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Letting April 24, 2026

Notice to Bidders, Specifications and Proposal



**Contract No. 64T06
OGLE County
Section ((141-3HB)&(141-3VB)BDR
Route FAI 39
Project NHPP-AAX9(309)
District 2 Construction Funds**

Prepared by	
Checked by	F

(Printed by authority of the State of Illinois)



- 1. TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 12:00 p.m. April 24, 2026 at which time the bids will be publicly opened from the iCX SecureVault.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 64T06
OGLE County
Section ((141-3HB)&(141-3VB)BDR
Project NHPP-AAX9(309)
Route FAI 39
District 2 Construction Funds**

Bridge repairs and joint replacement on SN's 071-0046/0047, carrying I-39 over IL 72 3.5 miles south of Winnebago County Line and SN's 071-0048/0049 carrying I-39 over DME RR 0.025 miles south of IL 72.

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to re-advertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Gia Biagi,
Secretary

INDEX
 FOR
 SUPPLEMENTAL SPECIFICATIONS
 AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2026

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS, frequently used RECURRING SPECIAL PROVISIONS, and LOCAL ROADS AND STREETS RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 1-1-22) (Revised 1-1-26)

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2022, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways" and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the "Supplemental Specifications and Recurring Special Provisions" indicated on the Check Sheet included herein which apply to and govern the construction of FAI Route 39 (I-39), Project NHPP-AAX9(309), Section ((141-3HB) & (141-3VB))BDR, Ogle County, Contract No. 64T06 and in case of conflict with any part, or parts, of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

The project is located on I-39 over FAP 553 (Illinois Route 72), Structures SN 071-0046 & 071-0047, and over the Canadian Pacific-Kansas City Railway (CPKC), Structures SN 071-0048 & 071-0049, in Monroe Township, Ogle County, Illinois. The project is located in Township 42 North, Range 2 East, Section 20 of the 3rd Principal Meridian.

The net length of improvements at the structures of I-39 over FAP 553 (Illinois Route 72) at SN 071-0046 is 192.17-feet & at SN 071-0047 is 192.17-feet. The net length of improvements at the structures of I-39 over the Canadian Pacific-Kansas City Railway (CPKC) at SN 071-0048 is 192.17-feet & at SN 071-0049 is 192.17-feet.

DESCRIPTION OF PROJECT

The work on this project consists of rehabilitating the existing bridges carrying I-39 over IL 72 and over the Canadian Pacific-Kansas City Railway (CPKC). Work includes joint replacement, bridge deck scarification, bridge deck and approach patching, abutment and pier repairs, sloped wall repairs, Latex Concrete overlay, diamond grinding, pavement marking, restoration and all related collateral work necessary to complete the project.

TRAFFIC CONTROL PLAN

Effective: January 14, 1999

Revised: January 13, 2017

Standards:

701006	701101	701301	701400	701401	701402
701411	701426	701428	701901	704001	

Details:

Maintenance of Traffic Plans
Work Zone Details (District Standard 34.1)
Typical Pavement Markings (District Standard 41.1)
Guardrail Reflectors, Type C (Special) (District Standard 55.1)

Signs:

“BUMP” (W8-1(O)48) signs shall be installed as directed by the Engineer.

“UNEVEN LANES” W8-11(O)48 signs shall be installed at 1 mile intervals or as directed by the Engineer.

“LOW SHOULDER” W8-9(O)48 signs shall be installed at 1 mile intervals or as directed by the Engineer.

When covering existing Department signs, no tape shall be used on the reflective portion of the sign. Contact the District sign shop for covering techniques.

Any plates or direct applied sheeting used to alter signs shall have the same sheeting as the base sign.

No more than one kind of alteration shall be used to alter a sign.

Any post stubs without a sign in place and visible shall have a reflector placed on each post.

Flaggers:

Flaggers shall comply with all requirements and signaling methods contained in the Department’s “Traffic Control Field Manual” current at the time of letting. The flagger equipment listed for flaggers employed by the Illinois Department of Transportation shall apply to all flaggers

Pavement Marking:

Short term pavement markings on a milled surface shall be paint.

Traffic Control for Narrow Travel Lanes: The Contractor shall provide informational warning signs regarding narrow travel lanes during stage 1 construction areas. These signs will not be required during stage 2 construction areas when the clear width of roadway is 18-feet or greater. MAX WIDTH XX'-XX" X MILES AHEAD (W12-I103-48) signs with a width restriction of 12'-6" shall be installed at the following locations and the distance from the crossroads as noted; NB I-39 south of IL 38 and along IL 38 (12 MILES AHEAD) and at NB I-39 south of IL 64 & along IL 64 (7 MILES AHEAD), and at SB I-39 north of Baxter Road & along Baxter Road (5 MILES AHEAD), and at SB I-39 north of IL 72 & along IL 72 (1 MILE AHEAD).

The material of these signs shall be 0.125 inch thick aluminum, Type AP White and fluorescent orange reflective sheeting, and 6 inch D Series font Black vinyl lettering meeting the requirements of Sections 1090 and 1091 of the Standard Specifications.

Two signs at each location shall be required where the median is greater than 10 feet.

The Contractor shall notify the Department via email at DOT.D2.TrafficNotice@illinois.gov. **This request shall be submitted a minimum of three weeks (21 days) and no earlier than four weeks (28 days) prior to the anticipated closure date to allow the State adequate time to re-route oversized loads.**

Traffic Control and Protection Standard 701411:

Method of Measurement. Each ramp will be measured as a separate location and will be considered as a separate location for payment, regardless of the number of installations at that ramp.

Interstates and multi-lane divided highways where the existing speed is greater than 45 mph: The Contractor shall equip all machinery and vehicles with flashing amber lights, installed so the illumination is visible from all directions.

The median crossover will generally not be available for Contractor use. It may be used only when both lanes adjacent to the median are closed. Under no condition shall left turn lanes be made to cross the median from lanes open to traffic. Where interchanges are not available, the Contractor shall only be allowed to turn around where left turn lanes are present.

Parking of personal vehicles within the right-of-way will be strictly prohibited. Parking of construction equipment within the right-of-way will be permitted only at locations approved by the Engineer.

Maintenance of Traffic: The traffic shall be maintained lane closures and lane shifts following Traffic Control and Protection Standard 701400, Traffic Control and Protection Standard 701401, and Traffic Control and Protection Standard 701402 and as shown in the plans.

The mainline shall be kept open to one-way traffic at all times during working hours and non-working hours.

The Contractor shall notify the Ogle County Highway Department, the corresponding Township Commissioner, city municipality, emergency response agencies (i.e.: fire, ambulance, police), school bus companies and the Department of Transportation (Bureau of Project Implementation) regarding any changes in traffic control.

The Contractor shall notify the Ogle County Highway Department, corresponding Township Commissioner and/or city municipality for any sideroad closure or opening.

Two (2) changeable message signs shall be placed on this project two (2) weeks prior to the start of work informing the public of lane closures. Location of the message signs will be determined by the Resident Engineer.

ACRYLIC COATING

Description. This item shall consist of surface preparation and painting of bridge parapets and roadway barriers at the locations shown in the plans with an acrylic coating. The limits of the painting shall be as shown in the plans and as directed by the Engineer.

Materials. Acrylic Coating shall be an elastomeric, crack bridging, anti-carbonation, acrylic protective coating formulated for the protection of reinforced concrete. The Acrylic Coating shall have the following properties:

Color Gray	Munsell No. 5B 7/1
Solids Content	62% by weight, 55% by volume
Tensile Strength	Tensile (ASTM 0-412 modified after 21 days cure) 200 psi
Elongation at Break	625% at 730 F
Tensile Strength at 00 F	1100 psi
Elongation at Break at 00 F	225%
Crack-Bridging (at 16 mils - 400 microns DFT)	
Static (at -4 degree F)	30 mils
Dynamic > 1000 cycles (at -4 degree F)	12 mils
Moisture Vapor Permeability (ASTM E-96)	14.5 Perms
Resistance to Wind Driven Rain (TT-C-555B)	No passage of water through the coating
Flame Spread and Smoke Development (ASTM E-84-94)	
Flame Spread:	5
Smoke Development:	5 Class Rating: A
Weathering (ASTM G-23) 10,000 hours.	Excellent, no chalking or cracking

Construction Methods.

Surface Preparation. All surfaces to be coated must be dry, clean, sound, and frost free with curing compound residues and any other foreign matter removed. An open textured sandpaper like surface is ideal.

Where existing surface coating is present, the surface should be prepared by blast cleaning or high pressure water jetting.

All bare concrete areas should be primed with appropriate primer as recommended by the Acrylic Coating manufacturer. Ensure that primer is thoroughly dry before over coating to prevent formation of bubbles and blisters, particularly in warmer weather.

Application. Substrate must be dry before application. Moisture content of concrete surface shall be below 5%. Minimum age of concrete or concrete patch shall be 14 days prior to application.

Acrylic Coating shall be applied with brush or roller over entire area moving in one direction. A dry film thickness of 16 mils should be achieved.

Method of Measurement. Application of Acrylic Coating shall be measured for payment in Square Yards for the surface area of the final coat applied.

Basis of Payment. This work will be paid for at the contract unit price per square yard for ACRYLIC COATING. Surface preparation and priming will not be paid for separately, but will be included in the cost of ACRYLIC COATING.

BRIDGE APPROACH SHOULDER REMOVAL

Description.

This work shall consist of the complete removal of the existing bridge approach shoulder pavement in accordance with Section 440 of the Standard Specifications and as noted herein.

Method of Measurement.

This work will be measured for payment in place and the area computed in square yards. Basis of Payment. This work will be paid for at the contract unit price per SQUARE YARD for BRIDGE APPROACH SHOULDER REMOVAL.

CLEANING BRIDGE SCUPPERS AND DOWNSPOUTS

Description. This work shall consist of cleaning all bridge drainage scuppers and downspouts from the opening at the bridge deck to the point of discharge below the deck, as shown on the plans and as directed by the Engineer.

Construction Requirements. This item of work shall be performed in accordance with applicable portions of Section 592 of the Standard Specifications. The method for cleaning shall not damage the existing drainage system and shall be submitted to the Engineer for approval. Any damage to the drainage system shall be repaired by the Contractor at no additional cost. The drainage system shall be cleaned to the satisfaction of the Engineer, which includes the testing and inspecting of each scupper and deck surface to ensure that it has been completely cleaned.

Basis of Payment. This work will be paid for at the contract unit price per each for CLEANING BRIDGE SCUPPERS AND DOWNSPOUTS.

CLEANING AND PAINTING EXPOSED REBAR

Effective: March 20, 1997

Revised: January 1, 2007

Description. This work shall consist of cleaning and painting all exposed reinforcement bar by the methods specified on the plans; furnishing application and protection of the paint coatings and all other work described herein.

General Requirements. All exposed rebar and adjacent concrete surfaces on the substructure and superstructure shall be cleaned and painted. All surfaces to be painted shall be power washed at 2500 psi (17,240 kPa) prior to abrasive blasting. After washing, the exposed rebar shall be abrasive blasted per SSPC-SP6 Commercial Blast Cleaning followed by the Aluminum Epoxy Mastic Paint System.

Weather Conditions. The surfaces to be painted after cleaning must remain free of moisture and other contaminants. The Contractor shall control his/her operations to insure that dust, dirt or moisture do not come in contact with surfaces cleaned or painted that day. In addition to the paint system's manufacturer's written instructions for cleaning and painting, the following conditions shall apply. (When in conflict, the most restrictive conditions shall govern).

- (1) Cleaning and painting shall be done between April 15 and November 15.
- (2) The minimum temperature of the air and steel shall be 50 °F (10 °C) unless otherwise specified. Coatings shall not be applied to surfaces hotter than 130 °F (54 °C) or when the air temperature exceeds 100 °F (38 °C).
- (3) The surface temperature shall be at least 5 °F (3 °C) above the dewpoint of the air surrounding the surface. In addition, the relative humidity of this air shall be less than 85%.
- (4) Spray painting will not be permitted when wind velocities are greater than 15 MPH (24 kph).

These conditions will be determined by the Engineer at locations representative of the surfaces to be cleaned and painted. Work accomplished under unfavorable weather conditions will be considered unacceptable and complete recleaning and repainting of these areas will be required at the Contractor's expense.

Equipment. All cleaning and painting equipment shall include gauges capable of accurately measuring fluid and air pressures and shall have valves capable of regulating the flow of air, water or paint as recommended by the equipment manufacturer. The equipment shall be maintained in proper working order.

Spray painting and cleaning equipment shall utilize filters, traps or separators recommended by the manufacturer of the equipment and shall be kept clean to prevent oil, water, dried paint and other foreign materials from being deposited on the surface. The filters, traps and separators shall be cleaned or drained by means, and at intervals, recommended by the manufacturer of the equipment. Paint pots shall be equipped with air operated continuous mixing devices.

Pressure type abrasive air blasting equipment shall be capable of supplying a minimum of 100 psi (690 kPa) pressure and 250 CFM (120 L/S) capacity with all air blast nozzles being used. If blast nozzle orifice sizes larger than 3/8" (9.5 mm) are being used, the minimum capacity of the equipment shall be increased according to the recommendations of SSPC Good Painting Practice, Volume 1, Chapter 2.4, Table 1. The pressure will be measured at the blast nozzle. The equipment shall be capable of providing the minimum required pressure and volume, free of oil, water and other contaminants.

Diesel or gasoline powered equipment shall be positioned or vented in a manner to prevent deposition of combustion contaminants on any part of the structure.

Prior to beginning all painting operations, air equipment shall pass the requirements of ASTM D 4285. This test will be repeated as determined by the Engineer.

Cleaning. The Contractor shall notify the Engineer 24 hours in advance of beginning surface preparation operations. The washing shall be completed no more than 2 weeks prior to surface preparation. As directed by the Engineer, washing shall be completed on surfaces to receive second or third coats when foreign matter has accumulated on previously painted surfaces. Power washing shall be accomplished by using potable water meeting the requirements of Section 702 of the Standard Specifications with a flow rate of at least 4 gallons/minute (0.25 L/S), a nozzle fan angle between 15 and 30 degrees and a minimum pressure of 2500 psi (17,240 kPa).

Surface Preparation. The surface preparation Method is defined as outlined below:

The surface preparation shall be accomplished according to the requirements of SSPC Surface Preparation Specifications SP6, for Commercial Blast Cleaning. A Commercial Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining.

Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Slight residues of rust and paint may also be left in the bottoms of pits if the original surface is pitted. Unless otherwise specified, the surface preparation in these areas shall result in 1.0 to 3.5 mil (25 to 90 microns) blast profile as determined by the Engineer. The Contractor shall be careful not to damage sound paint adjacent to paint removal areas by his/her abrasive blasting operations.

Abrasive suppliers shall certify that abrasives shall not be oil contaminated and shall have a water extract pH value within the range of 6 to 8. All surfaces prepared with abrasives which are oil contaminated or have a pH outside the specified range shall be cleaned with solvent cleaner or low pressure water as directed by the Engineer and reblasted by the Contractor at his/her expense. Silica sand shall not be used as an abrasive.

All portions of the structure which could be damaged by the blast cleaning operations, shall be protected by covering or shielding. Tarpaulins, drop cloths, or other approved materials shall be employed. The Contractor shall be responsible for any damage caused to persons, vehicles, or property. Whenever the intended purposes of the protective devices are not being accomplished, as determined by the Engineer, work shall be immediately suspended until corrections are made.

Painting. All exposed rebar and surrounding concrete surfaces adjacent to the rebar shall be painted. The limits of the area to be painted shall be 3 inches (75 mm.) beyond the exposed reinforcement in all directions. Painting shall be accomplished according to these specifications and as specified in the paint manufacturer's written instructions and product data sheets for the paint system used. The prime and finish coat shall all be supplied by the same paint manufacturer.

All ingredients in any container of paint shall be thoroughly mixed by mechanical power mixers in original containers before use or mixing with other containers of paint. The paint shall be power mixed in a manner which will break up all lumps, completely disperse pigment and result in a uniform composition. Paint shall be carefully examined after mixing for uniformity and to verify that no unmixed pigment remains on the bottom of the container. Excessive skinning or partial hardening due to improper or prolonged storage will be cause for rejection of the paint, even though it may have been previously inspected and accepted. Paint shall not remain in spray pots, painters' buckets, etc. overnight. Paint components shall not be stored at temperatures below 40 °F (4 °C). The unit weight (mass) shall be the same as the manufactured unit weight (mass) in pounds per gallon (kg/L), plus or minus 1.0 percent. If the unit weight (mass) does not fall within this range, the Contractor must take corrective action. The Contractor may try additional mixing to correct the problem. If additional mixing cannot correct the paint, it shall be rejected. Any paint that has been applied that does not meet the weight (mass) per gallon (liter) requirements shall be removed and the area shall be inspected and repainted at the Contractor's expense.

Each coat of paint shall be applied as a continuous film of uniform thickness free of pores. Each coat of paint shall be in a proper state of cure before the application of the succeeding coat. Dry film thickness shall be measured according to SSPC PA2.

Aluminum Epoxy Mastic System. All exposed rebar and surrounding concrete surfaces shall be painted with two coats of Aluminum Epoxy Mastic Paint. The dry film thickness shall be between 5.0 and 10.0 mils (125 and 250 microns) per coat. The wet film thickness shall be between 6.0 and 12.0 mils (150 and 300 microns) per coat. The total dry film thickness of the two coats shall be between 10.0 and 20.0 mils (250 and 500 microns).

Application. The aluminum epoxy mastic coating shall not be applied when the surface temperature is below 50 °F (10 °C) and shall not be applied when the ambient temperature is expected to drop below the manufacturer's minimum application temperature before the coating has cured. Curing times at various temperatures shall be provided by the paint manufacturer.

The aluminum epoxy mastic shall be applied by spray, brush or roller according to the paint manufacturer's printed instructions. Thinning of the aluminum epoxy mastic shall be according to the manufacturer's instructions. If brushes and/or rollers are used, two applications, applied at least 8 hours apart, may be required to obtain the required dry film thickness for each of the specified coats. The first application shall be tinted according to the manufacturer's guidance to produce a distinct contrast with the second application. When topcoat is applied, the recommendations of the coating manufacturer shall be followed as to surface preparation of the aluminum epoxy mastic. When the humidity exceeds 75% during the application of the epoxy mastic, the surface shall be washed off with potable water prior to application of the topcoat.

If a paint coating is too thin or if portions of the steel are not coated completely, such portions of the work shall be corrected as directed by the Engineer. If the paint coat wrinkles or shows evidence of having been applied under unfavorable conditions, or if the workmanship is poor, the Engineer may order it removed and the steel cleaned and repainted at the Contractor's expense. All areas where the paint film exceeds the maximum thickness shall be corrected by the Contractor at his/her expense using approved methods.

Aluminum Epoxy Mastic Material Requirements

The aluminum epoxy mastic paint system shall be a two component epoxy containing aluminum pigment. The aluminum epoxy mastic shall be designed as a one coat high-build complete protective coating system with excellent adhesion to rusted steel, inorganic zinc and old paint after such surfaces have been properly cleaned. The aluminum epoxy mastic shall be compatible with a wide range of topcoats including waterborne acrylics, alkyds, and polyurethanes.

The material for aluminum epoxy mastic primer shall conform to the following requirements:

- (1) Pigment - The primary pigment shall be either a leafing or non-leafing aluminum pigment. Secondary pigmentation shall contain no toxic heavy metals.
- (2) Vehicle - The vehicle shall be a modified epoxy and curing agent which is suitably insensitive to moisture to allow trouble free application.
- (3) Packaged Components - The epoxy coating shall be supplied as a two-component material at a one-to-one volume mix ratio. It shall be well ground, free of caking, skins, gellation and excessive settling. The shelf life of each component shall be no less than twelve months.

(4) Properties Of Aluminum Epoxy Mastic

- a. The mixed epoxy shall contain a minimum of 89 percent solids by weight, when tested according to ASTM D 1644, Method A, except that the sample shall be heated for 72 hours at $100^{\circ} \pm 2^{\circ}\text{F}$ ($38^{\circ} \pm 1^{\circ}\text{C}$).
- b. The weight per gallon (mass/liter) of the unmixed components shall not vary more than 0.2 pounds (0.1 kg) from the weight (mass) of the original qualification samples.
- c. The viscosity of the coating shall be a minimum of 90 KU at $77^{\circ} \pm 2^{\circ}\text{F}$ ($25^{\circ} \pm 1^{\circ}\text{C}$). Viscosity must be checked immediately after addition and mixing of components.
- d. The pot life of the epoxy coating shall be no shorter than 2 hours at 75°F (24°C) or one hour at 90°F (32°C).
- e. The epoxy coating shall air cure at a temperature of 75°F (24°C) or above to a hard tough film within 5 days by evaporation of solvent and chemical reaction. It shall be dry to the touch in 24 hours at 75°F (24°C), and be able to withstand foot traffic in 48 hours at 75°F (24°C).
- f. The mixture, when thinned per manufacturer's recommendations, shall exhibit no runs or sags when applied by conventional or airless spray to produce dry film thicknesses in the 5 to 10 mil (125 to 250 micron) range.

(5) Resistance Tests of Cured Aluminum Epoxy Mastic - Test panels of steel meeting the requirements of ASTM D 609, having dimensions of 2 X 5 X 1/8 inch (50 X 125 X 3 mm), shall be prepared by abrasive blasting all surfaces to a white metal finish according to SSPC-SP5. The cleaned panels shall then be exposed to outdoor weather for 30 days or until uniform rusting occurs. They shall then be hand cleaned with a wire brush according to SSPC-SP2. A 6 mil (150 micron) dry coating of the epoxy mastic shall then be applied in one coat according to the manufacturer's current printed instructions. The coating shall be cured as recommended by the manufacturer. Each of the following tests shall be performed on one or more test panels. Test panels to be scribed shall be prepared according to the requirements in ASTM D 1654. The material will not be accepted if any individual test panel fails any of the following tests:

- (a) Fresh Water Resistance. Panels shall be scribed down to base metal with an X of at least 2 inch (50 mm) legs and shall be immersed in fresh tap water at $75^{\circ} \pm 5^{\circ}\text{F}$ ($24^{\circ} \pm 3^{\circ}\text{C}$). The panels shall show no rusting, blistering, or softening beyond 1/16 inch (1.5 mm) from the scribe mark, when examined after 30 days. Discoloration of the coating will be allowed.
- (b) Salt Water Resistance. Panels shall be scribed down to base metal with an X of at least 2 inch (50 mm) legs and immersed in 5 percent sodium chloride at $75^{\circ} \pm 5^{\circ}\text{F}$ ($24^{\circ} \pm 3^{\circ}\text{C}$). The panels shall show no rusting, blistering or softening beyond 1/16 inch (1.5 mm) from the scribe mark upon examination after 7, 14 and 30 days. Discoloration of the coating will be allowed. The sodium chloride solution shall be replaced with fresh solution after each examination.
- (c) Salt Fog Resistance. Panels shall be scribed down to base metal with an X of at least 2 inch (50 mm) legs. The panels shall then be tested according to ASTM B 117. After 1,000

hours of continuous exposure, the coating shall show no loss of bond, nor shall it show rusting or blistering beyond 1/16 inch (1.5 mm) from the center of the scribed mark.

(d) Weathering Resistance. Panels shall be tested in accelerated weathering using either the light and water exposure apparatus (fluorescent UV-condensation type) as specified in ASTM G154 for 1000 hours with a cycle consisting of eight hours UV exposure at 140 °F (60 °C) followed by four hours of condensation at 104 °F (40 °C) or the weatherometer according to ASTM G154, Type D for 1000 hours beginning the test at the start of the wet cycle. After this period, the panels shall show no loss of bond, nor shall it show rusting, softening or blistering.

(6) Packaging and Labeling - The aluminum epoxy mastic coating shall be packaged in two containers. The components shall be prepackaged such that mixing in a one-to-one ratio, by volume, utilizes a complete container of each component.

Each container shall have a label on which shall be clearly shown the manufacturer and brand name of paint, the lot number, the date of manufacturer and shelf life. The label on the vehicle container shall also include complete instructions for the use of this paint. The container shall be coated, if necessary, to prevent attack by the paint components.

(7) Qualification Samples and Tests

The manufacturer shall supply to an independent test laboratory, and to the Department, duplicate samples of the aluminum epoxy mastic paint for evaluation. Prior to approval and use, the manufacturer shall submit a notarized certification of the independent laboratory, together with the results of all tests, stating that the materials meet the requirements as set forth herein. The certified test report shall state lot tested, manufacturers name, product name, and date of manufacture. New certified test results and samples for testing by the department shall be submitted any time the manufacturing process or paint formulation changes. All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer.

(8) Acceptance Samples and Certification

One quart (liter) component samples of each lot of paint produced for use on state or local agency projects shall be submitted to the Department for testing, together with a manufacturer's certification. Their certification shall state that the formulation for the lot represented is essentially identical to that used for qualification testing. All acceptance samples shall be taken by a representative of the Illinois Department of Transportation. The aluminum epoxy mastic paint shall not be used until all tests are completed and they have met the requirements as set forth herein.

Method of Measurement: Limits of the area to be painted are determined by the exposed reinforcement after the loose concrete has been removed. The limits of the area to be painted and measured for payment shall be 3 inches (75 mm.) beyond the exposed reinforcement in all directions.

Basis of Payment: This work shall be paid for at the contract unit price per square foot (square meter) for CLEANING AND PAINTING EXPOSED REBAR. This shall include all equipment and labor necessary to remove loose concrete.

FIBER WRAP

Effective: March 14, 2018

Revised: July 12, 2018

Description

This work shall consist of furnishing and installing fiber-reinforced polymer (FRP) wraps at the locations shown in the plans. The FRP strengthening shall be of the size, type, layer, materials, tension, and spacing shown in the plans. The Contractor shall submit drawings of the FRP strengthening system, showing materials, components, and installation procedures to the Engineer for approval prior to ordering materials and commencing work.

All other concrete repairs and/or modifications shall be completed prior to performing this work. Concrete placed in areas receiving FRP wraps shall have a maximum moisture content of 4% using a digital moisture meter before wrapping begins unless bond testing shows no detrimental effect for installing prior to obtaining the required moisture content. All manufacturer's recommendations for surface preparation and installation of FRP wraps shall be followed.

Submittals

The following submittals, but not limited to, shall be required of the FRP system manufacturer, installation contractor and inspection agency. All submittals, except daily installation data logs, shall be given to the Engineer for review allowing at least 60 days for approval.

Submittals required of the FRP system manufacturer:

- Product information and data sheets indicating physical, mechanical and chemical properties and limitations of the FRP system and all its components.
- Tensile properties for the FRP system shall be reported in accordance with ASTM D7565 in units of kips/inch/ply for strength and modulus (stiffness). FRP systems not reporting their design properties in accordance with ASTM D7565 are not allowed.
- Durability test data and structural test reports of the FRP system for the proposed application in the expected environmental conditions.
- Installation and maintenance instructions and general recommendations regarding each material used in the FRP system. Note that surface preparation requirements shall be included in the installation procedures.
- Material Safety Data Sheets of each product used and certification that all materials abide by all local, state, and federal environmental and worker's safety laws and regulations.
- Quality control procedures for tracking FRP materials and material certifications.
- List of projects where similar FRP system has been implemented.

Submittals required of the FRP system installation Contractor:

- Documentation from the FRP system manufacturer stating the Contractor has been trained to install the FRP system show on the design plans.
- List of completed projects by the Contractor where similar FRP system has been implemented. Include location, owner, engineer and contact numbers associated with each project.
- Documentation showing that the Contractor is experienced in surface preparation techniques required for the project.
- Quality control procedures, daily installation data logs, and any other inspection forms used by the Contractor.
- If an independent inspection agency is used, the following submittals are required of the FRP system inspection agency:

- Qualifications and a list of each inspector used on the project.
- Sample inspection forms to be used during inspection.
- List of prior inspections performed by each inspector used on the project.

Material Requirements

The Contractor shall inspect and ensure all materials meet specifications, conform to design plans and are undamaged upon job-site arrival. All products shall be delivered to the job-site in their original, un-opened containers with the Manufacturer’s name, labels, product identification, and batch numbers. Ensure FRP system materials are protected from chemicals, dirt, extreme, temperatures, moisture, and physical damage, by storing, handling, and applying materials according to manufacturer and OSHA recommendations.

FRP shall be high modulus, high strength fiber fabric of the type, size, layer, materials, tension, spacing and location as specified on the design plans. FRP Reinforcement shall meet the requirements as listed below.

