New Jersey Turnpike Authority
P.O. Box 5042, Woodbridge, NJ 07095

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Document Change Announcement

2016 Standard Supplementary Specifications
Structural QPL Qualification Criteria Updates
DCA2023SS-06

Subject: Revisions to

Section 401 Concrete Structures
Section 407 High-Load Multi-rotational Bearings
Section 414 Bridge Railing and Fencing
Section 417 Bridge Deck Rehabilitation
Section 418 Bridge Structural Repairs
Section 425 Noise Barriers
Section 905 Concrete, Mortar and Grout, Subsection 905.12 Non-Shrink, High Strength Mortar
Subsection 905.13 Non-Metallic, Non-Shrink Mortar or Grout Subsection 905.14 Non-Shrink, High-Strength Mortar
Subsection 905.15 Non-Shrink, High Early Strength Mortar, Subsection 905.24 Mortar Seal and Cure,
Subsection 905.25 Non-shrink, High Early Strength Mortar Suitable for Vertical and Overhead Repairs,
Subsection 905.28 Bag Mixes for Concrete Repairs
Section 907 Joints, Subsection 907.02 Joint Sealers
Section 909 Structural Steel and Other Ferrous Metals, Subsection 909.01 Structural Steel.
Section 910 Timber and Timber Preservatives, Subsection 910.13 Fire Retardant Treatment
Section 911 Non-Ferrous Metals, Subsection 911.07 Bronze Bearing Plates
Section 923 Miscellaneous, Subsection 923.05 Caulking Compound, Subsection 923.06 Dampproofing and Waterproofing, Subsection 923.08 Epoxy Bonding Compound, Subsection 923.22 Epoxy Resin System, Subsection 923.23 Epoxy Crack Sealant, Subsection 923.28 Sealant

Description of Change:

This DCA contains updates to materials and qualification criteria for structural product types in the Qualified Products List (QPL).

Notice to New Jersey Turnpike Authority Staff and Design Consultants
Effective immediately, all contracts currently in the design phase shall incorporate the revisions herein. For advertised contracts awaiting the opening of bids this revision shall be incorporated via addendum. Contact your New Jersey Turnpike Authority Project Manager for instruction.

The revisions may be accessed on the Authority's webpage: https://www.njta.com/doing-business/professional-services

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NOTE: The following text is ADDED to the latest version of the 2016 Standard Supplementary Specifications.

SECTION 401 - CONCRETE STRUCTURES

401.02 Materials.

Remove the following:

JOINT MATERIALS.....907

NON-SHRINK GROUT.....905.12

REINFORCEMENT STEEL.....908.01

SUPPORT BARS FOR REINFORCEMENT STEEL.....908.01

Add the following:

JOINTS.....907

NON-SHRINK GROUT.....905.10

REINFORCEMENT STEEL.....908

SUPPORT BARS FOR REINFORCEMENT STEEL.....908.01(K)

401.20 Joint Sealers.

Replace all instances of the word "elastic" with "elastomeric".

401.23 Measurement.

Replace all instances of the word "elastic" with "elastomeric".

SECTION 407 – HIGH-LOAD MULTI-ROTATIONAL BEARINGS

407.02 Materials.

Remove the following:

PREFORMED FABRIC REINFORCED ELASTOMERIC BEARING PADS.....923.02(C)

Add the following:

PREFORMED FABRIC REINFORCED ELASTOMERIC BEARING PADS.....923.02(B)

SECTION 414 - BRIDGE RAILING AND FENCING

414.02 Materials.

Remove the following:

CAULKING SEALANT.....923.25

Add the following:

CAULKING COMPOUND.....923.05

NOTE: The following text REPLACES its respective Section in the latest version of the 2016 Standard Supplementary Specifications.

SECTION 417 - BRIDGE DECK REHABILITATION

Replace all instances of the phrase "blended cement patch mix" with "non-shrink high early strength mortar".

Replace all instances of the phrase "field anti-corrosion coating" or "field applied anti-corrosion coating" with "anti-corrosion coating".

