTURE EXCAVATION	2,510.000 CY	_____.	_____.	_____.	_____.
1075	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
1080	601002-001 CLASS B CONCRETE	82.000 CY	_____.	_____.	_____.	_____.
1085	601003-001 CLASS K CONCRETE	997.000 CY	_____.	_____.	_____.	_____.
1090	601009-001 CLASS H CONCRETE	5,475.000 CY	_____.	_____.	_____.	_____.
1095	601019-001 CONCRETE PROTECTIVE COATING	126,551.000 SF	_____.	_____.	_____.	_____.
1100	601025-003 MODIFIED CONCRETE, CLASS B ,5500 PSI	108.000 CY	_____.	_____.	_____.	_____.
1105	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	256.000 SF	_____.	_____.	_____.	_____.
1110	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	256.000 SF	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0007

BACK CHANNEL BRIDGE #2034.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1115	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	11,346.000 SF	_____.	_____.	_____.	_____.
1120	601031-001 EPOXY INJECTION CRACK REPAIR	2,108.000 LF	_____.	_____.	_____.	_____.
1125	601037-001 DOWEL HOLE, ,VARIABLE	4,712.000 EA	_____.	_____.	_____.	_____.
1130	602002-001 EPOXY COATED REINFORCING STEEL BAR	1,570,604.000 LB	_____.	_____.	_____.	_____.
1135	615004-001 FABRICATED STRUCTURAL STEEL	65,742.000 LB	_____.	_____.	_____.	_____.
1140	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
1145	615028-001 GUIDED BEARING, ,ELASTOMERIC	133.000 EA	_____.	_____.	_____.	_____.
1150	615029-001 NON-GUIDED BEARING, ,ELASTOMERIC	89.000 EA	_____.	_____.	_____.	_____.
1155	615030-001 FIXED BEARING, ,ELASTOMERIC	52.000 EA	_____.	_____.	_____.	_____.
1160	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
1165	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____.	_____.









**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0008

FORT HENRY BRIDGE #1830.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1280	203001-000 DISMANTLING STRUCTURE (1830.2)	LUMP SUM	LUMP SUM		_____.	_____.
1285	212001-000 STRUCTURE EXCAVATION	425.000 CY	_____.	_____.	_____.	_____.
1290	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
1295	307001-000 AGGREGATE BASE COURSE, CLASS 1	425.000 CY	_____.	_____.	_____.	_____.
1300	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	168.000 SY	_____.	_____.	_____.	_____.
1305	601002-001 CLASS B CONCRETE	1.000 CY	_____.	_____.	_____.	_____.
1310	601003-001 CLASS K CONCRETE	171.000 CY	_____.	_____.	_____.	_____.
1315	601009-001 CLASS H CONCRETE	289.000 CY	_____.	_____.	_____.	_____.
1320	601013-005 CONCRETE SEALER	20,650.000 SF	_____.	_____.	_____.	_____.
1325	601019-001 CONCRETE PROTECTIVE COATING	124,074.000 SF	_____.	_____.	_____.	_____.
1330	601030-000 PATCHING CONCRETE STRUCTURES	525.000 SF	_____.	_____.	_____.	_____.
1335	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	1,124.000 SF	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0008

FORT HENRY BRIDGE #1830.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1340	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	1,124.000 SF	_____.	_____.	_____.	_____.
1345	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	2,248.000 SF	_____.	_____.	_____.	_____.
1350	601031-001 EPOXY INJECTION CRACK REPAIR	3,164.000 LF	_____.	_____.	_____.	_____.
1355	601037-001 DOWEL HOLE, VARIABLE	3,318.000 EA	_____.	_____.	_____.	_____.
1357	601055-001 VERTICAL CLEARANCE GAUGE	LUMP SUM	LUMP SUM		_____.	_____.
1360	602001-001 REINFORCING STEEL BAR	4,543.000 LB	_____.	_____.	_____.	_____.
1365	602002-001 EPOXY COATED REINFORCING STEEL BAR	69,014.000 LB	_____.	_____.	_____.	_____.
1370	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
1375	615029-001 NON-GUIDED BEARING, ,ELASTOMERIC	40.000 EA	_____.	_____.	_____.	_____.
1380	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
1385	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR C10 - RAMP N2 AND S2 ABUTMENT DOOR REPLACEMENT	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0008

FORT HENRY BRIDGE #1830.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1390	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D15 - INSTALL NEW DOWNSPOUTING	LUMP SUM	LUMP SUM		_____.	_____.
1395	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D16 - REMOVE VEGETATION/DEBRIS FROM DRAINAGE SYSTEM	LUMP SUM	LUMP SUM		_____.	_____.
1400	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S23 - PIGEON SCREEN REPAIRS	LUMP SUM	LUMP SUM		_____.	_____.
1405	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	2,248.000 EA		_____.	_____.	_____.
1410	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	108.000 EA		_____.	_____.	_____.
1415	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B6 - FORT HENRY ARCH SPAN STRINGER BEARING REPAIR	32.000 EA		_____.	_____.	_____.
1420	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B7 - SUSPENDED EXPANSION BEARING REPAIR	18.000 EA		_____.	_____.	_____.
1425	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B8 - ARCH SPAN BEARING REPAIR	2.000 EA		_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0008

FORT HENRY BRIDGE #1830.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1430	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S1 - REPAIR STEEL GIRDER LOCAL DETERIORATION	8.000 EA	_____.	_____.	_____.	_____.
1435	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S3 - REPAIR STEEL STRINGER LOCAL DETERIORATION	20.000 EA	_____.	_____.	_____.	_____.
1440	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S5 - REPAIR STEEL FLOORBEAM LOCAL DETERIORATION	2.000 EA	_____.	_____.	_____.	_____.
1445	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S6 - STRENGTHEN STEEL FLOORBEAM	8.000 EA	_____.	_____.	_____.	_____.
1450	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S7 - REPAIR STEEL DIAPHRAGM/CROSSFRAME	25.000 EA	_____.	_____.	_____.	_____.
1455	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S10 - CRACK ARREST REPAIR	6.000 EA	_____.	_____.	_____.	_____.
1460	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S12 - ARCH TIE REPAIR	21.000 EA	_____.	_____.	_____.	_____.
1465	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S13B - ARCH RIB REPAIR	28.000 EA	_____.	_____.	_____.	_____.
1470	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S14 - ARCH LATERAL BRACING REPAIR	14.000 EA	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0008

FORT HENRY BRIDGE #1830.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1475	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S15 - ARCH HANGER REPAIR	39.000 EA	_____.	_____.	_____.	_____.
1480	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S16 - REPAIR DETERIORATED STIFFENER/CONNECTION PLATE	52.000 EA	_____.	_____.	_____.	_____.
1485	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S18 - REPLACE BOLT	82.000 EA	_____.	_____.	_____.	_____.
1490	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S19 - REMOVE TACK WELD	7.000 EA	_____.	_____.	_____.	_____.
1495	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S22 - SIDEWALK AND SIGN BRACKET REPAIR	31.000 EA	_____.	_____.	_____.	_____.
1500	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S24 - LIGHT PLOE BRACKET REMOVAL	2.000 EA	_____.	_____.	_____.	_____.
1505	615075-003 MISCELLANEOUS BRIDGE WORK, REPAIR P2 - PACK RUST REMOVAL	300.000 LF	_____.	_____.	_____.	_____.
1510	617001-001 PIPE RAILING	461.000 LF	_____.	_____.	_____.	_____.
1515	617003-001 ALUMINUM RAILING ,PARAPET MOUNTED	3,382.000 LF	_____.	_____.	_____.	_____.



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0008

FORT HENRY BRIDGE #1830.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1520	617003-001 ALUMINUM RAILING ,PEDESTRIAN RAILING	3,342.000 LF	_____	_____	_____	_____
1525	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, MODULAR JOINT	245.000 LF	_____	_____	_____	_____
1530	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, PREFORMED SILICONE COATED FOAM	3,092.000 LF	_____	_____	_____	_____
1535	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	355.000 LF	_____	_____	_____	_____
1540	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	72.000 LF	_____	_____	_____	_____
1545	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____	_____
1550	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	168.000 SY	_____	_____	_____	_____
1555	679001-001 CONCRETE DECK OVERLAY	13,945.000 SY	_____	_____	_____	_____
1560	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____	_____
1565	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0008

FORT HENRY BRIDGE #1830.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1566	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
1570	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
1571	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
1575	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
1580	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
1581	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
<b>Section: 0008</b>			<b>Total:</b>		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0009

MAIN STREET BRIDGE #2069-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1585	203001-000 DISMANTLING STRUCTURE (2069-1.1)	LUMP SUM	LUMP SUM		_____	_____
1590	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	189.000 SY	_____	_____	_____	_____
1595	601003-001 CLASS K CONCRETE	53.000 CY	_____	_____	_____	_____
1600	601009-001 CLASS H CONCRETE	50.000 CY	_____	_____	_____	_____
1605	601019-001 CONCRETE PROTECTIVE COATING	17,202.000 SF	_____	_____	_____	_____
1610	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	56.000 SF	_____	_____	_____	_____
1615	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	109.000 SF	_____	_____	_____	_____
1620	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	56.000 SF	_____	_____	_____	_____
1625	601031-001 EPOXY INJECTION CRACK REPAIR ,REPAIR TYPE C1C	26.000 LF	_____	_____	_____	_____
1630	602002-001 EPOXY COATED REINFORCING STEEL BAR	16,594.000 LB	_____	_____	_____	_____
1635	615004-001 FABRICATED STRUCTURAL STEEL	15,167.000 LB	_____	_____	_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0009

MAIN STREET BRIDGE #2069-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1640	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____
1645	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____
1650	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D16 - REMOVE VEGETATION/DEBRIS FROM DRAINAGE SYSTEM	LUMP SUM	LUMP SUM		_____.	_____
1655	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____.	_____
1660	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	56.000 EA		_____.	_____.	_____.
1665	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	58.000 EA		_____.	_____.	_____.
1670	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B7 - SUSPENDED EXPANSION BEARING REPAIR	6.000 EA		_____.	_____.	_____.
1675	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR D13 - INSTALL NEW SCUPPER	4.000 EA		_____.	_____.	_____.
1680	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S24 - LIGHT POLE BRACKET REMOVAL	1.000 EA		_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0009

MAIN STREET BRIDGE #2069-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1685	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	131.000 LF	_____	_____	_____	_____
1686	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	68.000 LF	_____	_____	_____	_____
1690	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____	_____
1695	679001-001 CONCRETE DECK OVERLAY	2,892.000 SY	_____	_____	_____	_____
1700	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____	_____
1705	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____	_____
1706	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____	_____
1710	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____	_____
1711	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____	_____
1715	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0009

MAIN STREET BRIDGE #2069-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1720	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
1721	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
<b>Section: 0009</b>			<b>Total:</b>		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0010

MARKET STREET RAMP A BRIDGE #2069-2.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1725	203001-000 DISMANTLING STRUCTURE (2069-2.1)	LUMP SUM	LUMP SUM		_____.	_____.
1730	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
1735	307001-000 AGGREGATE BASE COURSE, CLASS 1	227.000 CY			_____.	_____.
1740	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	138.000 SY			_____.	_____.
1745	601002-001 CLASS B CONCRETE	6.000 CY			_____.	_____.
1750	601003-001 CLASS K CONCRETE	20.000 CY			_____.	_____.
1755	601009-001 CLASS H CONCRETE	93.000 CY			_____.	_____.
1760	601019-001 CONCRETE PROTECTIVE COATING	14,385.000 SF			_____.	_____.
1765	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	79.000 SF			_____.	_____.
1770	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	157.000 SF			_____.	_____.
1775	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	79.000 SF			_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0010

MARKET STREET RAMP A BRIDGE #2069-2.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1780	601031-001 EPOXY INJECTION CRACK REPAIR	61.000 LF	_____	_____	_____	_____
1785	601037-001 DOWEL HOLE, VARIABLE	317.000 EA	_____	_____	_____	_____
1790	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	6.000 CY	_____	_____	_____	_____
1795	602002-001 EPOXY COATED REINFORCING STEEL BAR	21,216.000 LB	_____	_____	_____	_____
1800	608001-006 6 FT RIGHT-OF-WAY FENCE, CHAIN LINK	95.000 LF	_____	_____	_____	_____
1805	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____	_____
1810	615028-001 GUIDED BEARING, ELASTOMERIC	16.000 EA	_____	_____	_____	_____
1815	615029-001 NON-GUIDED BEARING, ELASTOMERIC	17.000 EA	_____	_____	_____	_____
1820	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____	_____
1825	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D15 - INSTALL NEW DOWNSPOUTING	LUMP SUM	LUMP SUM		_____	_____



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0010

MARKET STREET RAMP A BRIDGE #2069-2.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1830	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D16 - REMOVE VEGETATION/DEBRIS FROM DRAINAGE SYSTEM	LUMP SUM	LUMP SUM		_____.	_____.
1835	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____.	_____.
1840	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	79.000 EA		_____.	_____.	_____.
1845	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	33.000 EA		_____.	_____.	_____.
1850	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S18 - REPLACE BOLT	6.000 EA		_____.	_____.	_____.
1855	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	192.000 LF		_____.	_____.	_____.
1860	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	72.000 LF		_____.	_____.	_____.
1865	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
1870	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	578.000 SY		_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0010

MARKET STREET RAMP A BRIDGE #2069-2.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1875	679001-001 CONCRETE DECK OVERLAY	1,752.000 SY				
1880	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
1885	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
1886	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
1890	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
1891	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
1895	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
1900	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
1901	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
<b>Section: 0010</b>			<b>Total:</b>			

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0011

MARKET STREET OVERPASS BRIDGE #2069-3.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1905	203001-000 DISMANTLING STRUCTURE (2069-3.1)	LUMP SUM	LUMP SUM		_____.	_____.
1910	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
1915	307001-000 AGGREGATE BASE COURSE, CLASS 1	153.000 CY			_____.	_____.
1920	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	101.000 SY			_____.	_____.
1925	601003-001 CLASS K CONCRETE	6.000 CY			_____.	_____.
1930	601009-001 CLASS H CONCRETE	39.000 CY			_____.	_____.
1935	601019-001 CONCRETE PROTECTIVE COATING	5,250.000 SF			_____.	_____.
1940	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	162.000 SF			_____.	_____.
1945	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	325.000 SF			_____.	_____.
1950	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	162.000 SF			_____.	_____.
1955	601031-001 EPOXY INJECTION CRACK REPAIR	48.000 LF			_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0011

MARKET STREET OVERPASS BRIDGE #2069-3.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
1960	601037-001 DOWEL HOLE, VARIABLE	90.000 EA	_____	_____	_____	_____
1965	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	6.000 CY	_____	_____	_____	_____
1970	602002-001 EPOXY COATED REINFORCING STEEL BAR	5,985.000 LB	_____	_____	_____	_____
1975	608001-006 6 FT RIGHT-OF-WAY FENCE, CHAIN LINK	308.000 LF	_____	_____	_____	_____
1980	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____	_____
1985	615028-001 GUIDED BEARING, ,ELASTOMERIC	6.000 EA	_____	_____	_____	_____
1990	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____	_____
1995	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D15 - INSTALL NEW DOWNSPOUTING	LUMP SUM	LUMP SUM		_____	_____
2000	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D16 - REMOVE VEGETATION/DEBRIS FROM DRAINAGE SYSTEM	LUMP SUM	LUMP SUM		_____	_____
2005	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0011

MARKET STREET OVERPASS BRIDGE #2069-3.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2010	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	162.000 EA	_____.	_____.	_____.	_____.
2015	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBICATE EXISTING BEARING	24.000 EA	_____.	_____.	_____.	_____.
2020	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	45.000 LF	_____.	_____.	_____.	_____.
2025	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
2030	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	515.000 SY	_____.	_____.	_____.	_____.
2035	679001-001 CONCRETE DECK OVERLAY	447.000 SY	_____.	_____.	_____.	_____.
2040	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____.
2045	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____.
2046	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____.
2050	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0011

MARKET STREET OVERPASS BRIDGE #2069-3.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2051	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
2055	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
2060	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
2061	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
<b>Section: 0011</b>			<b>Total:</b>		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0012

1ST BRIDGE EAST OF TUNNEL WB & EB #2070-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2065	203001-000 DISMANTLING STRUCTURE (2070-1.1)	LUMP SUM	LUMP SUM		_____.	_____.
2070	211003-000 SELECT BORROW EXCAVATION	353.000 CY	_____.	_____.	_____.	_____.
2075	212001-000 STRUCTURE EXCAVATION	353.000 CY	_____.	_____.	_____.	_____.
2080	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
2085	218005-000 CONCRETE SLOPE PROTECTION	342.000 SY	_____.	_____.	_____.	_____.
2090	307001-000 AGGREGATE BASE COURSE, CLASS 1	712.000 CY	_____.	_____.	_____.	_____.
2095	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	368.000 SY	_____.	_____.	_____.	_____.
2100	601002-001 CLASS B CONCRETE	174.000 CY	_____.	_____.	_____.	_____.
2105	601003-001 CLASS K CONCRETE	565.000 CY	_____.	_____.	_____.	_____.
2110	601009-001 CLASS H CONCRETE	2,808.000 CY	_____.	_____.	_____.	_____.
2115	601019-001 CONCRETE PROTECTIVE COATING	102,671.000 SF	_____.	_____.	_____.	_____.
2116	601025-004 MODIFIED CONCRETE, CLASS B MASS	222.000 CY	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0012

1ST BRIDGE EAST OF TUNNEL WB & EB #2070-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2120	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	391.000 SF	_____.	_____.	_____.	_____.
2125	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	760.000 SF	_____.	_____.	_____.	_____.
2130	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	384.000 SF	_____.	_____.	_____.	_____.
2135	601031-001 EPOXY INJECTION CRACK REPAIR	40.000 LF	_____.	_____.	_____.	_____.
2140	601037-001 DOWEL HOLE, VARIABLE	1,030.000 EA	_____.	_____.	_____.	_____.
2145	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	20.000 CY	_____.	_____.	_____.	_____.
2150	602002-001 EPOXY COATED REINFORCING STEEL BAR	937,783.000 LB	_____.	_____.	_____.	_____.
2155	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
2160	615028-001 GUIDED BEARING, ,ELASTOMERIC	120.000 EA	_____.	_____.	_____.	_____.
2165	615029-001 NON-GUIDED BEARING, ,ELASTOMERIC	27.000 EA	_____.	_____.	_____.	_____.
2170	615030-001 FIXED BEARING, ,ELASTOMERIC	5.000 EA	_____.	_____.	_____.	_____.