Minimum FRP Cured Composite Property Requirements

Property	Carbon Fiber	ASTM Test Method
Prior to testing, laminate samples shall be cured at least 7 days at 70°F then post-cured at 140°F for 48 hours		
Tensile Strength	140 ksi	D3039
Tensile Modulus	11,000 ksi	D3039
Elongation at break	1.0%	D3039
Thickness per layer*	0.035 in.	
Unit Tensile Strength	5.6 k/in/layer	D7565
Unit Tensile Modulus	440 k/in/layer	D7565

* Individual layer thickness may not exceed 0.05 in.

Fabric saturant (saturating resin) and concrete primer shall be two-component, 100% solids, tolerant to moisture, high strength and high modulus epoxy. Manufacturer’s recommendations for mixing shall be followed. Components of saturating resin may be proportioned; however, provision shall be made for checking the accuracy of proportions and mixing. Dilution of components will not be permitted. Mixtures shall be used within its pot life.

A vapor permeable, UV resistant polymer or acrylic based protective coating shall be used. The protective coating shall be applied according to the manufacturer’s recommendations.

Construction Requirements

A technical representative from the manufacturer shall be on site at the start of the installation and for as long as needed to insure the contractor is installing the material in accordance with the Installation manual. All costs associated with providing a technical representative shall be the responsibility of the Contractor.

The Contractor shall maintain a Daily Installation Log. The log shall be available for review by the Engineer, and a copy shall be furnished to the Engineer at completion of installation and

construction for each day's production. The Log shall provide material traceability and process records for each wrap and shall include all the following information:

- (a) Date, time and specific location of installation.
- (b) Construction and installation requirements, including plans and drawings and references thereto.
- (c) Surface preparation methods.
- (d) Widths and lengths of cracks not injected with epoxy.
- (e) Material information including product description, data of manufacturer, product and
- (f) fiber batch numbers, mixture ratios, mixing times, appearance description of mixed resins (i.e. primers, putties, saturants, adhesives, and protective coatings used for the day)
- (g) Ambient temperatures, humidity, and general weather observations at the beginning, middle and end of each wrap installation shift.
- (h) Concrete surface temperature, concrete moisture content and surface cleanliness.
- (i) Heat sources used for increase surface temperature or curing.
- (j) Number of FRP layers used, composite thickness measurements, curing progress of resins including full documentation of curing temperature ramping and final curing temperature and thickness measurements of protecting coating used.
- (k) Location and size of FRP debonding or air voids.
- (l) Documentation stating installation procedures were followed.
- (m) Pull off test results including bond strength, failure mode, and location.
- (n) Other general work progress.

Surface Preparation:

FRP wraps shall be placed on sound concrete having a maximum moisture content of 4%. All bond inhibiting and foreign materials, including but not limited to dust, laitance, paint, grease, curing compounds, impregnations and waxes, shall be removed from the concrete surface by blast cleaning or equivalent mechanical means. All concrete surfaces shall be air blasted and vacuumed clean to a dust-free condition.

All concrete surface irregularities shall be ground smooth and/or filled with an approved repair technique. See special provision for Precast Prestressed Concrete I-Beam Repair for concrete repair at bottom flanges of beams and for the concrete repair of exposed vertical reinforcement at side faces of beam. All sharp edges shall be ground smooth and flush. All repairs shall be completed in such a manner as to not damage the existing structure.

When wrapping FRP around exterior corners of rectangular cross sections, the corners should be rounded to a minimum of 1/2" radius. Interior corners shall be smoothed by troweling epoxy mortar into the corners. After concrete surface preparation has been completed, adhesive strength of the concrete shall be verified by random pull-off testing according to ACI 503R as per the direction of the Engineer.

All cracks greater than 0.007 in. shall be injected with epoxy according to Section 590 of the Standard Specifications for Road and Bridge Construction and paid for as Epoxy Crack injection.

Constituent Material Application:

All materials shall be applied according to conditions (i.e. surface temperature of the concrete, air temperature, relative humidity, and corresponding dew point) recommended by the FRP manufacturer.

Components of saturating resin may be proportioned and mixed by hand or by automatic equipment. Provision shall be made for checking the accuracy of proportions and mixing. Diluting is not permitted.

The saturating resin shall be applied to a properly prepared substrate as a surface primer. The primer should be applied uniformly on the prepared surface to all areas of concrete receiving the FRP wrap according to the manufacturer's specifications. Primed surfaces shall be protected from all contaminants (e.g. dust, moisture, etc.) prior to the application of the FRP wraps.

The resin-to-fabric ratio shall be verified and documented on the daily installation data log. Saturating resin shall be applied uniformly to prepared surfaces. FRP-ply orientation shall not deviate from the orientation shown on the design plans. Fiber wraps shall be handled in a manner to maintain fiber straightness and prevent fiber damage. Any kinks, folds, or severe waviness should be reported to the Engineer. If multiple fabric layers are being placed, successive layers shall be placed before the complete curing of the previous layer to ensure complete bonding between layers. Entrapped air beneath each layer of fabric shall be rolled out before the saturating resin sets.

Subject to approval by the Engineer, the Contractor may provide suitable enclosures to permit application and curing of the fiber wrap during inclement weather. Provisions shall be made to control atmospheric conditions artificially within the enclosures within the limits specified for application and curing of the fiber wrap.

The FRP system shall be protected from rain, sand, dust, and other foreign particles during and after curing as per the Engineer and manufacturer's recommendations.

The Contractor shall inspect the cured FRP system to ensure saturating resin has completely cured. The Contractor must check for defects such as voids, delaminations, external cracks, chips, cuts, loose fibers, external abrasions, blemishes, foreign inclusions, depressible raised areas, or fabric wrinkles. All defects with a dimension greater than 1½ inch, or an area greater than one square inch, or defects with any dimension greater than 1 inch within one foot from another defect area of similar size, shall be repaired or replaced as determined by the Engineer. Repairs shall be made according to manufacturer's recommendations and as specified by the Engineer. For large defected areas, additional layers of FRP may be required as per the Engineer.

A vapor permeable, UV resistant polymer or acrylic based protective coating shall be used. The protective coating shall be compatible with the FRP system and applied according to the manufacturer's recommendations. Any solvents used to clean the FRP surface prior to the application of the protective coating shall be approved by the FRP manufacturer since solvents can have harmful effects on the polymer fabric. Two layers of protective coating shall be applied to all surfaces of the fiber wrap. In addition, one layer of protective coating shall also be applied to the exterior vertical surface and bottom surface of the fascia beams in areas where the fiber wrap is not applied. The cost of the protective coating shall be paid for as Acrylic Coating.

Method of Measurement

FRP wraps will be computed for payment in place in square feet based on the surface area measurements of the substrate to be repaired. The measured quantity will not be modified for multiple layers of FRP needed as shown in the design plans.

The areas upon which the protective coat is applied will be measured for payment in place and the area computed in square yards.

Basis of Payment

This work will be paid for at the contract unit price per square foot for FIBER WRAP. Payment shall constitute full compensation for all materials, labor, tools, equipment, and incidentals necessary to complete the work.

Full compensation for any additional testing, materials, enclosures, or work required because of the use of a particular type of fiber wrap, shall be considered as included in the item FIBER WRAP.

Protective coat will be paid for at the contract unit price per square yard for ACRYLIC COATING

GUARDRAIL REMOVAL

Effective: August 20, 1990 Revised: April 10, 2014

This work shall be done according to Section 632 of the Standard Specifications except that all removed guardrail will become the property of the Contractor.

This work will be paid for at the contract unit price per Foot for GUARDRAIL REMOVAL, measured from center-to-center of end posts.

PCC AUTOMATIC BATCHING EQUIPMENT

Effective: January 1, 2015 Revised: January 31, 2023

Portland cement concrete provided shall be produced from batch plants that conform to the requirements of Article 1103.03 (a) and (b) of the Standard Specifications for Road and Bridge Construction. Semi-automatic batching will not be allowed.

Plants shall have computerized batching interfaced with a printer. IDOT Producer Number, IDOT Design Number, Concrete Material Code, batch weights, aggregate mixtures, water added, amount of each admixture or additive, and percent variance from design shall be printed for each batch. Tickets shall state the actual water-cement ratio as batched, and the amount of water that can be added to the batch without exceeding the maximum water-cement ratio. Truck delivery tickets are still required as per Article 1020.11(a)(7) of the Standard Specifications.

PC CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT (SPECIAL)

Description. This item shall include all materials, labor, and equipment necessary to construct bridge approach shoulder pavement in accordance with applicable portions of Section 420 the Standard Specifications except as herein specified.

CONSTRUCTION REQUIREMENTS

The Contractor shall perform the work of constructing bridge approach shoulder pavement using (10 inches) of concrete as shown on plan details and as directed by the Engineer.

Existing shoulder inlets, frames and grates shall be incorporated into the new construction.

Method of Measurement.

This work will be measured for payment as follows:

- (a) Contract Quantities. The requirement for use of contract quantities shall be according to Article 202.07(a) of the Standard Specifications.
- (b) Measured Quantities. This work will be measured in place and the area calculated in square yards.

Basis of Payment. This work will be paid for at the contract unit bid price per square yard for PC CONCRETE BRIDGE APPROACH SHOULDER PAVEMENT (SPECIAL) which price shall be payment in full to complete this work.

PCC QC/QA ELECTRONIC REPORTS SUBMITTAL

Effective: January 1, 2015

Revised: January 31, 2023

The Contractor's QC personnel shall be responsible for electronically submitting the following reports to the Department: PRO and IND data for Bmpr MI654 "Concrete Air, Slump, and Quantity,"; PRO data for Bmpr MI655 "P.C. Concrete Strength," and PRO data for Bmpr MI504 "Aggregate Gradation" reports to the Department. The format for the electronic submittals shall be the QMP package reporting program, which will be provided by the Department. Microsoft Excel 2007 or newer and Microsoft Outlook is required for this program which shall be provided by the Contractor.

PRECAST PRESTRESSED CONCRETE I-BEAM REPAIR

Effective: March 14, 2018

Description

This work shall consist of repairing precast prestressed concrete (PPC) I-beams along with all necessary hardware, labor and equipment in accordance with the Plans and as directed by the Engineer.

Materials

Materials shall be according to the following:

Item	Article/Section
(a) Portland Cement Concrete (Note 1)	1020
(b) Non-shrink Grout (Note 2)	1024.02
(c) Shotcrete (High Performance) (Notes 3 and 4)	

Note 1. The concrete shall meet all the requirements specified in Section 1020 of the Standard Specifications for Class PS Concrete for precast prestressed concrete members, except the maximum size of the aggregate shall be 1.

Note 2. The concrete shall be from the "Approved List of Non-Shrink Grouts" maintained by the Bureau of Materials and Physical Research. The repair material chosen shall be appropriate for the thickness of repair to be made. Coarse aggregate with a maximum size of $\frac{3}{8}$ " shall be added with the amount as specified by the manufacturer.

Note 3. Packaged shotcrete that includes aggregate shall be from the Department's approved list of Packaged High Performance Shotcrete, and independent laboratory test results showing the product meets Department specifications will be required. The product shall be a packaged, pre-blended, and dry combination of materials, for the wet-mix shotcrete method according to ASTM C 1480. A nonchloride accelerator may be used according to the shotcrete manufacturer's recommendations. The shotcrete shall be Type FA or CA, Grade FR, and Class I. The fibers shall be Type III synthetic according to ASTM C 1116.

The packaged shotcrete shall have a water-soluble chloride ion content of less than 0.40 lb/cu yd (0.24 kg/cu m). The test shall be performed according to ASTM C 1218, and the hardened shotcrete shall have an age of 28 to 42 days at the time of test. The ASTM C 1218 test shall be performed by an independent lab a minimum of once every two years, and the test results shall be provided to the Department.

Each individual aggregate used in the packaged shotcrete shall have either a maximum ASTM C 1260 expansion of 0.16 percent or a maximum ASTM C 1293 expansion of 0.040 percent. However, the ASTM C 1260 value may be increased to 0.27 percent for each individual aggregate if the cement total equivalent alkali content ($\text{Na}_2\text{O} + 0.658\text{K}_2\text{O}$) does not exceed 0.60 percent. As an alternative to these requirements, ASTM C 1567 testing which shows the packaged shotcrete has a maximum expansion of 0.16 percent may be

submitted. The ASTM C 1260, C 1293, or C 1567 test shall be performed a minimum of once every two years.

The 7 and 28-day compressive strength requirements in ASTM C 1480 shall not apply. Instead the shotcrete shall obtain a minimum compressive strength of 4000 psi (27,500 kPa) at 14 days.

The packaged shotcrete shall be limited to the following proportions:
The portland cement and finely divided minerals shall be 6.05 cwt/cu yd (360 kg/cu m) to 8.50 cwt/cu yd (505 kg/cu m) for Type FA and 6.05 cwt/cu yd (360 kg/cu. m) to 7.50 cwt/cu yd (445 kg/cu m) for Type CA. The portland cement shall not be below 4.70 cwt/cu yd (279 kg/cu m) for Type FA or CA.

The finely divided mineral(s) shall constitute a maximum of 35 percent of the total cement plus finely divided mineral(s).

Class F fly ash is optional and the maximum shall be 20 percent by weight (mass) of cement.

Class C fly ash is optional and the maximum shall be 25 percent by weight (mass) of cement.

Ground granulated blast-furnace slag is optional and the maximum shall be 30 percent by weight (mass) of cement.

Microsilica is required and shall be a minimum of 5 percent by weight (mass) of cement, and a maximum of 10 percent. As an alternative to microsilica, high reactivity metakaolin may be used at a minimum of 5 percent by weight (mass) of cement, and a maximum of 10 percent.

Fly ash shall not be used in combination with ground granulated blast-furnace slag. Class F fly ash shall not be used in combination with Class C fly ash. Microsilica shall not be used in combination with high-reactivity metakaolin. A finely divided mineral shall not be used in combination with a blended hydraulic cement, except for microsilica or high- reactivity metakaolin.

The water/cement ratio as defined in Article 1020.06 shall be a maximum of 0.42. The air content as shot shall be 4.0 – 8.0 percent.

Note 4 Packaged shotcrete that does not include pre-blended aggregate shall be from the Department's approved list of Packaged High Performance Shotcrete, and independent laboratory test results showing the product meets Department specifications will be required. The shotcrete shall be according to Note 3, except the added aggregate shall be according to Articles 1003.02 and 1004.02 in addition to each individual aggregate meeting the maximum expansion requirements of Note 3. The aggregate gradation shall be according to the manufacturer. The shotcrete shall be batched and mixed with added aggregate according to the manufacturer.

Equipment

Equipment shall be according to Article 503.03 and the following.

Chipping Hammer – The chipping hammer for removing concrete shall be a light- duty pneumatic or electric tool with a 15 lb. (7 kg) maximum class or less.

Blast Cleaning Equipment – Blast cleaning equipment for concrete surface preparation shall be the abrasive type, and the equipment shall have oil traps.

High Performance Shotcrete Equipment – The batching, mixing, pumping, hose, nozzle, and auxiliary equipment shall be for the wet-mix shotcrete method, and shall meet the requirements of ACI 506R.

Construction Requirements

PPC I-beam repairs shall be done before addition of new concrete, but after removal of any existing concrete

Bottom Flange Repair:

The damaged area of the beams shall be cleaned of all loose and spalled concrete, and sealant. All loose material shall be removed to sound concrete until coarse aggregate will break under chipping rather than dislodging. Hand tools shall be used for the removal of concrete adjacent to prestressing strands. While a 15-pound chipping hammer may be used away from prestressing strands, extreme care shall be used not to damage the exposed restressing strands.

Using the same tools, remove the existing concrete to sound concrete along the edges of the damaged areas to a depth of 1" min. to 1½" max. The edges shall be saw cut ¾" deep or less. The limits of removal on the beam are shown in the details. The entire area of existing concrete against which new concrete will be placed and any exposed portions of the prestressing strands shall be sandblasted. The concrete shall be sandblasted to expose clean, well-bonded aggregate.

All surfaces of the existing concrete in the areas to be repaired shall be prepared in accordance with Art. 503.09 (b) of the Standard Specs. The concrete beam to be repaired must be at a temperature of at least 50 °F or higher.

Self-drilling anchors or power-driven pins as shown in the Plans shall be placed at 9" alternate centers horizontally and located vertically 3" and 7" up from the bottom of the beam. Use wire ties in areas where the strands are exposed as shown in the details. Place 1" x 1" x 18 gage welded wire fabric in repair areas and attach it to the pins or strands with wire ties. The clearance between the finished surface of the new concrete and the welded wire fabric shall be 1" minimum. The beam involved in this work shall be rebuilt to its original dimensions.

Place the lower form on the bottom of the beam and compact by vibrating (or other approved methods) the concrete mix into the voids. After accessible voids have been filled and compacted, the top vertical form shall be raised into position and the remaining voids filled and compacted. The sloping upper surface shall be finished to the configuration of the existing PPC I- Beam flange.

Web and Top Flange Repair:

The damaged area of the beams shall be cleaned of all loose and spalled concrete, and sealant. All loose material shall be removed to sound concrete until coarse aggregate will break under chipping rather than dislodging.

The edges shall be saw cut 3/4" deep or less. The limits of removal on the beam are shown in the details. The entire area of existing concrete against which new concrete will be placed and any exposed portions of the reinforcement bars shall be sandblasted. The concrete shall be sandblasted to expose clean, well-bonded aggregate.

All surfaces of the existing concrete in the areas to be repaired shall be prepared in accordance with Art. 503.09 (b) of the Standard Specs. The concrete beam to be repaired must be at a temperature of at least 50 °F or higher.

The beam involved in this work shall be finished to the configuration of the existing PPC I-Beam web

Method of Measurement

This work will be measured for payment in place and the area computed in square feet.

Basis of Payment

The work will be paid for at the contract unit price per square foot for PRECAST PRESTRESSED CONCRETE I-BEAM REPAIR which payment shall constitute full compensation for furnishing all labor, equipment, tools and incidentals necessary to complete the work as specified.

REAL-TIME TRAFFIC CONTROL SYSTEM

Revised October 21, 2014

Description: This item shall consist of furnishing, installing, maintaining, relocating, and removal of an automated portable Real-Time Traffic Control System (RTTCS) meeting the requirements noted herein and providing the maintenance of the system during the duration of the work.

The Contractor shall furnish said system for measuring and delivering condition-responsive alerts on the project.

The RTTCS will be located within approximately 5 miles of the project limits. The RTTCS shall be installed and operational two weeks prior to any lane closures on the project and shall remain in place until directed by the engineer to remove the system or a portion thereof.

The RTTCS shall consist of, at a minimum:

- A Real-Time Traffic Control Sensor Unit. Each unit shall consist of:
 - Two Warning signs with sign legend as shown in the plans.
 - Each sign shall have amber wigwag LED flashing lights (two flashers per sign for a total of four flashers per Unit) attached, with a minimum lens size of 12 inches. The flash pattern and flash sequence shall comply with the Manual of Uniform Traffic Control devices (MUTCD), Chapter 4L.
 - One warning sign with two flashers on any ramps between the taper and the farthest Real-Time Traffic Control Sensor Unit.
 - One traffic sensor.
 - Remote communication hardware and software and controllers capable of activating flashing beacons.

- One Real-Time Traffic Control Central Base Unit equipped with appropriate hardware software and dedicated network connection.

The exact locations of all devices shall be determined as part of an on-site communications analysis with the Contractor.

The RTTCS shall meet the following specifications:

- The RTTCS shall be a proven system that has been successfully deployed and operated in actual work zone and congestion areas.
- The RTTCS shall be capable of identifying stopped / slowed traffic conditions. The system shall self-test for communication or sensor failures.
- The RTTCS shall operate continuously (24 hours, 7 days a week) when in place and visible to the motoring public.
- The sensors shall be of a type whose accuracy is not degraded by inclement weather or degraded visibility conditions including, but not limited to precipitation, fog, darkness, excessive dust and road debris.
-
- The RTTCS shall be capable of acquiring traffic data for a minimum of two (2) lanes of traffic in the same direction.
- Traffic sensors shall sequentially activate the flashers as the queue extends and be capable of only activating specific flashers.
- The RTTCS shall be capable of activating a message board.
- The RTTCS shall utilize static signs with two wigwag flashing beacons that only activate when slowed or stop traffic is detected to convey real-time traffic condition information to motorists.
- The flashers shall activate whenever the average traffic speeds fall below 40 mph and turn off when the average speed returns to above 55 mph. These speed thresholds shall be capable of being changed based on actual field trials and the location of the sensor.
- The RTTCS shall have a reliable communication system and provide warnings to the system manager and the Resident Engineer when communication or device failures are detected.
- The RTTCS shall be capable of notifying the Resident Engineer and Communications Center when the flashing beacons are activated.
- The RTTCS and flashers shall have a reliable power source.
- The RTTCS shall allow authorized users remotely to manually override the system during apparent system failures.

- Critical system operator control functions shall be password protected.
- The RTTCS shall have reporting features to a secure website. The website shall, at a minimum, show the current speeds at each detector location and whether the warning flashers are activated. The website shall provide access to archival data for the duration of the project. This data shall be printable.
- The RTTCS shall provide data logging the system events and key detection data. The data is to include the dates and times that the system was activated, which signs were activated, duration of the activation, and average speeds at each detections device. The data shall be provided to the Resident Engineer at the close of the project in Microsoft Excel 0, latest format.
- If during the duration of the project, it is found that the distances or locations in relation to each other and/or to the taper, detectors or warning signs need to be relocated due to a change in the traffic conditions or queuing patterns, a one-time adjustment is included in the cost of the Real-Time Traffic Control Sensor Unit.
- The RTTC Sensor Units shall be relocated as the taper is relocated.
- During winter shut-down all trailers shall be removed from the right of way and the signs shall be removed as directed by the engineer. All removal, storage, and reinstallation shall be included in the cost of the Real-time Traffic Control Sensor Units.

System Performance: After the RTTCS is in place and operational, knowledgeable contractor personnel shall be available for one work week (until Friday at 8:00 PM) after the lane closures are in place to ensure that the system is functioning properly. The responsible individual shall be capable of responding within 15 minutes during the first week and shall have sufficient resources to correct any issues with the RTTCS at that time.

To ensure a prompt response to incidents involving the integrity of the RTTCS devices, the Contractor shall provide a telephone number where a responsible individual can be contacted on a 24-hour-a-day basis. The Contractor shall dispatch sufficient resources within two hours of notification to make needed corrections of deficiencies. All deficiencies shall be corrected within 12 hours. If the Contractor fails to restore the RTTCS to full operation within the time limits specified above, the Resident Engineer will impose a daily monetary Traffic Control Deficiency Deduction for each calendar day (or portion thereof) the deficiency exists, as described in Article 105.03 of the Standard Specifications.

Additional Real-Time Traffic Control Sensor units installed as directed by the Engineer after the initial deployment of the system shall be in operation and accepted by the Engineer within fourteen (14) calendar days after the Contractor receives written notification of changes from the Engineer. If the Contractor fails to update the RTTCS to full operation within the time limits specified above, the Engineer will impose a daily monetary Traffic Control Deficiency Deduction for each calendar day (or portion thereof) the deficiency exists, as described in Article 105.03 of the Standard Specifications.

A traffic control deficiency deduction will be made for each individual component of the RTTCS that is not functioning correctly. Individual components of the RTTCS are traffic sensors, central base station, and signs with flashers.

Method of Measurement: This work will be measured for payment as follows.

Real-Time Traffic Control Sensor Unit will be measured on a calendar month basis per each unit, which each unit includes two signs, four flashers, and one sign with two flashers on any ramps, one traffic sensor, remote communication hardware and software, and controllers capable of activating flashing beacons.

Real-Time Traffic Control Central Base Unit will be measured on a calendar month basis, which includes all hardware, software, website, and communications network necessary to run the Real-Time Traffic Control System.

Basis of Payment: This work will be paid for as follows.

Real-Time Traffic Control Sensor Unit shall be paid for at the contract unit price per calendar month or fraction thereof for REAL-TIME TRAFFIC CONTROL SENSOR UNIT.

Real-Time Traffic Control Central Base Unit shall be paid for at the contract unit price per calendar month or fraction thereof for REAL-TIME TRAFFIC CONTROL CENTRAL BASE UNIT.

Portable changeable message signs will be paid for at the contract unit price per calendar month for each sign as CHANGEABLE MESSAGE SIGN (SPECIAL).

RELOCATING NAME PLATES

Description. This work shall consist of the removing, cleaning, storage and reinstallation of existing bridge name plates as identified on the plans and as directed by the Engineer.

General. Existing name plates shall be removed from their existing locations and cleaned. Removal shall be done with hand held tools preserving the name plate and bolts/lugs in good condition. The Contractor shall be responsible for repairing any damage caused by the removal operations to the name plate at his expense. If the Contractor's operations cause unrepairable damage to the existing name plate, a new name plate with identical markings and in accordance with Section 515 shall be furnished and installed at the Contractors expense. The Contractor shall be responsible for storing the name plates in a secure location until reinstallation.

Installation in the proposed locations shall be according to Article 515.04 of the Standard Specifications. The name plates shall be located in accordance with Standard 515001.

Basis of Payment. This work will be paid for at the contract unit price per EACH for RELOCATING NAME PLATES.

SECTION 404 – NATIONWIDE PERMIT #14 (NON-REPORTING)

Effective: February 25, 2022

Revised: April 21, 2023

An United States Army Corps of Engineers (USACOE) Section 404 - Nationwide Permit #14 has not been procured for this project because it's considered as "Non-Reporting" because the following conditions are being met:

- 1) The loss of Waters of the United States does not exceed 1/10th acre; and
- 2) There are no discharges into a special aquatic site, including wetlands.

The requirements/ conditions of the Nationwide Permit #14 must still be adhered to and can be found at the following link: [2021 Nationwide Permit 14 - Final Decision Document \(oclc.org\)](#)

In the event that these conditions are not being met, it will be necessary to submit a pre-construction notification to the USACOE.

No additional payment shall be made for this work.

This Special Provision (Nationwide Permit) expires on March 14, 2026 per [Federal Register :: Reissuance and Modification of Nationwide Permits](#)

SLOPE WALL CRACK SEALING

Description: This work shall consist of sealing cracks in slope wall with a non-sag elastomeric polyurethane sealant.

Materials. Materials shall be according to the following.

- (a) Non-sag Elastomeric Polyurethane Sealant meeting the requirements of ASTM C-920. Type S, Grade NS. Class 35, Use T

Construction Requirements.

General. The sealing material shall be applied to the cracks or portions thereof that are detailed in the plans or as directed by the Engineer at the time of construction.

The areas for slope wall crack sealing shall be prepared by removing all dust, debris, or disintegrated material from the crack by the use of oil-free compressed air. Any cracks holding oil or grease shall be chipped out to clean concrete. For cracks deeper or wider than 1/4-inch, a Backer Rod should be placed in the crack before applying the sealant. The backer rod diameters shall be 1/8-inch wider than the crack width. The backer rod shall be a closed-cell, plastic-foam, chemically inert, waterproof rod compatible with the sealant used.

The sealant shall be applied according to the manufacturer recommendations and as directed by the Engineer. Excess sealant should be cleaned up immediately.

Method of Measurement. This work will be measured for payment in place in feet.

Basis of Payment. The work specified herein, as shown on the plans and as directed by the Engineer, shall be paid for at the contact unit price per foot for SLOPE WALL CRACK SEALING.

SLOPE WALL REPAIR

Description. This work shall consist of furnishing all materials, labor, and equipment necessary for the removal and subsequent replacement of the deteriorated parts of the slope wall as shown on the plans and as directed by the Engineer. This work includes also the restoration of the embankment where required.

Construction Requirements. Work shall be done according to Sections 501, 503 and 511 of the Standard Specification, and the existing details as shown in the plans.

Method of Measurement: Slope Wall Repair will be measured in place for payment in square yards, complete in place.

Basis of Payment. This work will be paid for at the contract unit price square yard for SLOPE WALL REPAIR, which price shall include removing, disposal and replacing the damaged slope wall and restoration of embankment at the locations shown in the plans.

WORK ZONE PAVEMENT MARKING AND REMOVAL

Effective: December 29, 2008

Revised: October 5, 2021

This work shall consist of installing and removing temporary pavement marking according to Section 703 and 783 of the Standard Specifications and the following:

All temporary paint on the final wearing surface shall be removed according to Article 1101.12 Water Blaster with Vacuum Recovery and the applicable portions of Section 783 of the Standard Specifications and as described herein.

Add the following paragraph to Article 1101.12 of the Standard Specifications.