417.01 Description.

Add the following language to the end of this Subsection:

This work shall also consist of sawcutting the edges of existing pavement overlay and approach pavement to the depth shown on the Plans or as required by the manufacturer of the new deck joints; the removal and disposal of existing materials encountered within the limits of the new joint system including the cutting and removal of the existing steel armoring and plates, and the removal of the existing joint sealers, concrete deck and concrete headers; and the furnishing and installation of the complete elastomeric asphaltic plug joint system including new caulk, sealer, and steel plate. Replacement of joints and joint material at barrier curbs, parapets and sidewalks with an elastic joint sealer is considered to be part of this item of work.

417.02 Materials.

Delete the list of materials and replace with the following:

ANTI-CORROSION COATING 923.32

HIGH-TENSILE-STRENGTH BOLTS, NUTS AND WASHERS.....909.02(A)

HOT POURED JOINT SEALANT .....904.06(A)

MORTAR SEAL AND CURE 905.24

NON-METALLIC, NON-SHRINK, MORTAR OR GROUT 905.13

NON-SHRINK, HIGH EARLY STRENGTH MORTAR.....905.15

NON-SHRINK, HIGH-STRENGTH MORTAR, BARE CONCRETE DECKS 905.14

NON-SHRINK, HIGH-STRENGTH MORTAR, PAVED CONCRETE DECKS.....905.12

EPOXY RESIN SYSTEM 923.22

PORTLAND CEMENT 905.01

PREFORMED ELASTOMERIC JOINT SEALER.....907.03

PREFORMED EXPANSION JOINT FILLER.....907.01

PREFORMED JOINT SEALER .....907.02(D)

DEFORMED BARS, EPOXY COATED .....908.01(B)

REINFORCEMENT BAR COUPLER .....908.01(L)

RUBBER ASPHALT CONCRETE 907.08

SILICONE JOINT SEAL.....907.02(E)

SKID RESISTANT COATING 923.20

STRIP SEAL EXPANSION JOINT 907.07

STRUCTURAL STEEL 909.01

TIMBER FIRE RETARDANT TREATMENT 910.13

MEMBRANE WATERPROOFING FOR BRIDGE DECKS .....923.06(D)

WATER REPELLENT TREATMENT.....923.06(F)

Delete the entire table and replace it with the following:

Repair	Material Description
Concrete Deck Replacements and deck repairs	Class A concrete.
Concrete deck replacements and deck repairs with construction duration less than four (4) days but greater than 24 hours	Class A, High Early Strength concrete.
Deck repairs with construction duration less than 24 hours	Non-shrink, high-early strength mortar for bare concrete decks and mortar seal and cure.
Concrete Bridge Barriers	Class A concrete
Emergency concrete deck replacement	Class A, High Early Strength concrete unless limited time durations. Non-shrink, high early strength mortar for bare concrete decks and mortar seal and cure.
Spall Repair, Type 1	Non-shrink, high-strength mortar for bare concrete decks, non-shrink, mortar seal and cure, high-strength mortar for paved concrete decks, waterproofing membrane for bridge decks, and HMA Bridge Surfacing.
Spall Repair, Type 2	Non-shrink high-strength mortar for paved concrete decks, waterproofing membrane for bridge decks, and HMA Bridge Surfacing.
Spall Repair, Type 3	No longer used.
Spall Repair, Type 4	Class A concrete, waterproofing membrane for bridge decks, and HMA Bridge Surfacing as necessary.
Spall Repair, Type 5	Non-shrink, high early strength mortar for paved concrete decks, non-shrink, high early strength mortar for bare concrete decks, and mortar seal and cure.
Spall Repair, Type 5A	Non-shrink, high early strength mortar for paved concrete decks.
Spall Repair, Type 5B	Non-shrink, high early strength mortar for paved concrete decks.
Emergency Spall Repair, Type 5	Non-shrink, high early strength mortar for bare concrete decks, and mortar seal and cure.
Spall Repair, Type 6	Class A concrete, membrane waterproofing for bridge decks, and HMA Bridge Surfacing
Spall Repair, Type 6A	Non-shrink, high early strength mortar.
Emergency Spall Repair, Type 6	Non-shrink, high-early strength mortar for paved concrete decks, membrane waterproofing for bridge decks, and HMA Bridge Surfacing.
Spall Repair, Type U	Non-shrink, high early strength mortar suitable for vertical and overhead repairs.
Joint Reconstruction, Type 1	Elastomeric concrete.
Emergency Joint Reconstruction, Type 1	Non-shrink, high strength mortar for bare concrete decks,