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0012

1ST BRIDGE EAST OF TUNNEL WB & EB #2070-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2175	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____
2180	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____.	_____
2185	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____.	_____
2190	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM	382.000 EA		_____.	_____.	_____
2195	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	43.000 EA		_____.	_____.	_____
2200	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S3 - REPAIR STEEL STRINGER LOCAL DETERIORATION	16.000 EA		_____.	_____.	_____
2205	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S4 - STRENGTHEN STEEL STRINGER	25.000 EA		_____.	_____.	_____
2210	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S7 - REPAIR STEEL DIAPHRAGM/CROSSFRAME	46.000 EA		_____.	_____.	_____
2215	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S16 - REPAIR DETERIORATED STIFFENER/CONNECTION PLATE	89.000 EA		_____.	_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0012

1ST BRIDGE EAST OF TUNNEL WB & EB #2070-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2220	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S18 - REPLACE BOLT	7.000 EA	_____.	_____.	_____.	_____.
2225	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S20 - PIN AND HANGER RETROFIT TYPE 1 - CATCHER	13.000 EA	_____.	_____.	_____.	_____.
2230	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, MODULAR JOINT	144.000 LF	_____.	_____.	_____.	_____.
2235	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	281.000 LF	_____.	_____.	_____.	_____.
2240	627020-001 INSTALL MODULAR EXPANSION JOINT SYSTEM ,BEHIND APPROACH SLAB	121.000 LF	_____.	_____.	_____.	_____.
2245	627025-001 STRIP SEAL EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB	49.000 LF	_____.	_____.	_____.	_____.
2250	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	58.000 LF	_____.	_____.	_____.	_____.
2255	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
2260	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	2,594.000 SY	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0012

1ST BRIDGE EAST OF TUNNEL WB & EB #2070-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2265	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM		_____.	_____
2270	662006-001 JUNCTION BOX, TYPE A	16.000 EA		_____.	_____.	_____.
2275	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
2280	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
2281	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
2285	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
2286	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
2290	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
2295	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0012

1ST BRIDGE EAST OF TUNNEL WB & EB #2070-1.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2296	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
	<b>Section: 0012</b>		<b>Total:</b>		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0013

RAMP E BRIDGE #2070-2.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2300	203001-000 DISMANTLING STRUCTURE (2070-2)	LUMP SUM	LUMP SUM		_____	_____
2305	211003-000 SELECT BORROW EXCAVATION	64.000 CY	_____	_____	_____	_____
2310	212001-000 STRUCTURE EXCAVATION	64.000 CY	_____	_____	_____	_____
2315	212010-003 SHORING	LUMP SUM	LUMP SUM		_____	_____
2320	307001-000 AGGREGATE BASE COURSE, CLASS 1	199.000 CY	_____	_____	_____	_____
2325	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	112.000 SY	_____	_____	_____	_____
2330	601002-001 CLASS B CONCRETE	55.000 CY	_____	_____	_____	_____
2335	601003-001 CLASS K CONCRETE	252.000 CY	_____	_____	_____	_____
2340	601009-001 CLASS H CONCRETE	724.000 CY	_____	_____	_____	_____
2345	601019-001 CONCRETE PROTECTIVE COATING	49,484.000 SF	_____	_____	_____	_____
2346	601025-004 MODIFIED CONCRETE, CLASS B MASS	118.000 CY	_____	_____	_____	_____
2350	601025-007 MODIFIED CONCRETE, CLASS H	210.000 CY	_____	_____	_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0013

RAMP E BRIDGE #2070-2.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2355	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	351.000 SF	_____	_____	_____	_____
2360	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	686.000 SF	_____	_____	_____	_____
2365	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	349.000 SF	_____	_____	_____	_____
2370	601037-001 DOWEL HOLE, VARIABLE	456.000 EA	_____	_____	_____	_____
2375	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	6.000 CY	_____	_____	_____	_____
2380	602002-001 EPOXY COATED REINFORCING STEEL BAR	364,545.000 LB	_____	_____	_____	_____
2385	608001-006 6 FT RIGHT-OF-WAY FENCE, CHAIN LINK	138.000 LF	_____	_____	_____	_____
2390	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____	_____
2395	615028-001 GUIDED BEARING, ,ELASTOMERIC	47.000 EA	_____	_____	_____	_____
2400	615029-001 NON-GUIDED BEARING, ,ELASTOMERIC	4.000 EA	_____	_____	_____	_____
2405	615030-001 FIXED BEARING, ,ELASTOMERIC	31.000 EA	_____	_____	_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0013

RAMP E BRIDGE #2070-2.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2410	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM			
2415	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM			
2420	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM			
2425	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	349.000 EA				
2430	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	11.000 EA				
2435	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B5 - STEEL BEARING STOOL	3.000 EA				
2440	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S3 - REPAIR STEEL STRINGER LOCAL DETERIORATION	3.000 EA				
2445	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S4 - STRENGTHEN STEEL STRINGER	2.000 EA				
2450	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S7 - REPAIR STEEL DIAPHRAGM/CROSSFRAME	5.000 EA				

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0013

RAMP E BRIDGE #2070-2.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2455	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S16 - REPAIR DETERIORATED STIFFENER/CONNECTION PLATE	12.000 EA	_____.	_____.	_____.	_____.
2460	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, MODULAR JOINT	28.000 LF	_____.	_____.	_____.	_____.
2465	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	267.000 LF	_____.	_____.	_____.	_____.
2470	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	67.000 LF	_____.	_____.	_____.	_____.
2475	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
2480	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	771.000 SY	_____.	_____.	_____.	_____.
2485	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM		_____.	_____.
2490	662006-001 JUNCTION BOX, TYPE A	10.000 EA	_____.	_____.	_____.	_____.
2495	662006-001 JUNCTION BOX, TYPE B	2.000 EA	_____.	_____.	_____.	_____.
2500	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____.



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0013

RAMP E BRIDGE #2070-2.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2505	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
2506	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
2510	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
2511	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
2515	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
2520	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
2521	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
<b>Section: 0013</b>			<b>Total:</b>		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0014

RAMP G BRIDGE #2070-4.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2525	203001-000 DISMANTLING STRUCTURE (2070-4)	LUMP SUM	LUMP SUM		_____	_____
2530	211003-000 SELECT BORROW EXCAVATION	138.000 CY	_____	_____	_____	_____
2535	212001-000 STRUCTURE EXCAVATION	138.000 CY	_____	_____	_____	_____
2540	212010-003 SHORING	LUMP SUM	LUMP SUM		_____	_____
2545	307001-000 AGGREGATE BASE COURSE, CLASS 1	110.000 CY	_____	_____	_____	_____
2550	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	68.000 SY	_____	_____	_____	_____
2555	601002-001 CLASS B CONCRETE	96.000 CY	_____	_____	_____	_____
2560	601003-001 CLASS K CONCRETE	135.000 CY	_____	_____	_____	_____
2565	601009-001 CLASS H CONCRETE	330.000 CY	_____	_____	_____	_____
2570	601019-001 CONCRETE PROTECTIVE COATING	21,920.000 SF	_____	_____	_____	_____
2571	601025-004 MODIFIED CONCRETE, CLASS B MASS	80.000 CY	_____	_____	_____	_____
2575	601025-007 MODIFIED CONCRETE, CLASS H	169.000 CY	_____	_____	_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0014

RAMP G BRIDGE #2070-4.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2580	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	21.000 SF	_____.	_____.	_____.	_____.
2585	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	38.000 SF	_____.	_____.	_____.	_____.
2590	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	21.000 SF	_____.	_____.	_____.	_____.
2595	601037-001 DOWEL HOLE, VARIABLE	230.000 EA	_____.	_____.	_____.	_____.
2600	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	5.000 CY	_____.	_____.	_____.	_____.
2605	602002-001 EPOXY COATED REINFORCING STEEL BAR	214,048.000 LB	_____.	_____.	_____.	_____.
2610	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
2615	615028-001 GUIDED BEARING, ELASTOMERIC	22.000 EA	_____.	_____.	_____.	_____.
2620	615029-001 NON-GUIDED BEARING, ELASTOMERIC	6.000 EA	_____.	_____.	_____.	_____.
2625	615030-001 FIXED BEARING, ELASTOMERIC	8.000 EA	_____.	_____.	_____.	_____.
2630	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0014

RAMP G BRIDGE #2070-4.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2635	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____.	_____.
2640	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____.	_____.
2645	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	18.000 EA		_____.	_____.	_____.
2650	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	2.000 EA		_____.	_____.	_____.
2655	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S3 - REPAIR STEEL STRINGER LOCAL DETERIORATION	1.000 EA		_____.	_____.	_____.
2660	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S4 - STRENGTHEN STEEL STRINGER	1.000 EA		_____.	_____.	_____.
2665	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S7 - REPAIR STEEL DIAPHRAGM/CROSSFRAME	3.000 EA		_____.	_____.	_____.
2670	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	56.000 LF		_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0014

RAMP G BRIDGE #2070-4.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2675	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	48.000 LF				
2680	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM			
2685	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	418.000 SY				
2690	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM			
2695	662006-001 JUNCTION BOX, TYPE A	4.000 EA				
2700	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
2705	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
2706	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
2710	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
2711	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM			



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0015

RAMP J BRIDGE #2070-6.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2725	203001-000 DISMANTLING STRUCTURE (2070-6)	LUMP SUM	LUMP SUM		_____.	_____.
2730	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
2735	307001-000 AGGREGATE BASE COURSE, CLASS 1	65.000 CY			_____.	_____.
2740	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	47.000 SY			_____.	_____.
2745	601002-001 CLASS B CONCRETE	5.000 CY			_____.	_____.
2750	601003-001 CLASS K CONCRETE	47.000 CY			_____.	_____.
2755	601009-001 CLASS H CONCRETE	130.000 CY			_____.	_____.
2760	601019-001 CONCRETE PROTECTIVE COATING	5,728.000 SF			_____.	_____.
2765	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	20.000 SF			_____.	_____.
2770	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	39.000 SF			_____.	_____.
2775	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	20.000 SF			_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0015

RAMP J BRIDGE #2070-6.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2780	601037-001 DOWEL HOLE, VARIABLE	78.000 EA	_____.	_____.	_____.	_____.
2785	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	2.000 CY	_____.	_____.	_____.	_____.
2790	602002-001 EPOXY COATED REINFORCING STEEL BAR	55,312.000 LB	_____.	_____.	_____.	_____.
2795	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
2800	615028-001 GUIDED BEARING, ,ELASTOMERIC	6.000 EA	_____.	_____.	_____.	_____.
2805	615029-001 NON-GUIDED BEARING, ,ELASTOMERIC	3.000 EA	_____.	_____.	_____.	_____.
2810	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
2815	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____.	_____.
2820	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____.	_____.
2825	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	20.000 EA	_____.	_____.	_____.	_____.



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0015

RAMP J BRIDGE #2070-6.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2830	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S3 - REPAIR STEEL STRINGER LOCAL DETERIORATION	2.000 EA	_____.	_____.	_____.	_____.
2835	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S4 - STRENGTHEN STEEL STRINGER	1.000 EA	_____.	_____.	_____.	_____.
2840	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S7 - REPAIR STEEL DIAPHRAGM/CROSSFRAME	3.000 EA	_____.	_____.	_____.	_____.
2845	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S11 - STIFFENER FATIGUE RETROFIT	1.000 EA	_____.	_____.	_____.	_____.
2850	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S16 - REPAIR DETERIORATED STIFFENER/CONNECTION PLATE	6.000 EA	_____.	_____.	_____.	_____.
2855	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S18 - REPLACE BOLT	1.000 EA	_____.	_____.	_____.	_____.
2860	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S20 - PIN AND HANGER RETROFIT TYPE 1 - CATCHER	3.000 EA	_____.	_____.	_____.	_____.
2865	627025-001 STRIP SEAL EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB	20.000 LF	_____.	_____.	_____.	_____.
2870	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0015

RAMP J BRIDGE #2070-6.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2875	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	260.000 SY				
2880	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
2885	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
2886	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
2890	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
2891	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
2895	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
2900	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
2901	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
<b>Section: 0015</b>			<b>Total:</b>			

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0016

RAMP K BRIDGE #2070-7.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2905	203001-000 DISMANTLING STRUCTURE (2070-7)	LUMP SUM	LUMP SUM		_____.	_____.
2910	307001-000 AGGREGATE BASE COURSE, CLASS 1	133.000 CY	_____.	_____.	_____.	_____.
2915	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	118.000 SY	_____.	_____.	_____.	_____.
2920	601002-001 CLASS B CONCRETE	44.000 CY	_____.	_____.	_____.	_____.
2925	601003-001 CLASS K CONCRETE	122.000 CY	_____.	_____.	_____.	_____.
2930	601009-001 CLASS H CONCRETE	340.000 CY	_____.	_____.	_____.	_____.
2935	601019-001 CONCRETE PROTECTIVE COATING	20,505.000 SF	_____.	_____.	_____.	_____.
2940	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR C1A	58.000 SF	_____.	_____.	_____.	_____.
2945	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR C1B	120.000 SF	_____.	_____.	_____.	_____.
2950	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR C1C	61.000 SF	_____.	_____.	_____.	_____.
2955	601031-001 EPOXY INJECTION CRACK REPAIR	23.000 LF	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0016

RAMP K BRIDGE #2070-7.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
2960	601037-001 DOWEL HOLE, VARIABLE	534.000 EA	_____.	_____.	_____.	_____.
2965	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	6.000 CY	_____.	_____.	_____.	_____.
2970	602002-001 EPOXY COATED REINFORCING STEEL BAR	119,593.000 LB	_____.	_____.	_____.	_____.
2975	608001-006 6 FT RIGHT-OF-WAY FENCE, CHAIN LINK	187.000 LF	_____.	_____.	_____.	_____.
2980	615028-001 GUIDED BEARING, ELASTOMERIC	47.000 EA	_____.	_____.	_____.	_____.
2985	615030-001 FIXED BEARING, ELASTOMERIC	15.000 EA	_____.	_____.	_____.	_____.
2990	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
2995	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____.	_____.
3000	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	61.000 EA	_____.	_____.	_____.	_____.
3005	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S3 - REPAIR STEEL STRINGER LOCAL DETERIORATION	20.000 EA	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0016

RAMP K BRIDGE #2070-7.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3010	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S16 - REPAIR DETERIORATED STIFFENER/CONNECTION PLATE	11.000 EA	_____.	_____.	_____.	_____.
3015	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	56.000 LF	_____.	_____.	_____.	_____.
3020	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	54.000 LF	_____.	_____.	_____.	_____.
3025	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
3030	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	356.000 SY	_____.	_____.	_____.	_____.
3035	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM		_____.	_____.
3040	662006-001 JUNCTION BOX, TYPE A	3.000 EA	_____.	_____.	_____.	_____.
3045	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____.
3050	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____.
3051	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0016