“For the high pressure water spray, the pressure at the nozzle shall be approximately 25,000 psi with maximum flow rate of 15 gal/min. The nozzle shall be in close proximity to the pavement surface.”

RAILROAD PROTECTIVE LIABILITY INSURANCE (BDE)

Effective: December 1, 1986

Revised: January 1, 2022

Description. Railroad Protective Liability and Property Damage Liability Insurance shall be carried according to Article 107.11 of the Standard Specifications. A separate policy is required for each railroad unless otherwise noted.

NAMED INSURED & ADDRESS	NUMBER & SPEED OF PASSENGER TRAINS	NUMBER & SPEED OF FREIGHT TRAINS
Dakota, Minnesota and Eastern Railroad (DM&E) doing business as Canadian Pacific-Kansas City Railway (CPKC) Canadian Pacific Plaza 120 South 6 th Street, Suite 700 Minneapolis, MN 55402 Class 1 RR (Y or N): Yes DOT/AAR No.: 388929M RR Division: East	0	6 per day at 40 mph
For Freight/Passenger Information Contact: Tad Billmeyer Phone: (641)529-7227		
For Insurance Information Contact: Charles Kretchman Phone: (612)247-0706 charles.kretchman@cpkcr.com		

Comments: Railroad flaggers are required if working within 25 feet horizontally of the tracks, or whenever working over the tracks.

Basis of Payment. Providing Railroad Protective Liability and Property Damage Liability Insurance will be paid for at the contract unit price per Lump Sum for RAILROAD PROTECTIVE LIABILITY INSURANCE.

RAILROAD – CPKC SAFETY REQUIREMENTS FOR CONTRACTORS



**CPKC Safety Requirements for Contractors
United States**

Approval Authority:	Safety Management Systems	Effective Date:	Apr. 15, 2025
Version:	5.0	Next Review Date:	Apr. 15, 2028

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CPKC Safety Requirements for Contractors - United States

1.0 Introduction

At CPKC, safety is an integral part of the way we do business. We expect everyone working for CPKC to be unconditionally committed to safety. Safety must be given top priority and will take precedence over deadlines, production schedules, and all other considerations.

2.0 Application

- 2.1 These Safety Requirements are applicable to all who work on CPKC property (except as noted in 2.3 and 2.4 below) including contractors and other persons performing work or otherwise providing services to CPKC on its property in the United States.
- 2.2 These Safety Requirements cannot be waived or altered, in whole or in part, without a prior risk Assessment specific to the work being conducted, and written consent has been provided by the Manager-in-Charge.
- 2.3 Notwithstanding the foregoing, these Safety Requirements do not apply to other railroad companies who only operate trains on CPKC property under various trackage or interchange agreements.
- 2.4 Further notwithstanding the foregoing, these Safety Requirements may not apply to work or services provided in CPKC office premises.

3.0 Definitions and Interpretation

3.1 Definitions

- 3.1.1 In these Safety Requirements, the following capitalized terms shall have the ascribed meaning below:

Applicable Legislation - means all applicable legislation, regulations, by-laws, codes, rules, standards, policies, procedures, promulgated by any federal, state, and municipal governmental body, including those of its agencies, having authority over CPKC and, or a contractor in relation to the work in the matter of health and safety of the person, property and, or the environment.

Canadian Pacific Kansas City or CPKC - means Canadian Pacific Kansas City Limited, and its subsidiaries and affiliates, and includes each of their respective directors, officers, employees, agent, and representatives.

CPKC Personnel - means CPKC's employees, agents, and representatives.

CPKC Property - means any building, facility, yard, track, right of way or other property owned or controlled by CPKC.

Contractor - means the company or person, and their respective employees and authorized agents, representative and subcontractors who are providing goods or services to CPKC; or on behalf of a third party working on CPKC property.

Contractor Personnel - means the contractor's employees, and authorized agents, representative and subcontractors.

Efficiency Test (eTest) – means a planned procedure to evaluate compliance with rules, instructions, and procedures, with or without the employee's knowledge.

Foul of Track- means the placement of an individual or equipment within 4 feet (1.2 m) of the outside rail of a railway track that could be struck by a moving train or on- track work equipment (e.g., hi-rail equipment).

CPKC Safety Requirements for Contractors - United States

Hazardous Materials- means any substance, which is hazardous to persons or property and includes, without limiting the generality of the foregoing:

- i) radioactive, explosive, poisonous, or toxic substances.
- ii) any substance that if added to any water, would degrade, or alter the quality of the water to the extent that it is detrimental to its use by man or by any animal, or plant.
- iii) any solid, liquid, gas or odor or combination of any of them that, if emitted into the air, would create, or contribute to the creation of a condition of the air that endangers the health, safety, or welfare of persons, or the health of animal life, or causes damage to plant life or to property, or
- iv) substances declared to be hazardous, toxic, or dangerous under any law or regulation now or hereafter enacted by any governmental authority having jurisdiction.

Manager-in-Charge- means a CPKC manager as designated or otherwise identified by CPKC as being responsible for overseeing the work to be performed, such Manager-in-Charge may include, but is not limited to local CPKC Management, Superintendents, Chief Engineers, and Project Managers, etc.

Mobile Equipment- means any motorized and self-propelled equipment, excluding railroad equipment and highway vehicles, but including, for example, forklifts, tractors, cranes, ATVs, mules, motorized scissor lifts, telescopic boom lifts, and similar equipment that are not designed to operate or move on railroad tracks.

Office Premises- means any building, facility, or portion thereof, or other premises, whether owned or controlled by CPKC, which is used solely for clerical or administrative purposes, and which does not contain heavy equipment or machinery, as designated by CPKC from time to time.

Qualified and Authorized- means a status attained by a person who has successfully completed any required training and demonstrated proficiency in the duties of a particular position or function and who has been given the right to act.

Railroad Equipment- means trains, locomotives, railcars, on track equipment (track units), hi-rail vehicles and any other equipment designed to operate or move on railroad tracks.

Site Safety Plan- means a documented plan which set out how work is to be conducted in a safe manner, as required by applicable legislation, see 6.1).

Third Party Project- means any work being performed on CPKC property that CPKC is not managing (i.e., road authority, utility company, commuter agency, or other similar entity, are on CPKC property for their own purposes, and not a project sponsored or managed by CPKC.

Work- means the provision of products and services and related activities.

Work Site- means any CPKC property where CPKC personnel or contractor personnel are present, or permitted to be present, while engaged in any Work, including any railroad equipment, mobile equipment and highway vehicles operated by or used to convey a person engaged in such Work. This applies also to work immediately adjacent to CPKC property which can pose a risk to safe railway operations (i.e., blasting, excavation next to right-of-way (ROW), etc.).

CPKC Safety Requirements for Contractors - United States

4.0 Interpretation and Application

- 4.1 Where legislation is referred to in these Safety Requirements, it shall include all amendments and replacements thereto as promulgated from time to time.
- 4.2 Where standards, such as those of the American National Standards Institute (ANSI), are referred to in these Safety Requirements, they shall include all amendments and replacements thereof from time to time.
- 4.3 Where there is any ambiguity, inconsistencies, or omissions between or among any agreements with CPKC, expressed or implied; any applicable legislations; any applicable CPKC policies and practices; and any applicable industrial standards and practices, contractor and contractor personnel shall adhere to that which is most stringent and current.

5.0 Contractor Compliance and Responsibilities

5.1 General Compliance

- 5.1.1 The contractor shall be fully and solely responsible for ensuring the health and safety of contractor personnel and for ensuring that its work and other activities do not compromise the health and safety of CPKC personnel or any other party, the protection of the environment, the protection of CPKC's property and those of any other party, and do not interfere with the safety of CPKC's railroad operations.
- 5.1.2 The contractor shall comply with and shall ensure all of contractor personnel are trained and qualified to safely perform the Work and that they comply with all Applicable Legislation pertaining to the protection against fire, safety, health, and environmental hazards, and with any license, permits, authorizations issued by the respective authority and provide CPKC with written certification that contractor's safety program required by 49 CFR Part 243 has been approved by the Federal Railroad Administration (FRA) where applicable.
- 5.1.3 The contractor shall comply with and shall ensure all of contractor personnel comply with all terms and conditions of all agreements, expressed or implied, between contractor and CPKC, and all applicable CPKC policies and practices.
- 5.1.4 Subject to the requirements of CPKC's Access Control Procedures, the contractor shall provide CPKC eRailsafe training for each employee engaged in work on CPKC property.

Note - contractors entering into new agreements after Apr. 14, 2023, will be required to enroll or / subscribe to eRailsafe / ISNetworld as required by CPKC Access Control Policy / Procedure).

Where there is no agreement between CPKC and the contractor, the contractor is responsible for meeting the additional requirements outlines within CPKC's Access Control Procedures.

- 5.1.5 The contractor shall provide contractor personnel, at its own expense, all safety equipment required to protect against injuries during the performance of the work and shall ensure that contractor personnel are knowledgeable of and utilize safe practices in performing the work.
- 5.1.6 The contractor shall always have a copy of the documents listed below at the work site, and shall produce them as and when requested by CPKC:
 - a) CPKC Safety Requirements for Contractors - United States.
 - b) Licenses, certifications, permits, training records or other documents required by applicable legislation or these Safety Requirements.
 - c) Contractor's site safety plan.

CPKC Safety Requirements for Contractors - United States

- d) Contractor's Emergency Information Sheet (see Attachment A) / Worksite Information Sheet (see Attachment B).
- e) Any additional documents required by contract or by agreement with Manager-in-Charge.
- f) Employee identification (eRailsafe badge or equivalent, see 11.1.1).

5.2 Compliance Assurance

- 5.2.1 CPKC reserves the right to observe, inspect, test and audit contractor and contractor personnel for compliance with all requirements herein, and to demand and receive all relevant records, documentation, and materials evidencing compliance, at any time, and from time to time.
- 5.2.2 Failure of the contractor or contractor personnel to comply with any applicable provisions herein may be considered a material breach, and in addition to all other remedies available, CPKC may without prejudice:
 - a) take over control of that work or activity.
 - b) order the work to stop, and / or
 - c) order contractor personnel to leave CPKC Property.
- 5.2.3 Upon the earlier of the completion of the work, the expiration of the applicable agreement, or the request of a Manager-in-Charge, contractor and contractor personnel shall return all identification, badges, access cards, and decals, issued or provided by CPKC to the Manager-in-Charge.

6.0 Site Safety Plans

6.1 General Requirements

- 6.1.1 Prior to starting any work on CPKC Property, the contractor must have a written site safety plan that identifies:
 - a) All applicable legislation, rules, policies, and work practices in relation to the work being performed.
 - b) Specific hazards that are associated with the work being performed on CPKC property for CPKC, and work being performed not for CPKC:
For example:
 - i) Construction, maintenance, or inspections of buildings.
 - ii) Working on or adjacent to railroad tracks.
 - iii) Maintenance or inspection of railroad tracks, crossings, or signal systems.
 - iv) Operating railroad equipment on CPKC tracks, or
 - v) When / where contractor personnel work directly with or in proximity (time or space) to CPKC personnel.
 - c) Methods of verifying compliance.
- 6.1.2 The contractor will provide Manager-In-Charge with a copy of this site safety plan on reasonable request.
- 6.1.3 The contractor must be able to demonstrate an awareness of applicable legislation, rules, policies, and work practices in relation to the work being performed.

CPKC Safety Requirements for Contractors - United States

7.0 Safety Training

7.1 Training & Qualifications

- 7.1.1 At its sole cost and expense, contractor shall ensure that all contractor personnel be fully trained and qualified for the work they will be performing. Contractors and contractor personnel shall meet, or exceed, all applicable legislation requirements relating to training and qualification, including but not limited to the requirements of 49 CFR Part 243 – Training, Qualification, and Oversight for Safety-Related Railroad Employees and provide training documentation to ISNetworld for filing / record keeping as per CPKC Access Control Policy / Procedure.
- 7.1.2 Additionally, contractor personnel training and qualification shall meet or exceed all applicable industry standards.

7.2 Proof of Training & Qualification

- 7.2.1 Contractor personnel shall always have proof of such training and qualifications and shall produce them as and when requested by the Manager-in-Charge.
- 7.2.2 CPKC reserves the right to inspect qualification certificates, licenses, training records and / or work history records for any contractor personnel, and, or to be provided with copies thereof, on reasonable request. In addition, CPKC reserves the right to perform eTests on contractor employees, and request discipline for non-conformance.
- 7.2.3 As per 49 CFR 243.205 contractors are required to conduct periodic oversight tests and inspections of their safety-related railroad employees if a contractor:
- employs more than 15 safety-related railroad employees;
 - contractor relies on training it directly provides to its own employees as the basis for qualifying those employees to perform safety-related duties on a railroad; and
 - employes supervisory safety-related railroad employees capable of performing oversight.

CPKC, in alignment with 49 CFR § 243 regulations, requires that Contractors retain periodic oversight test and inspection records, which include:

- Date, time, place, and result of each test or inspection;
- Specify each person administering the tests and inspections, and each person tested;
- Indicate whether the employee complied with the monitored duties; and
- Indicate whether any interventions or corrective actions were undertaken to remediate non-compliances or unsatisfactory ratings.

Consistent with 49 CFR § 243 regulations, CPKC requires that records from the periodic oversight test and inspections are retained for a period of one calendar year following the end of the calendar year in which such tests and inspections were conducted. CPKC may request and audit the records for completion, quality, and compliance purposes. In case of an audit, CPKC shall provide a ten (10) business day notice to the contractor to provide the records.

Any changes to FRA regulations in the future will supersede requirements set forth in this letter, as required.

CPKC Safety Requirements for Contractors - United States

8.0 Safety Orientation

8.1 General Requirements

- 8.1.1 Prior to beginning work, all contractor personnel shall participate in a CPKC authorized safety orientation, including on-site orientation presented by the Manager-in-Charge or designate.
- 8.1.2 Any time the scope of work, location, condition or supervision changes, contractor personnel may be required to attend additional safety orientation sessions.
- 8.1.3 After successful completion of such safety orientation, contractors must be able to produce company identification or an eRailsafe photo identification badge authorizing access to CPKC property unescorted for the purposes of conducting work. Managers can enter the tracking code into Compliance Management (CM) (CP property) and Operational Testing System (OTS) (KC property). Third parties who hire subcontractors must ensure required compliance while on CPKC property. The eRailsafe identification card shall be worn or be always made visible or produced upon request and cannot be transferred under any circumstances.

9.0 Job Safety Briefing

- 9.1.1 Contractor personnel shall attend all job safety briefings as and when conducted. Contractor personnel shall be solely and fully responsible for understanding the content of the job safety briefing, shall:
 - a) understand the scope of work to be performed and an appreciation of the nature of the location, environment, and conditions where such work is to be performed.
 - b) be aware of specific or unusual hazardous condition, existing or potential and the control measures required to protect against, control, mitigate, or where possible, avoid said hazard, and
 - c) have an emergency response plan / evacuation procedures.
- 9.1.2 Where contractor personnel are working directly with or in proximity (time or space) to CPKC personnel, job safety briefings must include both CPKC personnel and contractor personnel, and any other affected third parties. The job safety briefing shall identify nature and extent of the interaction between the work being performed by contractor personnel, and those performed by CPKC personnel or other third parties. Contractor personnel shall inform CPKC personnel, and any other third parties of known or potential unsafe conditions and hazards that may be created by, resulting from, or inherent in their work and the corresponding preventative, mitigation, and / or control measures at all job briefings prior to commencing work, or as soon as contractor personnel becomes aware of such conditions.
- 9.1.3 In all situations, all contractor personnel are expected to:
 - a) continually identify hazards and assess risk of hazards and to communicate all hazards continually and clearly to the Manager-in-Charge and to all other parties that may be affected at job safety briefings, and at any other time as and when appropriate or necessary.
 - b) take actions that are within their assigned responsibility to eliminate or control hazards and risks, and
 - c) immediately notify their supervisor or the Manager-in-Charge of hazards that pose unacceptable risk that they are unable to eliminate or control.
- 9.1.4 Where contractor personnel are unable to eliminate or control a hazard, contractor personnel shall take interim measures to protect people, property, equipment, and the environment until the hazard can be accurately assessed and appropriate corrective actions taken.

CPKC Safety Requirements for Contractors - United States

10.0 Applicable Legislation

10.1 General Requirements

- 10.1.1 Contractor and contractor personnel shall be solely responsible for identifying and complying with all applicable legislation. Contractor and contractor personnel shall comply with the federal legislations set out below which list is intended solely for general guidance, and not as a comprehensive list of all applicable legislation.
- 10.1.2 Additionally, the Association of American Railroads (AAR) is an industry association which can provide support and guidance on matters related to railroad safety and the transportation of hazardous materials.

10.2 Transportation of Hazardous Materials

- 10.2.1 When work involves the handling or transportation of hazardous materials (hazmat), that work must comply with Hazardous Materials Transportation Act and regulations administered by the Pipeline and Hazardous Materials Safety Administration (PHMSA).
- 10.2.2 Contractors shall be solely responsible for ensuring that all contractor personnel who handles, offers for transport and / or transports hazmat by any transportation mode are trained and hold a valid training certificate or is working under the direct supervision of someone who is trained and holds a valid training certificate. That training must be based on the work that the person is expected to perform and the hazmat that the person is expected to handle, offer for transport or transport.
- 10.2.3 All U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations are published in Chapter I of title 49 of the Code of Federal Regulations (49 CFR).

10.3 Railroad Work

- 10.3.1 When work involves the construction, alteration, operation, inspection, and maintenance of any part work of the general railroad system of transportation, that work must comply with the Federal Railroad Safety Act and regulations administered by the Federal Railroad Administration (FRA).
- 10.3.2 Contractors shall be solely responsible for ensuring that all contractor personnel who perform railroad work are trained and qualified in accordance with those regulations and hold valid certificates when required.
- 10.3.3 All FRA regulations are published in Chapter II of title 49 of the Code of Federal Regulations (49 CFR).

10.4 Occupational Safety & Health

- 10.4.1 Any work being performed that may create a risk to the health and safety of any person, including CPKC personnel and contractor personnel, when not covered by FRA regulations shall be governed by U.S. Department of Labor regulations administered by Occupational Safety and Health Administration (OSHA).
- 10.4.2 All OSHA regulations are published in Chapter XVII of title 29 of the Code of Federal Regulations (29 CFR).

10.5 Environmental Protection

CPKC Safety Requirements for Contractors - United States

- 10.5.1 Where work is being performed that may impact the environment, that work must comply with all applicable federal state, and local government legislation, regulations, and standards.
- 10.5.2 Federal legislation is generally administered by the Environmental Protection Agency (EPA). A compilation of these laws and regulations can be accessed at <http://www.epa.gov/lawsregs/>

11.0 Security Access to CPKC Property

- 11.1.1 All contractor personnel must have a valid eRailsafe photo identification card (when / where required) or personal identification (as per the list below) always authorizing access and in their possession while on CPKC property, and present them for review to any Manager-in-Charge, other CPKC managers and employees, police officer, security guard, or regulatory officer upon request:
 - Photo identification (e.g., driver's license); and
 - Proof of employment, document, or card; and
 - CPKC safety orientation certificate, or
 - Building access pass issued by CPKC, or third-party having control over CPKC premises, or
 - CPKC security photo ID card or badge, or
 - Other proof of safety orientation and access authorization issued by CPKC.
- 11.1.2 Where any work requires contractor personnel to ride in locomotive or other non-passenger railroad equipment, the contractor must also possess a CPKC Access Pass for riding non-passenger railroad equipment, signed by the responsible operating manager. Such a signed pass must be presented to the train crew or operator when boarding the equipment. Failure to possess such a pass will result in the equipment not moving, removal from the equipment, and / or the filing of trespasser charges.

11.2 Security Awareness

- 11.2.1 Contractor shall conduct employee background checks as is necessary to ensure that contractor personnel do not pose a security risk to CPKC, such security risk includes the risk of the commission of terrorist activities, sabotage, vandalism, theft, and violence. CPKC reserves the right, at all times, to require that contractors undertake certain security training and / or perform background checks on contractor personnel, prior to allowing such contractor personnel to enter onto CPKC property.
- 11.2.2 On request CPKC can make available a copy of CPKC's Railway Security Awareness Program for use by contractor personnel.

11.3 Firearms & Explosives

- 11.3.1 Firearms (loaded or empty) are not permitted on CPKC Property, except for police officers and other designated government officials when authorized to do so.
- 11.3.2 No explosives will be permitted on CPKC Property without written approval by the Manager-in-Charge.

11.4 Reporting

Contractor personnel must report any security concern, security incident, criminal activity (known or suspected), suspicious happenings and / or suspicious persons on CPKC Property to the Manager-in-Charge or to CPKC Police Services in accordance with Section 20.

CPKC Safety Requirements for Contractors - United States

12.0 Personal Conduct

12.1 Drug and Alcohol Prohibition

CPKC recognizes the problem of alcohol and substance abuse in today's society. This problem poses concerns to an employer who is subject to governmental regulations and seeks to promote the safety of the general public. CPKC has a concern for the safety, health and well-being of its employees as well as an obligation to comply with the United States Department of Transportation (DOT) and Federal Railroad Administration (FRA) regulations. CPKC will comply with all statutes and regulations administered by the FRA in implementing the required 49 CFR §219 Drug and Alcohol Program. CPKC also expects employees of other railroads, visitors or contractors to comply with this regulation while on CPKC property, consistent with federal regulations. If subject to this regulation, contractor shall be solely responsible for compliance with the 49 CFR Part 219. Contractor shall provide CPKC with proof of its compliance prior to performing services for CPKC and continued proof of compliance must be provided to CPKC immediately upon request. This proof of compliance will include, but will not be limited to, a copy of the 49 CFR §219 Drug and Alcohol Program Plan and FRA Approval Letter and Continued Certification of Compliance and Statistical Reporting. Periodic audits to ensure compliance with these regulations may be performed and cooperation and compliance is expected upon request.

If subject to other DOT modalities and regulations, such as the Federal Motor Carriers Safety Administration (FMCSA), compliance of that modality's drug and alcohol program guidelines will be required and periodic audits to ensure compliance with these regulations may be performed and cooperation and compliance is expected upon request.

- 12.1.1 Entry onto CPKC Property when in possession of, or under the influence of alcohol, intoxicants, narcotics, or controlled substances is strictly prohibited. Controlled substances include all Schedule 1 drugs (such as marijuana and "medical marijuana") and synthetic / designer drugs and / or any intoxicants or products labeled "not intended for human consumption".
- 12.1.2 The sale, trade, and / or offer for sale alcohol or controlled substances are prohibited.
- 12.1.3 Additionally, contractor personnel shall be free of any condition which may in any way adversely affect alertness, concentration, responsiveness, or the ability react calmly and responsibly to safety hazards.
- 12.1.4 CPKC reserves the right to request drug and / or alcohol tests for contractor personnel as and where required or permitted by law.

12.2 Inappropriate Behavior

- 12.2.1 CPKC is committed to maintaining a work environment that supports the dignity of all individuals. No person working at CPKC may be subjected to any form of discrimination or harassment, including sexual harassment.
- 12.2.2 Acts or threats of violence are always unacceptable on CPKC Property. Uttering of threats or committing acts of violence will result in the removal of the responsible contractor personnel from CPKC property, termination of the contract, and / or criminal charges.
- 12.2.3 Horseplay, practical jokes, fighting or any other activity that may create a safety hazard is not permitted.

12.3 Electronic Entertainment and Communication Devices

- 12.3.1 The use of personal entertainment devices, including portable audio and video devices such as compact DVD, CD, video game players, iPads / tablets, SMART watches, and MP3 players, is prohibited:
 - a) while working on CPKC property.

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- b) while transporting CPKC personnel, whether on and off CPKC property, and
 - c) while operating any CPKC highway vehicle, railroad equipment or mobile equipment, whether on and off CPKC property.
- 12.3.2 The use of electronic communication devices, including cell phones, walkie-talkies, PDAs, iPads, Tablets, GPS navigation units, portable computers, and similar devices, is prohibited:
- a) while operating any highway vehicle unless it is stopped and parked in a safe location.
 - b) while transporting CPKC Personnel, whether on and off CPKC property.
 - c) while operating or assisting in the operation of any railroad equipment or mobile equipment.
 - d) while operating power tools, equipment, or machinery.
 - e) when Foul of Track for any reason.
 - f) wherever use is prohibited by signage or by a CPKC manager, or
 - g) whenever use of such a device creates an unsafe condition.
- 12.3.3 Notwithstanding the foregoing, company cell phones, radios, walkie-talkies, GPS units, iPads, tablets, and other communication devices may be used solely for the conduct of business when authorized by the CPKC Manager-in-Charge and where not prohibited by state or municipal legislation. Any electronic communication device may be used when it is necessary to communicate an emergency condition.

12.4 Smoking

- 12.4.1 Smoking, including the use of e-cigarettes is prohibited on all CPKC Property, and in or on all highway vehicles, Railroad Equipment, and Mobile Equipment, except for CPKC designated outdoor smoking areas.

13.0 Personal Protection

13.1 Work Clothing

- 13.1.1 The Contractor must ensure that contractor personnel wear clothing that meets applicable legislation and is suitable to perform the work safely. This always includes at minimum ankle length pants and waist length shirts with a minimum quarter-length sleeves. Clothing must not interfere with vision, hearing or use of hands and feet.

13.2 Personal Protective Equipment (PPE)

- 13.2.1 The contractor shall ensure that contractor personnel wear personal protective equipment required by applicable legislation, regulations, codes and industry standards as necessary to protect against personal injuries while on railroad property. All personal protective equipment shall meet applicable legislation and American National Standards Institute (ANSI) standards and shall be in good condition and be properly fitted.
- 13.2.2 The following mandatory personal protective equipment ("PPE") shall be supplied by the contractor at its own expense, and shall be always worn by contractor personnel while on CPKC property:
- Safety hard hat, meeting ANSI Z89.1 standards, except in office buildings or in enclosed vehicles or equipment.
 - Safety footwear with protective toe caps and puncture resistant soles, meeting ASTM F2413 standards.
 - Safety glasses with permanently attached side shields meeting ANSI Z87.1

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standards in office buildings or enclosed highway vehicles.

- Note- transition lenses are not permitted.
- High visibility fluorescent outerwear with retro reflective striping meeting ANSI / ISEA 107 Class 2 standards not covered by other clothing or equipment, except where necessary for safety reasons such as where fall protection or pole climbing equipment is being used.
- Any other PPE as required by applicable legislation or referenced standard, or as otherwise required to protect contractor personnel from injuries.

Type of Protection	Additional Recommendations
Hard Hats	Have hi-visibility characteristics which are not obscured by markings or decals.
Safety Eyewear	Tinted safety eyewear must meet military tinting standards for red signal recognition if operating railway equipment (safety eyewear meeting this requirement is available from Wurth / North / ORR Safety; ask for CPKC approved tinted safety eyewear). Polarized lenses are discouraged and should be worn with caution when required to view LCD / LED screens. Transition lenses are discouraged and should be worn with caution when working in changing light conditions. Personal sunglasses are discouraged and must not be worn when operating railway equipment. Wear mesh face shields over top safety glasses when using any striking tool while performing on track maintenance work (e.g., spiking, snapping on/off anchors, etc.). If working alongside CPKC employees, you will be required to comply with this practice.
Safety Footwear	Have defined heels. Laced fully to the top and tied securely for ankle support. When snow and ice conditions are present wear anti-slip winter footwear.
High Visibility Apparel	Lime-green is recommended when working on, or near tracks, or when performing work in proximity to CPKC personnel.

13.2.3 Contractor and contractor personnel shall be solely and fully responsible for assessing the risks related to the work and determining whether additional PPE may be required such as:

- a) Nomex or Proban fire-retardant protective gear when performing certain Transportation of Dangerous Goods (TDG) work and / or handling certain Hazardous Materials or performing specialized work.
- b) Hearing protection when working in any area where noise exposure levels:
 - i) are consistently equal to or greater 85 dBA.
 - ii) exceed 115 dBA at any time.
 - iii) any other work areas where posted, or so notified by CPKC management.
- c) Respiratory protection where contractor personnel may be exposed to occupational dusts / particulates, fumes, mists, gases and vapors, in which case, in which case contractors must have a written Respiratory Protection Program that meets or exceeds applicable legislation.
- d) Additional eye and face protection meeting ANSI standard Z87.1 (i.e. face shields, impact / splash goggles, welding / cutting goggles and welding helmets).
- e) Fall protection systems and equipment meeting appropriate ANSI Z359 standards as required by applicable legislation and as appropriate for the related fall hazards.
- f) Fall protection when working on an unguarded surface over water, where the water is deeper than 4 feet (1.2 m), or where there is a hazard of drowning due to terrain, winter conditions, water velocity or current; contractors must use a fall protection system or a personal floatation device (PFD) meeting approved standards.