Repair	Material Description
	mortar seal and cure, and non-shrink high-strength mortar for paved concrete decks.
Joint Reconstruction, Type 1A	Class A concrete unless limited time durations (Non-shrink, high early strength mortar). See Paragraph 417.07(D).
Joint Reconstruction, Type 1P	Rubber asphalt concrete.
Joint Replacement, Type 1P	Rubber asphalt concrete.
Joint Reconstruction, Type F	Strip Seal Expansion Joint.
Joint Reconstruction, Type FJ	Preformed Joint Filler, Waterstop, Crack Spanning Membrane.
Joint Seal Replacement, Type ___	Preformed Elastomeric Joint Sealer.
Joint Seal Replacement, Type IV ____	Preformed Elastomeric Joint Sealer.
Silicone Joint Sealer	Silicone Joint Seal.
Deck Joint Reconstruction	Match the adjacent deck reconstruction material. If no reconstruction scheduled, use Class A concrete.
Headblock Repair, Type 1	Class A, High Early Strength concrete.
Headblock Repair, Type 2 and Type 3	Class A concrete.
Headblock Repair, Type 1, Type 2 and Type 3 with construction duration less than four (4) days but greater than 24 hours	Class A, High Early Strength concrete.
Emergency Headblock Repair	Non-shrink, high early strength mortar for bare concrete decks, and mortar seal and cure.
Sidewalk, Safety walk and Curb Surface Repairs	Class B concrete.
Concrete Parapet Repairs	Class A concrete with water repellent treatment.
Parapet Surface Repairs	Class B concrete.
Parapet/Median Barrier replacement or reconstruction	Class A concrete/High Performance Concrete.

(K) Delivery of Materials.

(2) Materials Delivered to Maintenance Facility.

Delete the 2nd table in this Subparagraph and replace it with the following:

Material	Quantity
Non-Shrink, High Early Strength Mortar with at least one-year shelf life	56 – 50 lb. bags (1 pallet)
#6 Epoxy Coated Reinforcement Bars (5 ft. Length)	200 Each
#6 Epoxy Coated Reinforcement Bars (10 ft. Length)	100 Each

(3) Materials to be Stockpiled in Contractor's Staging Area.

Delete the entire table and replace with the following:

Material	Quantity
Non-Shrink, High Early Strength Mortar with at least one-year shelf life, to yield 2 C.Y. Each	4 Each
Tie wire	1 Case
#5 Epoxy Coated Reinforcement Bars (25 ft. Length)	120 Each
#6 Epoxy Coated Reinforcement Bars (20 ft. Length)	70 Each

417.04 Concrete Deck Replacement

(A) Membrane Waterproofing for Bridge Decks and HMA Bridge Surfacing

Delete the entire table and replace with the following:

Membrane Waterproofing Application Table		
Repair Item	**Material Specified**	**Minimum Cure Time Prior to Membrane Application**
Concrete Deck Replacement (Large Areas)	Class A Class A "high early"	48 hours 36 hours
Emergency Concrete Deck Replacement (Individual Panel, Non-Scheduled)	Class A "high early" with water reducer	24 hours
Spall Repair, Various Types	Non-Shrink, High Strength Mortar (905.12) Non-Shrink, High Early Strength Mortar (905.15)	12 hours 3 hours
Spall Repair Type 4 (Small Area)	Class A Class A "high early"	48 hours 24 hours
Spall Repair Type 5 (Small Areas)	Non-Shrink, High Early Strength Mortar (905.15)	3 hours
Spall Repair Type 6 (Small Area)	Class A Class A "high early"	48 hours 24 hours
Emergency Spall Repair Type 5 (Small Repair, Non-Scheduled)	Non-Shrink, High Early Strength Mortar (905.12)	2 hours
Emergency Spall Repair Type 6 (Small Repair, Non-Scheduled)	Non-Shrink, High Early Strength Mortar (905.12)	2 hours

417.13 Measurement

Replace all instances of the phrase "rapid set mortar, reinforcement bars, cement patch mix," with "Non-shrink high early strength mortar, non-shrink high strength mortar, reinforcement bars".