RAMP K BRIDGE #2070-7.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3055	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
3056	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
3060	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
3065	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
3066	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
<b>Section: 0016</b>			<b>Total:</b>		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0017

I-70 AT FULTON BRIDGE WB & EB #11543

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3070	203001-000 DISMANTLING STRUCTURE (2071)	LUMP SUM	LUMP SUM		_____.	_____.
3075	211002-000 ROCK BORROW EXCAVATION	12,180.000 CY	_____.	_____.	_____.	_____.
3080	212001-000 STRUCTURE EXCAVATION	2,496.000 CY	_____.	_____.	_____.	_____.
3085	212005-000 SELECT MATERIAL FOR BACKFILLING	323.000 CY	_____.	_____.	_____.	_____.
3090	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
3095	218004-001 8 INCH CRUSHED ROCK SLOPE PROTECTION	729.000 SY	_____.	_____.	_____.	_____.
3100	218006-000 FOUNDATION PROTECTION	523.000 CY	_____.	_____.	_____.	_____.
3105	307001-000 AGGREGATE BASE COURSE, CLASS 1	75.000 CY	_____.	_____.	_____.	_____.
3110	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	419.000 SY	_____.	_____.	_____.	_____.
3115	601002-001 CLASS B CONCRETE	861.000 CY	_____.	_____.	_____.	_____.
3120	601003-001 CLASS K CONCRETE	609.000 CY	_____.	_____.	_____.	_____.
3125	601009-001 CLASS H CONCRETE	3,723.000 CY	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0017

I-70 AT FULTON BRIDGE WB & EB #11543

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3130	601019-001 CONCRETE PROTECTIVE COATING	98,792.000 SF	_____	_____	_____	_____
3135	601025-004 MODIFIED CONCRETE, CLASS B MASS ,4000 PSI	2,717.000 CY	_____	_____	_____	_____
3140	602001-001 REINFORCING STEEL BAR	672,480.000 LB	_____	_____	_____	_____
3145	602002-001 EPOXY COATED REINFORCING STEEL BAR	998,822.000 LB	_____	_____	_____	_____
3150	615001-001 STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____	_____
3155	615028-001 GUIDED BEARING, HLMR DISC	40.000 EA	_____	_____	_____	_____
3160	615030-001 FIXED BEARING, HLMR DISC	8.000 EA	_____	_____	_____	_____
3161	615075-002 MISCELLANEOUS BRIDGE WORK, SETTLEMENT PLATFORM	1.000 EA	_____	_____	_____	_____
3162	615075-002 MISCELLANEOUS BRIDGE WORK, SLOPE INCLINOMETER	1.000 EA	_____	_____	_____	_____
3165	616006-001 MICROPILE, 9.625 INCH DIAMETER	9,301.000 LF	_____	_____	_____	_____
3170	616007-001 PILE LOADING TEST, PROOF TEST	18.000 EA	_____	_____	_____	_____



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0017

I-70 AT FULTON BRIDGE WB & EB #11543

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3175	616007-001 PILE LOADING TEST, VERIFICATION TEST	4.000 EA	_____	_____	_____	_____
3180	625001-032 96 INCH DIAMETER DRILLED CAISSONS	620.000 LF	_____	_____	_____	_____
3185	625003-030 90 INCH ROCK SOCKET FOUNDATION	302.000 LF	_____	_____	_____	_____
3190	625005-001 PREINSTALLATION CORE HOLE	963.000 LF	_____	_____	_____	_____
3195	627020-001 INSTALL MODULAR EXPANSION JOINT SYSTEM	190.000 LF	_____	_____	_____	_____
3199	636005-001 TEMPORARY STRUCTURE FOR MAINTAINING TRAFFIC ,CONSTRUCTION ACCESS	LUMP SUM	LUMP SUM		_____	_____
3200	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____	_____
3205	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM		_____	_____
3210	662006-001 JUNCTION BOX, TYPE A	18.000 EA	_____	_____	_____	_____
3215	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0017

I-70 AT FULTON BRIDGE WB & EB #11543

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3220	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
<b>Section: 0017</b>			<b>Total:</b>		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0018

ELBY'S BRIDGE WB & EB #2072.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3225	203001-000 DISMANTLING STRUCTURE (2072.2)	LUMP SUM	LUMP SUM		_____	_____
3230	218005-000 CONCRETE SLOPE PROTECTION	44.000 SY	_____	_____	_____	_____
3235	307001-000 AGGREGATE BASE COURSE, CLASS 1	460.000 CY	_____	_____	_____	_____
3240	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	348.000 SY	_____	_____	_____	_____
3245	601002-001 CLASS B CONCRETE	52.000 CY	_____	_____	_____	_____
3250	601003-001 CLASS K CONCRETE	24.000 CY	_____	_____	_____	_____
3255	601009-001 CLASS H CONCRETE	194.000 CY	_____	_____	_____	_____
3260	601019-001 CONCRETE PROTECTIVE COATING	47,127.000 SF	_____	_____	_____	_____
3265	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	1,096.000 SF	_____	_____	_____	_____
3270	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	2,190.000 SF	_____	_____	_____	_____
3275	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	1,096.000 SF	_____	_____	_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0018

ELBY'S BRIDGE WB & EB #2072.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3280	601031-001 EPOXY INJECTION CRACK REPAIR	460.000 LF	_____.	_____.	_____.	_____.
3285	601037-001 DOWEL HOLE, VARIABLE	1,126.000 EA	_____.	_____.	_____.	_____.
3290	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	12.000 CY	_____.	_____.	_____.	_____.
3295	602002-001 EPOXY COATED REINFORCING STEEL BAR	57,514.000 LB	_____.	_____.	_____.	_____.
3300	615004-001 FABRICATED STRUCTURAL STEEL	4,886.000 LB	_____.	_____.	_____.	_____.
3305	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
3310	615028-001 GUIDED BEARING, ELASTOMERIC	20.000 EA	_____.	_____.	_____.	_____.
3315	615029-001 NON-GUIDED BEARING, ELASTOMERIC	88.000 EA	_____.	_____.	_____.	_____.
3320	615030-001 FIXED BEARING, ELASTOMERIC	24.000 EA	_____.	_____.	_____.	_____.
3325	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
3330	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D15 - INSTALL NEW DOWNSPOUTING	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0018

ELBY'S BRIDGE WB & EB #2072.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3335	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D16 - REMOVE VEGETATION/DEBRIS FROM DRAINAGE SYSTEM	LUMP SUM	LUMP SUM			
3340	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	1,096.000 EA				
3345	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	12.000 EA				
3350	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S10 - CRACK ARREST REPAIR	7.000 EA				
3355	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S11 - STIFFENER FATIGUE RETROFIT	7.000 EA				
3360	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S16 - REPAIR DETERIORATED STIFFENER/CONNECTION PLATE	2.000 EA				
3365	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S18 - REPLACE BOLT	3.000 EA				
3370	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S19 - REMOVE TACK WELD	1.000 EA				
3375	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, STRIP SEAL	205.000 LF				

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0018

ELBY'S BRIDGE WB & EB #2072.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3380	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	181.000 LF				
3385	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM			
3390	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	1,552.000 SY				
3395	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
3400	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
3401	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
3405	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
3406	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
3410	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0019

MT. DECHANTAL ROAD BRIDGE WB & EB #2074.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3420	203001-000 DISMANTLING STRUCTURE (2074.2)	LUMP SUM	LUMP SUM		_____.	_____.
3425	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
3430	218004-001 8 INCH CRUSHED ROCK SLOPE PROTECTION	915.000 SY			_____.	_____.
3435	307001-000 AGGREGATE BASE COURSE, CLASS 1	645.000 CY			_____.	_____.
3440	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	552.000 SY			_____.	_____.
3445	601002-001 CLASS B CONCRETE	65.000 CY			_____.	_____.
3450	601003-001 CLASS K CONCRETE	88.000 CY			_____.	_____.
3455	601019-001 CONCRETE PROTECTIVE COATING	15,460.000 SF			_____.	_____.
3460	601025-007 MODIFIED CONCRETE, CLASS H	519.000 CY			_____.	_____.
3465	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	21.000 SF			_____.	_____.
3470	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	42.000 SF			_____.	_____.



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0019

MT. DECHANTAL ROAD BRIDGE WB & EB #2074.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3475	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	21.000 SF	_____.	_____.	_____.	_____.
3480	601031-001 EPOXY INJECTION CRACK REPAIR	3.000 LF	_____.	_____.	_____.	_____.
3485	601037-001 DOWEL HOLE, VARIABLE	1,340.000 EA	_____.	_____.	_____.	_____.
3490	602001-001 REINFORCING STEEL BAR	3,530.000 LB	_____.	_____.	_____.	_____.
3495	602002-001 EPOXY COATED REINFORCING STEEL BAR	158,474.000 LB	_____.	_____.	_____.	_____.
3500	615028-001 GUIDED BEARING, ,ELASTOMERIC	48.000 EA	_____.	_____.	_____.	_____.
3505	615030-001 FIXED BEARING, ,ELASTOMERIC	16.000 EA	_____.	_____.	_____.	_____.
3510	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
3515	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____.	_____.
3520	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____.	_____.
3525	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	21.000 EA	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0019

MT. DECHANTAL ROAD BRIDGE WB & EB #2074.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3530	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S7 - REPAIR STEEL DIAPHRAGM/CROSSFRAME	5.000 EA	_____.	_____.	_____.	_____.
3535	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	254.000 LF	_____.	_____.	_____.	_____.
3540	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
3545	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	2,160.000 SY	_____.	_____.	_____.	_____.
3550	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM		_____.	_____.
3555	662006-001 JUNCTION BOX, TYPE A	6.000 EA	_____.	_____.	_____.	_____.
3560	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____.
3565	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____.
3566	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____.
3570	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0019

MT. DECHANTAL ROAD BRIDGE WB & EB #2074.3

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3571	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
3575	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
3580	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
3581	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
<b>Section: 0019</b>			<b>Total:</b>		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0020

GREENWOOD CEMETERY BRIDGE WB & EB #2076.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3585	203001-000 DISMANTLING STRUCTURE (2076.1)	LUMP SUM	LUMP SUM		_____.	_____.
3590	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
3595	307001-000 AGGREGATE BASE COURSE, CLASS 1	1,081.000 CY			_____.	_____.
3600	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	668.000 SY			_____.	_____.
3605	601002-001 CLASS B CONCRETE	16.000 CY			_____.	_____.
3610	601003-001 CLASS K CONCRETE	168.000 CY			_____.	_____.
3615	601009-001 CLASS H CONCRETE	1,264.000 CY			_____.	_____.
3620	601019-001 CONCRETE PROTECTIVE COATING	32,100.000 SF			_____.	_____.
3625	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	4.000 SF			_____.	_____.
3630	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	7.000 SF			_____.	_____.
3635	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	4.000 SF			_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0020

GREENWOOD CEMETERY BRIDGE WB & EB #2076.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3640	601031-001 EPOXY INJECTION CRACK REPAIR	34.000 LF	_____	_____	_____	_____
3645	601037-001 DOWEL HOLE, VARIABLE	632.000 EA	_____	_____	_____	_____
3650	602002-001 EPOXY COATED REINFORCING STEEL BAR	312,419.000 LB	_____	_____	_____	_____
3655	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____	_____
3660	615028-001 GUIDED BEARING, ,ELASTOMERIC	4.000 EA	_____	_____	_____	_____
3665	615029-001 NON-GUIDED BEARING, ,ELASTOMERIC	44.000 EA	_____	_____	_____	_____
3670	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____	_____
3675	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____	_____
3680	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL NEW STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____	_____
3685	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	4.000 EA	_____	_____	_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0020

GREENWOOD CEMETERY BRIDGE WB & EB #2076.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3690	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	16.000 EA	_____.	_____.	_____.	_____.
3695	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S7 - REPAIR STEEL DIAPHRAGM/CROSSFRAME	14.000 EA	_____.	_____.	_____.	_____.
3700	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S18 - REPLACE BOLT	11.000 EA	_____.	_____.	_____.	_____.
3705	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S19 - REMOVE TACK WELD	4.000 EA	_____.	_____.	_____.	_____.
3710	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	332.000 LF	_____.	_____.	_____.	_____.
3715	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
3720	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	4,261.000 SY	_____.	_____.	_____.	_____.
3725	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM		_____.	_____.
3730	662006-001 JUNCTION BOX, TYPE A	8.000 EA	_____.	_____.	_____.	_____.
3735	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0020

GREENWOOD CEMETERY BRIDGE WB & EB #2076.2

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3740	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
3741	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
3745	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
3746	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
3750	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
3755	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
3756	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____

**Section:** 0020

**Total:**

\_\_\_\_\_.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0021

ELM GROVE BRIDGE WB & EB #2077.5

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3760	203001-000 DISMANTLING STRUCTURE (2077.4)	LUMP SUM	LUMP SUM		_____.	_____.
3765	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
3770	218005-000 CONCRETE SLOPE PROTECTION	1,600.000 SY			_____.	_____.
3775	307001-000 AGGREGATE BASE COURSE, CLASS 1	1,240.000 CY			_____.	_____.
3780	502001-018 18 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	520.000 SY			_____.	_____.
3785	601002-001 CLASS B CONCRETE	40.000 CY			_____.	_____.
3790	601003-001 CLASS K CONCRETE	80.000 CY			_____.	_____.
3795	601009-001 CLASS H CONCRETE	240.000 CY			_____.	_____.
3800	601019-001 CONCRETE PROTECTIVE COATING	40,065.000 SF			_____.	_____.
3805	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	214.000 SF			_____.	_____.
3810	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	10.000 SF			_____.	_____.



**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0021

ELM GROVE BRIDGE WB & EB #2077.5

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3815	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	10.000 SF	_____.	_____.	_____.	_____.
3820	601031-001 EPOXY INJECTION CRACK REPAIR	11.000 LF	_____.	_____.	_____.	_____.
3825	601037-001 DOWEL HOLE, VARIABLE	270.000 EA	_____.	_____.	_____.	_____.
3830	602002-001 EPOXY COATED REINFORCING STEEL BAR	72,000.000 LB	_____.	_____.	_____.	_____.
3835	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
3840	615028-001 GUIDED BEARING, ELASTOMERIC	20.000 EA	_____.	_____.	_____.	_____.
3845	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
3850	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D15 - INSTALL NEW DOWNSPOUTING	LUMP SUM	LUMP SUM		_____.	_____.
3855	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D16 - REMOVE VEGETATION/DEBRIS FROM DRAINAGE SYSTEM	LUMP SUM	LUMP SUM		_____.	_____.
3860	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	10.000 EA	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0021

ELM GROVE BRIDGE WB & EB #2077.5

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3865	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	8.000 EA	_____.	_____.	_____.	_____.
3870	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR D13 - INSTALL NEW SCUPPER	2.000 EA	_____.	_____.	_____.	_____.
3875	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S19 - REMOVE TACK WELD	80.000 EA	_____.	_____.	_____.	_____.
3880	627020-001 INSTALL MODULAR EXPANSION JOINT SYSTEM ,BEHIND APPROACH SLAB	100.000 LF	_____.	_____.	_____.	_____.
3885	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	140.000 LF	_____.	_____.	_____.	_____.
3890	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____.	_____.
3895	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	2,400.000 SY	_____.	_____.	_____.	_____.
3900	662002-001 GALVANIZED STEEL CONDUIT	LUMP SUM	LUMP SUM		_____.	_____.
3905	662006-001 JUNCTION BOX, TYPE A	1.000 EA	_____.	_____.	_____.	_____.
3910	662006-001 JUNCTION BOX, TYPE B	3.000 EA	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0021

ELM GROVE BRIDGE WB & EB #2077.5

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3915	679001-001 CONCRETE DECK OVERLAY	5,520.000 SY				
3920	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
3925	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
3926	685001-001 BRIDGE CLEANING PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
3930	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
3931	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
3935	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
3940	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
3941	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
<b>Section: 0021</b>			<b>Total:</b>			

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0022

ELM GROVE I-70 BRIDGE WB & EB #2078.5 (I/C)

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
3945	203001-000 DISMANTLING STRUCTURE (2078.4)	LUMP SUM	LUMP SUM		_____.	_____.
3950	212001-000 STRUCTURE EXCAVATION	1,413.000 CY	_____.	_____.	_____.	_____.
3955	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
3960	218005-000 CONCRETE SLOPE PROTECTION	247.000 SY	_____.	_____.	_____.	_____.
3965	307001-000 AGGREGATE BASE COURSE, CLASS 1	1,326.000 CY	_____.	_____.	_____.	_____.
3970	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	700.000 SY	_____.	_____.	_____.	_____.
3975	601002-001 CLASS B CONCRETE	41.000 CY	_____.	_____.	_____.	_____.
3980	601019-001 CONCRETE PROTECTIVE COATING	56,516.000 SF	_____.	_____.	_____.	_____.
3985	601025-007 MODIFIED CONCRETE, CLASS H	2,388.000 CY	_____.	_____.	_____.	_____.
3990	601025-008 MODIFIED CONCRETE, CLASS K	332.000 CY	_____.	_____.	_____.	_____.
3995	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	78.000 SF	_____.	_____.	_____.	_____.
4000	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	155.000 SF	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0022