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14.0 Railroad Track Protection

14.1 Contractor's Responsibilities for the Protection of Railroad Traffic and Property

- 14.1.1 Where the work site is in close proximity to, or is located on, above, or below railroad tracks, special attention, care and precautions shall be taken to ensure the safety of all contractor personnel, CPKC personnel, all other third parties and to protect CPKC's property and railroad operations.
- 14.1.2 Contractor shall ensure that contractor personnel are made aware of all unique and inherent hazards in working near, on, above or below railroad tracks and shall ensure that all contractor personnel are fully trained and equipped to work safely.
- 14.1.3 Contractors who perform inspection, maintenance or repair to railroad tracks or track structures must be trained in accordance with FRA On Track Safety Rules (FRA 49 CFR Part 214, Subpart C - Roadway Worker Protection Regulations).
- 14.1.4 Contractors will not be allowed to foul a track unless:
 - a) They have been properly advised of the On Track Safety awareness procedures.
 - b) A railroad employee who is qualified to provide protection is present at the work site, or
 - c) The contractor has personnel present who are specifically trained, qualified, and authorized to provide that protection.
- 14.1.5 All work shall be organized or executed in such a manner as to ensure no interference with the regularity and safety of railroad operations. No step or sequence of any work that might directly or indirectly affect the safe movement of railroad traffic shall be started without the approval of the Manager-in-Charge.
- 14.1.6 No temporary structure, materials, or equipment shall be permitted closer than 12 feet (3.7 m) to the nearest rail of any track without prior approval in writing of the Manager-in-Charge.

Contractor personnel shall always remain alert to the movement of trains, rolling stock and other railroad equipment.
- 14.1.7 Contractor Personnel shall be especially alert in yards and terminal areas as
 - a) Railroad equipment that appears to be stationary may be moving.
 - b) Rate of movement of railroad equipment may be faster than it appears.
 - c) Railroad equipment change tracks often; and movements may be occurring simultaneously on adjacent tracks.
- 14.1.8 The Contractor shall always conduct its operations in a wholly responsible manner to avoid damage to the CPKC's tracks or property.

14.2 Clearance Requirements (50 feet / 15.2 m)

- 14.2.1 All work shall be performed as far away from railroad tracks as possible.
- 14.2.2 Unless authorized by CPKC, contractor personnel, equipment, and vehicles are not permitted to be within 50 feet (15.2 m) of the closest track centerline.
- 14.2.3 In the event work must be carried out within 50 feet (15.2 m) of the closest track written authorization must be obtained from the Manager-in-Charge, and contractor personnel must always remain at the maximum practicable distance from all railroad tracks.

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- 14.2.4 When crossing tracks, contractor personnel shall ensure a minimum of 50 feet (15.2 m) separation between standing railroad equipment, stay at least 15 feet (4.6 m) away from the end of the nearest equipment, and look both ways before crossing tracks, and if clear, walk at a right angle to the tracks.
- 14.2.5 No work activities or processes are allowed within 50 feet (15.2 m) of the track while trains are passing through the work site unless specifically authorized.

14.3 Flagging Protection

- 14.3.1 When the work requires contractor personnel to be within 50 feet (15.2 m) of any railroad tracks, contractor or contractor personnel shall notify and obtain the written approval of the Manager-in-Charge in advance of the intended start date, and when approved, shall only perform work strictly in accordance with all terms and conditions of that approval.
- 14.3.2 Unless otherwise indicated by the Manager-in-Charge, proper protection against the movement of trains, rolling stock and other railroad equipment shall be deemed always required whenever work or contractor personnel must be within 50 feet (15.2 m) of the closest track. Protection may be provided only by a qualified CPKC employee through use of a flag person.
- 14.3.3 Where CPKC determines that flagging is required, then work must be strictly conducted under the direction of a CPKC flag person, or such other person designated by the Manager-in-Charge.
- 14.3.4 Contractor personnel shall ensure that there is always clear communication between contractor personnel and any CPKC flag person. Contractor personnel shall ensure that they are aware of:
 - (a) flagging distance limits.
 - (b) time limits, and
 - (c) any adjacent tracks where movement of railroad equipment may still occur.
- 14.3.5 Contractor Personnel shall not assume that a train movement is being stopped or cleared unless clear communication is received directly from the CPKC flag person.
- 14.3.6 A job briefing between the CPKC flag person, and all contractor personnel must occur before beginning any work on or foul of track.
- 14.3.7 Blue signal protection is used to indicate that CPKC or contractor personnel are working on, under or between railroad equipment and movement of trains or other railroad equipment is prohibited. Blue signals must not be tampered with or obstructed. Blue signals can only be removed by the person or group of persons who originally applied it. Application, use, and removal of blue signals, when appropriate, may only be done under the authorization and guidance of the Manager-in-Charge.
- 14.3.8 Red flag protection is used to indicate that CPKC or contractor personnel are working on or foul of track, or the track is out of service and movement of trains or other railroad equipment is prohibited. Red flags must not be tampered with or obstructed. Application, use, and removal of red flags, when appropriate, may only be done under the authorization and guidance of the Manager-in-Charge.

14.4 Working on or near Tracks

- 14.4.1 When authorized to perform work foul of track or otherwise be near railroad tracks, contractor personnel shall ensure all contractor personnel, equipment, and vehicles are kept as far away from railroad tracks as practicable, and shall at all times:
 - (a) be alert to train movements and shall expect the movement of trains, engines, cars, or

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- other mobile railroad equipment at any time, on any track, and in any direction, even if they appear to be stationary or in storage.
- (b) not rely on others to protect them from train movement.
 - (c) stay at least 15 feet (4.6 m) away from the ends of railroad equipment when crossing the track.
 - (d) ensure a minimum of 50 feet (15.2 m) separation prior to crossing between railroad equipment.
 - (e) look both ways before crossing tracks, and if clear, walk at a right angle to them.
 - (f) never climb on, under or between railroad equipment.
 - (g) be aware of the location of structures or obstructions where track clearances are close.
 - (h) not stand on the track in front of an approaching engine, car, or other equipment.
 - (i) stand at least 20 feet (6.1 m) from the track(s) when there is a passing movement of trains, engines, cars, or other mobile railroad equipment, to prevent injury from flying debris or loose rigging and shall observe the train as it passes and be prepared to take evasive action in the event of an emergency.
 - (j) not stand on or between adjacent tracks in multiple track territory when a train is passing.
 - (k) not walk, stand or sit on the rails, between rails or on the end of ties, unless necessary. As the rail surface can be extremely slippery, personnel must step over the rails when crossing tracks. Personnel shall also be aware railroad ties can also be slippery and that railroad ballast can shift while walking on top of it. Situational awareness and use of proper footwear is important.
 - (l) not remain in a vehicle that is within 50 feet (15.2 m) of a passing train unless specifically authorized, or where this is not possible.
 - (m) keep away from track switches as remotely operated switch points can move unexpectedly with enough force to crush ballast rock. Personnel shall stay away from any other railroad devices they are unsure of. Personnel shall not disturb or foul the ballast at any time.
 - (n) Third party work that has a potential to impact rail traffic must consider machine swing radius, vertical grade differences, overhead work, etc. to ensure it will not impact a passing train; work and equipment must maintain 50 feet (15.2 m) of a passing train.
 - (o) When exiting on track machinery as trains are passing; exit on the opposite side.
 - i) use 3-point contact when getting on / off any vehicle, equipment, or track unit.
 - ii) face the vehicle or equipment / track unit when getting on / off.
 - iii) place handheld items onto equipment / track unit or seek help prior to getting on / off.
 - iv) get on / off on the operators' side when possible.

14.5 Equipment on or near tracks

- 14.5.1 Contractor personnel shall not be Foul of Track with any piece of equipment without a CPKC flag person or other authorized track protection.
- 14.5.2 Contractor personnel shall not move equipment across the tracks except at established road crossings, or unless under the protection and authorization of a CPKC flag person and only if the work site has been properly prepared for such a move. Tracked equipment will require a CPKC flag person any time railroad tracks are crossed.
- 14.5.3 Contractor personnel shall not move equipment across railroad bridges or through tunnels, except as expressly authorized and only under such conditions as stipulated by the Manager-in-Charge.

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- 14.5.4 When there is passing rail traffic, contractor personnel shall move equipment away from the tracks at least 50 feet (15.2 m), or where not possible, park the equipment as far away from the tracks as possible, exit to the side away from the track where the movement is taking place, and walk to a safe a distance.
- 14.5.5 When there is passing rail traffic, buckets, shovels, and loads on cranes must be lowered to the ground to rest, and cranes without a load must have their load line tightened or retracted to prevent movement.

14.6 Railroad Signs, Signals, Flags, and other Communication Infrastructure

- 14.6.1 Signs, signals and flags shall not be obstructed, removed, relocated, disabled, or altered in any way without proper authorization and qualification.
- 14.6.2 Only qualified contractor personnel who are authorized by CPKC are permitted to operate switches, derails, electric track mechanisms, signal and communication systems or other track control appliances.
- 14.6.3 Railroad pole lines carry electric power and should be treated as any other power lines.
- 14.6.4 The contractor shall keep all contractor personnel informed of current weather conditions.

Personnel shall stay alert for possible high-water conditions, or flash floods. During severe weather conditions:
 - a) Personnel shall be prepared to take cover in the event of a tornado.
 - b) Personnel shall not work while lightning is occurring.
 - c) If storm conditions arise unexpectedly, contractor personnel shall ensure that equipment is in the clear of the tracks and secured before seeking cover. Contractor personnel shall stay away from railroad tracks when visibility is poor, such as during fog or blizzard conditions.

Any Contractor personnel discovering a hazardous or potentially unsafe condition, which may affect the safe passage of railroad traffic, must advise CPKC immediately by calling:

- CPKC U.S. North (north of Kansas City) 1-800-716-9132
- CPKC U.S. South (Kansas City and south of) 1-877-527-9464

14.7 Excavation

- 14.7.1 Before starting excavation operations, the contractor shall ascertain that there are no underground wires, fiber optic cables, pipelines or other utilities which could be damaged or, if present, that such installations are properly protected. Fiber optic cables are present on most segments of the right- of-way. Prior to commencing any excavation, the contractor shall contact the proper authority CPKC and / or public utility to obtain the necessary permit and to locate and protect such cables or other underground utilities.
- 14.7.2 Excavations shall not be left unattended unless they are properly protected; and the Manager-in-Charge shall be notified.
- 14.7.3 Contractors must obtain and maintain utility locates in accordance with applicable law.

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15.0 HAZCOM

15.1 General Requirements

- 15.1.1 If at any time contractor's work involves the use, handling, storage, or disposal of hazardous materials ("Handling of Hazardous Materials"), Contractor Personnel must inform the Manager-in-Charge.
- 15.1.2 Contractors shall ensure that all contractor personnel are fully trained in the handling of hazardous materials and that contractor and contractor personnel are in full compliance with all applicable legislation, and as directed by the Manager-in-Charge.
- 15.1.3 Contractor personnel shall have appropriate processes, systems and controls in place to prevent or otherwise mitigate potential environmental, health and safety risks associated with the handling of hazardous materials.

15.2 Access to Safety Data Sheets (SDS)

- 15.2.1 Prior to beginning any work that may expose CPKC personnel to hazardous materials, contractor or contractor personnel shall:
 - a) provide a copy of the respective SDS to the Manager-in-Charge, and
 - b) keep a copy of the SDS at the work site and ensure that it is always readily available.

15.3 Hazardous Material Incident or Spill

- 15.3.1 In the event of a hazardous material incident or spill, the contractor must:
 - (a) ensure that no contractor or CPKC personnel have or will be exposed
 - (b) take all reasonable actions to contain the spill
 - (c) respond in accordance with its emergency response plan, and
 - (d) notify CPKC immediately in accordance with Section 18 below.

16.0 Operation of Highway Vehicles

16.1 Highway Vehicles

- 16.1.1 The following requirements apply to all highway vehicles, when operated on CPKC property; or used to transport CPKC personnel.

16.2 Regulations and Inspection

- 16.2.1 Before using a highway vehicle, contractor personnel shall:
 - (a) complete a pre-trip inspection.
 - (b) maintain an inspection log.
 - (c) ensure periodic inspections are completed at official testing locations as required.
 - (d) ensure the vehicle is always maintained and in safe operating conditions, and
 - (e) ensure the vehicle is in compliance with applicable motor vehicle regulations and license requirements.
- 16.2.2 Vehicle maintenance, inspection records and logs must be made available to the Manager-in-Charge on request.

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16.3 Vehicle Operator Requirements

- 16.3.1 Operation of highway vehicles is restricted to those contractor personnel who are licensed, qualified and authorized to do so. Such contractor personnel shall be always responsible for the safety of all passengers. For greater certainty, such contractor personnel shall:
- (a) hold a valid license for the class of vehicle being operated, in accordance with applicable local, state, and federal requirements.
 - (b) strictly comply with all posted traffic signs, signals, and all shall obey all applicable legislation,
 - (c) maintain the required driver log, and make the log available to the Manager-in-Charge on request, and
 - (d) comply with the requirements on the use of electronic devices as set out in Section 12 above.

16.4 Driving on CPKC Property

- 16.4.1 In addition to the requirements set out above, while on CPKC Property, contractor personnel shall:
- (a) travel only on designated roadways unless otherwise instructed.
 - (b) keep daytime running lights on (if so equipped).
 - (c) not exceed 15 mph (24.1 Km/h) unless otherwise posted.
 - (d) come to a full stop at all blind corners, rail, and roadway crossings.
 - (e) yield the right of way to all mobile equipment and other non-highway equipment or service vehicles.
 - (f) not operate vehicles (or any internal combustion equipment) inside buildings or enclosed structures unless adequate ventilation is provided.
 - (g) not park foul of track unless on-track protection is provided.
 - (h) not leave vehicles running unnecessarily.
 - (i) park only in pre-determined or designated areas.
 - (j) always use the parking brake (or wheel chocks) when leaving an unoccupied vehicle running.
 - (k) prior to operation of a vehicle the driver must conduct a walk around of the vehicle to identify any obstacles, clearance restrictions, or adjacent vehicles that may interfere with executing a safe movement.
 - (l) where safe and practicable, pull vehicles through or back into marked parking spaces to avoid reverse collisions when exiting.
 - (m) If a passenger is present, he exit the vehicle prior to a reverse movement to provide guidance and direction to the driver during the reverse movement and applies to commercial vehicles and vehicles with restricted rear views.
- 16.4.2 All contractor personnel who will be operating a highway vehicle or mobile equipment in any CPKC intermodal facilities must complete a driver safety orientation program prior to first entry, and from time to time thereafter as directed by the Manager-in-Charge.

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16.5 Seat Belts

- 16.5.1 Seat belts must always be worn while operating or riding in any equipped vehicle unless contractor personnel is actively engaged in inspections requiring said contractor personnel to be free of such restraint, and then only when the vehicle is operating at less than 15 mph (24.1 Km/h).

16.6 Loads

- 16.6.1 Contractor personnel shall ensure vehicles are loaded according to weight and dimensional requirements as authorized by state regulations and permits, and properly load and secure tools, material, equipment and freight to avoid shifting, falling, leaking or otherwise escaping from vehicles during operation.

16.7 Riding in CPKC Vehicles

- 16.7.1 Contractor personnel are prohibited from operating or riding in any CPKC vehicles unless authorized to do so, or in case of emergency.

17.0 Tools, Equipment and Machinery

17.1 General Safety Requirements Respecting All Tools, Equipment and Machinery

- 17.1.1 Contractor personnel shall ensure that all tools, equipment, and machinery used be:
- (a) in compliance with all applicable legislation.
 - (b) in good working order, properly serviced and maintained.
 - (c) safe for their proposed use and used only for purposes specified by the manufacturer.
 - (d) operated and maintained only by persons properly trained and qualified for that duty.
 - (e) seat belts (if present on equipment) must be worn while operating or riding any such equipped mobile equipment.
 - (f) if mobile, equipped with appropriate safety devices (e.g., lights, horns, back-up alarms, safety beacons), and
 - (g) be prevented from moving, through use of the hand brake, wheel blocking, wheel chocking and / or a derail, where applicable.
- 17.1.2 The contractor shall provide adequate lighting when performing work between sunset and sunrise.
- 17.1.3 Use of CPKC tools, equipment and machinery by contractor personnel is prohibited unless specifically authorized by local CPKC management.

17.2 Hazardous Energy Control- Lockout

- 17.2.1 Contractor personnel shall employ lockout / tagout procedures as required to eliminate the accidental or unexpected start-up, energizing, or release of stored (residual) energy during maintenance, repair and/or servicing activities.
- 17.2.2 All tools, equipment and machinery must be made safe and isolated from all energy sources rendering the machine, equipment, or process inoperative prior to performing maintenance, repair or servicing related tasks.
- 17.2.3 No contractor personnel can remove any CPKC applied lock or tag, including bad-order tag.
- 17.2.4 Notwithstanding the foregoing, if contractor's work may create an energy hazard to any CPKC.

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Personnel, then all affected parties must follow the requirements set forth in CPKC's Lockout – Hazardous Energy Control Policy and Code of Practice.

- 17.2.5 If CPKC personnel and contractors are jointly performing maintenance, repair or servicing activities on the same machine, equipment or using the same energy source, then a multi-lock hasp must be applied with individual locks and tags affixed (as per CPKC's Lockout – Hazardous Energy Control Policy and Code of Practice).

17.3 Electrical Safety Requirements

- 17.3.1 In addition to the hazardous energy control lockout requirements above, all electrical work must comply with applicable legislation, National Electrical Code (NEC), and National Fire Protection Association (NFPA) requirements.
- 17.3.2 Contractor personnel working on electrical systems must:
- (a) if in proximity to CPKC Personnel, inform them of:
 - (i) existing or potential electrical hazards,
 - (ii) any specific additional personal protective equipment that may be required,
 - (iii) applicable safe work practices,
 - (iv) applicable emergency and evacuation procedures, and
 - (v) apply lock out procedures as per section above on Hazardous Energy Control- Lockout.
 - (b) have practices, procedures and training that comply with:
 - (i) Applicable sections of the NEC and NFPA electrical safety standards.
 - (ii) Any other applicable legislation.
 - (c) not operate or allow cranes or other mobile equipment to approach closer to any live electrical power line than is permitted by OSHA regulations (29 CFR 1910.333).

17.4 Lifting Devices

- 17.4.1 All lifting devices, including but not limited to jacks, cranes, cables, slings, chains, and hooks shall:
- (a) meet applicable legislation governing design, inspection, maintenance, and operation.
 - (b) be safety certified and labeled or tagged with load capacity limits where required.
 - (c) have sufficient capacity for the planned lift.
 - (d) have sufficient footing or support area to properly distribute the load during a lift.

17.5 Welding and Torch Cutting

- 17.5.1 When welding or torch cutting, contractor personnel shall:
- (a) be properly trained and qualified.
 - (b) ensure that all closed containers have been properly purged.
 - (c) direct flame or sparks away from other workers, equipment and flammable material.
 - (d) have a fire extinguisher readily available.
 - (e) keep compressed gas and oxygen cylinders stored in a secure, vertical position, with regulators removed and caps applied, labeled properly, and located in vented cabinets or other designated locations.

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17.6 Explosive Actuated Tools

17.6.1 Only contractor personnel who are qualified and licensed in accordance with applicable legislation, and authorized by CPKC, may use explosives or explosive actuated tools.

17.7 Unattended Equipment or Machinery

17.7.1 Tools, equipment and machinery shall not be left unattended at any time and shall not be stored on CPKC property, unless expressly permitted pursuant to a written agreement with CPKC or by the Manager-in-Charge in writing, and where so permitted, contractor shall ensure that:

- (a) storage shall be restricted to the designated area, or as otherwise specified by CPKC.
- (b) all such tools, equipment and machinery shall be secured in a safe position well clear of all tracks to prevent accidental contact with trains and moving equipment and to not restrict train crew sightlines.
- (c) as much as possible, tools, equipment and machinery shall be stored in locations out of public view.
- (d) Machines must be secured in accordance with on-track machinery rules.

18.0 Emergency Response

18.1 Emergency Response Plan

18.1.1 The contractor must maintain a current emergency response plan and make it available to CPKC on request. Emergency response plans must include at a minimum:

- (a) contractor reporting procedures in the event of an incident or spill.
- (b) emergency response contacts and phone numbers, including phone numbers for CPKC incident reporting and local CPKC managers (See Attachment A), and
- (c) containment measures to be taken in the event of an incident or spill.

18.2 Initial Response

18.2.1 Initial response to any emergency condition must follow the following sequence:

- (a) Protect the safety and security of all individuals and communities.
- (b) Provide environmental protection and mitigation.
- (c) Conduct incident investigation and evidence preservation.
- (d) Restore railroad operations.

18.3 First Aid

18.3.1 Contractor personnel must have sufficient First Aid qualified personnel and the required first aid kit and any other required first aid equipment at the work site, suitable for the crew size, nature of work being performed and location, all of which shall, at a minimum, comply with OSHA regulations (29 CFR 1910.266).

18.4 Fire Protection

18.4.1 The contractor must have appropriate fire extinguishers suitable (i.e., type, size and quantity) for nature of the work being done, in compliance with applicable legislation, and be always readily available on:

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- (a) the work site, and
 - (b) all contractor equipment, machinery, and highway vehicles.
- 18.4.2 Contractor personnel shall ensure that all necessary precautions are taken to prevent fires, including the following:
- (a) storing flammable material (e.g., paper, rubbish, sawdust, oily or greasy rags, etc.) in proper containers,
 - (b) storing and transporting fuel, gasoline, or other flammable liquids in approved containers. Use of unapproved containers is prohibited,
 - (c) proper disposal of flammable material daily,
 - (d) preventing static electricity when dispensing or transferring flammable liquids by using proper grounding and bonding techniques,
 - (e) avoid using cutting or welding torches during the last one-half hour of shifts, if possible.
 - (f) taking special precautions with fusees, including:
 - (i) store and transport in approved containers.
 - (ii) do not allow fusees to come in contact with any combustible material, including railroad ties or wooden timbers, and
 - (iii) fully extinguish fusees before leaving the location where used.
 - (g) promptly advise CPKC management of any fire on CPKC property, and
 - (h) fully extinguish or provide protection for any fire prior to leaving the work site.
- 18.4.3 Contractors working on the CPKC right-of-way where a high risk of fire exists (e.g., during rail grinding, rail welding) must have:
- (a) appropriate fire prevention and suppression plans (including emergency numbers for CPKC, local firefighters and fire control districts), and
 - (b) additional firefighting equipment and trained contractor Personnel on site, as required by applicable legislation or the Manager-in-Charge.

19.0 Confined Space

19.1 Confined Space

- 19.1.1 Qualified and authorized contractor personnel must follow all required confined space entry procedures in accordance with applicable legislation and standards prior to entering into a confined space.
- 19.1.2 Rescue procedures and equipment must readily available when required to enter a confined space.

20.0 Reportable Accidents, Incidents, and Injuries

20.1 Reportable Injuries

- 20.1.1 Reportable injuries include any personal injury to:
 - (a) Contractor personnel.
 - (b) any CPKC personnel, or
 - (c) to any third party on CPK property.

CPKC Safety Requirements for Contractors - United States

20.2 Reportable Accidents

- 20.2.1 Reportable accidents include any occurrence that results in:
- (a) damage to railroad tracks, right of way, buildings or other CPKC property,
 - (b) damage to railroad equipment,
 - (c) damage to CPKC highway vehicles,
 - (d) release of hazardous material,
 - (e) spill or loss of transported commodities, and
 - (f) any threat to the environment.

20.3 Reportable Incidents

- 20.3.1 Reportable incidents include:
- (a) unintended movement of railroad equipment.
 - (b) failure to provide track protection for workers when required.
 - (c) movement of railroad equipment beyond authorized limits.
 - (d) operation of railroad equipment by an unqualified person.
 - (e) unauthorized handling of a track switch.
 - (f) damage, vandalism or tampering with any railroad signals, structures or railroad safety device.
 - (g) seepage, leakage, spills of, or other contamination from, hazardous materials.
 - (h) actual, threaten or suspected security related incidents.
 - (i) slides, washouts, or other on-track obstructions, or
 - (j) any occurrence that may disrupt the movement of trains or affect safe rail operations.

21.0 Reporting

21.1 Emergency Reporting

- 21.1.1 In the case of an emergency, contractor personnel must call:
- (a) 911, where this emergency response system exists, or
 - (b) the local police, fire or emergency department in all cases, and
 - (c) CPKC Police Services Communication Center- 1-800-716-9132.

21.2 Accident, Incident, Injury Reporting

- 21.2.1 When an accident, incident or injury occurs on CPKC Property, the contractor must:
- (a) immediately report it to the
 - (i) CPKC U.S. North (north of Kansas City) 1-800-716-9132 or CPKC U.S. South (Kansas City and south of) 1-877-527-9464
 - (ii) CPKC Manager-in-Charge
 - (b) follow all instructions given to protect the scene.

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21.2.2 CPKC is obligated to report contractor personnel injuries occurring on CPKC property to the Federal Railroad Administration (FRA). Any state or required regulatory reporting remains the contractor's responsibility.

21.3 Information to Report

21.3.1 Information required with the initial report includes:

- (a) type of incident.
- (b) date and time of occurrence.
- (c) location (mileage, subdivision, building, yard, or other physical description).
- (d) identity of person(s) involved or injured (company & name).
- (e) description of any hazardous materials involved.
- (f) type & unit number of any railroad equipment or vehicle involved.
- (g) description of occurrence, damage and/or injury, and cause if known.
- (h) description of any emergency response.
- (i) name and contact information of person making the report, and
- (j) any such other information that CPKC may require.

21.4 Environmental Incidents and Spills

21.4.1 In the event of an environmental incident or spill that could have a negative impact on the environment, the contractor must immediately:

- (a) Report the incident to the Operations Center, the Manager-in-Charge, and the designated CPKC Contact as per the governing agreement relating to the work.
- (b) take all reasonable actions to contain the spill.
- (c) respond in accordance with its emergency response plan, and
- (d) provide CPKC with the following information:
 - (i) description of location and surrounding area, including any sensitive environmental areas nearby (e.g., rivers, parks, sewers).
 - (ii) type and quantity of substance released.
 - (iii) cause of spill or deposit, if known, and
 - (iv) details of any immediate action taken, or action proposed to be taken to contain spill and recover substance.

21.5 Additional Contractor Requirements

21.5.1 Contractor and Contractor Personnel must:

- (a) ensure an appropriate emergency response is initiated.
- (b) protect any evidence until released by the CPKC Manager-in-Charge.
- (c) cooperate fully with any CPKC investigation.
- (d) cooperate fully with any investigating government agency, and
- (e) notify CPKC if information is requested by any investigating government agency.

CPKC Safety Requirements for Contractors - United States

22.0 Contractor & Contractor Personnel Acknowledgement

Acknowledgement

- 20.1.1 Contractor and Contractor Personnel who Work on CPKC Property shall be deemed to have read and understood the content of these CPKC Safety Requirements for Contractors - United States, as amended from time to time, and to agree to be bound by them.
- 20.1.2 These CPKC Safety Requirements for Contractors - United States are subject to change without prior notice.