417.14 Payment

Replace the first paragraph with the following:

Quality acceptance for strength and durability for the various Portland cement concrete items listed above with an asterisk will be made in accordance with the specified Performance Criteria Category within Table 2 of Subsection 905.23.

SECTION 418 - BRIDGE STRUCTURAL REPAIRS

418.02 Materials

Delete this Subsection in its entirety and replace it with the following:

Materials for bridge structural repairs shall conform to Subsections 401.02, 403.02, and Division 900.

EPOXY CRACK SEALANT.....923.23

EPOXY MORTAR.....923.09

EPOXY RESIN SYSTEM.....923.22

EPOXY RESIN WATERPROOFING.....923.06(E)

EPOXY BONDING COMPOUND.....923.08

FASTENERS.....909.02

PAINTS AND COATINGS.....913

PINS AND ROLLERS.....909.03

BRONZE BEARING PLATES.....911.07

BEARING PADS.....923.02

SEALANT.....923.28

BONDING AGENT.....923.31

ANTI-CORROSION COATING.....923.32

NON-SHRINK, HIGH STRENGTH MORTAR.....905.12

WATERSTOPS.....923.17

LAMINATED ELASTOMERIC BEARINGS.....928.02

REINFORCEMENT STEEL FOR STRUCTURES.....908.01

WELDED WIRE FABRIC.....908.01(C)

PORTLAND CEMENT.....905.01

NON-METALLIC, NON-SHRINK MORTAR OR GROUT.....905.13

COLD-APPLIED JOINT SEALER.....907.02(B)

REINFORCEMENT BAR COUPLERS.....908.01(L)

ADHESIVE AND CAST-IN-PLACE ANCHORS.....909.02(E)

SUBSTRUCTURE WATERPROOFING.....923.06(H)(1)

SUBSTRUCTURE MEMBRANE WATERPROOFING.....923.06(H)(2)

NON-SHRINK, HIGH-STRENGTH MORTAR.....905.14

TIMBER FOR STRUCTURES.....910.01

STAINLESS STEEL.....909.01(C)

STAINLESS STEEL BOLTS, U-BOLTS, J-BOLT, NUTS, AND WASHERS.....909.02(C)

STRUCTURAL STEEL.....909.01

GROUT.....905.10

CONCRETE PENETRATING SEALER.....923.06(G)

BAG MIXES FOR CONCRETE REPAIRS.....905.28

Materials required for spall repairs shall conform to Subsection 417.02.

For repair of concrete diaphragms, Class A high early strength concrete shall be used.

Repair Substructure Concrete shall be made using Class B air-entrained concrete.

When the total area to be repaired on a pier or abutment element is equal to or greater than 100 SF or 1 CY, the repairs shall be made using a 3/8" stone ready mix Class B concrete, packaged bag mix material will not be permitted. When the total area to be repaired on a pier or abutment is less than 100 SF or 1 CY, the use of packaged bag mix repair material conforming to 905.28 shall be permissible.

When Class A, High Early Strength Concrete is used for repairs, the temporary support shall not be removed until concrete sample cylinders have reached a compressive strength of 3,000 psi, but in no case less than 6 hours. When Class B concrete is used for repairs, the temporary support shall not be removed until after 14 days or until concrete sample cylinders have reached a compressive strength of 3,000 psi, but in no case less than 72 hours.

Touch-up of damaged epoxy coated reinforcement shall be made with anti-corrosion coating.