ELM GROVE I-70 BRIDGE WB & EB #2078.5 (I/C)

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
4005	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	78.000 SF	_____.	_____.	_____.	_____.
4010	601031-001 EPOXY INJECTION CRACK REPAIR	6.000 LF	_____.	_____.	_____.	_____.
4015	601037-001 DOWEL HOLE, VARIABLE	1,044.000 EA	_____.	_____.	_____.	_____.
4020	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	3.000 CY	_____.	_____.	_____.	_____.
4025	602002-001 EPOXY COATED REINFORCING STEEL BAR	745,638.000 LB	_____.	_____.	_____.	_____.
4035	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
4040	615028-001 GUIDED BEARING, ELASTOMERIC	30.000 EA	_____.	_____.	_____.	_____.
4045	615029-001 NON-GUIDED BEARING, ELASTOMERIC	63.000 EA	_____.	_____.	_____.	_____.
4050	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____.	_____.
4055	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE BRIDGE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____.	_____.
4060	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR S17 - INSTALL STUD SHEAR CONNECTORS	LUMP SUM	LUMP SUM		_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0022

ELM GROVE I-70 BRIDGE WB & EB #2078.5 (I/C)

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
4065	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	78.000 EA	_____.	_____.	_____.	_____.
4070	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR B4 - CLEAN AND LUBRICATE EXISTING BEARING	24.000 EA	_____.	_____.	_____.	_____.
4080	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S10 - CRACK ARREST REPAIR	30.000 EA	_____.	_____.	_____.	_____.
4085	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S11 - STIFFENER FATIGUE RETROFIT	22.000 EA	_____.	_____.	_____.	_____.
4090	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S18 - REPLACE BOLT	180.000 EA	_____.	_____.	_____.	_____.
4095	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S22 - SIDEWALK AND SIGN BRACKET REPAIR	3.000 EA	_____.	_____.	_____.	_____.
4100	615075-003 MISCELLANEOUS BRIDGE WORK, REPAIR P2 - PACK RUST REMOVAL	215.000 LF	_____.	_____.	_____.	_____.
4105	627011-002 REMOVE AND REPLACE EXPANSION DEVICE, MODULAR JOINT	62.000 LF	_____.	_____.	_____.	_____.
4110	627020-001 INSTALL MODULAR EXPANSION JOINT SYSTEM ,BEHIND APPROACH SLAB	61.000 LF	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0022

ELM GROVE I-70 BRIDGE WB & EB #2078.5 (I/C)

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
4115	627025-002 EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB, PREFORMED SILICONE COATED FOAM	210.000 LF				
4120	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM			
4125	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	5,794.000 SY				
4130	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM			
4135	662006-001 JUNCTION BOX, TYPE A	10.000 EA				
4140	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM			
4145	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
4146	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM			
4150	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM			
4151	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM			





**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0023

MIDDLE CREEK BRIDGE WB & EB #2080.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
4165	203001-000 DISMANTLING STRUCTURE (2080)	LUMP SUM	LUMP SUM		_____.	_____.
4170	211008-000 ROCK BORROW EXCAVATION	125.000 TN	_____.	_____.	_____.	_____.
4175	212001-000 STRUCTURE EXCAVATION	63.000 CY	_____.	_____.	_____.	_____.
4180	212010-003 SHORING	LUMP SUM	LUMP SUM		_____.	_____.
4185	218004-001 8 INCH CRUSHED ROCK SLOPE PROTECTION	1,881.000 SY	_____.	_____.	_____.	_____.
4190	218005-000 CONCRETE SLOPE PROTECTION	59.000 SY	_____.	_____.	_____.	_____.
4195	307001-000 AGGREGATE BASE COURSE, CLASS 1	1,133.000 CY	_____.	_____.	_____.	_____.
4200	502001-012 12 INCH PORTLAND CEMENT CONCRETE APPROACH SLAB	394.000 SY	_____.	_____.	_____.	_____.
4205	601002-001 CLASS B CONCRETE	20.000 CY	_____.	_____.	_____.	_____.
4210	601003-001 CLASS K CONCRETE	208.000 CY	_____.	_____.	_____.	_____.
4215	601009-001 CLASS H CONCRETE	1,379.000 CY	_____.	_____.	_____.	_____.
4220	601019-001 CONCRETE PROTECTIVE COATING	65,175.000 SF	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0023

MIDDLE CREEK BRIDGE WB & EB #2080.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
4225	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1A	46.000 SF	_____.	_____.	_____.	_____.
4230	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1B	92.000 SF	_____.	_____.	_____.	_____.
4235	601030-000 PATCHING CONCRETE STRUCTURES ,REPAIR TYPE C1C	46.000 SF	_____.	_____.	_____.	_____.
4240	601031-001 EPOXY INJECTION CRACK REPAIR	187.000 LF	_____.	_____.	_____.	_____.
4245	601037-001 DOWEL HOLE, VARIABLE	189.000 EA	_____.	_____.	_____.	_____.
4250	601800-001 ULTRA HIGH PERFORMANCE CONCRETE	3.000 CY	_____.	_____.	_____.	_____.
4255	602002-001 EPOXY COATED REINFORCING STEEL BAR	406,687.000 LB	_____.	_____.	_____.	_____.
4260	615004-001 FABRICATED STRUCTURAL STEEL	8,950.000 LB	_____.	_____.	_____.	_____.
4265	615010-003 TEMPORARY FALSEWORK	LUMP SUM	LUMP SUM		_____.	_____.
4270	615028-001 GUIDED BEARING, ELASTOMERIC	20.000 EA	_____.	_____.	_____.	_____.
4275	615029-001 NON-GUIDED BEARING, ELASTOMERIC	40.000 EA	_____.	_____.	_____.	_____.

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0023

MIDDLE CREEK BRIDGE WB & EB #2080.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
4280	615030-001 FIXED BEARING, ELASTOMERIC	12.000 EA	_____	_____	_____	_____
4285	615039-001 JACKING STEEL SUPERSTRUCTURE	LUMP SUM	LUMP SUM		_____	_____
4290	615075-001 MISCELLANEOUS BRIDGE WORK, REPAIR D12 - REPLACE DRAINAGE SYSTEM IN ITS ENTIRETY	LUMP SUM	LUMP SUM		_____	_____
4295	615075-002 MISCELLANEOUS BRIDGE WORK, DISTRIBUTED ANODE SYSTEM (DAS)	46.000 EA	_____	_____	_____	_____
4300	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S10 - CRACK ARREST REPAIR	45.000 EA	_____	_____	_____	_____
4305	615075-002 MISCELLANEOUS BRIDGE WORK, REPAIR S18 - REPLACE BOLT	164.000 EA	_____	_____	_____	_____
4310	627025-001 STRIP SEAL EXPANSION JOINT SYSTEM BEHIND THE APPROACH SLAB	229.000 LF	_____	_____	_____	_____
4315	633004-001 GROUTED DUMPED ROCK GUTTER	54.000 CY	_____	_____	_____	_____
4320	639001-001 CONSTRUCTION LAYOUT STAKE	LUMP SUM	LUMP SUM		_____	_____
4325	645001-001 PRIMARY REINFORCEMENT, 2,400 LBS/FT	394.000 SY	_____	_____	_____	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0023

MIDDLE CREEK BRIDGE WB & EB #2080.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
4330	662003-001 POLYVINYLCHLORIDE CONDUIT, 1 1/2 INCH CONDUIT IN BARRIER	LUMP SUM	LUMP SUM		_____.	_____
4335	662006-001 JUNCTION BOX, TYPE A	4.000 EA			_____.	_____
4340	685001-001 BRIDGE CLEANING ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
4345	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
4346	685001-001 BRIDGE CLEANING ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
4350	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____
4351	688001-001 CLEAN AND PAINT EXISTING STEEL BRIDGE ,TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
4355	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,CONCRETE PROTECTIVE COATING	LUMP SUM	LUMP SUM		_____.	_____
4360	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE	LUMP SUM	LUMP SUM		_____.	_____

**Proposal Schedule of Items**

**Proposal ID:** 1628026R4

**State Project Number:** S335-70-0.01 00

**Federal Project Number:** NFA-2317(008)

**SECTION:** 0023

MIDDLE CREEK BRIDGE WB & EB #2080.1

**Alt Set ID:**

**Alt Mbr ID:**

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
4361	688003-001 CONTAINMENT AND DISPOSAL OF SPENT MATERIAL ,PAINTING STEEL BRIDGE, TOP FLANGE ONLY	LUMP SUM	LUMP SUM		_____.	_____
	<b>Section: 0023</b>		<b>Total:</b>		_____.	_____
			<b>Total Bid:</b>		_____.	_____

**WEST VIRGINIA DEPARTMENT OF TRANSPORTATION**

**DIVISION OF HIGHWAYS**

**SPECIAL PROVISION**

REVISED 7/22

**FOR**

**STATE PROJECT NUMBER: S335-70-0.01 00**

**FEDERAL PROJECT NUMBER: NFA-2317(008)**

**SECTION 601  
STRUCTURAL CONCRETE**

**601.1-DESCRIPTION:**

ADD THE FOLLOWING TO THE END OF THE SECTION:

This specification describes the Epoxy Bonding Compound to be used for this contract as required when Patching Concrete Structures is necessary.

**601.2-MATERIALS:**

ADD THE FOLLOWING TO THE END OF THE SECTION:

Provide an Epoxy Bonding Compound conforming to ASTM C881 Type V, Grade 2 and of a class chosen based on the temperatures expected during application. **If necessary, for extended curing times, Epoxy Bonding Compound, conforming to ASTM C881 Types I and II Grade 2, Class 2, may be used.** Submit a copy of the manufacturer's recommendations for proper application to the Engineer. Apply the compound according to the manufacturer's recommendations.

Epoxy Bonding Compound shall be used neat with no aggregate added.

**601.10-PLACING CONCRETE:**

DELETE SUBSECTION 601.10 AND REPLACE WITH THE FOLLOWING:

**601.10-EPOXY BONDING COMPOUND CONSTRUCTION REQUIREMENTS:**

Surfaces to which the compound is to bond shall be clean and sound. They may be dry, damp or wet (without standing water). Dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles and disintegrated material shall be removed. Temperature of concrete surfaces shall be 40°F or higher.

When the work requiring the Epoxy Bonding Compound is to be accomplished during periods of temperatures below 40°F, the proposed material to be used shall be submitted to the Engineer for approval.

The mix proportions and mixing of the epoxy system shall be as specified by the manufacturer.

Epoxy Bonding Compound shall be applied by spray with approved spray equipment. New concrete must be placed while bonding compound is still tacky. If bonding compound becomes glossy and loses tackiness, it shall be recoated.

**601.14-METHOD OF MEASUREMENT:**

ADD THE FOLLOWING TO THE END OF THE SECTION:

There will be no separate pay item for this work. The epoxy bonding compound will be applied to existing concrete surfaces where new patching material will be applied.

**601.15-BASIS OF PAYMENT:**

ADD THE FOLLOWING TO THE END OF THE SECTION:

This work is incidental to Item 601030-001 Patching Concrete Structures.

No additional payment shall be made for furnishing and installing the Epoxy Bonding Compound. Payment for furnishing and installing Epoxy Bonding Compound shall be included in the price bid for the concrete patching.

May 6, 2010

**WEST VIRGINIA DEPARTMENT OF TRANSPORTATION**

**DIVISION OF HIGHWAYS**

**SPECIAL PROVISION**

REVISED

7/22

**FOR**

**STATE PROJECT NUMBER:** S335-70-0.01 00

**FEDERAL PROJECT NUMBER:** NFA-2317(008)

**FOR**

**SECTION 601**

**RAPID SET CEMENTITIOUS PATCHING**

**601.1 – DESCRIPTION:**

**ADD THE FOLLOWING SECTION**

**601.1.1 Rapid Set Cementitious Patching:** The work shall consist of removing the existing concrete, sandblasting the exposed steel reinforcing bars, cleaning the bonding surfaces of the existing concrete to remain, replacing any damaged or severed reinforcing, and furnishing and placing Rapid Set Cementitious Patching Material at the locations indicated on the plans and any other location designated by the engineer. The construction shall be in accordance with this Specification and in reasonably close conformity with the Plans or as established by the Engineer.

**601.2 – MATERIALS:**

**ADD THE FOLLOWING SECTIONS**

**601.2.1 – RAPID SET CEMENTITIOUS PATCHING MATERIAL:**

**601.2.1.1:** Rapid Set Cementitious Patching Material shall be a high early strength structural repair material capable of patching deep holes, shallow feathering, able to be poured in forms, and being trowelled vertically or overhead. Material shall not shrink on cure, be self-priming, and be capable of providing a strong bond to concrete and steel reinforcing bars. It shall be a non-toxic product and clean up with water.



**601.2.1.2:** All elastomeric concrete components and primer materials shall be shipped in strong substantial containers sealed in a manner acceptable to the Engineer. Each container shall be plainly marked with the following:

- |                        |                                       |
|------------------------|---------------------------------------|
| 1) Product name        | 5) Date of expiration of acceptance   |
| 2) Component part      | 6) Name & address of the manufacturer |
| 3) Batch number        | 7) Material safety data sheet         |
| 4) Date of manufacture |                                       |

**601.2.1.3:** The Manufacturer of the Rapid Set Cementitious Patching Material shall submit documentation showing that the material submitted for construction meets the specification data listed as follows:

Flash Point: None

Compressive Strength (ASTM C109):

45 Min.	2,500 psi
24 Hrs.	5,000 psi
7 Days	5,800 psi
28 Days	11,000 psi

Bond Strength (ASTM C1245):

3 Hours	220 psi
28 Days	230 psi

Water Absorption (ASTM C642):

7 Days	2.3% water absorption, 24 hour submersion
28 Days	3.5% water absorption, 24 hour submersion

Temperature Limits: 14° Fahrenheit (with accelerator)  
100° Fahrenheit (with retarder)

Initial Set Time: 15 Minutes at 68° Fahrenheit

**601.2.1.4:** Clean, dry aggregates may be allowed in order to increase yield on deep placements per the Manufacturer's recommendations.

**601.2.1.5:** An Accelerator may be allowed in Low Temperature environments to improve workability per the Manufacturer's recommendations.

**601.2.1.6:** A Retarder may be allowed in High Temperature environments to improve workability per the Manufacturer's recommendations.

## 601.3 – PROPORTIONING

### ADD THE FOLLOWING SUBSECTION

**601.3.3 - PREPARATION OF BONDING SURFACE :** The contractor shall remove all loose, soft, honeycombed, and disintegrated concrete, plus an additional three (3) inches of sound concrete around the perimeter of the repair areas by means of sawcutting or other approved method that will not damage the sound concrete adjacent to the repair area. The surface of the existing concrete to remain is free of all loose or foreign matter, dirt, grime, oil, grease, or any other materials that would diminish the bonding surface. Sandblasting, grinding, jack hammering, or the use of wire brushes may be needed to acquire the necessary bonding surface.

The existing exposed reinforcing steel bars shall be cleaned by sandblasting to a SSPC-SP-6 finish. After sandblasting, a rust inhibitor approved by the Manufacturer of the Rapid Set Cementitious Material for compatibility shall be applied to all exposed reinforcing steel bars.

Any exposed reinforcing bar that is, per the Engineer's judgment, severed, missing, or damaged shall be replaced with a bar of the same diameter and coupled to the sound reinforcing that will remain with a Division approved mechanical splice. Reinforcing bar material shall be intermediate grade billet steel in accordance with AASHTO M31, Grade 60. This work shall be included under the pay item(s) included herein.

The bonding surface shall be dry and free of moisture and a representative of the Manufacturer shall be on site to approve of all bonding surfaces immediately prior to and during application of the Rapid Set Cementitious Material.

The Contractor shall protect from damage all materials, which are to remain in place. Materials damaged due to the Contractor's operations, as determined by the Engineer, shall be repaired or replaced at no additional cost to the Department and to the satisfaction of the Engineer.

## 601.10 PLACING CONCRETE

### ADD THE FOLLOWING SUBSECTION

**601.10.5 – Rapid Set Cementitious Patching Installation:** The Contractor shall notify the Director of MCS&T through the Engineer a minimum of seven days prior to installation of the Rapid Set Cementitious Material. Notification will include the contract number, elastomeric concrete product name, and approximate date of installation.