*Home Safe is a commitment to be vigilant about personal safety and
the safety of co-workers.*

CPKC Safety Requirements for Contractors - United States

21.0 Attachment A – Emergency Information Sheet

Emergency Contact Information:		
Emergency Contacts:	Phone:	Location:
CPKC U.S. North (North of Kansas City):	1-800-716-9231	
CPKC Public Safety Communication Centre (PSCC)		
CPKC U.S. South (Kansas City and south of)	1-877-527-9464	
CPKC U.S. North Railroad Dispatcher Radio Channel:		
CPKC U.S. South Railroad Dispatcher Radio Channel:		
Manager-in-Charge (MIC):		
Local Emergency Services (EMS):		
Local Police Services:		
Local Fire Services:		
Hospital:		
Physician:		
Aircraft service, (if applicable):		
Watercraft service, (if applicable):		
Other Emergency Services:		
Emergency Evacuation Route: (Describe nearest evacuation assembly location or provide sketch on back)		

CPKC Safety Requirements for Contractors - United States

22.0 Attachment B – Work Site Information Sheet

Work Site Information:	Details:
Worksite Location Name:	
Worksite Location Address:	
Railroad Subdivision Name and Mileage:	
Nearest Town:	
Manager-in-Charge: (Name / Phone Number)	
Contractor Supervisor: (Name / Phone Number)	
Worksite Phone Number:	
Certified First Aid Attendant(s): (Name(s) / Phone Number(s))	
Location of First Aid Kit(s):	
Location of AED (if onsite):	
Location of Fire Extinguishing Equipment:	
Location of Safety Data Sheets (SDSs):	

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Utility Information:		
Utilities Contact:	Phone:	Location:
Natural Gas:		
Water / Sewer:		
Electrical (Overhead):		
Electrical (Underground):		
Fiber Optic Line:		
Phone Lines:		
Cable Lines:		
Confined Space Entry, (if applicable)		
Equipment requirements for confined space entry / rescue, (if applicable):		
Fall Protection Plan Location, (if applicable):		
Other:		

JACK AND REMOVE EXISTING BEARINGS

Effective: April 20, 1994

Revised: April 13, 2018

Description: This work consists of furnishing all labor, tools and equipment for jacking and supporting the existing beams/slab while removing the bearing assembly. The Contractor is responsible for the complete design of the bridge lifting procedures and the materials used. The Contractor shall furnish and place all bracing, shoring, blocking, cribbing, temporary structural steel, timber, shims, wedges, hydraulic jacks, and any other materials and equipment necessary for safe and proper execution of the work. The Contractor shall remove and dispose of the bearings according to Article 501.05 of the Standard Specifications.

Construction Requirements: The Contractor shall submit details and calculations of his/her proposed jacking systems and temporary support procedures for approval by the Engineer before commencing work. If unforeseen field conditions preclude the execution of the approved jacking plan, the Engineer may require the Contractor to provide additional supports or measures. All changes to the jacking plan shall be approved by the Structural Engineer that sealed the jacking plan. Neither added precautions nor the failure of the Engineer to order additional protection will in any way relieve the Contractor of sole responsibility for the safety of lives, equipment and structure.

- (a) Jack and Remove Existing Bearings with bridge deck in place. Jacking and cribbing under and against the existing diaphragms, if applicable, will not be allowed. The Contractor's jacking plans and procedures shall be designed and sealed by an Illinois Licensed Structural Engineer.

In all cases, traffic shall be removed from the portion of the structure to be jacked prior to and during the entire time the load is being supported by the hydraulic pressure of the jack(s). The minimum jack capacity per beam shall be as noted in the plans. Whenever possible, traffic shall be kept off that portion of the structure during the entire bearing replacement operation. The shoring or cribbing supporting the beam(s) during bearing replacement shall be designed to support the dead load plus one half of the live load and impact shown in the plans. If traffic cannot be kept off that portion of the structure during the bearing replacement then the shoring or cribbing supporting the beam(s) shall be designed to support the dead load and full live load and impact shown in the plans.

No jacking shall be allowed during the period of placement and cure time required for any concrete placed in the span(s) contributing loads to the bearings to be jacked and removed.

Jacking shall be limited to 1/8 in. (4 mm) maximum when jacking one bearing at a time. Simultaneous jacking of all beams at one support may be performed provided the maximum lift is 1/4 in. (7 mm) and the maximum differential displacement between adjacent beams is 1/8 in. (4 mm). Suitable gauges for the measurement of superstructure movement shall be furnished and installed by the Contractor.

- (b) Jack and Remove Existing Bearings when entire bridge deck is removed. Jacking and bearing removal shall be done after the removal of the existing bridge deck is complete. The Contractor's plans and procedures for the proposed jacking and cribbing system shall

be designed and sealed by an Illinois Licensed Structural Engineer, unless jacking can be accomplished directly from the bearing seat under the beams or girders.

Jacking shall be limited to 1/4 in. (7 mm) maximum when jacking one beam at a time. Simultaneous jacking of all beams at one support may be performed provided the maximum lift is 3/4 in. (19 mm) and the maximum differential displacement between adjacent beams is 1/4 in. (7 mm). When staged construction is utilized, simultaneous jacking of all beams shall be limited to 1/4 in. (7 mm) unless the diaphragms at the stage line are disconnected, in which case the maximum lift is 3/4 in. (19 mm). Suitable gauges for the measurement of superstructure movement shall be furnished and installed by the Contractor.

The Contractor shall be responsible for restoring to their original condition, prior to jacking, the drainage ditches, pavement, or slopewall disturbed by the cribbing footings.

Basis of Payment: This work will be paid for at the contract unit price each for JACK AND REMOVE EXISTING BEARINGS.

Additional supports or measures resulting from unforeseen field conditions will be paid for according to Article 109.04.

DIAMOND GRINDING AND SURFACE TESTING BRIDGE SECTIONS

Effective: December 6, 2004

Revised: April 15, 2022

Description. This work shall consist of diamond grinding and surface testing bridge sections.

The bridge section shall consist of the bridge deck plus the bridge approach slab and pavement connector, if present, at each end of the bridge.

Equipment. Equipment shall be according to the following.

- (a) Diamond Grinder. The diamond grinder shall be a self-propelled planing machine specifically designed for diamond saw grinding. It shall be capable of accurately establishing the profile grade and controlling the grinding cross slope. It shall also have an effective means for removing excess material and slurry from the surface and for preventing dust from escaping into the air. The removal of slurry shall be continuous throughout the grinding operation. The slurry shall be disposed of according to Article 202.03.

The grinding head shall be a minimum of 4 ft. (1.2 m) wide and the diamond saw blades shall be gang mounted on the grinding head at a rate of 50 to 60 blades / ft. (164 to 197 blades/m).

- (b) Surface Testing Equipment. Required surface testing and analysis equipment and their jobsite transportation shall be provided by the Contractor. The Profile Testing Device shall be according to Illinois Test Procedure 701 except the trace analysis shall be based on traces from bridge sections.

CONSTRUCTION REQUIREMENTS

General. After all components have been properly cured, the bridge section shall be ground over its entire length and over a width that extends to within 2 ft. (600 mm) of the curbs or parapets. Grinding shall be done separately before any saw cut grooving, and no concurrent combination of the two operations will be permitted. Whenever possible, each subsequent longitudinal grinding pass shall progress down the cross slope from high to low. The maximum thickness removed shall be 1/4 inch (6 mm); however, when the bridge deck thickness noted on the plans can be maintained, as a minimum, additional removal thickness may be permitted.

The grinding process shall produce a pavement surface that is true in grade and uniform in appearance with longitudinal line-type texture. The line-type texture shall contain corrugations parallel to the outside pavement edge and present a narrow ridge corduroy type appearance. The peaks of the ridges shall be 1/8-inch +/- 1/16-inch (3 mm +/- 1.5 mm) higher than the bottom of the grinding with evenly spaced ridges. It shall be the Contractor's responsibility to select the actual number of blades per foot (meter) to be used to provide the proper surface finish for the aggregate type and concrete present on the project within the limits specified above.

The vertical difference between longitudinal passes shall be 1/8 inch (3 mm) maximum. The grinding at the ends of the bridge section shall be diminished uniformly at a rate of 1:240 over the pavement connectors.

Grinding shall be continuous through all joints. All expansion joints and bridge components under the joints shall be protected from damage or contact with the grinding slurry.

Surface Testing. The diamond ground bridge section shall be surface tested in the presence of the Engineer prior to opening to traffic.

A copy of the approval letter and recorded settings from the Profile Equipment Verification (PEV) Program shall be submitted to the Engineer prior to testing.

The Contractor shall notify the Engineer a minimum of 24 hours prior to commencement of measurements. All objects and debris shall be removed from the bridge section surface prior to testing. During surface testing, joint openings may be temporarily filled with material approved by the Engineer.

Profiles shall be taken in both wheel paths of each lane, 3 ft. (1 m) from, and parallel to, the planned lane lines.

The profile report shall have stationing indicated every 500 ft. (150 m) at a minimum. The profile report shall include the following information: contract number, structure number, beginning and ending stationing, which lane was tested, direction of travel on the trace, date of collection, time of collection, ambient air temperature at time of collection, and the device operator name(s). The data file created from the testing will be submitted to the Engineer and the Bureau of Research for analysis. The file shall be in a format that is compatible with ProVAL software (ERD, PPF).

Trace Reduction and Bump Locating Procedure. All traces shall be reduced using ProVal. This software shall calculate the Mean International Roughness Index (MRI) in inches/mile (mm/km) and indicate any areas of localized roughness in excess of 200 inches/mile (3105 mm/km) on a continuous 25 feet (8 meters) basis.

The average MRI and locations with deviations exceeding the 200 inches/mile (3105 mm/km) limit will be recorded on the Profile Report for Bridge Deck Smoothness.

All ProVAL files shall be provided to the Engineer within two working days of completing the testing. Bureau of Construction Form BC 2450 shall be provided to the Engineer. An example Form BC 2450 is attached. All files shall contain serial numbers for the vehicle and profiling equipment, the approved settings from the PEV program. The Engineer will compare these settings with the approved settings from the PEV Program. If the settings do not match, the results will be rejected and the section shall be retested/reanalyzed with the appropriate settings.

Corrective Actions. Within the bridge section, all deviations in excess of 200 inches/mile (1575 mm) within any continuous length of 25 ft. (8 m) shall be corrected. Correction of deviations shall not result in the deck thickness being less than the minimum. Where corrective work is performed, the bridge section shall be retested to verify that corrections have produced a MRI of 200 inch/mile (3105 mm/km) within an continuous length of 25 ft (8 m) or less for each lane. The Contractor shall furnish and Form BC 2450 the ProVAL files to the Engineer and the Bureau of Research within two working days after any corrections are made.

Corrective actions shall be performed at no additional cost to the department.

The Engineer may perform profile testing on the surface at any time for monitoring and comparison purposes.

Method of Measurement. This work will be measured for payment in place and the area computed in square yards (square meters) of diamond grinding performed.

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for DIAMOND GRINDING (BRIDGE SECTION).

Instructions for Completing Bridge Deck Smoothness Assessment Summary ALR

This form shall be prepared and submitted, along with the raw data files, to the Engineer.

Report Type:

Initial – Testing of bridge section prior to any smoothness grinding.

Intermediate – After initial pass of smoothness grinding has been completed.

Final – All smoothness grinding has been completed.

Other information:

Submission Date – Date in which it has been submitted to the Engineer

Project Type – New Deck, Microsilica Overlay, Latex Overlay, Fly Ash Overlay

Specification Effective Date – revision date of the specification in the contract

Begin ALR Section 1 – beginning station of ALR finding

End ALR Section 1 – end station of ALR finding

Distance – End ALR minus the Begin ALR station number

MRI – The value of the ALR at that location.



Bridge Deck Smoothness Assessment Summary
Areas of Localized Roughness

This worksheet is intended as a reference for documenting Areas of Localized Roughness (ALR) as described in GBSP-59.

Contract Information		Contact Info	
Contract	60111	IDOT RE Name	Jerry Jones
District	1	IDOT RE E-Mail	Jerry.Jones2@illinois.gov
Letting Date	1/15/2022	IDOT RE Phone	217-555-4183
Item #	26	Contractor Rep. Name	Bob Builder
Route	IL 164	Contractor Rep. E-Mail	Bob.Builder@RTBRConstr.com
Report Type (Initial or Post Grinding)	Initial	Contractor Rep. Phone	217-555-2822
General Comments			
Lane	Driving		
Direction	Eastbound		
Begin Station	13+45.00		
End Station	14+65.00		
Contractor	Bob the Bridge Builder		
Submission Date	4/1/2022		
Overlay Type	Microsilica		
Specification Effective Date	1/1/2022	<i>Distance (ft)</i>	<i>MRI (in/mi)</i>
Begin ALR Section 1	13+56.00		
End ALR Section 1	13+64.20	8.2	256.40
Begin ALR Section 2	14+04.60		
End ALR Section 2	14+06.00	1.4	278.90
Begin ALR Section 3			
End ALR Section 3			
Begin ALR Section 4			
End ALR Section 4			
Begin ALR Section 5			
End ALR Section 5			
Begin ALR Section 6			
End ALR Section 6			
Begin ALR Section 7			
End ALR Section 7			
Begin ALR Section 8			
End ALR Section 8			
Begin ALR Section 9			
End ALR Section 9			
Begin ALR Section 10			
End ALR Section 10			

BRIDGE DECK GROOVING (LONGITUDINAL)

Effective: December 29, 2014

Revised: March 29, 2017

Revise Article 503.16(a)(3)b. to read as follows.

b. Saw Cut Grooving. The grooving operation shall not be started until after the expiration of the required curing or protection period and after correcting excessive variations by grinding or cutting has been completed.

The grooves shall be cut into the hardened concrete, parallel to the centerline of the roadway, using a mechanical saw device equipped with diamond blades that will leave grooves 1/8 in. wide and 3/16 in. ± 1/16 in. deep (3 mm wide and 5 mm ± 1.5 mm deep), with a uniform spacing of 3/4 in. ± 1/16 in. (20 mm ± 1.5 mm) centers. The grooving shall typically extend the full width of the traffic lanes and terminate at the edge of the traffic lane or shoulder. If the bridge has a variable width traffic lane, the grooving shall remain parallel to the centerline of the main roadway. Any staggering of the groove terminations to accommodate the variable width shall be within the shoulders. Grooves shall not be cut closer than 3 inches (75 mm) nor further than 6 inches (150 mm) from any construction joint running parallel to the grooving. In addition, grooves shall not be cut within 6 in. ± 1 in. (150 mm ± 25 mm) from deck drains and expansion joints.

The grooving machine shall contain diamond blades mounted on a multi-blade arbor on a self-propelled machine built for grooving hardened concrete surfaces. The grooving machine shall have a depth control device that detects variations in the deck surface and adjusts the cutting head height to maintain a specified depth of groove. The grooving machine shall have a guide device to control multi-pass alignment.

The removal of slurry shall be continuous throughout the grooving operations. The grooving equipment shall be equipped with vacuum slurry pickup equipment which shall continuously pick up water and sawing dust, and pump the slurry to a collection tank. The slurry shall be disposed of offsite according to Article 202.03.

Cleanup shall be continuous throughout the grooving operation. All grooved areas of the deck shall be flushed with water as soon as possible to remove any slurry material not collected by the vacuum pickup. Flushing shall be continued until all surfaces are clean.

Method of Measurement. This work shall be measured for payment according to Article 503.21(b) except no measurement will be made for any grooving of the shoulders to accommodate a variable width traffic lane.

Basis of Payment. This work will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK GROOVING (LONGITUDINAL).

PREFORMED BRIDGE JOINT SEAL

Effective: December 21, 2016

Revised: June 28, 2024

Description. This work shall consist of furnishing all labor, equipment and materials necessary to prepare the joint opening and install preformed bridge joint seal(s) at the locations specified. Unless otherwise detailed on the plans or specified herein, the maximum rated movement for this joint type is 4 inches (100 mm).

Materials: Unless otherwise specified, one of the following prefabricated joint seals will be permitted.

- (a) Preformed Pre-compressed, Silicone Coated, Self-Expanding Sealant System. This Sealant system shall be comprised of three components: 1) cellular polyurethane foam impregnated with hydrophobic 100% acrylic, water-based emulsion, factory coated with highway-grade, fuel resistant silicone; 2) field-applied epoxy adhesive primer, 3) field-injected silicone sealant bands.

The preformed, pre-compressed silicone joint seal shall, as a minimum, be according to the following:

- The joint seal shall be held in place by a non-sag, high modulus silicone adhesive.
- The joint seal shall be compatible with the epoxy and header material.
- The joint seal shall withstand the effects of vertical and lateral movements, skew movements and rotational movement without adhesive or cohesive failure.
- The joint seal shall be designed so that, the material is capable of movement of +50%, -50% (100% total) of nominal material size. The gland shall not contain any open, unsealed joints along its length in its final condition.
- Changes in plane and direction shall be executed using factory fabricated transition assemblies fabricated to the angle(s) specified on the plans. The transitions shall be watertight at the inside and outside corners through the full movement of the product.
- The depth of the joint shall be recessed 3/4 in. (19 mm) below the riding surface throughout the normal limits of joint movement.
- The joint seal shall be resistant to ultraviolet rays.
- The joint seal shall be resistant to abrasion, oxidation, oils, gasoline, salt, and other materials that may be spilled on or applied to the surface.
- The manufacturer shall certify that the joint composition shall be free of any waxes or wax compounds; asphalts or asphalt compounds.

The joint material shall meet the following physical properties:

Property	Requirement	Test Method
Tensile Strength of Silicone Coating (min)	140 psi	ASTM D 412
UV Resistance of Joint System	No Changes--2000 Hours	ASTM G155-00A
Density of Cellular Polyurethane Foam (Unconfined)	4.0 lb/ cu ft (200kg/cu m)	ASTM D545
Heat Aging Effects (Silicone Coating)	No cracking, chalking	ASTM C 792
Joint System Operating temp range (min)	-40° F to 185° F	ASTM C 711

The adhesive shall be a two-component, 100% solid, modified epoxy meeting the requirements of ASTM C881, Type I, Grade 3, Class B & C. The adhesive shall also have the following properties:

Property	Requirement	Test method
Tensile Strength	2,500 psi (24 MPa) min.	ASTM D638
Compressive Strength	7000 psi (48 MPa) min.	ASTM D695
Bond Strength (Dry Cure)	2000 psi (28MPa) min	ASTM C882
Water Absorption	0.1% by weight	ASTM D570

The silicone band adhesive shall have the following properties:

Property	Requirement	Test Method
Movement Capability	+50/-50%	ASTM C 719
Elongation at Break	>600%	ASTM D 5893
Slump	≤0.3"	ASTM D 2202
Hardness (Shore A) max.	20	ASTM C 661
Tack free time (max)	60 minutes	ASTM C 679
Heat Aging Effects	No cracking, chalking	ASTM C 792
Resilience	≥ 75%	ASTM D5329
Bond	0% Adhesive or Cohesive Failure after 5 cycles @100%extension	ASTM D 5329

(b) Preformed Silicone Joint Seal. The preformed silicone joint seal used for this item shall conform to the following specifications:

**Table 1
 Physical Properties of Preformed Silicone Gland**

Property	Requirement	Test Method
Rated Movement Capability	+2 ¼ inch total	N/A
Tensile Strength, psi.	1000 min	ASTM D 412
Elongation	400% min	ASTM D 412
Tear (die B)	100 ppi. min	ASTM D 624
Hardness Durometer (Shore A).	55 +/- 5 max	ASTM D 2240
Compression set at 212°F, 70 hrs	30% max	ASTM D 395
Heat Aged Properties	5pt max loss on Durometer	ASTM D 573
Tensile and Elongation % Loss	10 % max	

The color of the preformed silicone seal shall be black, made by the addition of Carbon Black fillers which increases UV resistance, tensile strength, and abrasion wear properties.

The locking adhesive shall be non-sag, high modulus silicone adhesive conforming to the following specifications:

**Table 2
 Physical Properties of the Silicone Locking Adhesive**

Property	Requirement	Test Method
Tensile Strength, psi.	200 min	ASTM D 412
Elongation, %	450 min	ASTM D 412
Tack Free Time, minutes.	20 max.	ASTM C 679
Cure Time ¼" bead, hrs	24 max	ASTM C 679
Resistance to U.V.	No cracking, chalking, or degradation	ASTM C793
VOC (g/L)	55	ASTM D 3960

Any rips, tears, or bond failure will be cause for rejection.

The two-part epoxy primer shall be supplied for application to the vertical faces of the joint opening. The supplied primer shall be equally as effective when bonded to concrete or steel. This primer shall meet the following criteria:

Table 3

Physical Properties of Preformed Silicone Joint System Primer

Property	Requirement	Test Method
Viscosity (cps)	44	ASTM D 2196
Color	Light Amber	Visual
Solids (%)	41	ASTM D 4209
Specific Gravity	0.92	ASTM D 1217
Product Flash Point (°F, T.C.C.)	48	ASTM D 56
Package Stability	N/A	One year in tightly sealed containers
Cleaning	N/A	Mineral Spirits
VOC (g/L)	520	ASTM D 3960

- (c) Preformed Inverted EPDM Joint Seal. The preformed inverted EPDM joint seal used for this item shall conform to the following specifications:

**Table 1
 Physical Properties of Preformed Silicone Gland**

Property	Requirement	Test Method
Rated Movement Capability	Up To 5 inch total	N/A
Tensile Strength, psi.	1200 psi min	ASTM D 412
Elongation	400 % min	ASTM D 412
Tear (Die C)	150 pli. min	ASTM D 624
Durometer Content	50 +/- 5 max	ASTM D 2240
Water Resistance (70 hrs @ 100c)	10% max	ASTM D 471
Ozone Resistance	100 min	ASTM D 1171
Color	Black	Visual

Table 2
Physical Properties of the V-Epoxy-R

V-Epoxy-R adhesive meets the requirements of ASTM C881 Type III, Grade 2. The adhesive shall also have the following properties:

Property	Requirement	Test Method
Color	Gray	Visual
Viscosity	45,000 CP (typ.)	N/A
Gel Time (minutes)	30 min.	ASTM C 881
Shelf Life (Separate Sealed Containers)	12 Months	N/A
Resistance to U.V.	No cracking, chalking, or degradation	ASTM C793
VOC (g/L)	55	ASTM D 3960

Any rips, tears, or bond failure will be cause for rejection.

- (d) Bonded Preformed Joint Seal. This joint system shall consist of preformed elastomeric seal bonded to the side walls of the joint opening using an adhesive as specified by the Manufacturer of the joint seal.

The bonded preformed joint seal shall be according to Table 1 of ASTM D2628 with the following exceptions: Compression set shall not be over 40 percent when tested according to Method B (Modified) of ASTM D 395 after 70 hours at 212 °F (100 °C). The Compression-Deflection requirement will not apply to the bonded preformed joint seal.

The adhesive shall be epoxy base, dual component, which resists salt, diluted acids, alkalis, solvents, greases, oils, moisture, sunlight and weathering. Temperatures up to 200 °F (93 °C) shall not reduce bond strength. At 68 °F (20 °C), the bond strength shall be a minimum of 1000 psi (6.9 MPa) within 24 hours.

Any primers or cleaning solutions used on the faces of the joint or on the profile of the sides of the bonded preformed joint seal shall be supplied by the manufacturer of the bonded preformed joint seal.

Any additional installation materials and adhesive for splicing joint sections shall be as supplied by the manufacturer of the preformed joint seal.

The Contractor shall submit the Manufacturer's material certification documentation stating that their materials meet the applicable requirements of this specification for the joint seal(s) installed.

CONSTRUCTION REQUIREMENTS

General. The Contractor shall furnish the Engineer with the manufacturer's product information and installation procedures at least two weeks prior to installation.

The minimum ambient air temperature in which the joint seal can be installed is 40° F (4.4° C) and rising, except for bonded preformed joint seals which shall not be installed when temperatures below 50 °F (10 °C) are predicted within a 48-hour period.

The joint surface shall be completely dry before installing the Joint Seal. For newly placed concrete, the concrete shall be fully cured and allowed to dry out a minimum of seven additional days prior to placement of the seal. Cold, wet, inclement weather will require an extended drying time.

The Joint Seal shall not be installed immediately after precipitation or if precipitation is forecasted for the day. Joint preparation and installation of Joint Seal shall be done during the same day.

Surface Preparation. Surface preparation shall be according to the joint seal manufacturer's written instructions.

After surface preparation is completed, the joint shall be cleaned of debris using compressed air with a minimum pressure of 90 psi (620 kPa). The air compressor shall be equipped with traps to prevent the inclusion of water and/or oil in the air line. The compressed air shall be according to the cleanliness requirements of ASTM D 4285.

When priming is required per the manufacturer's instruction, this operation shall immediately follow cleaning.

Joint Installation. The Joint installation shall be per the manufacturer's instructions; special attention shall be given to ensure the joint seal is properly recessed below the top of the riding surface as recommended by the manufacturer.

For bonded joint seals the seal shall be inserted into the joint and held tightly against both sides of the joint until sufficient bond strength has been developed to resist the expected expansion forces.

Opening to traffic. As these joint systems are supposed to be recessed below the top of the riding surface, there should be no restriction, based on the joint seal installation, on when these joints can be reopened to traffic.

Method of Measurement. The installed preformed joint seal will be measured for payment in feet (meters) measured along the centerline of joint, from out to out of the deck, no measurement will be made for joint material used to turn up into the parapet, sidewalk, or median.

Basis of Payment. The preformed bridge joint seal will be paid for at the contract unit price per foot (meter) for PREFORMED JOINT SEAL, of the design movement specified, rounded to the nearest half inch (13 mm).

BAR SPLICERS, HEADED REINFORCEMENT

Effective: September 2, 2022

Revised: October 27, 2023

Add the following to Article 508.08(b):

When bar splicers are epoxy-coated, all damaged or uncoated areas near the threaded ends shall be coated with a two-part epoxy according to ASTM D 3963 (D 3963M). All threaded ends of Stage II construction threaded splicer bars shall be coated according to ASTM D 3963 or dipped in an epoxy-mastic primer prior to joining the Stage II construction threaded splicer bar to the threaded coupler.

Add the following Article 508.02 (d)

Bar Terminators 1006.10(a)(1)h

Add the following paragraph after Article 508.08 (c):

Bar terminators are threaded, headed attachments to reinforcement to form headed reinforcement. When specified on the plans, a bar terminator shall be attached to the designated reinforcement for development.

Add the following 4th paragraph to Article 508.11:

Bar Terminators will be paid for at the contract unit price per each for BAR TERMINATORS.

Add the following to Article 1006.10(a)(1)g:

For bar splicers with welded connections between the threaded coupler and threaded rod, the Stage I construction threaded splicer bar shall be welded to the threaded coupler using an all-around fillet weld.

Add the following Article 1006.10(a)(1)h:

Bar Terminators. Designated bars shall use a bar terminator to form headed reinforcement. Headed reinforcement shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706, except the connection strength of the bar terminator to the reinforcement bar shall meet, in tension, at least 125 percent of the specified yield strength of the reinforcement bar. The bar terminator shall be on the Department's qualified product list.

When the reinforcement bar to receive the bar terminator is epoxy coated, the bar terminator shall also be epoxy coated according to ASTM A 775 (A 775M)

BRIDGE DECK CONCRETE OVERLAYS

Effective: January 1, 2026

Add the following Section 531 to the Standard Specifications:

“SECTION 531. BRIDGE DECK CONCRETE OVERLAYS

531.01 Description. This work shall consist of constructing a concrete overlay on an existing concrete bridge deck or approach slab.

531.02 Materials. Materials shall be according to the following.

Item.....	Article/Section
(a) Coarse Aggregate (Note 1)	1004.02
(b) Packaged, Dry, Rapid Hardening Mortar or Concrete	1018
(c) Portland Cement Concrete (Note 2) (Note 3)	1020
(d) Fibers for Concrete (Note 4).....	1014

Note 1. Coarse aggregate shall be crushed stone or crushed gravel.

Note 2. Concrete shall be Class BS with the following exceptions.

Overlay Type	Gradation
Fly Ash Ground Granulated Blast Furnace (GGBF) Slag High Reactivity Metakaolin (HRM) Microsilica	CA 11, CA 13, CA 14, or CA 16
Latex	CA 13, CA 14, or CA 16

Slump shall be 2-7 in. (50-175 mm). For latex overlays, the maximum slump may be increased if no visible segregation is observed.

For latex overlays, air content shall be a maximum of 7.0 percent and maximum water/cement ratio shall be 0.40.

For Class F fly ash overlays, fly ash shall replace cement at the maximum rate permitted according to Article 1020.05(c)(1)b. The replacement ratio shall be 1:1.

For Class C fly ash overlays, fly ash shall replace cement at a rate ranging from a minimum of 25 percent to the maximum rate permitted according to Article 1020.05(c)(1)c. The replacement ratio shall be 1:1.

For GGBF slag overlays, GGBF slag shall replace cement at a rate ranging from a minimum of 25 percent to the maximum rate permitted according to Article 1020.05(c)(2)b. The replacement ratio shall be 1:1.

For microsilica and HRM overlays, the cementitious factor (excluding microsilica or HRM) shall be 565 lb/cu yd (390 kg/cu m). The minimum amount of microsilica or HRM added to the mix shall be 33 lb/cu yd (20 kg/cu m) and the maximum shall be 37 lb/cu yd (22 kg/cu m).