Jacks used for temporary support structure shall have a minimum rated capacity of one and a half the total dead load and live load indicated on the plans and as adjusted as necessary for the actual jacking point. Each jack shall have the maximum rated capacity clearly shown on the manufacturer's nameplate attached to each jack. Jacks shall be equipped with pressure and height gauges that will enable the applied lifting forces and height of jacking to be monitored at all times. Any lifting equipment deemed by the Engineer to be inadequate or faulty may be directed to be replaced. Loads shown on the plans do not include construction loading.

Structural steel for jacking/supporting operations shall conform to Section 432.

418.05 Substructure Waterproofing.

(B) Substructure Waterproofing.

Delete the 4th paragraph and replace it with the following:

Prior to application of the epoxy resin waterproofing, the perimeter of the steel masonry plate with the concrete substructure shall be sealed. The sealant shall comply with Subsection 923.28. The transverse edges of the sole plate at the interface with the bottom flange shall also be sealed using a sealant in accordance with Subsection 923.28. Silicone based sealants are typically not paintable - the order of construction operations shall be considered when choosing the material to be used.

(C) Substructure Membrane Waterproofing.

Delete the 5th paragraph and replace it with the following:

The perimeter of the steel masonry plates at the interfaces with the concrete substructure shall be sealed using a sealant in accordance with Subsection 923.28. The transverse edges of the sole plate at the interface with the bottom flange shall also be sealed using a sealant in accordance with Subsection 923.28. Silicone based sealants are typically not paintable - the order of construction operations shall be considered when choosing the material to be used.

418.07 Structural Steel Repairs

Delete the 1st paragraph and replace it with the following:

Replace Structural Steel Diaphragm provides for removal of existing deteriorated wide flange or channel section diaphragms and connection plates as required and replacement with new wide flange or channels in accordance with plan detail and at plan locations or where directed. The void created above the diaphragm and the concrete deck shall be injected with epoxy materials.

418.10 Measurement

Replace all instances of the phrase "field anti-corrosion coating" with "anti-corrosion coating".

Add the following language to the end of this Subsection:

Replace Rivets with High Strength Bolts shall be measured by each on an "if and where directed" basis.

418.11 Payment

Replace all instances of the phrase "field anti-corrosion coating" with "anti-corrosion coating".

Replace the first paragraph with the following:

Quality acceptance for strength and durability for the various Portland cement concrete items listed above with an asterisk will be made in accordance with the specified Performance Criteria Category within Table 2 of Subsection 905.23.

The following is added:

Payment will be made under:

PAY ITEM	*PAY UNIT*
REPLACE RIVETS WITH HIGH STRENGTH BOLTS	EACH

NOTE: The following text indicates REVISIONS in red tracked changes to the latest version of the 2016 Standard Supplementary Specifications.

SECTION 425 - NOISE BARRIERS

425.02 Materials.

Remove the following:

ADHESIVE ANCHORS.....909.02(F)

Add the following:

ADHESIVE ANCHORS.....909.02(E)

425.08 Measurement

The sixth paragraph is replaced with the following:

Caisson concrete, casing and tremie concrete, if used, will not be measured for payment.

425.09 Payment

The eighth paragraph is replaced with the following:

Quality acceptance for strength and durability of the foundation caisson concrete used to support the noise barrier posts will be made in accordance with the specified Performance Criteria Category within Table 2 of Subsection 905.23.

DIVISION 900 – MATERIALS

SECTION 905 - CONCRETE, MORTAR AND GROUT

905.12 Non-Shrink, High Strength Mortar, Paved Concrete Decks

Delete this Subsection and replace it with the following:

The material shall conform to ASTM C928 R3. The material shall be pre-packaged and ready for mixing just prior to use in accordance with manufacturer instructions.

~~Delete the first paragraph in its entirety and replace it with the following:~~

~~Non-shrink, high-strength mortar (for use on paved concrete decks) shall be a material packaged and ready for mixing just prior to use in accordance with the manufacturer's instructions. The Contractor shall cure the material immediately after finishing with material specified under Subsection 905.24.~~

~~Add the following language after the end of the first paragraph.~~

~~The material shall conform to ASTM C928 and the following requirements as per ASTM C109:~~

~~Time~~	~~Minimum Compressive Strength (psi)~~
~~3 hours~~	~~5,000 psi~~
~~24 hours~~	~~6,000 psi~~
~~7 days~~	~~7,500 psi~~
~~28 days~~	~~10,000 psi~~

905.13 Non-Metallic, Non-Shrink Mortar or Grout

Delete this Subsection and replace it with the following:

The material shall conform to ASTM C1107 and have a minimum set time of 60 minutes when tested in accordance with ASTM C191. Use shall be in accordance with manufacturer instructions.