An experienced technical representative of the Manufacturer of the Rapid Set Cementitious Material shall be present ~~during all phases of substrate preparation and material installation. All placements shall be under the direction of the manufacturer's representative.~~ for the initial mixing and application of the product with the crew performing the work. Any modification to equipment or crew members shall require the representative of Manufacturer of the Rapid Set Cementitious Material to be present during the initial mixing and application of work performed with the modified equipment or crew members.

The Manufacturer's representative shall advise both the Engineer and the Contractor regarding proper installation procedures to assure the Rapid Set Cementitious Material is installed correctly. The material shall be installed in accordance with the recommendations of the

manufacturer's representative. In the event of a conflict, the Engineer's final decision will be binding.

Prior to placing the Rapid Set Cementitious Material, all areas shall be coated with the Manufacturer's recommended bonding compound if applicable.

After installation is completed, the Manufacturer's representative shall certify to the Engineer, in writing, that the Rapid Set Cementitious Material was installed in accordance with the Manufacturer's requirements.

#### **601.10.5.1 – Rapid Set Cementitious Patching Acceptance Criteria:**

The Engineer shall not accept the Contractor's work if, in his judgment, the following criteria are not met:

- a. The Contractor stores, handles, mixes, and installs the materials according to the Manufacturer's recommendations and as specified herein.
- b. ~~Representative of the Manufacturer is on site during mixing and placing of Rapid Set Cementitious Patching Material. as directed above.~~
- c. No degradation of material properties under field conditions is detected. The Contractor shall replace any material showing degradation.
- d. All loose, soft, honeycombed, and disintegrated concrete, plus an additional three (3) inches of sound surface concrete around the perimeter of the repair areas is removed with no damage to adjacent sound concrete.
- e. The surface of the existing concrete to remain is free of loose or foreign matter, dirt, grime, oil, grease, or any other materials that would diminish the bonding surface.
- f. Existing exposed reinforcing steel bars are free of dirt, grime, oil, grease, corrosion, or any other foreign matter that would prevent a good bonding surface or allow future corrosion of the reinforcing steel bars.
- g. No reinforcing bars to remain in place are damaged or severed.
- h. All work done as a result of the acceptance criteria shall be done at no additional cost to the Department.

**601.14 - METHOD OF MEASUREMENT:**

**ADD THE FOLLOWING SUBSECTION:**

**601.141 – Rapid Set Cementitious Patching:** Cementitious Patching Material will be measured in place complete and accepted as determined by the dimensions on the Plans or contract documents, and will be per the method established by the pay items in the Proposal (per cubic yard (CY), square foot (SF), linear foot (LF), or each (EA), subject to adjustment as provided for in 104.2 and 109.2.

**601.15 – BASIS OF PAYMENT**

**ADD THE FOLLOWING SUBSECTION:**

**601.15.1.1 – Rapid Set Cementitious Patching:** The removal of existing concrete, to the limits shown in the plans or as directed by the Engineer, the cleaning of existing concrete to remain, the cleaning of exposed reinforcing bars, and the placement of specified materials to make the necessary repairs shall be included in the payment for the items below. The quantities, determined above, will be paid for at the contract unit price bid for the items below, which price and payment shall be full compensation for furnishing all materials and doing all the work herein prescribed, including all the Manufacturer's cost, labor, tools, equipment, supplies and incidentals necessary to complete the work.

**601.16 - PAY ITEM:**

**ADD THE FOLLOWING TO THE TABLE:**

<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>
<b>601030-000</b>	<b>Patching Concrete Structures</b>	<b>SF</b>
<b>601030-002</b>	<b>Patching Concrete Structures</b>	<b>LF</b>
<b>601030-003</b>	<b>Patching Concrete Structures</b>	<b>EA</b>
<b>601030-004</b>	<b>Patching Concrete Structures</b>	<b>CF</b>

## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## DIVISION OF HIGHWAYS

REVISED 7/22

## SPECIAL PROVISION

## FOR

STATE PROJECT NUMBER: S335-70-0.01 00

FEDERAL PROJECT NUMBER: NFA-2317 (008)

## SECTION 601

## STRUCTURAL CONCRETE

## 601.1-GENERAL:

ADD THE FOLLOWING SUBSECTION:

**601.1.1-Ultra High Performance Concrete:** The Contractor shall furnish all materials, tools, and labor necessary for the performance of all work to form, cast, finish, and cure Ultra High Performance Concrete (UHPC) where required per plan. Before casting UHPC for actual construction, the Contractor will cast mockups to demonstrate the ability to properly cast the UHPC for transverse, longitudinal, vertical closure pours and link slabs.

All UHPC shall be produced using “Ductal” concrete materials manufactured by Lafarge North America. See contract plan sheets for UHPC placement locations.

## 601.2-MATERIALS:

ADD THE FOLLOWING:

**A. Ductal JS1000 Concrete:** Use the concrete mix supplied by Lafarge North America with the following proportions of mix parameters based on the supplier’s recommendations:

Premix	3,700 lb/cy
Water	219 lb/cy
Super Plasticizer Liquid	51 lb/cy
Steel Fiber	263 lb/cy
Min. Compressive Strength at 4 days	14 KSI
Min. Compressive Strength at 28 days	21 KSI

**B. Ductal JS1212 Concrete:** Use the concrete mix supplied by Lafarge North America with the following proportions of mix parameters based on the supplier’s recommendations.

Premix	3,700 lb/cy
Water	219 lb/cy
Super Plasticizer Liquid	51 lb/cy

Steel Fiber	263 lb/cy
Accelerator	39 lb/cy
Min. Compressive Strength at 24-hours	10 KSI
Min. Compressive Strength at 48-hours	14 KSI
Min. Compressive Strength at 28-days	19 KSI

**Qualification Testing:** The Contractor shall complete the qualification testing of the UHPC two months before placement. The compressive strength shall be measured by modified AASHTO T22/ASTM C39. Only a concrete mix design that passes these tests may be used to form the joint or link slab. Testing shall be performed by an approved testing lab. The casting of mockups, as described in 601.5.D, shall also apply.

Material supplier for Ductal Concrete:

Lafarge ~~Holeim~~ North America  
 8700 W Bryn Mawr Avenue, Suite 300  
 Chicago, IL 60631  
 Phone: ~~773-230-3069~~ 734-489-9555  
 Email: [joseph.rebrovich@lafargeholeim.com](mailto:joseph.rebrovich@lafargeholeim.com)  
[ductal-na@lafargeholcim.com](mailto:ductal-na@lafargeholcim.com)

**C. Water:** Water used for mixing shall be potable.

**D. Admixtures:** ~~Chryso Premia 150 (30% solid content)~~  
 Chryso Premia 150, Optima 100 and Turbocast 650A.

**E. Fiber Reinforcement:** Steel chord type Bekaert OL 13/0.2 inches or equivalent – high carbon fibers with a minimum tensile strength 300 KSI.

**601.3-PROPORTIONING:**

ADD THE FOLLOWING SUBSECTION:

**601.3.4-UHPC Submittals:** The Contractor shall submit his batching sequence, forming, placing, curing, and testing procedures to the Engineer for review seven (7) working days prior to casting. The mixing sequence shall include the order and time of introduction of the materials, mixing time and QA/QC procedure for the verification of the mix uniformity.

**601.5-CONSTRUCTION METHODS:**

ADD THE FOLLOWING:

**A. Quality Assurance:**

1. The Contractor shall be pre-qualified by Lafarge North America that they have the capability to mix and place Ductal concrete. Proof of pre-qualification shall be submitted in writing from the Contractor to the Engineer seven (7) working days before any UHPC is cast.
2. The surface of the UHPC field joints shall be filled flush with the precast deck to within a tolerance of plus or minus 1/8 inch. 1/8 inch higher than adjacent surfaces. Other tolerances shall be in compliance with PCI Manual – 116 or otherwise specified on plans.

**B. Pre-Pour Meeting:** A day before the initial placement of the Ductal, the Contractor shall arrange for an onsite meeting with the Lafarge Representative and Engineer. The Contractor's staff shall attend the site meeting. The objective of the meeting will be to clearly outline the procedures for mixing, transporting, finishing and curing of the UHPC material. The Contractor shall arrange for a Representative of Lafarge to be on site during the placement of the UHPC. The Lafarge representative shall be knowledgeable in the supply, mixing, delivery, placement, and curing of the Ductal material. Mockup requirements will be performed per the recommendations of the Lafarge representative.

**C. Storage:** The Contractor shall assure the proper storage of Ductal premix including power, fibers, and additives, obtained from Lafarge North America, as required by the Lafarge specifications in order to protect materials against loss of physical and mechanical properties.

**D. Forming, Batching, Placement, And Curing:** The Contractor shall work together with Lafarge to ensure appropriate initial strength gains to meet the desired project schedule. ~~An initial strength gains to meet the desired project schedule. An initial strength of 12 KSI can be achieved by adding accelerators and by maintaining the ambient temperature above 60°F for 96 hours after placement.~~ Grinding of the UHPC surface can be performed at a strength of 10 KSI or upon recommendations from Ductal. If significant fiber pullout is observed during grinding operations, grinding shall be suspended and not resumed until approved by the Engineer. The bridge can be opened to traffic when strength of ~~15 KSI~~ 14 KSI has been achieved. Construction loads applied to the bridge during UHPC placement and curing are the responsibility of the Contractor. Contractor shall submit the weight and placement of concrete buggies, grinding equipment or other significant construction loads to the Engineer for review prior to the pre-pour meeting describe above.

Forming, batching, placing, and curing shall be in accordance with the procedures recommended by Lafarge and as submitted and accepted by the Engineer.

The design and fabrication of forms shall follow approved installation drawings and shall follow the recommendations of Lafarge. All the forms for UHPC shall be constructed from medium density overlay plywood.

Mockups of each UHPC pour shall be performed prior to actual UHPC construction and conducted per the requirements of this special provision and the recommendation of the Lafarge Representative. Mockups of the horizontal closure pours shall be four feet in length with all other dimensions to match those required by the plans. Mockups for vertical closure pours shall be two feet in length with all other dimensions to match those required by the plans. The mockup process shall be observed by the Lafarge Representative.

Two portable batching units will be supplied by Lafarge to the Contractor for mixing of the UHPC. The Contractor shall follow the batching sequence as specified by Lafarge and approved by the Engineer.

Each UHPC placement shall be cast using one continuous pour. No cold joints are permitted ~~unless previously agreed upon by the Lafarge Representative and the Engineer.~~

The concrete in the form shall be cured according to manufacturer's recommendations at minimum temperature of 60°F to attain the design strength.

**E. Testing:** The following tests shall be performed following casting of the mockup and for each day of UHPC placement:

1. Concrete compressive strength test according to modified ASTM C39. Use twelve (12) specimens 3 inch diameter by 6 inches. Prior to Contractor grinding UHPC, three (3) specimens shall be tested to validate the achievement of 10 KSI compressive strength.

Three (3) specimens shall be tested to validate the achievement of ~~15-KSI~~ 14 KSI compressive strength prior to opening the bridge to traffic. Three (3) specimens shall be tested at 28 days to verify final strength. WVDOH will reject portion or all of the UHPC closure pour should testing indicate not meeting required minimum strengths. The remaining three (3) specimens shall be treated as reserves. All specimens shall be tested at Lafarge North America or by an approved testing lab. Each specimen shall have ends ground to 0.5 degree planeness.

Testing by Lafarge shall be sent to their facilities as directed by Lafarge Representative.

2. Cast 3 additional 4 inch diameter by 8 inch cylinders and provide to Cement and Concrete Group of the WVDOH, MCS&T Division for their evaluation.
3. Determination of flow performed on a flow table constructed according to ASTM C230. The measured diameter of the concrete after 20 table drops shall be within the limits: minimum 7 inches; maximum 10 inches. The test shall be performed on every concrete batch.

Note: All specimens shall be exposed to the same process as the mockup and each UHPC placement and shipped to Lafarge North America and an approved testing lab accordingly for testing. A flow table may be obtained from Lafarge North America to conduct testing.

**F. Contacts: Material Supplier and Cylinder Testing:**

~~Kyle Nachuk, Bridge Construction Manger  
Lafarge North America  
3210 B Hwy 17 East  
Kenora, OH, P9N 3X7  
(403) 845-4720  
Kyle.Nachuk@lafarge-na.com  
Lafarge North America  
8700 W Bryn Mawr Avenue, Suite 300  
Chicago, IL 60631  
Phone: 734-489-9555  
Email: ductal-na@lafargeholcim.com~~

**601.14-METHOD OF MEASUREMENT:**

ADD THE FOLLOWING:

~~The concrete quantities shown on the plan, measured by the cubic yards, are for contractor's information only. will be measured in cubic yards, complete in place and accepted as determined by the dimensions on the Plans or Contract Documents.~~

**601.15-BASIS OF PAYMENT:**

ADD THE FOLLOWING:

The quantity, determined as provided above, will be paid for at the contract unit price bid for this item, which price and payment shall be full compensation for furnishing all the materials and doing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, field laboratory, supplies, and incidentals necessary to complete the work.



**601.16-PAY ITEM:**

ADD THE FOLLOWING:

<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>
601800-001	Ultra High Performance Concrete	Cubic Yard

**WEST VIRGINIA DEPARTMENT OF TRANSPORTATION**

**DIVISION OF HIGHWAYS**

**SPECIAL PROVISION**

REVISED 7/22

**FOR**

**STATE PROJECT NUMBER:** S335-70- 0.01 00

**FEDERAL PROJECT NUMBER:** NFA-2317 (008)

**FOR**

**SECTION 627**

**MODULAR EXPANSION JOINT SYSTEM**

**627.1-GENERAL:**

**627.1.1-Description:** This work is the furnishing of material, services, labor, tools, equipment, and incidentals necessary to design, fabricate, inspect, test and install each fabrication, provision and installation of modular expansion joint system as indicated.

Each modular expansion joint system shall accommodate the movements and rotations as indicated

**627.2 - WORKING DRAWINGS:**

**627.2.1 - Shop Drawings:** The Contractor shall submit Shop Drawings and calculations delineating the expansion joint system details and outlining installation and waterproofing schemes to the Engineer for approval prior to fabrication of the joint. The Shop Drawings and calculations shall be prepared, sealed and signed by a registered Professional Engineer employed by the fabricator. These Shop Drawings shall include, but shall not be limited to, the following:

- A. Plan, elevation, and section of the joint system for each movement rating and roadway width. All dimensions and tolerances shall be specified.
- B. Sections showing all materials composing the expansion joint system with complete details of all individual components.
- C. All ASTM, AASHTO, or other material designations.
- D. Installation procedures including sequence, lifting mechanisms and locations, details of temporary anchorage during setting, temperature adjustment devices, opening dimensions relative to temperature, installation details at barriers, and seal installation details.
- E. Corrosion protection system.
- F. Requirements and details related to the temporary support of the joint system for shipping, handling, and job site storage.

- G. Design calculations for all structural elements including all springs and bearings. The design calculations shall include fatigue design for all structural elements, connections, and splices. All welded splices shall be shown on the Shop Drawings.
- H. Welding procedures shall be provided and shall be in accordance with the current AASHTO/AWS D1.SM/DI.F:2010 Bridge Welding Code.
- I. A written maintenance and part replacement plan to facilitate replacement of parts subject to wear. This plan shall include a list of parts, instructions for maintenance inspection, acceptable wear tolerances, methods for determining wear, procedures for replacing worn parts, and procedures for replacing seals.
- J. Any required modifications to blockout dimensions and reinforcing steel to accommodate the expansion joint system.

**627.2.1.1-Certificates of Compliance:**

- A. At the time of Shop Drawing submittal, the Contractor shall submit to the Engineer the following certifications for review:
  - 1. Fabricator's certificate of compliance with the AISC Quality Certification Program, Simple Bridge Category.
  - 2. Documentation that welding inspection personnel are qualified and certified as welding inspectors under AWS QC1, Standard for Qualification and Certification of Welding Inspectors.
- B. The Contractor shall submit to the Engineer the following test reports, certificates, and samples for review, within four weeks of the Shop Drawing approval:
  - 1. Fabricator's certificate of compliance for all polytetrafluoroethylene (PTFE) sheeting, PTFE fabric, and elastomer.
  - 2. Certified mill test reports for all steel and stainless steel in the expansion joint system assemblies.
  - 3. Certified test reports confirming that the springs and bearings meet the design load requirements.
- C. Acceptable Fabricators: Only fabricators whose modular expansion joint systems have met the fatigue resistance characterization requirements stipulated in Section 627.4.16.2.S of this Special Provision will be permitted to supply modular expansion joint systems. Any testing required to establish the fatigue resistance of all details of a specific proprietary system shall have been completed prior to submission of shop drawings. All fatigue testing shall have been conducted in accordance with Sections 627.4.16.3.1, 627.4.16.3.2 and 627.4.16.3.3 of this Special Provision.