For latex overlays, the cementitious factor shall be a minimum of 658 lbs/cu yd (335 kg/cu m), the dosage of the latex admixture shall be 24.5 gal/cu yd (121.3 L/cu m), the coarse aggregate shall be 42-50 percent by weight (mass) of total aggregate, no air entraining admixture shall be used, and water used shall be a maximum of 157 lb/cu yd (93.1 kg/cu m) (including free moisture on the fine and coarse aggregates).

Note 3. For HRM and microsilica overlays, the Contractor shall submit a specific batching sequence for verification by the Engineer. The submittal shall include whether a truck or stationary mixer will be used. For HRM overlays, the submittal shall include whether bulk or bagged HRM will be used. For microsilica overlays, the submittal shall include whether the microsilica to be used is a water based slurry, bulk densified, or bagged densified.

Note 4. Synthetic fibers, when required, shall be according to Article 1014.01, and 1014.04 or 1014.05, as applicable.

531.03 Equipment. Equipment shall be according to the following.

Item.....	Article/Section
(a) Concrete Equipment (Note 1)	1020.03
(b) Finishing Equipment	503.03
(c) Fogging Equipment	1103.17(k)
(d) Mechanical Scarifying Equipment (Note 2)	1101.16
(e) Hydro-Scarification Equipment (Note 3)	
(f) Hand-Held Blast Cleaning Equipment (Note 4)	
(g) Mechanical Blast Cleaning Equipment (Note 5)	
(h) Pull-Off Test Equipment (Note 6)	

Note 1. For latex concrete overlays, a mobile portland cement concrete plant shall be used according to Articles 1020.12 and 1103.04.

Note 2. Mechanical scarifying equipment shall be capable of uniformly scarifying or removing the old concrete surface and new patches to the depth required. The minimum width of the equipment shall be 3 ft (1 m).

Note 3. Hydro-scarification equipment shall consist of filtering and pumping units operating with a computerized, self-propelled robotic machine capable of removing sound concrete in a single pass to the specified depth and operating at a 16,000 psi (110 MPa) minimum water pressure with a 55 gal/min (208 L/min) minimum water flow rate.

Note 4. Hand-held blast cleaning shall be performed by high-pressure waterblasting or abrasive blasting. High-pressure waterblasting equipment shall have a minimum water pressure of 7000 psi (48 MPa) and have oil traps.

Note 5. Mechanical blast cleaning shall be performed by high-pressure waterblasting or shotblasting capable of removing weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification, and shall have oil traps.

Mechanical high-pressure waterblasting equipment shall be mounted on a wheeled carriage, include multiple nozzles mounted on a rotating assembly, and shall be operated with a 7000 psi (48 MPa) minimum water pressure. The distance between the nozzles and the deck surface shall be kept constant and the wheels shall maintain contact with the deck surface during operation.

Note 6. Equipment used to perform pull-off testing shall be on the Department's qualified product list "Pull-Off Test Equipment for Bridge Deck Overlays".

CONSTRUCTION REQUIREMENTS

531.04 General. The Contractor shall control the runoff water generated by the various construction activities in such a manner as to minimize, to the maximum extent practicable, the discharge of untreated effluent into adjacent waters, and shall properly dispose of the solids generated according to Article 202.03. The Contractor shall submit a water management plan to the Engineer specifying the control measures to be used. The control measures shall be in place prior to the start of runoff water generating activities. Runoff water shall not be allowed to constitute a hazard to adjacent or underlying roadways, waterways, drainage areas or railroads nor be allowed to erode existing slopes.

531.05 Preparation. Sidewalks, curbs, drains, reinforcement, existing transverse and longitudinal joints, and other appurtenances which are to remain in place shall be protected from damage during scarification and cleaning operations.

- (a) Scarification. The scarification shall consist of removing the concrete using mechanical and hydro-scarifying equipment to the depth specified on the plans. The depth specified shall be measured from the existing concrete surface to the grout line between aggregates remaining after scarification. Power-driven hand tools shall be used for removal around areas to remain in place and areas not accessible to the scarifying equipment. Power-driven hand tools include jackhammers lighter than the nominal 45 lb (20 kg) class. Jackhammers or chipping hammers shall be operated at an angle less than 45 degrees measured from the surface of the slab.

Mechanical scarification equipment shall be used to remove the initial 1/4 in. (25 mm) minimum depth of concrete, creating a uniform roughened concrete surface. If the Contractor's use of mechanical scarifying equipment results in exposing, snagging, or dislodging the top mat of reinforcing steel, the mechanical scarifying depth shall be reduced as necessary immediately. If the exposing, snagging, or dislodging the top mat of reinforcing steel cannot be avoided, the mechanical scarifying shall be stopped immediately and the remaining removal shall be accomplished using the hydro-scarification equipment. All damage to the existing reinforcement resulting from the Contractor's operation shall be repaired or replaced at no additional cost to the Department. Replacement shall include the removal of any additional concrete required to position or splice the new reinforcing steel. Undercutting of exposed reinforcement bars shall only be as required to replace or repair damaged reinforcement. Repairs to existing reinforcement shall be according to Section 530.

- (b) Sounding. Just prior to performing hydro-scarification, the deck shall be sounded, with unsound areas marked on the deck by the Engineer. A trial section, in an area of sound concrete, on the existing deck surface will be designated by the Engineer to calibrate the equipment settings to remove sound concrete to the required depth, in a single pass, and provide a highly roughened bondable surface. The trial section shall consist of approximately 30 sq ft (3 sq m). After calibration in an area of sound concrete, the equipment shall be moved to a second trial section, as designated by the Engineer, in an area containing unsound concrete to verify the calibrated settings are sufficient to remove the unsound concrete. If the calibrated settings are insufficient to remove the unsound concrete, the equipment may be moved back to an area of sound concrete and the calibration settings verified.

After the equipment settings are established, they shall be supplied to the Engineer and include the following.

- (1) Water pressure
- (2) Water flow rate
- (3) Nozzle type and size
- (4) Nozzle travel speed
- (5) Machine staging control (step/advance rate)

Hydro-scarification may begin after the calibration settings have been approved by the Engineer. At least the last 1/2 in. (13 mm) of removal shall be accomplished with hydro-scarification equipment.

The removal depth will be verified by the Engineer. If sound concrete is being removed below the desired depth, the equipment shall be recalibrated.

- (c) Cleaning. After hydro-scarification, the concrete shall be vacuum cleaned before the water and debris are allowed to dry and re-solidify to the deck. The vacuum shall be equipped with fugitive dust control devices capable of removing wet debris and water in the same pass. The vacuum shall also be capable of washing the deck with pressurized water prior to the vacuum operation to dislodge all debris and slurry from the deck surface. The use of alternative cleaning and debris removal methods to minimize driving heavy vacuum equipment over the exposed reinforcement may be used subject to the approval of the Engineer.

531.06 Patching. After scarification and cleaning, the Engineer will sound the scarified concrete and survey the existing reinforcement condition. All remaining unsound concrete and unacceptably corroded reinforcement bars will be marked for additional removal and/or repairs and shall be completed according to Section 530 except as noted below.

In areas where unsound concrete extends below the specified removal depth and hydro-scarification completely removes unsound concrete, a full-depth repair shall be required when the bottom mat of reinforcement is exposed.

Full-depth patches shall be struck off to the scarified surface and then roughened with a suitable stiff bristled broom or wire brush to provide a rough texture. Hand finishing of the patch surface shall be kept to a minimum to prevent overworking of the surface.

Any removal required or made below the specified depth for scarification, which does not result in full-depth repair, shall be filled with the overlay material at the time of the overlay placement.

Undercutting of exposed reinforcement bars shall only be as required to replace or repair damaged or corroded reinforcement, or to perform a full depth repair.

531.07 Final Surface Preparation. Final surface preparation shall include the cleaning of all dust, debris, concrete fines, and other foreign substances from the surface including vertical faces of curbs, previously placed adjacent overlays, barrier walls up to a height of 1 in. (25 mm) above the overlay, depressions, and beneath reinforcement bars using hand-held blast cleaning methods.

If spoils from the scarification operation are allowed to dry and re-solidify on the surface, the surface shall be cleaned with mechanical blast cleaning equipment. Areas determined by the Engineer to be inaccessible to scarifying equipment shall be blast cleaned with hand-held equipment.

The Engineer may require surface pull-off testing of areas inaccessible to scarifying equipment. The Contractor shall provide the testing equipment in accordance with Illinois Test Procedure 304 "Pull-Off Test (Surface Method)". Prior to the start of testing, the Contractor shall submit to the Engineer a technical data sheet and material safety data sheet for the epoxy used to perform the testing. For solvents used to clean the equipment, a material safety data sheet shall be submitted. The Engineer will determine each test location, and each individual test shall have a minimum strength of 175 psi (1,207 kPa). In the case of a failing test, the Contractor shall adjust the blast cleaning method and re-clean the area. Testing will be repeated until satisfactory results are attained.

Exposed reinforcement bars shall be free of dirt, detrimental scale, paint, oil, and other foreign substances which may reduce bond with the concrete. Loose, scaling rust shall be removed by rubbing with burlap, wire brushing, blast cleaning, or another method approved by the Engineer. Loose reinforcement bars, as determined by the Engineer, shall be retied.

Dust, concrete fines, debris, and water resulting from the surface preparation shall be confined and immediately removed. If concrete placement does not follow immediately after the final cleaning, the area shall be protected with anchored white polyethylene sheeting.

531.08 Equipment Preparation. Before placing the overlay, the finishing machine shall be operated over the full length of bridge segment to be overlaid to check support rails for deflection and confirm the minimum overlay thickness. If adjustments are needed, another check shall be performed.

531.09 Placing. Concrete placement shall be according to Article 503.07, 503.16, and the following.

The surface shall be cleaned to the satisfaction of the Engineer and shall be thoroughly wetted and maintained in a dampened condition with water for at least 12 hours before placement of the overlay. Excess water shall be removed by compressed air or by vacuuming prior to the beginning of overlay placement. Water shall not be applied to the surface within one hour before or at any time during placement of the overlay.

Internal vibration shall be performed along edges, adjacent to bulkheads, and where the overlay thickness exceeds 3 in. (75 mm). Internal vibration along the longitudinal edges of a pour shall be performed with a minimum of two hand-held vibrators, one on each edge of the pour. Hand finishing shall be performed along the edges of the pour from sidewalks, curbs, or work bridges.

A construction dam or bulkhead shall be installed in case of a delay of 30 minutes or more in the concrete placement operation.

Construction joints shall be formed. When required by the Engineer, the previously placed overlay shall be sawed full-depth to a straight and vertical edge before fresh concrete is placed. The Engineer will determine the extent of the removal. When longitudinal joints are not shown on the plans, the locations shall be subject to approval by the Engineer and shall not be located in the wheel paths.

The Contractor shall stencil the date of construction (month and year) and the appropriate letters into the overlay before it takes its final set, as follows.

- (a) MS, for MicroSilica
- (b) MSFA, when fly ash is used in the silica fume mix design, for MicroSilica Fly Ash
- (c) MSF, for MicroSilica with Fibers
- (d) MSFAF, when fly ash is used in the silica fume mix design, for MicroSilica Fly Ash with Fibers
- (e) LX, for LateX
- (f) LXF, for LateX with Fibers
- (g) HRM, for High-Reactivity Metakaolin
- (h) HRMFA, when fly ash is used in the HRM mix design, for High-Reactivity Metakaolin Fly Ash
- (i) HRMF, for High-Reactivity Metakaolin with Fibers
- (j) HRMFAF, when fly ash is used in the HRM mix design, for High-Reactivity Metakaolin Fly Ash with Fibers
- (k) FA, for Fly Ash
- (l) FAF, for Fly Ash with Fibers
- (m) GGBF, for Ground Granulated Blast Furnace slag
- (n) GGBFF, for Ground Granulated Blast Furnace slag with Fibers

The stencil shall be in a noticeable location, as determined by the Engineer, for each stage of construction outside of the grooving where possible and within 3 ft (1 m) of an abutment joint. The characters shall be 3 to 4 in. (75 to 100 mm) in height, 1/4 in. (5 mm) in depth and face the centerline of the roadway.

531.10 Weather and Other Limitations. Temperature control for concrete placement shall be according to Article 1020.14(b). The concrete protection from low air temperatures during the curing period shall be according to Article 1020.13(d). Concrete shall not be placed when rain is expected during the working period. If night placement is required, illumination and placement procedures will be subject to approval by the Engineer.

Concrete delivery vehicles driven on the structure shall be limited to a maximum load of 6 cu yd (4.6 cu m).

Truck mixers, concrete pumps, or other heavy equipment will not be permitted on any portion where the top reinforcing mat has been exposed. Conveyors, buggy ramps, and pump piping shall be installed in a way that will not displace undercut reinforcement bars. Air compressors may be operated on the deck only if located directly over a pier and supported off undercut reinforcement bars. Compressors will not be allowed to travel over undercut reinforcement bars.

Concrete removal may proceed during final cleaning and concrete placement on adjacent portions, provided the removal does not interfere with the cleaning or placement operations.

Water or contaminants from the hydro-scarification shall not be permitted in areas where the new overlay has been placed until the overlay has cured a minimum of 24 hours.

No concrete shall be removed within 6 ft (1.8 m) of a newly-placed overlay until the concrete has obtained a minimum compressive strength of 3000 psi (20,700 kPa) or flexural strength of 600 psi (4,150 kPa).

531.11 Curing. For silica fume, HRM, GGBF, and fly ash concrete overlays, the surface shall be continuously wet cured for at least seven days according to Articles 1020.13(a)(5) or (a)(6).

For latex modified concrete overlays, the surface shall be continuously wet cured for at least 48 hours according to Articles 1020.13(a)(3), (a)(5), or (a)(6). After the wet cure is completed, all layers of covering materials shall be removed to allow for a dry cure for at least 48 hours. If the ambient temperature falls below 45°F (10°C) during either the wet or dry curing periods, the time below 45°F (10°C) will not be included in the 96 hour curing period. If there is sufficient rain to wet the surface of the overlay for more than one hour of the dry cure period, the wet time will not be included in the 48 hour dry cure period.

When the mats or blankets have been pre-dampened, excess water shall not be allowed to drip onto the overlay during placement.

531.12 Testing. The Engineer reserves the right to conduct pull-off tests on the overlay to determine if any areas are not bonded to the underlying concrete. The overlay will be tested according to the Illinois Test Procedure 305 "Pull-Off Test (Overlay Method)", and the Contractor shall provide the test equipment. Prior to the start of testing, the Contractor shall submit to the Engineer a technical data sheet and material safety data sheet for the epoxy used to perform the testing. For solvents used to clean the equipment, a material safety data sheet shall be submitted. Each individual test shall have a minimum strength of 150 psi (1,034 kPa). If the test results are unacceptable, the overlay shall be removed and replaced at the locations determined by the Engineer. When removing portions of an overlay, the saw cut shall be a minimum depth of 1 in. (25 mm).

If the overlay is to remain in place, all core holes due to testing shall be filled with a rapid set mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used, and the material shall be struck-off flush with the adjacent material.

For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume; or a packaged rapid set mortar shall be used. For a rapid set concrete mixture, a packaged rapid set mortar shall be combined with coarse aggregate according to the manufacturer's instructions; or a packaged rapid set concrete shall be used. Mixing of a rapid set mortar or concrete shall be according to the manufacturer's instructions.

531.13 Opening to Traffic. No traffic or construction equipment will be permitted on the overlay until after the cure period and the concrete has obtained a minimum compressive strength of 4000 psi (27,500 kPa) or flexural strength of 675 psi (4,650 kPa).

531.14 Method of Measurement. Scarification will be measured for payment in square yards (square meters). No additional payment will be made for multiple passes of the equipment.

The concrete overlay will be measured for payment in square yards (square meters).

Additional concrete placed with the overlay, required to fill all depressions below the specified thickness will be measured for payment in cubic yards (cubic meters). The volume will be determined by subtracting the theoretical volume of the overlay from the ticketed volume of overlay delivered minus the volume estimated by the Engineer left in the last truck at the end of the overlay placement. The theoretical cubic yard (cubic meter) quantity for the overlay will be determined by multiplying the plan surface area of the overlay times the specified thickness of the overlay.

Partial depth removal in concurrence with hydro-scarification will not be measured for payment.

531.15 Basis of Payment. Scarification will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK SCARIFICATION, of the depth specified.

Silica fume concrete overlay will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK MICROSILICA CONCRETE OVERLAY, of the thickness specified. Latex modified concrete overlay will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK LATEX CONCRETE OVERLAY, of the thickness specified. HRM concrete overlay will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK HRM CONCRETE OVERLAY, of the thickness specified. GGBF or fly ash concrete overlay will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK GGBF OR FLY ASH CONCRETE OVERLAY, of the thickness specified.

The additional volume of overlay required to fill all depressions below the specified thickness and/or for grade adjustments will be paid for at the Contractor's actual material cost for the concrete per cubic yard (cubic meter) times an adjustment factor. For volumes 15 percent or less over the theoretical volume of the overlay, the adjustment factor will be 1.15. For volumes greater than 15 percent, the adjustment factor will be 1.25 for that volume over 15 percent of the theoretical volume of the overlay.

Concrete protected according to Article 1020.13(d) will be paid according to Article 503.22.

Areas requiring additional partial depth or full depth removal of unsound concrete after hydro-scarification, as determined by the Engineer, will be paid according to Article 109.04.

Reinforcement bars repaired in-kind, as approved by the Engineer, will be paid according to Article 109.04.

When the Engineer conducts pull-off tests on the existing surface or overlay and they are acceptable, Contractor expenses incurred due to testing and filling core holes will be paid according to Article 109.04. Unacceptable pull-off tests will be at no additional cost to the Department.”

CEMENT, FINELY DIVIDED MINERALS, ADMIXTURES, CONCRETE, AND MORTAR (BDE)

Effective: January 1, 2025

Revised: January 1, 2026

Revise the first paragraph of Article 285.05 of the Standard Specifications to read:

“**285.05 Fabric Formed Concrete Revetment Mat.** The grout shall consist of a mixture of cement, fine aggregate, and water so proportioned and mixed as to provide a pumpable slurry. Fly ash or ground granulated blast furnace (GGBF) slag, and concrete admixtures may be used at the option of the Contractor. The grout shall have an air content of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The mix shall obtain a compressive strength of 2500 psi (17,000 kPa) at 28 days according to Article 1020.09.”

Revise Article 302.02 of the Standard Specifications to read:

“**302.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Hydrated Lime	1012.01
(d) By-Product, Hydrated Lime	1012.02
(e) By-Product, Non-Hydrated Lime	1012.03
(f) Lime Slurry	1012.04
(g) Fly Ash	1010
(h) Soil for Soil Modification (Note 1)	1009.01
(i) Bituminous Materials (Note 2)	1032

Note 1. This soil requirement only applies when modifying with lime (slurry or dry).

Note 2. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.”

Revise Article 312.07(c) of the Standard Specifications to read:

“(c) Cement1001”

Add Article 312.07(i) of the Standard Specifications to read:

“(i) Ground Granulated Blast Furnace (GGBF) Slag1010”

Revise the first paragraph of Article 312.09 of the Standard Specifications to read:

“312.09 Proportioning and Mix Design. At least 60 days prior to start of placing CAM II, the Contractor shall submit samples of materials to be used in the work for proportioning and testing. The mixture shall contain a minimum of 200 lb (120 kg) of cement per cubic yard (cubic meter). Cement may be replaced with fly ash or ground granulated blast furnace (GGBF) slag according to Article 1020.05(c)(1) or 1020.05(c)(2), respectively, however the minimum cement content in the mixture shall be 170 lbs/cu yd (101 kg/cu m). Blends of coarse and fine aggregates will be permitted, provided the volume of fine aggregate does not exceed the volume of coarse aggregate. The Engineer will determine the proportions of materials for the mixture according to the “Portland Cement Concrete Level III Technician Course” manual. However, the Contractor may substitute their own mix design. Article 1020.05(a) shall apply, and a Level III PCC Technician shall develop the mix design.”

Revise Article 352.02 of the Standard Specifications to read:

“352.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement (Note 1)	1001
(b) Soil for Soil-Cement Base Course	1009.03
(c) Water	1002
(d) Bituminous Materials (Note 2)	1032

Note 1. Bulk cement may be used for the traveling mixing plant method if the equipment for handling, weighing, and spreading the cement is approved by the Engineer.

Note 2. The bituminous materials used for curing shall be emulsified asphalt RS-2, CRS-2, HFE 90, or HFE 150; rapid curing liquid asphalt RC-70; or medium curing liquid asphalt MC-70 or MC-250.”

Revise Article 404.02 of the Standard Specifications to read:

“404.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate	1003.08
(d) Bituminous Material (Tack Coat)	1032.06
(e) Emulsified Asphalts (Note 1) (Note 2)	1032.06
(f) Fiber Modified Joint Sealer	1050.05
(g) Additives (Note 3)	

Note 1. When used for slurry seal, the emulsified asphalt shall be CQS-1h according to Article 1032.06(b).

Note 2. When used for micro-surfacing, the emulsified asphalt shall be CQS-1hP according to Article 1032.06(e).

Note 3. Additives may be added to the emulsion mix or any of the component materials to provide the control of the quick-traffic properties. They shall be included as part of the mix design and be compatible with the other components of the mix.

Revise the last sentence of the fourth paragraph of Article 404.08 of the Standard Specifications to read:

“When approved by the Engineer, the sealant may be dusted with fine sand, cement, or mineral filler to prevent tracking.”

Revise Note 2 of Article 516.02 of the Standard Specifications to read:

“Note 2. The sand-cement grout mix shall be according to Section 1020 and shall be a 1:1 blend of sand and cement comprised of a Type I, IL, or II cement at 185 lb/cu yd (110 kg/cu m). The maximum water cement ratio shall be sufficient to provide a flowable mixture with a typical slump of 10 in. (250 mm).”

Revise Note 2 of Article 543.02 of the Standard Specifications to read:

“Note 2. The grout mixture shall be 6.50 hundredweight/cu yd (385 kg/cu m) of cement plus fine aggregate and water. Fly ash or ground granulated blast furnace (GGBF) slag may replace a maximum of 5.25 hundredweight/cu yd (310 kg/cu m) of the cement. The water/cement ratio, according to Article 1020.06, shall not exceed 0.60. An air-entraining admixture shall be used to produce an air content, according to Article 1020.08, of not less than 6.0 percent nor more than 9.0 percent of the volume of the grout. The Contractor shall have the option to use a water-reducing or high range water-reducing admixture.”

Revise Article 583.01 of the Standard Specifications to read:

“**583.01 Description.** This work shall consist of placing cement mortar along precast, prestressed concrete bridge deck beams as required for fairing out any unevenness between adjacent deck beams prior to placing of waterproofing membrane and surfacing.”

Revise Article 583.02(a) of the Standard Specifications to read:

“(a) Cement1001”

Revise the first paragraph of Article 583.03 of the Standard Specifications to read:

“ **583.03 General.** This work shall only be performed when the air temperature is 45 °F (7 °C) and rising. The mixture for cement mortar shall consist of three parts sand to one part cement by volume. The amount of water shall be no more than that necessary to produce a workable, plastic mortar.”

Revise Article 606.02(h) of the Standard Specifications to read:

“(h) Fibers (Note 1)1014”

Revise Note 1 in Article 606.02(h) of the Standard Specifications to read:

“Note 1. Fibers, when required, shall only be used in the concrete mixture for slipform applications.”

Revise the third paragraph in Article 606.10 of the Standard Specifications to read:

“Welded wire fabric shall be 6 x 6 in. (150 x 150 mm) mesh, #4 gauge (5.74 mm), 58 lb (26 kg) per 100 sq ft (9 sq m).”

Revise Article 1001.01(d) of the Standard Specifications to read:

“(d) Rapid Hardening Cement. Rapid hardening cement shall be according to the Bureau of Materials Policy Memorandum “Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants”, and ASTM C 1600, Type URH, Type VRH, or Type RH-CAC. It shall be used according to Article 1020.04 or when approved by the Engineer. The Contractor shall submit a report from the manufacturer or an independent lab that contains results for testing according to ASTM C 1600 which shows the cement meets the requirements of either Type URH, Type VRH, or Type RH-CAC. Test data shall be less than 1 year old from the date of submittal.

Revise Article 1001.01(e) of the Standard Specifications to read:

“(e) Other Cements. Other cements shall be according to the Bureau of Materials Policy Memorandum “Portland or Blended Cement Acceptance Procedure for Qualified and Non-Qualified Plants”, and ASTM C 1157 or ASTM C 1600, as applicable. Other cements shall be used according to Article 1020.04 or when approved by the Engineer. For cements according to ASTM C 1157, the Contractor shall submit a report from the manufacturer or an independent lab that contains results of tests which shows the cement meets the requirements Type GU, HE, MS, MH, or LH. For cements according to ASTM C 1600, the Contractor shall submit a report from the manufacturer or an independent lab that contains results of tests which shows the cement meets the requirements Type MRH or GRH. Test data shall be less than 1 year old from the date of submittal.”

Revise Article 1002.02 of the Standard Specifications to read:

“**1002.02 Quality.** Water used with cement in concrete or mortar and water used for curing concrete shall be clean, clear, and free from sugar. In addition, water shall be tested and evaluated for acceptance according to one of the following options.

OPTION 1.

(a) Acceptable limits for acidity and alkalinity when tested according to ITP T 26.

- (1) Acidity -- 0.1 Normal NaOH 2 ml max.*
- (2) Alkalinity -- 0.1 Normal HCl..... 10 ml max.*

*To neutralize 200 ml sample.

(b) Acceptable limits for solids when tested according to the following.

- (1) Organic (ITP T 26).....0.02% max.
- (2) Inorganic (ITP T 26).....0.30% max.
- (3) Sulfate (SO₄) (ASTM D 516-82).....0.05% max.
- (4) Chloride (ASTM D 512)0.06% max.

(c) The following tests shall be performed on the water sample and on deionized water. The same cement and sand shall be used for both tests.

- (1) Unsoundness (ASTM C 151).
- (2) Initial and Final Set Time (ASTM C 266).
- (3) Strength (ASTM C 109).

The test results for the water sample shall not deviate from the test results for the deionized water, except as allowed by the precision in the test method.

OPTION 2. Water shall meet the requirements ASTM C 1602 Tables 1 and 2 as outlined in Sections 5.1, 5.2, and 5.4.”

Revise Note 2/ in Article 1003.01(b) of the Standard Specifications to read:

“2/ Applies only to sand. Sand exceeding the colorimetric test standard of 11 (Illinois Modified AASHTO T 21) will be checked for mortar making properties according to Illinois Modified ASTM C 87 and shall develop a compressive strength at the age of 14 days when using Type I, IL, or II cement of not less than 95 percent of the comparable standard.

Revise the second sentence of Article 1003.02(e)(1) of the Standard Specifications to read:

“The test will be performed with Type I, IL, or II portland cement having a total equivalent alkali content (Na₂O + 0.658K₂O) of 0.90 percent or greater.”

Revise the first sentence of the second paragraph of Article 1003.02(e)(3) of the Standard Specifications to read:

“The ASTM C 1293 test shall be performed with Type I, IL, or II portland cement having a total equivalent alkali content (Na₂O + 0.658K₂O) of 0.80 percent or greater.”

Revise the second sentence of Article 1004.02(g)(1) of the Standard Specifications to read:

“The test will be performed with Type I, IL, or II portland cement having a total equivalent alkali content (Na₂O + 0.658K₂O) of 0.90 percent or greater.”

Add the following Section to the Standard Specifications.

“SECTION 1014. FIBERS FOR CONCRETE

1014.01 General. Fibers used in concrete shall be Type II or Type III (polyolefin or carbon) according to ASTM C 1116. The testing required for Type II fibers or Type III polyolefin fibers shall be performed by an independent lab a minimum of once every five years, and the test results provided to the Department. Manufacturers of Type III carbon fibers shall provide materials certification documentation not more than 6 years old a minimum of once every 5 years to the Department. The Department will maintain a qualified product list. The method of inclusion of fibers into concrete mixtures shall be according to the manufacturer’s specifications.

At the discretion of the Engineer, the concrete mixture shall be evaluated in a field demonstration for fiber clumping, ease of placement, and ease of finishing. The field demonstration shall consist of a minimum 2 cu yd (1.5 cu m) trial batch placed in a 12 ft x 12 ft (3.6 m x 3.6 m) slab.

1014.02 Concrete Gutter, Curb, Median and Paved Ditch. Fibers shall be Type III. Fibers shall have a minimum length of 1/2 in. (13 mm) and a maximum length of 0.75 in. (19 mm). The maximum dosage rate in the concrete mixture shall not exceed 1.5 lb/cu yd (0.9 kg/cu m). The minimum dosage rate shall be per the manufacturer’s recommendation.