905.14 Non-Shrink, High-Strength Mortar, Bare Concrete Decks

Delete this Subsection and replace it with the following:

The material shall conform to ASTM C928 R3. The material shall be pre-packaged and ready for mixing just prior to use in accordance with manufacturer instructions. The material shall have a minimum bond strength of 2,000 psi in 24 hours as per ASTM C882, and a relative dynamic modulus (RDM) of 90% after 300 cycles as per ASTM C666.

~~Delete the first paragraph in its entirety and replace it with the following:~~

~~Non-shrink, high-strength mortar (For use on bare concrete decks) shall be a material packaged and ready for mixing just prior to use in accordance with the manufacturer's instructions. The Contractor shall cure the material immediately after finishing with material specified under Subsection 905.24.~~

~~Add the following language after the end of the first paragraph.~~

~~The material shall conform to ASTM C928 and the following requirements as per ASTM C109:~~

~~Time~~	~~Minimum Compressive Strength (psi)~~
~~3 hours~~	~~1,000 psi~~
~~24 hours~~	~~5,000 psi~~
~~7 days~~	~~6,000 psi~~
~~28 days~~	~~7,000 psi~~

905.15 Non-Shrink, High Early Strength Mortar

Delete this Subsection and replace it with the following:

The material shall conform to ASTM C928. The material shall be pre-packaged and be ready for mixing immediately prior to use in accordance with manufacturer instructions.

~~Delete the first paragraph and replace it with the following:~~

~~Non-shrink, high early strength mortar shall be a material packaged and ready for mixing immediately prior to use in accordance with the manufacturer's instructions. The material shall conform to the requirements of ASTM C1090 and C1107, and the following AASHTO specifications: M201, R39, T22, T105, T106, T131, T162, T177, T231, and T260.~~

~~The material shall conform to the following requirements (in both neat and extended form):~~

~~Test Requirement~~	~~Minimum~~	~~Maximum~~
~~Initial Set (minutes)~~	~~30~~	~~-~~
~~Expansion (%)~~	~~-~~	~~0.4~~
~~Contraction (%)~~	~~-~~	~~0.0~~
~~3 Hour Compressive Strength (psi)~~	~~2000~~	~~-~~
~~7 Day Compressive Strength (psi)~~	~~6000~~	~~-~~
~~1 Day Bond Strength (psi)~~	~~200~~	~~-~~
~~Freeze-Thaw % (25 cycles)~~	~~-~~	~~1.0~~

~~Total Chloride Content (% by weight)~~	-	~~0.05~~
~~Total Sulfate Content (% by weight)~~	-	~~5.0~~

The following Subsection(s) are~~is~~ added:

905.24 Mortar Seal and Cure

The material shall be acrylic and shall conform to ASTM C1315.

~~Refer to the QPL. Mortar seal and cure material shall be 30% solids, acrylic.~~

~~The following is added:~~

905.25 Non-shrink, High Early Strength Mortar Suitable for Vertical and Overhead Repairs

The material shall conform to ASTM C928. The material shall have a minimum bond strength of 1500 psi as per ASTM C882 and a minimum relative dynamic modulus of 90% as per ASTM C666.

~~Non-shrink, high early strength mortar suitable for vertical and overhead repairs shall be from the QPL.~~

~~The following is added:~~

905.28 Bag Mixes for Concrete Repairs

The product shall satisfy all safety requirements including exclusion of volatile organic compounds (VOC) and all hazardous materials. It must be possible to mix, place and finish bag mixes using standard equipment. Portland cement used for bag mixes shall conform to ASTM C150, and if coarse aggregates are added they shall be graded as per ASTM C33 with a maximum size of 3/8 inches.