The expansion joint fabricator shall have at least five years of experience in designing and manufacturing modular expansion joint systems. The Contractor shall provide written certification of the fabricator's experience to the Engineer. This certification shall include the location of each bridge, governmental agency/owner, and the name, address, and telephone number of each owner's/agency's representative.

**627.2.1.2-Warranty:** The Contractor shall provide a five-year written **Manufacturer's Material** warranty guaranteeing the performance and durability of the expansion joint system. Conditions constituting unsatisfactory performance and

durability include, but shall not be limited to, broken welds, or bolts, cracks in steel members, fatigue damage, loss of precompression in springs or bearings, debonded PTFE, breakdown of corrosion protection, and leakage. The Contractor shall replace or repair any expansion joint system component demonstrating unsatisfactory performance or durability within the five-year period commencing from the date of completion of the contract. All material and labor costs shall be paid by the Contractor.

### 627.3-MATERIALS:

Steel - AASHTO M270 Grade S0. Aluminum components shall not be used.

Stainless Steel - ASTM A240, Type 304

Polytetrafluoroethylene (PTFE) - The PTFE shall be virgin material in accordance with AASHTO LRFD Bridge Construction Specifications, 3rd Edition, with interims to 2016, Section 18.8.1, and the following properties:

Property	Test Method	Requirements
Ultimate Tensile Strength	ASTM D638	2800 psi
Ultimate Elongation	ASTM D638	200% min.
Specific Gravity	ASTM D792	2.10 min.
Melting Point	ASTM D4894	621°F $\pm$ 18°F

Elastomeric Seals - Seals shall be continuous without splices. They shall meet the following physical property requirements.

Physical Properties	Test Method	Requirements
Hardness, Durometer A	ASTM D2240 modified	S0-60
Tensile Strength	ASTM D412	2,000 psi.
Elongation at Break	ASTM D412	2S0% min.
Compression Set @ 70 hrs. @ 212 °F	ASTM D39S, Method B	40% max.
Oven Aging, 70 hrs. @ 212°F	D-S73	
Tensile Strength, % decrease		20 max.
Elongation, % decrease		20 max.
Hardness, Type A Durometer, Points change		0 to +10 max.
Oil Swell, ASTM Oil No. 3, 70 hrs. @ 212° F Weight change, %	D-471	4S max.
Ozone Resistance 20% strain, 300 pphm in air Modified 70 hrs. @ 10S °F	D1149 Modified	No cracks
Low Temperature Stiffening, 7 days @ -1S °F Hardness, Type A Durometer, Points change	D-2240	0 to +1S
Low Temperature Test	D-746	Not brittle

The seal shall be a strip seal design and promote self-removal of foreign material during normal joint operation. The maximum permissible movement range for each seal is limited to 3.125 in.

Bolts, Nuts, Washers - AASHTO M 164, Type 1, galvanized in accordance with AASHTO M 298.

Grout - Non-shrink grout in accordance with Section 71S.S.

**627.4-FABRICATION:**

ADD THE FOLLOWING SUBSECTION 627.4.16:

**627.4.16-Fabrication of Modular Expansion System:**

**627.4.16.1-General:**

The expansion joint systems shall be fabricated consistent with the details, dimensions, material specifications, and procedures delineated in the approved Shop Drawings. All fabrication procedures shall be in conformance with the Standard Specifications and the Special Provisions.

All expansion joint systems shall be fabricated by the same fabricator.

Metallic attachments used to secure elastomeric seals to the centerbeams, if welded to the centerbeams and edge beams, shall be welded continuously along both their top and bottom edges.

Fabricate each modular expansion joint system as a single entity, extending continuously across the full width of the roadway, and up into the traffic barriers as indicated. Field splices will not be permitted in the modular expansion joint systems.

No bends or kinks are permitted in the modular joint system except as necessary to follow the roadway grade.

Anchors (headed studs and hook bars/stirrups) shall be inspected visually and tested in accordance with Section 7 of the AWS D1.S. Any anchor which does not have a complete end weld or does not meet these weld test requirements shall be replaced at the Contractor's expense.

The expansion joint system shall include a moveable plate system at each railing to match the shape of the adjacent concrete railing. The barrier joint system shall be fabricated of steel as defined in Section 627.3. The plates shall be designed to maintain freedom of movement that is continuous with the entire joint system. The system shall be secured.

**627.4.16.1.1-PTFE Sliding Surfaces:**

- A. All PTFE shall be bonded under controlled conditions and in strict accordance with written instructions provided by the PTFE fabricator.
- B. All PTFE surfaces shall be smooth and free of bubbles after completion of bonding operations.

**627.4.16.1.2-Stainless Steel Sliding Surfaces:**

- A. All stainless steel sliding surfaces shall have a surface finish of 20 micro inches (RMS) or less.
- B. Each stainless steel sheet shall be seal welded all around to the steel backing plate using the tungsten-arc welding process in accordance with current AWS specifications. The stainless steel sheet shall be

clamped to provide full contact with the steel backing plate during welding. The seal welds shall not protrude above the sliding surface of the stainless steel sheet.

**627.4.16.1.3-Corrosion Protection:**

- A. All steel surfaces, except those surfaces beneath stainless steel sheet, those to be bonded to PTFE, or those in direct contact with elastomeric seals, shall be hot-dip galvanized per AASHTO M 111.

**627.4.16.1.4-Shipping and Handling:**

- A. The expansion joint system shall be delivered to the job site and stored in accordance with the fabricator's written requirements as approved by the Engineer.
- B. Lifting locations, lifting mechanisms, and temperature setting devices shall be shown in the Shop Drawings. Lifting mechanisms, temperature setting devices, and construction adjustment devices shall not be welded to the centerbeams or edge beams.
- C. Damage to the expansion joint system during shipping or handling shall be just cause for rejection of the expansion joint system.
- D. Damage to the corrosion protection system shall be repaired to the satisfaction of the Engineer.

**627.4.16.2-Design Requirements:**

**627.4.16.2.1-General:**

- A. The expansion joint system shall be designed and detailed to permit access to the underside of the installed system for inspection and maintenance activities.
- B. The expansion joint system shall be designed and detailed to minimize concrete cracking above the support boxes. Measures taken shall include, but not be limited to, assuring adequate support box top plate thickness, specifying any additional deck slab steel reinforcement required, and providing adequate concrete cover.
- C. The expansion joint system and steel deck reinforcement shall be detailed to assure that adequate concrete consolidation can be achieved around all support boxes.
- D. The expansion joint seals shall not protrude above the top of the expansion joint system. Split extrusions may be used at upturns at all barriers.
- E. The elastomeric or urethane springs and bearings shall be designed to be removable and replaceable. The removal and reinstallation of the expansion joint seal shall be easily accomplished from above the joint. These operations shall be viable with one lane partial closure of the roadway.
- F. The expansion joint system shall be designed and detailed to be watertight.
- G. The expansion joint system shall be designed and detailed to account for the effects of all translations, in addition to the superelevation and longitudinal profile of the roadway.

**627.4.16.2.2-Design Axle Loads and Impact Factors:**

- A. The centerbeams, support bars, bearings, connections, and other structural components shall be designed for the simultaneous application of vertical and horizontal loads from a tandem axle. The tandem axle shall consist of a pair of axles spaced 4 ft. apart with vertical and horizontal loads as specified in Sections 627.4.16.2.2 B, C, D, and E of this Special Provision. The transverse spacing of the wheels shall be 6 ft. The distribution of the wheel load among centerbeams shall be as stipulated in Section 627.4.16.2.3 of this Special Provision.
- B. The vertical load range for fatigue design shall be 32 kips tandem. This tandem shall be taken as two 16 kips axles spaced 4 ft. apart. Only one of these tandem axles must be considered in the design, unless the joint opening exceeds 4 ft. The load range shall be increased by the dynamic load allowance (Impact Factor) of 75%. Load factors shall be applied in accordance with Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specifications - Third Edition.
- C. The vertical load for strength design shall be a 50 kips tandem. This tandem shall be taken as two 25 kips axles spaced 4 ft. apart. Only one of these tandem axles must be considered in the design, unless the joint opening exceeds 4 ft. This load shall be increased by the dynamic load allowance (Impact Factor) of 75%. Load factors shall be applied in accordance with Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specifications - Third Edition.
- D. The horizontal load range for fatigue design shall be 20% of the amplified vertical load range (LL+IM) specified in Section 627.4.16.2.2B of this Special Provision. For modular expansion joint systems installed at locations where significant braking and/or acceleration forces are expected, the horizontal load range for fatigue design shall be 50% of the amplified vertical load range (LL + IM).  
For modular expansion joint systems installed on vertical grades in excess of 5%, the horizontal component of the amplified vertical load range (LL+IM) specified in Section 627.4.16.2.2B of this Special Provision shall be added to this horizontal load range.
- E. The horizontal load for strength design shall be 20% of the amplified vertical load (LL+IM) specified in Section 627.4.16.2.2C of this Special Provision. For modular expansion joint systems installed at locations where significant braking and/or acceleration forces are expected, the horizontal load for strength design shall be 50% of the amplified vertical load (LL + IM).  
For modular expansion joint systems installed on vertical grades in excess of 5%, the horizontal component of the amplified vertical load (LL+IM) specified in Section 627.4.16.2.2C of this Special Provision shall be added to this horizontal load.

**627.4.16.2.3-Distribution of Wheel Loads:**

The following table specifies the centerbeam distribution factor as a function of centerbeam top flange width. This factor is the percentage of the design vertical axle load and the design horizontal axle load which shall be applied to an individual centerbeam for the design of that centerbeam and its associated support bars. Distribution factors shall be interpolated for centerbeam top flange widths between those explicitly denoted in the table. In no case shall the distribution factor be taken as less than 50%. The remainder of the load shall be divided equally and applied to the two adjacent centerbeams or edge beams.

<b>Width of Centerbeam Top Flange</b>	<b>Distribution Factor</b>
2.5 in.	50%
3.0 in.	60%
4.0 in.	70%
4.5 in.	80%

**627.4.16.2.4 - Fatigue Limit State Design Requirements:**

- A. Modular expansion joint system structural members, connections (bolted and welded), splices, and attachments shall be designed to resist the Fatigue Limit State load combination specified in Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specifications - Third Edition. The vertical and horizontal load ranges specified in Section 627.4.16.2.2 of this Special Provision shall be applied simultaneously. These loads shall be distributed as specified in Section 627.4.16.2.3 of this Special Provision.
- B. The nominal stress ranges,  $\sigma_f$ , at all fatigue critical details shall be obtained from a structural analysis of the expansion joint system applying the design vertical and horizontal load ranges specified in Section 627.4.16.2.2 of this Special Provision, and distributed as specified in Section 627.4.16.2.3 of this Special Provision.

The expansion joint system shall be analyzed with a minimum gap opening corresponding to the midrange configuration (at least half of the maximum gap opening). The design axle load shall be applied as two wheel loads, each having a transverse width of 20 in. For each detail under consideration, the wheel loads shall be positioned transversely on a centerbeam to achieve the maximum nominal stress range at that detail. The vertical and horizontal wheel loads shall be applied as line loads to the top of the centerbeams at their centerlines.

The design stress range in the centerbeam-to-support bar connection shall be calculated according to Sections 1 and 2 below. The design nominal stress ranges,  $\sigma_f$ , shall be used for fatigue design as specified in Section 627.4.16.2.4C of this Special Provision.

1. Welded or Bolted Single-Support Bar Systems

- a) The nominal stress range,  $\sigma_f$ , in the centerbeam at a welded or bolted stirrup shall be the sum of the longitudinal bending stress ranges at the critical section resulting from vertical and

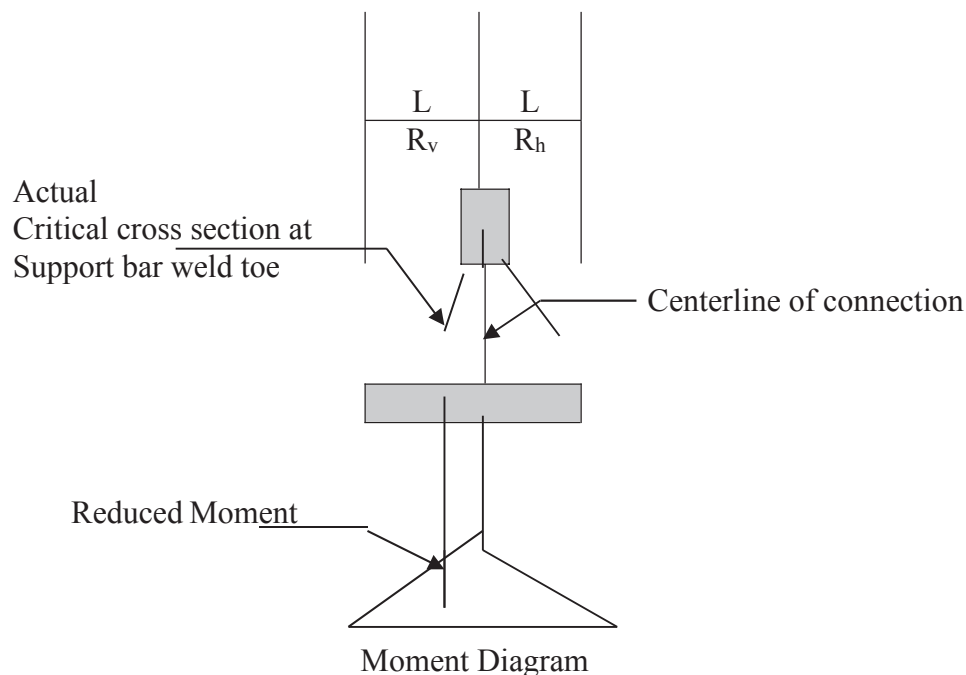


horizontal loading. The effects of stresses in any load-bearing attachments such as the stirrup or yoke shall not be considered when calculating the longitudinal stress range in the centerbeam. For bolted single-support-bar systems, stress ranges shall be calculated using the net section.

- b) The nominal stress range,  $\otimes f$ , in the stirrup or yoke shall be calculated without considering the effects of stresses in the centerbeam. The stress range shall be calculated by assuming a load range in the stirrup equal to 30% of the total vertical reaction force between the centerbeam and the support bar. The effects of horizontal loads may be neglected in the design of the stirrup.

## 2. Welded Multiple-Support Bar Systems

Three locations have been identified as initiation sites for fatigue cracking at a centerbeam-to-support bar welded connection. The types of cracking associated with these three locations are described below. The corresponding equations may be used to calculate the nominal stress range,  $\otimes f$ . For the support bar, either the reduced moment at the critical cross section or the moment at the centerline of the connection may be used in these equations.



- a) Centerbeam weld toe cracking is driven by a combination of vertical and horizontal (longitudinal) bending stress range,  $S_{RB}$ ,

in the centerbeam, and vertical stress range,  $S_{RZ}$ , at the top of the connection weld.

The vertical and horizontal (longitudinal) bending stress range,  $S_{RB}$ , at the bottom of the centerbeam shall be calculated as:

$$S_{RB} = \frac{M_{Vcb}}{S_{xcb}} + \frac{M_{Hcb}}{S_{ycb}}$$

The vertical stress range,  $S_{RZ}$ , at the top of the connection weld shall be calculated as:

$$S_{RZ} = \frac{R_H D_{cb}}{S_{wtop}} + \frac{R_V}{A_{wtop}}$$

- b) Support bar weld toe cracking is driven by a combination of vertical and horizontal (longitudinal) bending stress range,  $S_{RB}$ , in the support bar and vertical stress range,  $S_{RZ}$ , at the bottom of the connection weld.

The vertical and horizontal (longitudinal) bending stress range,  $S_{RB}$ , at the top of the support bar shall be calculated as:

$$S_{RB} = \frac{M_{Vsb}}{S_{xsb}} + \frac{1}{2} \frac{R_H (D_{cb} + H_w + 0.5 D_{sb})}{S_{xsb}}$$

The vertical stress range,  $S_{RZ}$ , at bottom of the connection weld shall be calculated as:

$$S_{RZ} = \frac{R_H (D_{cb} + H_w)}{S_{wbot}} + \frac{R_V}{A_{wbot}}$$

- c) Weld throat cracking is driven by a vertical stress range at the weld throat.