1014.03 Concrete Inlay or Overlay. Fibers shall be Type III. Fibers shall have a minimum length of 1.0 in. (25 mm), a maximum length of 2 1/2 in. (63 mm), and a maximum aspect ratio (length divided by the equivalent diameter of the fiber) of 150. The maximum dosage rate shall not exceed 5.0 lb/cu yd (3.0 kg/cu m). The minimum dosage rate shall be per the manufacturer’s recommendation.

1014.04 Bridge Deck Fly Ash, Ground Granulated Blast Furnace (GGBF) Slag, High Reactivity Metakaolin, or Microsilica (Silica Fume) Concrete Overlay. Fibers shall be Type III. The dosage rate shall be a minimum of 3.0 lb/cu yd (1.8 kg/cu m), unless a field demonstration according to Article 1014.01 indicates that a lower dosage rate is necessary. Based on the results of the field demonstration, the Department has the option to reduce the dosage rate of fibers, but the dosage will not be reduced to less than 2.0 lb / cu yd (1.2 kg/cu m).

1014.05 Bridge Deck Latex Concrete Overlay. Fibers shall be Type II or III. Fibers shall have a minimum length of 0.75 in. (19 mm), a maximum length of 1.75 in. (45 mm), and an aspect ratio (length divided by the equivalent diameter of the fiber) of between 70 and 100. The dosage rate shall be a minimum of 3.0 lb/cu yd (1.8 kg/cu m), unless a field demonstration according to Article 1014.01 indicates that a lower dosage rate is necessary. Based on the results of the field demonstration, the Department has the option to reduce the dosage rate of fibers, but the dosage will not be reduced to less than 2.0 lb/cu yd (1.2 kg/cu m).”

Add the following Section to the Standard Specifications:

“SECTION 1015. HIGH PERFORMANCE SHOTCRETE

1015.01 Packaged Shotcrete With Aggregate. The packaged shotcrete with aggregate shall be a pre-blended dry combination of materials for the wet-mix shotcrete method according to ASTM C 1480, Type FA or CA, Grade FR, Class I. The fibers shall be Type III according to

Article 1014.01. The cement and finely divided minerals in the mixture shall be a minimum 6.65 cwt/cu yd (395 kg/cu m), and the portland cement shall not be below 4.70 cwt/cu yd (279 kg/cu m). Microsilica is required in the mixture and shall be a minimum of 5 percent by weight (mass) of cementitious material, and a maximum of 10 percent. Strength requirements shall be according to ASTM C 1480 except that the strength at 28 days shall be at least 4000 psi (27,500 kPa). Strength testing shall be according to ASTM C 1140. The air content as shot shall be 4.0 – 8.0 percent when tested according to AASHTO T 152, and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm).

The packaged shotcrete shall have a water soluble chloride ion content of less than 0.15% by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260.

The testing according to ASTM C 1480, ASTM C 1140, AASHTO 152, and ASTM C 1218 or AASHTO T 260 shall be performed by an independent lab a minimum of once every 5 years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Batching and mixing shall be per the manufacturer's recommendations.

1015.02 Packaged Shotcrete Without Aggregate. The packaged shotcrete that does not include pre-blended aggregate shall be according to Article 1015.01, except the added aggregate shall be according to Articles 1003.02 and 1004.02. The aggregate gradation shall be according to the manufacturer. The Department will maintain a qualified product list. Batching and mixing shall be per the manufacturer's recommendations."

Revise Section 1017 of the Standard Specifications to read:

"SECTION 1017. PACKAGED, DRY, COMBINED MATERIALS FOR MORTAR AND CONCRETE

1017.01 Mortar. The mortar shall be high-strength according to ASTM C 387 and shall have a minimum 80.0 percent relative dynamic modulus of elasticity when tested according to AASHTO T 161. For prestressed concrete applications, the mortar shall have a water-soluble chloride ion content of less than 0.06 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260; and for non-prestressed concrete applications, the water soluble chloride content shall be less than 0.15 percent by weight of cementitious material. The testing according to ASTM C 387, AASHTO T 161, and either ASTM C 1218 or AASHTO T 260 shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Mixing of the high-strength mortar shall be according to the manufacturer's specifications.

1017.02 Concrete. The materials, testing, and preparation of aggregate for the "high slump" packaged concrete mixture shall be according to ASTM C 387. The mixture shall be air entrained, the slump shall be 5-10 in. (125-250 mm), and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). Strength requirements shall be according to ASTM C 387 except that the strength at 28 days shall be at least 4000 psi (27,500 kPa). The "high slump" packaged concrete mixture shall have a water soluble chloride ion content of less than 0.15% by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260. The testing according to ASTM C 387, and either ASTM C 1218 or AASHTO T 260 shall be performed by an independent lab a minimum of once every 5 years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Mixing shall be per the manufacturer's recommendations.

1017.02 Self-Consolidating Concrete. The materials, testing, and preparation of aggregate for the “self-consolidating concrete” packaged concrete mixture shall be according to ASTM C 387. The mixture shall be air entrained, it should be uniformly graded, and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). Strength requirements shall be according to ASTM C 387 except that the strength at 28 days shall be at least 4000 psi (27,500 Pa). Slump flow range shall be 22 in. (550 mm) minimum to 28 in. (700 mm) maximum when tested according to AASHTO T 347. The visual stability index shall be a maximum of 1 when tested according to AASHTO T 351. At the option of the manufacturer, either the J-Ring value shall be a maximum of 2 in. (50 mm) when tested according to AASHTO T 347 or the L-Box blocking ratio shall be a minimum of 80 percent when tested according AASHTO T 419. The hardened visual stability index shall be a maximum of 1 when tested according to AASHTO R 81.

The “self -consolidating concrete” packaged concrete mixture shall have a water soluble chloride ion content of less than 0.15 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260.

The testing according to ASTM C 387, AASHTO T 347, AASHTO T 351, AASHTO T 419, AASHTO R 81, ASTM C 1218 and AASHTO T 260 shall be performed by an independent lab a minimum of once every 5 years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Mixing shall be per the manufacturer’s recommendations.”

Revise Article 1018.01 of the Standard Specifications to read:

“1018.01 Requirements. The rapid hardening mortar or concrete shall be according to ASTM C 928 and shall have successfully completed and remain current with the AASHTO Product Eval and Audit Rapid Hardening Concrete Patching Materials (RHCP) testing program. R1, R2, or R3 concrete shall be air entrained, the slump shall be 5-10 in. (125-250 mm), and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). For prestressed concrete applications, the mortar or concrete shall have a water-soluble chloride ion content of less than 0.06 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260; and for non-prestressed concrete applications, the water soluble chloride content shall be less than 0.15 percent by weight of cementitious material. The Department will maintain a qualified product list. Mixing of the mortar or concrete shall be according to the manufacturer’s specifications..”

Revise Article 1019.02 of the Standard Specifications to read:

“1019.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate for Controlled Low-Strength Material (CLSM)	1003.06
(d) Fly Ash	1010
(e) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(f) Admixtures (Note 1)	

Note 1. The air-entraining admixture may be in powder or liquid form. The air content produced by the admixture shall be 15-25 percent when incorporated into Mix 2 or an equivalent mixture as determined by the Department and tested according to AASHTO

T 121 or AASHTO T 152. The testing according to AASHTO T 121 or AASHTO T 152 shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. The Department will maintain a qualified product list.”

Revise the third paragraph of Article 1019.04 of the Standard Specifications to read:

“The Engineer will instruct the Contractor to adjust the proportions of the mix design in the field as needed to meet the design criteria, provide adequate flowability, maintain proper solid suspension, or other criteria established by the Engineer.”

Revise Article 1019.05 of the Standard Specifications to read:

“**1019.05 Department Mix Design.** The Department mix design shall be Mix 1, 2, or 3 and shall be proportioned to yield approximately one cubic yard (cubic meter).

Mix 1	
Cement	50 lb (30 kg)
Fly Ash – Class C or F, and/or GGBF Slag	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2900 lb (1720 kg)
Water	50-65 gal (248-322 L)
Air Content	No air is entrained

Mix 2	
Cement	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2500 lb (1483 kg)
Water	35-50 gal (173-248 L)
Air Content	15-25 %

Mix 3	
Cement	40 lb (24 kg)
Fly Ash – Class C or F, and/or GGBF Slag	125 lb (74 kg)
Fine Aggregate – Saturated Surface Dry	2500 lb (1483 kg)
Water	35-50 gal (179-248 L)
Air Content	15-25 %”

Revise Article 1020.04, Table 1, Note (8) of the Standard Specifications to read:

“(8) In addition to the Type III portland cement, 100 lb/cu yd of ground granulated blast-furnace slag and 50 lb/cu yd of microsilica (silica fume) shall be used. For an air temperature greater than 85 °F, the Type III portland cement may be replaced with Type I, IL, or II portland cement.”

Revise Article 1020.04, Table 1 (Metric), Note (8) of the Standard Specifications to read:

“(8) In addition to the Type III portland cement, 60 kg/cu m of ground granulated blast-furnace slag and 30 kg/cu m of microsilica (silica fume) shall be used. For an air temperature greater than 30 °C, the Type III portland cement may be replaced with Type I, IL, or II portland cement.”

Revise Note 9 of Table 1 of Article 1020.04 of the Standard Specifications to read:

“(9) The cement shall be a rapid hardening according to Article 1001.01(d). Minimum or maximum cement factor may be adjusted when approved by the Engineer.”

Revise the second paragraph of Article 1020.05(a) of the Standard Specifications to read:

“For a mix design using a portland-pozzolan cement, portland blast-furnace slag cement, portland-limestone cement, or replacing portland cement with finely divided minerals per Articles 1020.05(c) and 1020.05(d), the Contractor may submit a mix design with a minimum portland cement content less than 400 lbs/cu yd (237 kg/cu m), but not less than 375 lbs/cu yd (222 kg/cu m), if the mix design is shown to have a minimum relative dynamic modulus of elasticity of 80 percent determined according to AASHTO T 161. Testing shall be performed by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete.”

Revise the first sentence of the first paragraph of Article 1020.05(b) of the Standard Specifications to read:

“Corrosion inhibitors and concrete admixtures shall be according to the qualified product lists.”

Delete the fourth and fifth sentences of the second paragraph of Article 1020.05(b) of the Standard Specifications.

Revise Article 1020.05(b)(5) of the Standard Specifications to read:

“(5) For Class PP-4 concrete, a high range water-reducing admixture, retarder, and/or hydration stabilizer may be used in addition to the air-entraining admixture. The Contractor also has the option to use a water-reducing admixture with the high range water-reducing admixture. An accelerator shall not be used. A mobile portland cement concrete plant shall be used to produce the patching mixture.

For PP-5 concrete, a non-chloride accelerator, high range water-reducing admixture, retarder, hydration stabilizer, and/or air-entraining admixture may be used. The accelerator, high range water-reducing admixture, retarder, hydration stabilizer, and/or air-entraining admixture shall be per the Contractor’s recommendation and dosage. The qualified product list of concrete admixtures shall not apply. A mobile portland cement concrete plant shall be used to produce the patching mixture.”

Revise second paragraph of Article 1020.05(b)(10) of the Standard Specifications to read:

“When calcium nitrite is used, it shall be added at the rate of 4 gal/cu yd (20 L/cu m) and shall be added to the mix immediately after all compatible admixtures have been introduced to the batch. Other corrosion inhibitors shall be added per the manufacturer’s specifications.”

Delete the third paragraph of Article 1020.05(b)(10) of the Standard Specifications.

Revise Article 1020.15(b)(1)c. of the Standard Specifications to read:

- “c. The minimum portland cement content in the mixture shall be 375 lbs/cu yd (222 kg/cu m). When the total of organic processing additions, inorganic processing additions, and limestone addition exceed 5.0 percent in the cement, the minimum portland cement content in the mixture shall be 400 lbs/cu yd (237 kg/cu m). For a drilled shaft, foundation, footing, or substructure, the minimum portland cement may be reduced to as low as 330 lbs/cu yd (196 kg/cu m) if the concrete has adequate freeze/thaw durability. The Contractor shall provide freeze/thaw test results according to AASHTO T 161, and the relative dynamic modulus of elasticity of the mix design shall be a minimum of 80 percent. Testing shall be performed by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete. Freeze/thaw testing will not be required for concrete that will not be exposed to freezing and thawing conditions as determined by the Engineer.”

Revise Article 1021.01 of the Standard Specifications to read:

“**1021.01 General.** Admixtures shall be furnished in liquid or powder form ready for use. The admixtures shall be delivered in the manufacturer's original containers, bulk tank trucks or such containers or tanks as are acceptable to the Engineer. Delivery shall be accompanied by a ticket which clearly identifies the manufacturer, the date of manufacture, and trade name of the material. Containers shall be readily identifiable as to manufacturer, the date of manufacture, and trade name of the material they contain.

Concrete admixtures shall be on one of the Department's qualified product lists. Unless otherwise noted, admixtures shall have successfully completed and remain current with the AASHTO Product Eval and Audit Concrete Admixture (CADD) testing program. For admixture submittals to the Department; the product brand name, manufacturer name, admixture type or types, an electronic link to the product's technical data sheet, and the NTPEP testing number which contains an electronic link to all test data shall be provided. In addition, a letter shall be submitted certifying that no changes have been made in the formulation of the material since the most current round of tests conducted by AASHTO Product Eval and Audit. After 28 days of testing by AASHTO Product Eval and Audit, air-entraining admixtures may be provisionally approved and used on Departmental projects. For all other admixtures, unless otherwise noted, the time period after which provisionally approved status may be earned is 6 months.

The manufacturer shall include the following in the submittal to the AASHTO Product Eval and Audit CADD testing program: the manufacturing range for specific gravity, the midpoint and manufacturing range for residue by oven drying, and manufacturing range of pH. The submittal shall also include an infrared spectrophotometer trace no more than five years old.

For air-entraining admixtures according to Article 1021.02, the specific gravity allowable manufacturing range established by the manufacturer shall be according to AASHTO M 194. For residue by oven drying and pH, the allowable manufacturing range and test methods shall be according to AASHTO M 194.

For admixtures according to Articles 1021.03, 1021.04, 1021.05, 1021.06, 1021.07, and 1021.08, the pH allowable manufacturing range established by the manufacturer shall be according to ASTM E 70. For specific gravity and residue by oven drying, the allowable manufacturing range and test methods shall be according to AASHTO M 194.

All admixtures, except chloride-based accelerators, shall contain a maximum of 0.3 percent chloride by weight (mass) as determined by an appropriate test method. To verify the test result, the Department will use Illinois Modified AASHTO T 260, Procedure A, Method 1.

Prior to final approval of an admixture, the Engineer reserves the right to request a sample for testing. The test and reference concrete mixtures tested by the Engineer will contain a cement content of 5.65 cwt/cu yd (335 kg/cu m). For freeze-thaw testing, the Department will perform the test according to Illinois Modified AASHTO T 161. The flexural strength test will be performed according to AASHTO T 177. If the Engineer decides to test the admixture, the manufacturer shall submit AASHTO T 197 water content and set time test results on the standard cement used by the Department. The manufacturer may select their lab or an independent lab to perform this testing. The laboratory is not required to be accredited by AASHTO.

Random field samples may be taken by the Department to verify an admixture meets specification. A split sample will be provided to the manufacturer if requested. Admixtures that do not meet specification requirements or an allowable manufacturing range established by the manufacturer shall be replaced with new material.”

Revise Article 1021.03 of the Standard Specifications to read:

“**1021.03 Retarding and Water-Reducing Admixtures.** The admixture shall be according to the following.

- (a) Retarding admixtures shall be according to AASHTO M 194, Type B (retarding) or Type D (water-reducing and retarding).
- (b) Water-reducing admixtures shall be according to AASHTO M 194, Type A.
- (c) High range water-reducing admixtures shall be according to AASHTO M 194, Type F (high range water-reducing) or Type G (high range water-reducing and retarding).”

Revise Article 1021.05 of the Standard Specifications to read:

“**1021.05 Self-Consolidating Admixtures.** Self-consolidating admixture systems shall consist of either a high range water-reducing admixture only or a high range water-reducing admixture combined with a separate viscosity modifying admixture. The one or two component admixture system shall be capable of producing a concrete that can flow around reinforcement and consolidate under its own weight without additional effort and without segregation.

High range water-reducing admixtures shall be according to AASHTO M 194, Type F.

Viscosity modifying admixtures shall be according to AASHTO M 194, Type S (specific performance).”

Revise Article 1021.06 of the Standard Specifications to read:

“1021.06 Rheology-Controlling Admixture. Rheology-controlling admixtures shall be capable of producing a concrete mixture with a lower yield stress that will consolidate easier for slipform applications used by the Contractor. Rheology-controlling admixtures shall be according to AASHTO M 194, Type S (specific performance).”

Revise Article 1021.07 of the Standard Specifications to read:

“1021.07 Corrosion Inhibitor. The corrosion inhibitor shall be according to one of the following.

- (a) Calcium Nitrite. Corrosion inhibitors shall contain a minimum 30 percent calcium nitrite by weight (mass) of solution and shall comply with either the requirements of AASHTO M 194, Type C (accelerating) or the requirements of ASTM C 1582. The corrosion inhibiting performance requirements of ASTM C 1582 shall not apply.
- (b) Other Materials. The corrosion inhibitor shall be according to ASTM C 1582.

For submittals requiring testing according to ASTM M 194, Type C (accelerating), the admixture shall meet the requirements of the AASHTO Product Eval and Audit CADD testing program according to Article 1021.01.

For submittals requiring testing according to ASTM C 1582, a report prepared by an independent laboratory accredited by AASHTO re:source for portland cement concrete shall be provided. The report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications. However, ASTM G 109 test information specified in ASTM C 1582 is not required to be from an independent accredited lab. All other information in ASTM C 1582 shall be from an independent accredited lab. Test data and other information required to be submitted to AASHTO Product Eval and Audit according to Article 1021.01, shall instead be submitted directly to the Department.”

Add Article 1021.08 of the Standard Specifications as follows:

“1021.08 Other Specific Performance Admixtures. Other specific performance admixtures shall, at a minimum, be according to AASHTO M 194, Type S (specific performance). The Department also reserves the right to require other testing, as determined by the Engineer, to show evidence of specific performance characteristics.

Initial testing according to AASHTO M 194 may be conducted under the AASHTO Product Eval and Audit CADD testing program according to Article 1021.01, or by an independent laboratory accredited by AASHTO re:source for Portland Cement Concrete. In either case, test data and other information required to be submitted to AASHTO Product Eval and Audit according to Article 1021.01, shall also be submitted directly to the Department. The independent accredited lab report shall show the results of physical tests conducted no more than five years prior to the time of submittal, according to applicable specifications.”

Add Article 1021.09 of the Standard Specifications as follows:

“1021.09 Latex Admixtures. The latex admixture shall be a uniform, homogeneous, non-toxic, film-forming, polymeric emulsion in water to which all stabilizers have been added at the point of manufacture. The latex admixture shall not contain any chlorides and shall contain 46-49 percent solids.

In lieu of meeting the requirements of Article 1021.01, the Contractor shall submit a manufacturer's certification that the latex emulsion meets the requirements of FHWA Research Report RD-78-35, Chapter VI. The certificate shall include the date of manufacture of the latex admixture, batch or lot number, quantity represented, manufacturer's name, and the location of the manufacturing plant. The latex emulsion shall be sampled and tested in accordance with RD-78-35, Chapter VII, Certification Program.

The latex admixture shall be packaged and stored in containers and storage facilities which will protect the material from freezing and from temperatures above 85°F (30°C). Additionally, the material shall not be stored in direct sunlight and shall be shaded when stored outside of buildings during moderate temperatures.”

Revise Article 1024.01 of the Standard Specifications to read:

“1024.01 Requirements for Grout. The grout shall be proportioned by dry volume, thoroughly mixed, and shall have a minimum temperature of 50 °F (10 °C). Water shall not exceed the minimum needed for placement and finishing.

Materials for the grout shall be according to the following.

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fine Aggregate	1003.02
(d) Fly Ash	1010
(e) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(f) Concrete Admixtures	1021”

Revise Note 1 of Article 1024.02 of the Standard Specifications to read:

“Note 1. Nonshrink grout shall be according to ASTM C 1107.

For prestressed concrete applications, the nonshrink grout shall have a water soluble chloride ion content of less than 0.06 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260; and for non-prestressed concrete applications, the water soluble chloride ion content shall be less than 0.15 percent by weight of cementitious material. The testing according to ASTM 1107, and either ASTM C 1218 or AASHTO T 260 shall be performed by an independent lab a minimum of once every five years, and the test results shall be provided to the Department. The Department will maintain a qualified product list. Mixing of the nonshrink grout shall be according to the manufacturer's specifications.”

Revise Article 1029.02 of the Standard Specifications to read:

“ **1029.02 Materials.** Materials shall be according to the following.

Item	Article/Section
(a) Cement.....	1001
(b) Fly Ash	1010
(c) Ground Granulated Blast Furnace (GGBF) Slag	1010
(d) Water.....	1002
(e) Fine Aggregate.....	1003
(f) Concrete Admixtures	1021
(g) Foaming Agent (Note 1)	

Note 1. The manufacturer shall submit infrared spectrophotometer trace and test results indicating the foaming agent meets the requirements of ASTM C 869 in order to be on the Department’s qualified product list. Submitted data/results shall not be more than five years old.”

Revise the second paragraph of Article 1103.03(a)(4) the Standard Specifications to read:

“The dispenser system shall provide a visual indication that the liquid admixture is actually entering the batch, such as via a transparent or translucent section of tubing or by independent check with an integrated secondary metering device. If approved by the Engineer, an alternate indicator may be used for admixtures dosed at rates of 25 oz/cwt (1630 mL/100 kg) or greater, such as accelerating admixtures, corrosion inhibitors, and viscosity modifying admixtures.”

Revise Article 1103.04 of the Standard Specifications to read:

“ **1103.04 Mobile Portland Cement Concrete Plants.** The mobile concrete plant shall be according to AASHTO M 241 and the Bureau of Materials Policy Memorandum “Approval of Volumetric Mobile Mixers for Concrete”. The mixer shall be capable of carrying sufficient unmixed materials to produce not less than 6 cu yd (4.6 cu m) of concrete.”

Revise the first two sections of Check Sheet #11 “Subsealing of Concrete Pavements” of the Recurring Special Provisions to read:

“Description. This work shall consist of filling voids beneath rigid and composite pavements with cement grout.

Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications:

Item	Article/Section
(a) Cement	1001
(b) Water	1002
(c) Fly Ash	1010
(d) Ground Granulated Blast Furnace (GGBF) Slag.....	1010
(e) Admixtures	1021
(f) Packaged Rapid Hardening Mortar or Concrete	1018”

Revise the Materials section of Check Sheet #28 “Portland Cement Concrete Inlay or Overlay” of the Recurring Special Provisions to read:

“Materials. Materials shall be according to the following Articles/Sections of the Standard Specifications.

Item	Article/Section
(a) Portland Cement Concrete (Note 1)	1020
(b) Fibers for Concrete.....	1014
(c) Protective Coat.....	1023.01

Note 1. Class PV concrete shall be used, except the cement factor for central mixed concrete shall be 6.05 cwt/cu yd (360 kg/cu m). A cement factor reduction according to Article 1020.05(b)(8) of the Standard Specifications will be permitted. CA 5 shall not be used and CA 7 may only be used for overlays that are a minimum of 4.5 in. (113 mm) thick. The Class PV concrete shall have a minimum flexural strength of 550 psi (3800 kPa) or a minimum compressive strength of 3000 psi (20,700 kPa) at 14 days.”

COMPENSABLE DELAY COSTS (BDE)

Effective: June 2, 2017

Revised: April 1, 2019

Revise Article 107.40(b) of the Standard Specifications to read:

“(b) Compensation. Compensation will not be allowed for delays, inconveniences, or damages sustained by the Contractor from conflicts with facilities not meeting the above definition; or if a conflict with a utility in an unanticipated location does not cause a shutdown of the work or a documentable reduction in the rate of progress exceeding the limits set herein. The provisions of Article 104.03 notwithstanding, compensation for delays caused by a utility in an unanticipated location will be paid according to the provisions of this Article governing minor and major delays or reduced rate of production which are defined as follows.

- (1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.
- (2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.
- (3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days.”

Revise Article 107.40(c) of the Standard Specifications to read:

“(c) Payment. Payment for Minor, Major, and Reduced Rate of Production Delays will be made as follows.

- (1) Minor Delay. Labor idled which cannot be used on other work will be paid for according to Article 109.04(b)(1) and (2) for the time between start of the delay and the minimum remaining hours in the work shift required by the prevailing practice in the area.

Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).

- (2) Major Delay. Labor will be the same as for a minor delay.

Equipment will be the same as for a minor delay, except Contractor-owned equipment will be limited to two weeks plus the cost of move-out to either the Contractor's yard or another job and the cost to re-mobilize, whichever is less. Rental equipment may be paid for longer than two weeks provided the Contractor presents adequate support to the Department (including lease agreement) to show retaining equipment on the job is the most economical course to follow and in the public interest.

- (3) Reduced Rate of Production Delay. The Contractor will be compensated for the reduced productivity for labor and equipment time in excess of the 25 percent threshold for that portion of the delay in excess of seven calendar days. Determination of compensation will be in accordance with Article 104.02, except labor and material additives will not be permitted.

Payment for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be determined according to Article 109.13.”

Revise Article 108.04(b) of the Standard Specifications to read:

“(b) No working day will be charged under the following conditions.

- (1) When adverse weather prevents work on the controlling item.
- (2) When job conditions due to recent weather prevent work on the controlling item.
- (3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.
- (4) When delays caused by utility or railroad adjustments prevent work on the controlling item.

- (5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.
- (6) When any condition over which the Contractor has no control prevents work on the controlling item.”

Revise Article 109.09(f) of the Standard Specifications to read:

“(f) Basis of Payment. After resolution of a claim in favor of the Contractor, any adjustment in time required for the work will be made according to Section 108. Any adjustment in the costs to be paid will be made for direct labor, direct materials, direct equipment, direct jobsite overhead, direct offsite overhead, and other direct costs allowed by the resolution. Adjustments in costs will not be made for interest charges, loss of anticipated profit, undocumented loss of efficiency, home office overhead and unabsorbed overhead other than as allowed by Article 109.13, lost opportunity, preparation of claim expenses and other consequential indirect costs regardless of method of calculation.

The above Basis of Payment is an essential element of the contract and the claim cost recovery of the Contractor shall be so limited.”

Add the following to Section 109 of the Standard Specifications.

“**109.13 Payment for Contract Delay.** Compensation for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be allowed when such costs result from a delay meeting the criteria in the following table.

Contract Type	Cause of Delay	Length of Delay
Working Days	Article 108.04(b)(3) or Article 108.04(b)(4)	No working days have been charged for two consecutive weeks.
Completion Date	Article 108.08(b)(1) or Article 108.08(b)(7)	The Contractor has been granted a minimum two week extension of contract time, according to Article 108.08.

Payment for each of the various costs will be according to the following.

- (a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.

(b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.

(1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

Original Contract Amount	Supervisory and Administrative Personnel
Up to \$5,000,000	One Project Superintendent
Over \$ 5,000,000 - up to \$25,000,000	One Project Manager, One Project Superintendent or Engineer, and One Clerk
Over \$25,000,000 - up to \$50,000,000	One Project Manager, One Project Superintendent, One Engineer, and One Clerk
Over \$50,000,000	One Project Manager, Two Project Superintendents, One Engineer, and One Clerk

(2) Home Office and Unabsorbed Overhead. Payment for home office and unabsorbed overhead will be calculated as 8 percent of the total delay cost.

(c) Extended Traffic Control. Traffic control required for an extended period of time due to the delay will be paid for according to Article 109.04.

When an extended traffic control adjustment is paid under this provision, an adjusted unit price as provided for in Article 701.20(a) for increase or decrease in the value of work by more than ten percent will not be paid.

Upon payment for a contract delay under this provision, the Contractor shall assign subrogation rights to the Department for the Department's efforts of recovery from any other party for monies paid by the Department as a result of any claim under this provision. The Contractor shall fully cooperate with the Department in its efforts to recover from another party any money paid to the Contractor for delay damages under this provision."