Bag mixes shall meet the following minimum requirements as shown below.

Property	7 days	28 days	Test Method
Compressive Strength (psi)	4000	5000	ASTM C39 or ASTM C109 or ASTM C942
Modulus of Rupture (Flexural Strength) (psi)	600	700	ASTM C78 or ASTM C293 or ASTM C348
Minimum Splitting Tensile Strength (psi)	500	600	ASTM C496
Bond/Tensile Adhesion Strength (psi)	1500	1750	ASTM C882
Freeze-Thaw Resistance	N/A	RDM 90% after 300 cycles	ASTM C666

SECTION 907 - JOINTS

907.02 Joint Sealers.

Delete the following Paragraph and replace it with the following:

(D) Joint Sealer.

The material shall be an elastomeric, cold poured type sealer conforming to ASTM C920, Type S or M, Class 50 and shall be Grade P for horizontal joints and Grade NS for vertical joints. The color shall match that of adjacent surfaces.

Delete the following Paragraph and replace it with the following:

(E) Silicone Joint Seal.

~~Delete the first paragraph and replace it with:~~

The material shall conform to the following requirements:

Test Requirement	Procedure	Specification ASTM D5893
Tack Free Time, minutes*	ASTM C679	5 Hours + 10 minutes
Accelerated Weathering	ASTM C793	Satisfactory
Flow	ASTM C693	No Flow
Modulus of Elongation	ASTM D412	600% (Minimum)
Bond, Non-Immersed	ASTM D5329	Satisfactory

*Tack free time may be less than specified to meet project requirements.

SECTION 909 - STRUCTURAL STEEL AND OTHER FERROUS METALS

909.01 Structural Steel.

The following is added:

(F) Stainless Steel.

Stainless Steel for the sliding surface of the TFE expansion bearings shall be 1/16" minimum thickness and shall conform to the requirements of ASTM A240, Type 304. The stainless steel surface shall have a minimum Brinnel hardness of 125 and the surface shall be finished to a roughness height value of 20 micro-inches or finer in accordance with ANSI B46.1.

SECTION 910 - TIMBER AND TIMBER PRESERVATIVES

The following Subsection(s) are added:

910.13 Fire Retardant Treatment

All plywood designated for use as catch or shielding shall be pressure impregnated with fire retardant treatment and shall have a flame spread rating of 25 or less when tested in accordance with ASTM E-84, "Standard Test Method for Surface Burning Characteristics of Building Materials." Treatment shall be as per the QPL for approved suppliers.

SECTION 911 - NON-FERROUS METALS

The following Subsection(s) are added:

911.07 Bronze Bearing Plates

Bronze bearing plates shall be castings conforming to ASTM B22, Copper Alloy UNS. NO. C91100. Castings shall be free from inclusion of foreign materials, blowholes, and other defects affecting their value for the purpose intended. Contact surfaces shall be finished in the direction of motion in accordance with the requirements of ANSI B46.1 for the roughness height value (in micro-inches) indicated on the Plans.

Surfaces shall be of the self-lubricating type which will require no additional or supplementary lubrication during the entire service life. The surfaces shall be provided with trepanned recesses in an approved uniform geometric and overlapping pattern to give optimum lubricating coverage in the direction of motion. The recesses shall be filled with an approved lubricating compound capable of withstanding existing atmospheric elements and temperatures for dry and submerged service. The lubricating compound shall consist of metals, metallic oxides, graphite, and a lubricating binder, all of which shall have inherent and native lubricating qualities.

The compound shall be compressed into the recesses by hydraulic pressure so as to form dense, non-plastic lubricating inserts. The lubricating area shall comprise not less than 25% of the total area. The friction coefficient

of the bearing assembly shall not exceed 0.10. Surfaces shall not be planed or otherwise altered after the lubricating compound has been pressed into the surface. No paint or grease shall be applied to the lubricated surfaces or opposing surfaces. Surfaces opposing the lubricated surfaces shall be coated at assembly with liquid or stick lubricant compatible with the lubricating compound used in the trepanned recesses, furnished by the manufacturer of the self-lubricated bronze plates.