The vertical stress range,  $S_{RZ}$ , at mid-height of the connection weld shall be calculated as:

$$S_{RZ} = \frac{R_V}{A_{wmid}} + \frac{R_H (D_{cb} + H_w)}{S_{wmid}}$$

In the above equations:

$R_V$		Vertical reaction at the connection weld
$R_H$		Horizontal reaction at the connection weld
$M_{Vcb}$		Bending moment in the centerbeam due to applied vertical
$M_{Hcb}$		Bending moment in the centerbeam due to applied horizontal
$M_{Vsb}$		Bending moment in the support bar due to applied vertical
$S_{xcb}$		Section modulus at bottom of the centerbeam about horizontal
$S_{ycb}$		Section modulus of the centerbeam about vertical axis
$S_{xsb}$		Section modulus at top of the support bar about horizontal

$A_{wtop}$		Area of the weld at the top of the connection
$A_{wmid}$		Area of the weld at the middle of the connection
$A_{wbot}$		Area of the weld at the bottom of the connection
$S_{wtop}$		Section modulus of the weld at the top of the connection
$S_{wmid}$		Section modulus of the weld at the middle of the connection
$S_{wbot}$		Section of the modulus of the weld at the bottom of the connection
$H_w$		Height of the weld
$D_{cb}$		Depth of the centerbeam
$D_{sb}$		Depth of the support bar

The nominal stress range,  $\otimes f$ , at welded multiple-support-bar connection details shall be calculated for each case above as follows:

$$\text{where: } \otimes f = \sqrt{S_{RB}^2 + S_{RZ}^2}$$

$S_{RB}$  vertical and horizontal (longitudinal) stress range in the centerbeam or support bar, as calculated for each specific case above

$S_{RZ}$  vertical stress range in the centerbeam-to-support bar connection

weld, as calculated for each specific case above

- C. To ensure an infinite fatigue life, all modular expansion joint system structural members, connections (bolted and welded), splices, and attachments shall satisfy the following:

$$\otimes f \leq \frac{F_{TH}}{2}$$

where:

$\otimes f$  the nominal stress range as specified in Section 627.4.16.2.4 B of this Special Provision

$F_{TH}$  constant amplitude fatigue threshold (CAFL) as specified in Section 627.4.16.2.S of this Special Provision

**627.4.16.2.5-Fatigue Resistance of Details:** The fatigue resistance of details shall be characterized in terms of the fatigue categories specified in Table 6.6.1.2.S-1 of the AASHTO LRFD Bridge Design Specifications - Third Edition. Many details composing modular expansion joint systems may clearly correspond to specific structural details depicted in Figure 6.6.1.2.3-1 of the AASHTO LRFD Bridge Design Specifications - Third Edition. In these cases, the applicable fatigue categories specified in Table 6.6.1.2.S-1 may be used for design. In cases where a detail does not clearly correspond to a structural detail depicted in Figure 6.6.1.2.3-1, fatigue testing shall be conducted, in accordance with Sections 627.4.16.3.1 through 627.4.16.3.3 of

this Special Provision, to establish the appropriate constant amplitude fatigue limit (CAFL) for that detail.

**627.4.16.2.6-Strength-I Limit State Design Requirements:** Modular expansion joint system structural steel members, connections (bolted and welded), splices, and attachments shall be designed to resist the Strength-I Limit State load combination specified in Table 3.4.1-1 of the AASHTO LRFD Bridge Design Specifications - Third Edition. The vertical and horizontal loads specified in Section 627.4.16.2.2 of this Special Provision shall be applied simultaneously. These loads shall be distributed as specified in Section 627.4.16.2.3 of this Special Provision.

### **627.4.16.3-FATIGUE TESTING REQUIREMENTS:**

#### **627.4.16.3.1-Fatigue Testing of Metallic Structural Components and Connections:**

##### **A. Methodology**

1. This test procedure is acceptable for, and specifically applicable to, establishing the fatigue resistance of the centerbeam-to-support bar connection in modular expansion joint systems. It is applicable to single-support-bar and multiple-support bar systems having either welded or bolted centerbeam-to-support bar connections. The same methodology may be applied to establish the fatigue resistance of other modular expansion joint metallic structural component details, including centerbeam splices.
2. Each fatigue test generates a discrete datum. Each datum comprises an applied constant amplitude nominal stress range,  $S_r$ , and the corresponding number of cycles,  $N$ , associated with either a predetermined extent of crack propagation, defined as failure, or with termination of the test, defined as runout. Ten reportable fatigue cracks (data) shall be acquired for each connection detail. All data shall be in the very long life range, corresponding as closely to the constant amplitude fatigue limit (CAFL) as practical. Specifically, the number of cycles,  $N$ , associated with each datum, shall be no less than one order of magnitude less than  $N_{\min}$  corresponding to the detail category specific CAFL specified in Section 627.4.16.3.1G.1 of this Special Provision. For example, to characterize a detail as Detail Category C, the tested number of cycles,  $N$ , shall exceed  $4.4 \times 10^8$  for each datum.
3. The constant amplitude nominal stress range shall be calculated at the anticipated initiation location of an incipient crack. Nominal stresses shall be calculated using conventional equations for analyzing bending and axial load. These equations are essentially the same as those used in strength design. The stress concentration effects of a weld, bolt hole, or other local features are not explicitly embodied in the conventional nominal stress equations.
4. The appropriate AASHTO detail category applicable to fatigue design shall be established by comparing acquired test data to fatigue resistance graphs representing the AASHTO detail categories. The constant amplitude fatigue limit (CAFL) applicable to fatigue design corresponds

to the AASHTO detail category fatigue resistance graph representing a lower bound of the experimentally acquired data.

- S. When testing is conducted exclusively in the infinite life regime and more stringent test data scatter requirements are satisfied, a unique CAFL (different from those CAFL corresponding to specific detail categories specified by AASHTO) may be established for fatigue design.

B. Specimens

1. Specimens selected for testing shall be full-scale centerbeam and support bar assemblies or subassemblies representative of those installed in field applications. A subassembly is defined as a specimen having the same physical and geometric properties as an assembly but having a reduced number of centerbeams.
2. Each specimen shall consist of three continuous centerbeam spans over four equally spaced support bars. Centerbeam spans between adjacent support bar centerlines shall be a minimum of 3.0 ft. and a maximum of 4.0 ft. Support bar spans shall be a minimum of 3.0 ft. and a maximum of 3.67 ft. The centerbeam-to-support bar connection being tested shall be located at the midspan of each support bar.
3. Any welded or bolted attachments used to secure equidistant springs to a support bar, centerbeam, or stirrup shall be fabricated as an integral part of the specimen. A load path (rigid support fixed to the test fixture) shall be provided to resist any horizontal forces or displacements which would normally be resisted through these attachments in a field installation. Any miscellaneous welded or bolted attachments, including welded attachments used to secure the expansion joint elastomeric seals to the centerbeams, shall also be fabricated as integral parts of the specimen.
4. Support bars of subassembly specimens that are components of single-support-bar swivel-joist type modular expansion joint systems shall be oriented perpendicular to the longitudinal axis of the centerbeam.
- S. Prior to testing, each specimen shall be visually inspected for any defects, loose fasteners or other aberrations which could affect the tested fatigue resistance. Defects and flaws shall be defined in accordance with the appropriate governing specification (ASTM A-6, AWS D1.S, etc.). Data acquired from specimens containing such defects shall not be excluded from consideration except as permitted in Section 627.4.16.3.1G.2.c of this Special Provision. Any observed defect shall also be reported with its corresponding data in the tabular format stipulated in Section 627.4.16.3.1H of this Special Provision.

C. Instrumentation

1. Each specimen shall be sufficiently instrumented to measure the static nominal strain range within that specimen for a specific applied load range. Best results can generally be obtained when the applied load range for the static calibration tests does not pass through zero load. Strain measurements shall be made at locations sufficiently distant from local effects, such as weld toes or bolt holes, which could significantly influence acquired test data.
2. As a minimum, eight strain gages shall be installed on the centerbeam top flange in the vicinity of each centerbeam-to-support bar connection. These

gages shall be installed in pairs on each side of the connection at distances of one and two times the depth of the centerbeam from the centerline of the connection. Each pair of strain gages shall be located symmetrically about the centerline of the centerbeam. As a minimum, two strain gages shall also be installed on the support bar bottom flange in the vicinity of each centerbeam-to-support bar connection. One of these strain gages shall be installed on each side of the connection at a distance equal to the depth of the support bar from the centerline of the connection. These strain gages shall be installed along the centerline of the support bar.

#### D. Test Fixtures

1. Test fixtures shall have the capability to adequately support and secure the specimen throughout the duration of the test. The fixture shall be designed and fabricated to such tolerances as required to assure that additional stresses will not be generated in the specimen as a consequence of fixture misalignment. Mismatches resulting from specimen fabrication errors shall be accommodated by shimming or other such means precluding the application of force to the specimen.
2. Typical elastomeric bearings and springs used to transfer vertical loads from the support bars to the support boxes may be replaced with steel bearings in the test fixture. This modification will enable fatigue testing at higher load ranges and different frequencies than those encountered during normal service conditions.
3. Load shall be applied through two 10 in. long patches. Each patch shall typically comprise a steel plate and a hard rubber bearing pad placed in contact with the bottom flange of the centerbeam. Each patch shall be located at the midspan of each outer span.
4. In order to assure adequate seating of the specimen in the test fixture, a minimum of 10 kips shall be applied at each patch location. This requirement is waived for tests of single support bar systems conducted using load reversal. Once this load has been applied, all strain measuring devices shall be rebalanced to zero strain while the preload is maintained. An additional load approximately equivalent to the calculated load range shall be applied. Strain ranges shall be measured for the load range from 10 kips to the peak load. Each static calibration test shall be repeated three times while still maintaining a minimum 10 kips load at each load patch. The measured strain ranges from each repetition should vary by no more than 2S% from the mean value. If the stress ranges are not repeatable, appropriate modifications shall be made to the test fixture until the strain ranges are repeatable.

#### E. Static Calibration Test

1. Prior to any fatigue resistance testing, a static calibration test shall be performed in order to validate the structural analysis model. The static calibration test shall be performed after attainment of stress range repeatability as described in Section 627.4.16.3.1D.4 of this Special Provision. The structural analysis model shall be considered validated when calculated strain ranges are within  $\pm 2S\%$  of the measured strain ranges at every strain gage location.

2. For the purpose of reporting nominal fatigue resistance stress ranges at specific details, stress ranges determined through structural analysis of the model shall be preferred over stress ranges acquired directly from test measurements.

F. Test Procedures

1. A minimum of ten data points shall be required to establish the fatigue resistance of each detail. The centerbeam-to-support bar connection shall be considered as a single detail.
2. Several data points may be obtained from a single specimen by repairing the cracked sections of that specimen and resuming testing. Such repairs shall have minimal effect on the stress ranges at unfailed details still being tested. Data points derived from tests in which a repaired detail cracks again shall be discarded.
3. All data shall be in the very long life range, corresponding as closely to the constant amplitude fatigue limit as practical, but in no case less than 200,000 cycles. Either finite life regime or infinite life regime testing may be conducted. For infinite life regime testing, the number of cycles,  $N$ , associated with each of the ten data shall be at least twice the number of cycles,  $N_{min}$ , designated in the table in Section 627.4.16.3.1G.1 of this Special Provision.
4. Loads shall be applied using hydraulic actuators or other similar loading devices. The magnitude of the vertical load range,  $\otimes P_v$ , shall be maintained and continuously monitored throughout the duration of the test. Vertical and horizontal load ranges shall be applied to the specimen simultaneously. The horizontal load range shall always be equal to 20% of the vertical load range,  $\otimes P_v$ . This horizontal-to-vertical load ratio may be obtained by inclining the specimen 11.3 degrees with respect to the horizontal plane and applying load through vertically oriented actuators.
5. For multiple support bar systems, the loading mechanism shall be either exclusively tension or exclusively compression and shall be applied at a constant amplitude at any desired frequency. The applied load range shall be in a direction such that the reaction force between the centerbeam and support is always tensile. The load range shall not pass through zero load. Minimum preload shall be maintained throughout the duration of the test.
6. Single support bar systems may be loaded using the same procedures as those for multiple support bar systems. If premature stirrup failure occurs, an applied load range of 70% downward and 30% uplift may be used.
7. The load ranges used in the test shall not be so large as to alter the observed failure mode from that which would be observed under service conditions. Under no circumstance shall imposed stress exceed the yield stress of the material in any portion of the specimen. Each specimen shall be tested using at least two different load (stress) ranges.
8. If infinite life regime testing is conducted, the first load range should be chosen so that the applied stress range is just above the postulated CAFL. The load range in the subsequent test shall be decreased if failure resulted and increased if the test resulted in a runout. A suggested increment in load is such that the stress range is increased or decreased by 2 ksi. The

applicable CAFL must be selected from those CAFL values corresponding to the AASHTO fatigue categories. The selected CAFL is the one just below the lowest stress range that resulted in cracking.

9. The following criteria shall be used to define failure of a given centerbeam-to-support bar connection:

a. Welded Centerbeam-to-Support Bar Connections

- i. *Centerbeam weld toe cracking* originates at or near the centerbeam weld toe, propagates up into the centerbeam at some angle, and grows back over the connection. These cracks typically grow at an angle of about 45 degrees. A specimen shall be considered as failed due to this type of cracking when the crack has grown on any vertical face a length from the point of origin equal to half of the centerbeam depth.
- ii. *Support bar weld toe cracking* originates at or near the support bar weld toe, propagates down into the support bar, and grows back under the connection at some angle, typically about 45 degrees. A specimen shall be considered as failed due to this type of cracking when the crack has grown on any vertical support bar face a length from the point of origin equal to half of the depth of the support bar.
- iii. *Weld throat cracking* originates in the weld throat and typically grows in a plane parallel to the longitudinal axis of the support bar at about mid-depth of the weld throat. A specimen shall be considered as failed due to this type of cracking when a complete fracture of the weld throat has occurred. These cracks have been observed to turn down into the support bar, but only after significant growth. In such instances, the criteria for support bar weld toe cracking shall be applied.

b. Welded Stirrup Connections

A specimen shall be considered as failed when cracks result in the complete fracture of any stirrup leg, or when cracks originating at or near a stirrup weld have grown into any face of the centerbeam a length from the stirrup weld toe equal to half of the centerbeam depth.

c. Bolted Centerbeam-to-Support Bar Connections

A specimen shall be considered as failed when:

- i. Fatigue cracks which have grown out of a bolt hole have resulted in the complete fracture of the tension flange of the centerbeam.
- ii. Fatigue cracks which have grown out of a bolt hole have extended into any face of the centerbeam web a distance equivalent to half of the centerbeam depth less the centerbeam flange thickness.
- iii. Any portion of a stirrup fractures completely.
- iv. Any single bolt fractures completely.

10. Alternate Criteria for Termination of a Finite Life Regime Test

A test may also be terminated when, for a given stress range, the specimen has survived the number of cycles required to plot the data above either a particular fatigue resistance curve or the maximum permitted in Section 627.4.16.2.1G.2.d of this Special Provision. For example, if the applied stress range is 17 ksi and the desired fatigue resistance curve is Category C, then



based upon the equation presented in Section 627.4.16.2.1G.1 of this Special Provision, the test may be terminated after application of about 900,000 cycles provided that the specimen has not failed based on the above described criteria.

#### 11. Nominal Stress Range Calculation

##### a. Welded Centerbeam-to-Support Bar Systems

- i.* The nominal stress range for centerbeam weld toe cracking shall be calculated by taking the square root of the sum of the squares of the horizontal bending stress range in the centerbeam and the vertical stress range at the top of the weld.
- ii.* The nominal stress range for support bar weld toe cracking shall be calculated by taking the square root of the sum of the squares of the longitudinal bending stress range in the support bar and the vertical stress range at the bottom of the weld.
- iii.* The nominal stress range for weld throat cracking shall be the calculated vertical stress range in the throat of the weld.
- iv.* The nominal stress range in the centerbeam at a welded stirrup shall be calculated as the summation of the longitudinal bending stress ranges at the critical section resulting from vertical and horizontal loading. The entire load range shall be used in the calculation, even if the loading is partly in compression. The effects of stresses in any load-bearing attachments such as the stirrup or yoke shall not be considered when calculating the nominal stress range in the centerbeam. The load range in the stirrup itself shall be taken as 30% of the total vertical load range carried through the connection. The effect of horizontal forces may be neglected.

##### b. Bolted Systems

- i.* The nominal stress range in the centerbeam shall be taken as the summation of the longitudinal bending stress ranges in the centerbeam resulting from vertical and horizontal loading. Nominal stress ranges shall be calculated using the net section. The effects of stresses in the stirrup shall not be considered when calculating the nominal stress range in the centerbeam.
- ii.* The nominal load range in the bolt group and the stirrup assembly shall be taken as 30% of the total vertical load range carried through the connection. The effect of horizontal forces may be neglected.

#### G. Interpretation of Test Data

1. The experimentally acquired data (cycles to failure,  $N$ , and applied constant-amplitude nominal stress range,  $S_r$ ) and graphs representing the fatigue resistance of the detail categories delineated in Section 6.6 of the AASHTO LRFD Bridge Design Specifications - Third Edition shall be plotted on a log-log scale. The data are associated with the greatest S-N curve which represents a lower bound to the data. The equation representing the finite life fatigue resistance of these AASHTO detail categories is:

$$N = \frac{A}{(S_{r,eff})^3}$$

where:

N number of cycles to failure

$S_{r,eff}$  nominal effective stress range at the detail under consideration

A constant defined in Table 6.6.1.2.S-1 of the AASHTO LRFD Bridge Design Specifications - Third Edition

The minimum number of cycles associated with infinite fatigue life,  $N_{min}$ , and the corresponding constant amplitude fatigue limit (CAFL) for each AASHTO detail category is designated in the table below.

Detail Category	$N_{min}$ (infinite fatigue life)	CAFL (ksi)
A	$1.8 \times 10^6$ cycles	24.0
B	$3.0 \times 10^6$ cycles	16.0
B'	$3.5 \times 10^6$ cycles	12.0
C	$4.4 \times 10^6$ cycles	10.0
C'	$2.5 \times 10^6$ cycles	12.0
D	$6.4 \times 10^6$ cycles	7.0
E	$1.2 \times 10^7$ cycles	4.5
E'	$2.2 \times 10^7$ cycles	2.6

## 2. Finite Life Regime Testing

- a. The number of cycles, N, to either failure or runout, associated with each of the ten data need not exceed  $N_{min}$ , designated in the table in Section 627.4.16.3.1G.1 of this Special Provision.
- b. The detail category applicable to fatigue design shall be that corresponding to the highest of the AASHTO detail category fatigue resistance graphs representing a lower bound of all ten experimentally acquired data, except as limited in the table in Section 627.4.16.3.1G.2.d.
- c. If all but one data point falls above a selected AASHTO S-N curve, that one data point may be discarded and replaced by three new data obtained through additional testing. The additional testing shall be conducted using the same stress range as that of the discarded datum. The three additional data shall be plotted along with the remaining nine data. The applicable detail category shall be that corresponding to the highest of the AASHTO detail category fatigue resistance graphs representing a lower bound of all twelve data, except as limited in the table in Section 627.4.16.3.1G.2.d. For any detail, only one data may be discarded and subsequently replaced three additional data for any set of ten original data. None of the additional data, if obtained, shall be discarded.
- d. The maximum fatigue resistance of any detail shall not exceed that associated with the fatigue category prescribed in the table below.

Type of Detail	Maximum Permitted Category <sup>3</sup>
Welded Multiple Centerbeam-to-Support Bar Connections	C
Welded Stirrup Attachments for Single Support Bar Systems	B
Bolted Stirrup Attachments for Single Support Bar Systems	D
Groove Welded Centerbeam Splices <sup>1</sup>	C
Miscellaneous Welded Connections <sup>2</sup>	C
Miscellaneous Bolted Connections	D

## Footnotes:

1. Groove-welded full-penetration splices may be increased to Category B if weld integrity is verified using non-destructive testing (NDT).
2. Miscellaneous connections include attachments for equidistant devices.
3. The maximum permitted category applies only to the S-N curve at stress ranges above the CAFL. A CAFL that is higher than the CAFL associated with these categories may be used if the CAFL is established with a minimum of ten test data.
  - e. The fatigue resistance for stirrups welded to a centerbeam flange shall not be taken greater than that defined using the fatigue details defined in Section 6.6 of the AASHTO LRFD Bridge Design Specifications- Third Edition. The fatigue resistance of the centerbeam is similar to and shall be considered as a "Longitudinally Loaded Groove-Welded Attachment" or a "Longitudinally Loaded Fillet-Welded Attachment", depending on the type of connection used. The fatigue resistance of the stirrup is similar to and shall be considered as a "Transversely Loaded Groove-Welded Attachment" or a "Transversely Loaded Fillet-Welded Attachment", depending on the type of connection used.

## 3. Infinite Life Regime Testing

- a. The applicable constant amplitude fatigue limit (CAFL) for fatigue design may be selected as the highest CAFL of the AASHTO detail categories representing a lower bound to the experimentally acquired data. The CAFL of the AASHTO detail categories are designated in the table in Section 627.4.16.3.1G.1 of this Special Provision.
- b. A unique CAFL (different from the CAFL categories delineated in Section 6.6 of the AASHTO LRFD Bridge Design Specifications - Third Edition) may be established if all ten data are within 4 ksi of that unique CAFL.

## H. Data Reporting

## 1. Fatigue Test Results and Observations

Data shall be reported in the typical S-N format (logarithm(S) vs. logarithm(N)) with the log of the stress range plotted as the ordinate (y-axis). Additionally, the data shall be reported in tabular format. The table shall contain the following information:

- a. Nominal stress range at the specific detail,  $S_{r,eff}$
- b. Applied load range for each patch

- c. Number of cycles at initial observation of cracking (for reporting purposes only, not included as S-N data)
  - d. Number of cycles at failure or termination of the test, N, and the reason for stopping the test (failure or termination)
  - e. Type of crack as described in Section 627.4.16.3.1F.9 of this Special Provision. A detailed description of the fatigue crack shall be provided if the observed crack does not resemble any of the crack types described in Section 627.4.16.3.1F.9 of this Special Provision
2. Miscellaneous Required Information
- The following information shall also be reported:
- a. Expansion joint system type and fabricator
  - b. Drawing depicting shape, size, and dimensions of the specimen
  - c. Drawings depicting fixture details, including specimen orientation
  - d. Section properties and dimension of the centerbeam and support bar
  - e. Centerbeam-to-support bar connection details
    - i. Weld procedure specifications for welded expansion joint systems
    - ii. Bolt size, material specifications, location, and method of tightening for bolted expansion joint systems.

**627.4.16.3.2-Durability Testing of Elastomeric Support Bearings:**

**A. Scope**

- 1. This section provides guidelines for durability testing of the elastomeric support bearings typically used in modular expansion joint systems. It is not applicable to compression springs, equidistant springs, or other elastomeric components.
- 2. Tests shall be performed dynamically on individual bearings. Fatigue life is evaluated by applying a displacement range to each specimen rather than a load or stress range.

**B. Specimens**

- 1. Specimens shall comprise full-scale bearing components representative of those installed in field applications. PTFE sliding surfaces or materials typically bonded to the elastomeric support bearings shall be fabricated as an integral part of the specimen.
- 2. Prior to testing, each specimen shall be visually inspected for any flaws or defects that could plausibly affect fatigue resistance. Any flaws or details shall be defined and recorded. Data obtained from specimens containing such anomalies shall not be excluded from the data set. Observed anomalies shall also be reported with the test data.

**C. Test Fixtures**

Test fixtures shall have the capability to adequately support and secure the specimen throughout the duration of the test. The fixture shall be designed and fabricated to such tolerances as required to assure that additional stresses will not be generated in the specimen as a consequence of fixture misalignment.

**D. Loading Details**

1. Loads shall be applied through hydraulic actuators or other similar loading devices. Fatigue testing shall be performed using displacement control. Displacement and load ranges shall be continuously monitored throughout the duration of the fatigue test to assure that desired displacement range and minimum preload are maintained.
2. Load shall be applied to the specimen through flat steel plates that are smooth and free of surface corrosion. These plates shall be sufficiently thick to assure even load distribution to the specimen.

E. Dynamic Stiffness Test

1. Testing shall be conducted on each specimen to be subjected to fatigue testing in order to establish its dynamic stiffness for at least three different loading frequencies. The maximum of these loading frequencies shall be equal to the service load frequency corresponding to a vehicle traveling at 60 mph. The loading frequency,  $f$ , shall be calculated as:

$$f = \frac{V}{2(g + b)}$$

where:

- $V$  vehicle speed (60 mph at service load)
- $g$  centerbeam gap (assume mid-range configuration)
- $b$  centerbeam width

2. The load range applied during the dynamic stiffness test shall be that obtained from structural analysis using fatigue wheel loads and wheel load distribution factors as specified in Section 627.4.16.2.2 and Section 627.4.16.2.3 of this Special Provision.
3. Each dynamic stiffness test shall be performed three times. Data from individual tests shall be compared to assure consistency of test results.

F. Fatigue Test

1. A minimum of three fatigue tests shall be required to establish the durability of each type of bearing.
2. The fatigue test shall be conducted using displacement control. The displacement (strain) range shall be applied using a sine or other smooth waveform at any frequency less than or equal to the service load frequency calculated in Section 627.4.16.3.2E of this Special Provision. The magnitude of the applied displacement amplitude,  $\delta$ , shall be calculated as:

$$\delta = \frac{R_v}{K}$$

where:

- $R_v$  vertical reaction force at the support bearing as obtained from structural analysis
- $K$  dynamic stiffness of the support bearing as determined in Section 627.4.16.3.2E of this Special Provision.

3. A minimum precompression strain shall be maintained in the specimen throughout the duration of the test. This precompression strain shall be approximately equal to that present in a support bearing in a field installation. The magnitude of the applied cyclic strain shall be at least equal to the precompression strain.

4. The minimum and maximum dynamic load shall be recorded at the beginning of the test. The minimum and maximum dynamic load shall be monitored and periodically recorded throughout the duration of the test.
  5. At the end of each applied displacement cycle, the displacement shall be held at the precompression level for no less than one half of the period of loading in order to facilitate heat dissipation. Artificial air flow devices (electrical fans) may be used to assist heat dissipation. Excessive heat generation will adversely affect the tested fatigue life.
  6. A specimen shall be accepted as having passed the fatigue test criteria after withstanding 2 million cycles of loading without failure.
  7. The following criteria shall constitute failure:
    - a. The elastomeric material exhibits excessive deterioration or cracking.
    - b. The measured minimum dynamic load falls to 30% of the initial dynamic load recorded at test initiation.
    - c. The measured dynamic load range decreased to half of the initial dynamic load range recorded at test initiation.
- G. Data Reporting for Fatigue Test
1. Data shall be reported in tabular format and shall contain the following information for each specimen tested:
    - a. Minimum (precompression) strain, maximum strain, displacement, and load at test initiation
    - b. Type of loading impulse (sine wave, ramp, etc.)
    - c. Number of cycles at initial observation of distress leading to failure (for reporting purposes only, not to be included in the data)
    - d. Number of cycles at failure
    - e. A description of the mode of failure
  2. The following data shall also be reported for each specimen tested:
    - a. Bearing type and fabricator
    - b. Drawings depicting shape, size, and dimensions of the specimen including any PTFE sliding surfaces or materials bonded to the specimen
    - c. Drawings depicting fixture details, including specimen orientation

**627.6.9-Installation:**

The fabricator of the expansion joint system shall provide a qualified installation technician to be on site during installation of the expansion joint devices to assure their proper installation. This technician shall be a full time employee of the fabricator of the specific expansion joint system being installed. The Contractor shall comply with all recommendations made by the expansion joint fabricator's installation technician as approved by the Engineer. Each expansion joint system fabricator's installation technician shall certify to the Engineer that the approved installation procedures were followed. All certifications to the Engineer shall be in writing and shall be signed and dated by the fabricator's installation technician.

Each expansion joint system shall be installed in strict accordance with the fabricator's approved Shop Drawings, the Contract Drawings, and the recommendations of the fabricator's installation technician.

Each permanently installed expansion joint system shall match exactly the finished roadway profile and grades. In order to perform the work of installing the

joint system in a proper manner, some portions of the slab, barrier and abutment cannot be constructed until after the joint system is installed. Once the expansion joint system has been installed to the proper profile and grade, install non-shrink grout under all support boxes in accordance with the grout fabricator's recommendations.

Each expansion joint system shall be tested for watertightness after installation in accordance with Section 627.6.9.1 of this Special Provision. Leaks shall be repaired to the satisfaction of the Engineer.

The Contractor shall exercise care at all times to protect each expansion joint system from damage. The Contractor shall protect concrete blockouts and supporting systems from damage and construction traffic prior to installation of the expansion joint systems. After installation, construction loads shall not be allowed on the expansion joint systems. The Contractor shall submit to the Engineer for approval a proposed method of bridging over each expansion joint system to accommodate any construction traffic.

Each expansion joint system shall be set to a gap width corresponding to the ambient temperature at the time of setting. This information is specified in the Contract Drawings and shall also be specified on the approved Shop Drawings. Any mechanical devices supplied by the joint system fabricator, for the purpose of setting the expansion joint system to the proper gap width, will remain the property of the fabricator. When no longer required, the devices shall be returned to the fabricator.

All forms and debris that may impede movement of the expansion joint systems shall be removed.

**627.6.9.1-Watertightness:** The Contractor shall flood each completely installed expansion joint system to a minimum depth of 3 in. for a duration of at least one hour. If leakage is observed, the expansion joint system shall be repaired at the Contractor's expense. The repair procedure shall be prepared by the expansion joint system fabricator and shall be submitted to the Engineer for approval. After repairs are completed, the expansion joint shall be retested for leakage.

**627.6.9.2-Inspection:** Each expansion joint system shall be subjected to and shall pass three levels of inspection in order to be accepted. These three levels are *Quality Control Inspection*, *Quality Assurance Inspection*, and *Final Inspection*. The fabricator shall provide both *Quality Control Inspection* and *Quality Assurance Inspection*. The Contractor shall provide access to the Engineer for the *Final Inspection*.

- A. *Quality Control Inspection* shall be provided by the fabricator on a full time basis during the fabrication process of all major components to assure that the materials and workmanship meet or exceed the minimum requirements of the Contract. *Quality Control Inspection* shall be performed by an entity having a line of responsibility distinctly different from that of the fabricator's fabrication department.
- B. *Quality Assurance Inspection* shall be performed by an agency appointed by the Engineer.
- C. *Final Inspection* of each expansion joint system shall be performed by the Engineer at the job site immediately prior to installation. The Contractor shall provide an accessible work area for this inspection. During *Final Inspection*, the Engineer shall inspect each expansion joint system for

proper alignment, complete bond between expansion joint elastomeric seals and steel components, and proper steel stud placement. There shall be no bends or kinks in the steel components, except as required to follow roadway grades and as specifically detailed on the approved Shop Drawings. Straightening of unintended ends or kinks shall not be permitted. Any expansion joint system exhibiting bends or kinks, other than those shown on the approved Shop Drawings shall be removed from the job site and replaced with a new expansion joint system at the expense of the Contractor. Expansion joint elastomeric seals not fully bonded to the steel shall be made fully bonded at the expense of the Contractor.

**627.6.9.3-Acceptance:**

- A. Each expansion joint system shall pass all three levels of inspection delineated in Section 627.6.9.2 of this Special Provision prior to acceptance. Any expansion joint system which fails any one of the three levels of inspection shall be replaced or repaired at no expense to the Department and to the satisfaction of the Engineer. Any proposed remedial procedures shall be submitted to the Engineer for approval before implementation.
- B. As stipulated in Section 627.4.16.2.S of this Special Provision, fatigue resistance of all structural members, splices, connections, and components shall be established. For the specific expansion joint system to be installed, the Contractor shall be responsible for assuring that the fabricator has met the prequalification requirements of Section 627.3.8 of this Special Provision, and has performed any requisite fatigue testing in accordance with Sections 627.4.16.3.1, 627.4.16.3.2, and 627.4.16.3.3 of this Special Provision.
- C. Once a fabricator's specific expansion joint system has been prequalified in accordance with Section 627.3.8 of this Special Provision, any revised details or material substitutions shall be retested in accordance with Sections 627.4.16.3.1, 627.4.16.3.2, and 627.4.16.3.3 of this Special Provision. All retesting shall have been completed by the contract award date in accordance with the prequalification requirements of Section 627.3.8 of this Special Provision. Any additional costs and/or time delays incurred as a result of failure to prequalify the details of the revised expansion joint system or delays associated with procuring an alternative expansion joint system fabricator shall be the Contractor's responsibility.



**627.8.1 - BASIS OF PAYMENT:**

The contract unit price for Modular Expansion Joint System shall be full payment for all materials, including elastomeric concrete, labor, tools, equipment, design, testing, inspection, services, and incidentals necessary to furnish and install the expansion joint systems as specified.

The contract unit price includes the welded wire fabric and concrete placed in the blockouts.

**627.9-PAY ITEMS:**

ITEM	DESCRIPTION	UNIT
627011-002	REMOVE AND REPLACE EXPANSION DEVICE, MODULAR JOINT	LINEAR FOOT
627020-001	INSTALL MODULAR EXPANSION JOINT SYSTEM	LINEAR FOOT
62702S-002	EXPANSION JOINT SYSTEM BEHIND APPROACH SLAB, MODULAR JOINT	LINEAR FOOT