SECTION 923 - MISCELLANEOUS

923.05 Caulking Compound.

Delete this Subsection and replace it with the following:

Caulking compound shall be an aluminum impregnated caulking compound.

923.06 Dampproofing and Waterproofing.

(D) Membrane Waterproofing for Bridge Decks.

Delete this Paragraph and replace it with the following:

Membrane waterproofing for bridge decks shall consist of primer, preformed membrane sheet and mastic. Membrane waterproofing shall conform to Section ASTM D6153, Type III and all relevant provisions of Section 21 of the AASHTO Bridge Construction Specifications, 4th Edition~~, except that the minimum air and concrete temperature at time of installation shall be 40 degrees Fahrenheit. The material shall conform to the following:~~. The minimum temperature at time of installation shall be 40 degrees Fahrenheit.

923.08 Epoxy Bonding Compound.

~~Delete the 1st paragraph in its entirety and replace it with the following:~~

~~Epoxy bonding compound shall be from the QPL. Only materials formulated by manufacturers or their licensees with a minimum consecutive three (3) year history of successful performance on similar installations will be acceptable.~~

Delete this Subsection and replace it with the following:

The epoxy bonding compound shall be a 2-component, epoxy-resin, bonding system for application to concrete. It shall conform to the requirements of ASTM C881. If used in load-bearing applications, the material shall conform to the requirements of ASTM C881, Type ~~4 or 5~~IV or V, Grade 1 or 2, Class B or C as per Pproject requirements.

No epoxy bonding compound shall be used six months after the date of manufacture.

923.22 Epoxy Resin System.

(A) Epoxy Resin for Injection

Delete the first paragraph and replace it with:

Epoxy resin system for injection materials to fill structural voids and cracks shall be a two component, 100% solids, moisture insensitive, high modulus, high strength epoxy resin adhesive. The material shall conform to ASTM C881, Type I or IV, having a minimum compressive strength of 10,000 psi per ASTM D695 and a minimum bond strength of 2,000 psi per ASTM C882. ~~(type, grade and class as per Project requirements). The material used shall be such that the final mixture after mixing with the aggregate shall have a minimum compressive strength of 10,000 psi~~

The pressure injected epoxy shall be capable of penetrating the cracks and voids to their full depth and bond to surfaces of cracked concrete and/or structural steel.

(B) Epoxy/Resin for Anchor Bolts in Nominal Holes

Delete ~~the first paragraph~~ this Paragraph and replace it with the following:

Epoxy resin system to injection materials to install anchor bolts in non-tension applications in drilled holes of a nominal diameter shall conform to ASTM C881~~ (type, grade and class per Project requirements)~~, Type

IV, having ~~have~~ a minimum compressive strength of 10,000 psi per ASTM D695 and a minimum bond strength of 2,000 psi per ASTM C882.

(C) Epoxy/Resin/Grout for Anchor Bolts in Oversize Holes

Delete ~~the first paragraph~~ this Paragraph and replace it with the following:

Epoxy resin system for injection materials to install anchor bolts in non-tension applications in drilled or preformed holes of up to 3"in diameter shall conform to ASTM C881, Type I or IV, ~~or ASTM C1107 (type, grade and class per Project requirements), have~~ having a minimum compressive strength of 10,000 psi per ASTM D695~~C109~~ and a minimum bond strength of 2,000 psi per ASTM C882.

923.23 Epoxy Crack Sealant.

Delete ~~the first paragraph~~ this Subsection and replace it with the following:

The material shall be an epoxy resin gel and conform to ASTM C881, Type IV or V, Grade 3 and Class C. ~~and AASHTO M235 (type, grade and class as per Project requirements) and have a minimum bond strength of 2,500 psi.~~

923.28 Sealant.

Delete ~~the first paragraph~~ this Subsection and replace it with the following:

Sealant shall be a high performance, moisture-cured, one-compound polyurethane or silicone base elastomeric sealant and shall conform to ASTM C920, Type S, Grade NS, Class 50, Use NT. ~~(grade, class and use as per Project requirements).~~