CONCRETE BARRIER (BDE)

Effective: January 1, 2025

Revise the second paragraph of Article 637.12 of the Standard Specifications to read:

“When a double face concrete barrier with a variable cross-section is required, and the variation exceeds 1/2 in. (13 mm), the barrier will be paid for at the contract unit price per foot (meter) for CONCRETE BARRIER, VARIABLE CROSS-SECTION, of the height specified.”

DECK SLAB REPAIR

Effective: January 1, 2026

Add the following Section 530 to the Standard Specifications:

“SECTION 530. DECK SLAB REPAIR

530.01 Description. This work shall consist of the removal of existing hot-mix asphalt (HMA) surface and loose and deteriorated concrete from a bridge deck, and the replacement with new concrete to the existing top of deck.

Work will be classified as follows.

Removal Type	Description
HMA Surface Removal	Removal of the HMA surface from the concrete bridge deck.
Deck Slab Repair (Partial)	Removal and replacement of the concrete deck, at least 3/4 in. (20 mm) but not more than 1/2 of the concrete deck thickness.
Deck Slab Repair (Full Depth, Type I)	Removal and replacement of the concrete deck to full depth, for an area 1 ft x 1 ft (300 mm x 300 mm) to 5 sq ft (0.5 sq m).
Deck Slab Repair (Full Depth, Type II)	Removal and replacement of the concrete deck to full depth, for an area greater than 5 sq ft (0.5 sq m).

530.02 Materials. Materials shall be according to the following.

Item.....	Article/Section
(a) Portland Cement Concrete (Note 1)	1020
(b) Reinforcement Bars	508

Note 1. Class PP-1, PP-2, PP-3, PP-4, PP-5, or BS concrete shall be used unless otherwise noted on the plans.

530.03 Equipment. Equipment shall be according to the following.

Item.....	Article/Section
(a) Concrete Equipment	1020.03
(b) Finishing Equipment	503.03
(c) Hydrodemolition Equipment	1101.11
(e) Hydro-Scarification Equipment (Note 1)	

Note 1. Hydro-scarification equipment shall consist of filtering and pumping units operating with a computerized, self-propelled robotic machine capable of removing unsound concrete in a single pass to the specified depth and operating at a 16,000 psi (110 MPa) minimum water pressure with a 55 gal/min (208 L/min) minimum water flow rate.

CONSTRUCTION REQUIREMENTS

530.04 General. Sidewalks, curbs, drains, reinforcement, existing transverse and longitudinal joints, and other appurtenances which are to remain in place shall be protected from damage during removal and cleaning operations.

The Contractor shall control the runoff water generated by the various construction activities in such a manner as to minimize, to the maximum extent practicable, the discharge of untreated effluent into adjacent waters, and shall properly dispose of the solids generated according to Article 202.03. The Contractor shall submit a water management plan to the Engineer specifying the control measures to be used. The control measures shall be in place prior to the start of runoff water generating activities. Runoff water shall not be allowed to constitute a hazard to adjacent or underlying roadways, waterways, drainage areas or railroads nor be allowed to erode existing slopes.

530.05 HMA Surface Removal. The existing HMA surface and waterproofing membrane shall be removed and disposed of according to Articles 440.04 and 440.06, except milling equipment will not be allowed if the deck is to receive a waterproofing membrane system. Removal of the HMA surface by the use of radiant or direct heat will not be permitted. If the HMA surface or waterproofing membrane contains asbestos fibers, removal shall be according to the Recurring Special Provision "Asbestos Waterproofing Membrane or Asbestos Hot-Mix Asphalt Surface Removal".

530.06 Concrete Removal. Concrete shall be removed, as determined by the Engineer, in areas of loose, disintegrated, and unsound concrete. Areas designated for partial depth repair in which unsound concrete is found to extend below half the concrete deck thickness shall be removed to full depth.

A concrete saw shall be used to provide vertical edges 3/4 in. (20 mm) deep around the perimeter of the area to be patched. Where reinforcement bars lack sufficient concrete cover, the depth shall be reduced as directed by the Engineer. A saw cut will not be required if the deck is to get an overlay, or along the face of the curb, parapet or joint, or when sharp vertical edges are provided by hydrodemolition.

- (a) Partial-Depth. The loose and unsound concrete shall be removed using power-driven hand tools or hydrodemolition equipment. Power-driven hand tools include jackhammers less than or equal to the nominal 45 lb (20 kg) class. Chipping hammers heavier than the nominal 15 lb (7 kg) class shall not be used for removing concrete from below reinforcing bars, or for removal within 1 ft (300 mm) of existing beams, girders, or other structural members that are to remain in service. Jackhammers and chipping hammers shall not be operated at an angle less than 45 degrees measured from the surface of the deck.
- (b) Full Depth. Full depth removal shall be performed according to Article 501.05 except that hydraulic impact equipment may be permitted in areas of full depth removal more than 1 ft (300 mm) away from the edges of existing beams, girders or other supporting structural members or more than 1 ft (300 mm) from the boundaries of full depth repairs.

Forms for full depth repair may be supported by hangers with adjustable bolts or by blocking from the beams below. When approved by the Engineer, forms for Type I patches may be supported by No. 9 (3.8 mm) wires or other devices attached to the reinforcement bars.

Exposed reinforcement bars and newly exposed concrete shall be blast cleaned. If the Engineer determines the bond between existing concrete and reinforcement bars within the patch area has been destroyed, the concrete adjacent to the bar shall be removed to a depth that will permit new concrete to bond to the entire periphery of the exposed bar. A minimum of 1 in. (25 mm) clearance will be required. If the Engineer enlarges a designated removal area due to deterioration beyond the limits previously designated, a new saw cut shall be made around the extended area before additional removal is begun. The removal area shall not be enlarged solely to correct debonded reinforcement or deficient lap lengths.

530.07 Reinforcement Treatment. Care shall be exercised during concrete removal to protect the reinforcement bars and structural steel from damage. Damage to the reinforcement bars or structural steel to remain in place shall be repaired or replaced. Existing reinforcement bars shall remain in place and loose bars shall be tied. Reinforcing bars which have been removed with the patch or lost at least 25 percent of their original cross-sectional area due to corrosion shall be supplemented by new in-kind reinforcement bars. New bars shall be lapped a minimum of 32 bar diameters to existing bars. A mechanical splicer capable of developing in tension at least 125 percent of the yield strength of the existing bar shall be used when it is not feasible to provide the minimum bar lap. No welding of bars will be permitted.

530.08 Cleaning. After concrete removal and reinforcement repairs, the repair areas shall be cleaned of dust and debris. Once the initial cleaning is completed, the repair areas shall be blast cleaned to a roughened appearance free from concrete fines and foreign matter.

Exposed reinforcement bars shall be free of dirt, detrimental scale, paint, oil, or other foreign substances which may reduce bond with the concrete. Loose, scaling rust shall be removed by rubbing with burlap, wire brushing, blast cleaning, or another method approved by the Engineer.

Dust, concrete fines, debris, and water resulting from the blast cleaning shall be confined and immediately removed. If concrete placement does not follow immediately after the final cleaning, the area shall be protected with anchored polyethylene sheeting.

530.09 Placing. Concrete placement shall be according to Articles 503.07, 503.16, 1020.14(b), and the following.

The patch area shall be cleaned to the satisfaction of the Engineer and shall be thoroughly wetted and maintained in a dampened condition with water for at least 12 hours before placement of the concrete. Excess water shall be removed by compressed air or by vacuuming prior to the beginning of concrete placement. Water shall not be applied to the surface within one hour before or at any time during placement of the concrete.

When an overlay system is not specified, the patches shall be finished according to Article 503.16(a), followed by a light brooming.

530.10 Curing and Protection. Concrete patches shall be cured according to Articles 1020.13(a)(3) or (a)(5). The curing period shall be three days for Class PP-1, PP-2, PP-3, PP-4, and PP-5 concrete, and seven days for Class BS concrete. When the air temperature is below 55° F (13° C), the Contractor shall cover the patch according to Article 1020.13(d)(1) with minimum R12 insulation.

A 72 hour minimum drying period shall be required before placing waterproofing or HMA surfacing.

530.11 Opening to Traffic. No traffic will be permitted on a patch until after the cure period and the concrete has obtained a minimum compressive strength of 4000 psi (27.6 MPa) or flexural strength of 675 psi (4.65 MPa). Construction equipment will be permitted on a patch during the cure period if the concrete has obtained the minimum required strength when the specimens are cured with the patch.

530.12 Method of Measurement. HMA surface removal and deck slab repair will be measured for payment in place and the area computed in square yards (square meters).

530.13 Basis of Payment. HMA surface removal will be paid for at the contract unit price per square yard (square meter) for HOT-MIX ASPHALT SURFACE REMOVAL (DECK).

Areas removed and replaced up to and including a depth of half the concrete deck thickness will be paid for at the contract unit price per square yard (square meter) for DECK SLAB REPAIR (PARTIAL). Areas removed and replaced to a depth greater than half the concrete deck thickness will be paid for at the contract unit price per square yard (square meter) for DECK SLAB REPAIR (FULL DEPTH, of the type specified).

Concrete protected according to Article 1020.13(d) will be paid according to Article 503.22.

Reinforcement bars repaired in-kind, as approved by the Engineer, will be paid according to Article 109.04."

GUARDRAIL (BDE)

Effective: November 1, 2025

Revise Article 701.17(f) of the Standard Specifications to read:

“(f) Guardrail. Where guardrail is temporarily removed or where the guardrail installation is incomplete, Type II barricades or drums shall be placed at 50 ft (15 m) centers during completion of the work.

Guardrail installation shall be completed within three calendar days of removal or shielded with a temporary longitudinal traffic barrier approved by the Engineer.

On staged construction projects all guardrail and end terminal installations shall be complete prior to switching traffic.”

HOT-MIX ASPHALT (BDE)

Effective: January 1, 2024

Revised: April 1, 2026

Add the following to the end of Article 406.06(c) of the Standard Specifications:

“The amount of HMA binder course placed shall be limited to that which can be surfaced during the same construction season.”

Revise the fifteenth through eighteenth paragraphs of Article 406.14 of the Standard Specifications to read:

“The mixture used in constructing acceptable HMA test strips will be paid for at the contract unit price. Unacceptable HMA test strips shall be removed and replaced at no additional cost to the Department.”

Revise the first and second paragraphs of Articles 1030.06(c)(2) of the Standard Specifications to read:

“(2) Personnel. The Contractor shall provide a QC Manager who shall have overall responsibility and authority for quality control. This individual shall maintain active certification as a Hot-Mix Asphalt Level II technician.

In addition to the QC Manager, the Contractor shall provide sufficient personnel to perform the required visual inspections, sampling, testing, and documentation in a timely manner. Mix designs shall be developed by personnel with an active certification as a Hot-Mix Asphalt Level III technician. Technicians performing mix design testing and plant sampling/testing shall maintain active certification as a Hot-Mix Asphalt Level I technician. The Contractor may provide a technician trainee who has successfully completed the Department’s “Hot-Mix Asphalt Trainee Course” to assist in the activities completed by a Hot-Mix Asphalt Level I technician for a period of one year after the course completion date. The Contractor may also provide a Gradation Technician who has successfully completed the Department’s “Gradation Technician Course” to run gradation tests only under the supervision of a Hot-Mix Asphalt Level II Technician. The Contractor shall provide a Hot-Mix Asphalt Density

Tester who has successfully completed the Department's "Nuclear Density Testing" course to run all nuclear density tests on the job site."

Add Article 1030.06(d)(3) to the Standard Specifications as follows:

"(3) The Contractor shall take possession of any Department HMA mixture samples or density specimens upon notification by the Engineer. The Contractor shall collect the HMA mixture samples or density specimens from the location designated by the Engineer and may add these materials to RAP stockpiles according to Section 1031."

Revise the second paragraph of Articles 1030.07(a)(11) and 1030.08(a)(9) of the Standard Specifications to read:

"When establishing the target density, the HMA maximum theoretical specific gravity (G_{mm}) will be based on the running average of four available Department test results for that project. If less than four G_{mm} test results are available, an average of all available Department test results for that project will be used. The initial G_{mm} will be the last available Department test result from a QMP project. If there is no available Department test result from a QMP project, the Department mix design verification test result will be used as the initial G_{mm} ."

Revise the Quality Control Limits table in Article 1030.09(c) to read:

"CONTROL LIMITS						
Parameter	IL-19.0, IL-9.5, IL-9.5FG, IL-19.0L, IL-9.5L		SMA-12.5, SMA-9.5		IL-4.75	
	Individual Test	Moving Avg. of 4	Individual Test	Moving Avg. of 4	Individual Test	Moving Avg. of 4
% Passing: ^{1/}						
1/2 in. (12.5 mm)	± 6 %	± 4 %	± 6 %	± 4 %		
3/8 in. (9.5mm)			± 4 %	± 3 %		
# 4 (4.75 mm)	± 5 %	± 4 %	± 5 %	± 4 %		
# 8 (2.36 mm)	± 5 %	± 3 %	± 4 %	± 2 %		
# 16 (1.18 mm)			± 4 %	± 2 %	± 4 %	± 3 %
# 30 (600 μm)	± 4 %	± 2.5 %	± 4 %	± 2.5 %		
Total Dust Content # 200 (75 μm)	± 1.5 %	± 1.0 %			± 1.5 %	± 1.0 %
Asphalt Binder Content	± 0.3 %	± 0.2 %	± 0.2 %	± 0.1 %	± 0.3 %	± 0.2 %
Air Voids ^{2/}	± 1.2 %	± 1.0 %	± 1.2 %	± 1.0 %	± 1.2 %	± 1.0 %
Field VMA ^{3/}	-0.7 %	-0.5 %	-0.7 %	-0.5 %	-0.7 %	-0.5 %

1/ Based on washed ignition oven or solvent extraction gradation.

2/ The air voids target value shall be 3.2 to 4.8 percent.

3/ Allowable limit below minimum design VMA requirement."

Revise Article 1030.09(g)(1) of the Supplemental Specifications with the following:

“(1) The Contractor shall sample approximately 200 lb (91 kg) of mix as required for the Department’s random mixture verification tests according to Article 1030.09(h)(1).”

Revise Article 1030.09(g)(2) of the Standard Specifications to read:

“(2) The Contractor shall complete split verification sample tests listed in the Limits of Precision table in Article 1030.09(h)(1).”

Revise the second sentence of Article 1030.09(h)(1) of the Supplemental Specifications with the following:

“The random verification mixture sampling interval will be a maximum of 3,000 tons (2,720 metric tons). The Engineer will randomly identify one sample per interval, with a minimum of one sample per mix. If the remaining mix quantity is 600 tons (544 metric tons) or less, the quantity will be combined with the previous interval in the Engineer’s random sample identification. If the required tonnage of a mixture for a single pay item is less than 250 tons (225 metric tons) in total, the Engineer will waive mixture verification sampling and testing.”

Revise the third paragraph of Article 1030.09(h)(1) of the Standard Specifications to read:

“If comparisons of the mixture verification test results are outside the above limits of precision, the Department will verify the results by testing the retained split sample. The retest results will replace all the original results.”

In the Supplemental Specifications, replace the revision for the end of the third paragraph of Article 1030.09(h)(2) with the following:

“When establishing the target density, the HMA maximum theoretical specific gravity (G_{mm}) will be the Department mix design verification test result.”

Replace the last sentence of the fourth paragraph of Article 1030.10 of the Standard Specifications with the following:

“The mixture test results shall meet the requirements of Article 1030.05(d), except tensile strength and TSR testing will only be conducted on the first use of a mix design for the year and Hamburg wheel tests will only be conducted on High ESAL mixtures. To be considered acceptable to remain in place, the Department’s mixture test results shall meet the acceptable limits stated in Article 1030.09(i)(1). In addition, no visible pavement distress such as, but not limited to, segregation, excessive coarse aggregate fracturing outside of growth curves, excessive dust balls, or flushing shall be present as determined by the Engineer.”

Revise the tenth paragraph of Article 1030.10 of the Standard Specifications to read:

“Production is not required to stop after a test strip has been constructed.”

Replace the eleventh paragraph of Article 1030.10 of the Standard Specifications with the following:

“If an initial Hamburg wheel or I-FIT test fails to meet the requirements of Article 1030.05(d), the Department will verify the results by testing the retained gyratory cylinders. Upon notification by the Engineer of a Hamburg wheel or I-FIT test failure on the retained gyratory cylinders, the Contractor shall substitute an approved mix design, submit a new mix design for mix verification testing according to Article 1030.05(d), or pave 250 tons with or without an adjustment and resample for Department Hamburg wheel and I-FIT testing as directed by the Engineer. Paving may continue as long as all other mixture criteria is being met. If Hamburg wheel or I-FIT tests on the resampled HMA fail, production of the affected mixture shall cease and the Contractor shall substitute an approved mix design or submit a new mix design for mix verification testing according to Article 1030.05(d).”

PAVEMENT MARKING (BDE)

Effective: April 1, 2025

Revised: November 1, 2025

Revise the fourth sentence of the fourth paragraph of Article 780.05 of the Standard Specifications to read:

“Grooves for letters and symbols shall be cut in a rectangular shape or in the shape of the proposed marking so the entire marking will fit within the limits of the grooved area.”

Revise the last sentence of the third paragraph of Article 780.08 of the Standard Specifications to read:

“The Contractor shall install the preformed plastic pavement markings according to the manufacturer’s recommendations.”

Revise the second sentence of the first paragraph of Article 780.13 of the Standard Specifications to read:

“In addition, thermoplastic, preformed plastic, epoxy, preformed thermoplastic, polyurea, and modified urethane pavement markings will be inspected following a winter performance period that extends from November 15 to April 1 of the next year.”

PERFORMANCE GRADED ASPHALT BINDER (BDE)

Effective: January 1, 2023

Revised: April 1, 2026

Revise Article 1032.05 of the Standard Specifications to read:

“1032.05 Performance Graded Asphalt Binder. These materials will be accepted according to the Bureau of Materials Policy Memorandum, “Performance Graded Asphalt Binder Qualification Procedure.” The Department will maintain a qualified producer list. These materials shall be free from water and shall not foam when heated to any temperature below the actual flash point. Air blown asphalt, recycle engine oil bottoms (ReOB), and polyphosphoric acid (PPA) modification shall not be used.

When requested, producers shall provide the Engineer with viscosity/temperature relationships for the performance graded asphalt binders delivered and incorporated in the work.

- (a) Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 “Standard Specification for Performance Graded Asphalt Binder” for the grade shown on the plans and the following.

Test	Parameter
Small Strain Parameter (AASHTO PP 113) BBR, ΔT_c , 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs)	-5 °C min.

- (b) Modified Performance Graded (PG) Asphalt Binder. The asphalt binder shall meet the requirements of AASHTO M 320, Table 1 “Standard Specification for Performance Graded Asphalt Binder” for the grade shown on the plans.

Asphalt binder modification shall be performed at the source, as defined in the Bureau of Materials Policy Memorandum, “Performance Graded Asphalt Binder Qualification Procedure.”

Modified asphalt binder shall be safe to handle at asphalt binder production and storage temperatures or HMA construction temperatures. Safety Data Sheets (SDS) shall be provided for all asphalt modifiers.

- (1) Polymer Modification (SBS). Elastomers shall be added to the base asphalt binder to achieve the specified performance grade and shall be a styrene-butadiene-styrene without oil extension. The polymer modified asphalt binder shall be smooth, homogeneous, and be according to the following requirements for the grade shown on the plans.

Requirements for Styrene-Butadiene Copolymer (SBS) Modified Asphalt Binders			
Separation of Polymer ITP, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions		4 (2) max.	
Tests on Residue from Rolling Thin Film Oven Test (RTFO), AASHTO T 240			
Multiple Stress Creep Recovery (MSCR), AASHTO T 350			
Asphalt Grade	Test Temperature	Maximum J _{nr} (3.2 kPa)	Minimum % Recovery (3.2 kPa)
SBS 76-22	64 °C	≤ 0.5	≥ 75 %
SBS 70-22		≤ 2	≥ 30 %
SBS 76-28	58 °C	≤ 0.5	≥ 80 %
SBS 70-28		≤ 1	≥ 60 %
SBS 64-28		≤ 2	≥ 30 %

- (2) Ground Tire Rubber (GTR) Modification. GTR modification is the addition of recycled ground tire rubber to liquid asphalt binder to achieve the specified performance grade. GTR shall be produced from processing automobile and/or truck tires by the ambient grinding method or micronizing through a cryogenic process. GTR shall not exceed 1/16 in. (2 mm) in any dimension and shall not contain free metal particles, moisture that would cause foaming of the asphalt, or other foreign materials. A mineral powder (such as talc) meeting the requirements of AASHTO M 17 may be added, up to a maximum of four percent by weight of GTR to reduce sticking and caking of the GTR particles. When tested in accordance with Illinois Modified AASHTO T 27 "Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates" or AASHTO PP 74 "Standard Practice for Determination of Size and Shape of Glass Beads Used in Traffic Markings by Means of Computerized Optical Method", a 50 g sample of the GTR shall conform to the following gradation requirements.

Sieve Size	Percent Passing
No. 16 (1.18 mm)	100
No. 30 (600 µm)	95 ± 5
No. 50 (300 µm)	> 20

GTR modified asphalt binder shall be tested for rotational viscosity according to AASHTO T 316 using spindle S27. GTR modified asphalt binder shall be tested for original dynamic shear and RTFO dynamic shear according to AASHTO T 315 using a gap of 2 mm.

Requirements for Ground Tire Rubber (GTR) Modified Asphalt Binders		
TESTS ON RESIDUE FROM ROLLING THIN FILM OVEN TEST (AASHTO T 240)		
Elastic Recovery ASTM D 6084, Procedure A, 77 °F (25 °C), 100 mm elongation, %	60 min.	70 min.

- (3) Softener Modification (SM). Softener modification is the addition of organic compounds, such as engineered flux, bio-oil blends, modified vegetable oils, amines, and fatty acid derivatives, to the base asphalt binder to achieve the specified performance grade. Softeners shall be dissolved, dispersed, or reacted in the asphalt binder to enhance its performance and shall remain compatible with the asphalt binder with no separation. Softeners shall not be added to modified PG asphalt binder as defined in Article 1032.05(b)(2).

An Attenuated Total Reflectance-Fourier Transform Infrared spectrum (ATR-FTIR) shall be collected for both the softening compound as well as the softener modified asphalt binder at the dose intended for qualification. The ATR-FTIR spectra shall be collected on unaged softener modified binder, 20-hour Pressurized Aging Vessel (PAV) aged softener modified binder, and 40-hour PAV aged softener modified binder. The ATR-FTIR shall be collected in accordance with Illinois Test Procedure 601. The electronic files spectral files (in one of the following extensions or equivalent: *.SPA, *.SPG, *.IRD, *.IFG, *.CSV, *.SP, *.IRS, *.GAML, *. [0-9], *.IGM, *.ABS, *.DRT, *.SBM, *.RAS) shall be submitted to the Central Bureau of Materials.

Requirements for Softener Modified (SM) Asphalt Binders		
Test	Asphalt Grade	
		SM PG 46-28
	SM PG 52-28	SM PG 52-34
	SM PG 58-22	SM PG 58-28
	SM PG 64-22	
Small Strain Parameter (AASHTO PP 113) BBR, ΔT _c , 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs)	-5 °C min.	
Large Strain Parameter (Illinois Modified AASHTO T 391) DSR/LAS Fatigue Property, Δ G* _{peak} τ, 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs)	≥ 54 %	

- (4) Polymer/Softener Modification (SBS/SM). Polymer/Softener modification is the addition of organic compounds, such as engineered flux, bio-oil blends, modified vegetable oils, amines, and fatty acid derivatives, used in combination with SBS modified PG asphalt binder as modified in accordance with Article 1032.05(b)(1) to achieve the specified performance grade. Polymer/Softeners shall be compatible with each other and dissolved, dispersed, or reacted in the asphalt binder to enhance its performance and shall remain compatible with the asphalt binder with no separation. Polymer/Softeners shall not be added to modified PG asphalt binder as defined in Article 1032.05(b)(2).

An Attenuated Total Reflectance-Fourier Transform Infrared spectrum (ATR-FTIR) shall be collected for both the polymer and the softening compound as well as the polymer/softener modified asphalt binder at the dose intended for qualification. The ATR-FTIR spectra shall be collected on unaged polymer/softener modified binder, 20-hour Pressurized Aging Vessel (PAV) aged polymer/softener modified binder, and 40-hour PAV aged polymer/softener modified binder. The ATR-FTIR shall be collected in accordance with Illinois Test Procedure 601. The electronic files spectral files (in one of the following extensions or equivalent: *.SPA, *.SPG, *.IRD, *.IFG, *.CSV, *.SP, *.IRS, *.GAML, *. [0-9], *.IGM, *.ABS, *.DRT, *.SBM, *.RAS) shall be submitted to the Central Bureau of Materials.

Requirements for Polymer/Softener Modified (SBS-SM) Asphalt Binders			
Separation of Polymer ITP, "Separation of Polymer from Asphalt Binder" Difference in °F (°C) of the softening point between top and bottom portions		4 (2) max.	
Tests on Residue from Rolling Thin Film Oven Test (RTFO), AASHTO T 240			
Multiple Stress Creep Recovery (MSCR), AASHTO T 350			
Asphalt Grade	Test Temperature	Maximum J _{nr} (3.2 kPa)	Minimum % Recovery (3.2 kPa)
SBS-SM 76-22	64 °C	≤ 0.5	≥ 75 %
SBS-SM 70-22		≤ 2	≥ 30 %
SBS-SM 76-28	58 °C	≤ 0.5	≥ 80 %
SBS-SM 70-28		≤ 1	≥ 60 %
SBS-SM 64-28		≤ 2	≥ 30 %
Small Strain Parameter (AASHTO PP 113) BBR, ΔT _c , 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs)			-5 °C min.
Large Strain Parameter (Illinois Modified AASHTO T 391) DSR/LAS Fatigue Property, Δ G* _{peak τ} , 40 hrs PAV (40 hrs continuous or 2 PAV at 20 hrs)			≥ 60 %

The following grades may be specified as tack coats.

Asphalt Grade	Use
PG 58-22, PG 58-28, PG 64-22	Tack Coat"

Revise Article 1031.06(c)(1) and 1031.06(c)(2) of the Standard Specifications to read:

“(1) RAP/RAS. When RAP is used alone or RAP is used in conjunction with RAS, the percentage of virgin ABR shall not exceed the amounts listed in the following table.

HMA Mixtures - RAP/RAS Maximum ABR % ^{1/ 2/}			
Ndesign	Binder	Surface	Polymer Modified Binder or Surface ^{3/}
30	30	30	10
50	25	15	10
70	15	10	10
90	10	10	10

- 1/ For Low ESAL HMA shoulder and stabilized subbase, the RAP/RAS ABR shall not exceed 50 percent of the mixture.
- 2/ When RAP/RAS ABR exceeds 20 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).
- 3/ The maximum ABR percentages for ground tire rubber (GTR) modified mixes shall be equivalent to the percentages specified for SBS polymer modified mixes.

(2) FRAP/RAS. When FRAP is used alone or FRAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the following table.

HMA Mixtures - FRAP/RAS Maximum ABR % ^{1/ 2/}			
Ndesign	Binder	Surface	Polymer Modified Binder or Surface ^{3/}
30	55	45	15
50	45	40	15
70	45	35	15
90	45	35	15
SMA	--	--	25
IL-4.75	--	--	35

- 1/ For Low ESAL HMA shoulder and stabilized subbase, the FRAP/RAS ABR shall not exceed 50 percent of the mixture.
- 2/ When FRAP/RAS ABR exceeds 20 percent for all mixes, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).
- 3/ The maximum ABR percentages for GTR modified mixes shall be equivalent to the percentages specified for SBS polymer modified mixes.”

Add the following to the end of Note 2 of Article 1030.03 of the Standard Specifications.

“A dedicated storage tank for the ground tire rubber (GTR) modified asphalt binder shall be provided. This tank shall be capable of providing continuous mechanical mixing throughout and/or recirculation of the asphalt binder to provide a uniform mixture. The tank shall be heated and capable of maintaining the temperature of the asphalt binder at 300 °F to 350 °F (149 °C to 177 °C). The asphalt binder metering systems of dryer drum plants shall be calibrated with the actual GTR modified asphalt binder material with an accuracy of ± 0.40 percent.”

PREFORMED PLASTIC PAVEMENT MARKING (BDE)

Effective: June 2, 2024

Revise Article 1095.03(h) of the Standard Specifications to read:

“(h) Glass Beads. Glass beads shall be colorless and uniformly distributed throughout the yellow and white portions of the material only. A top coating of beads shall be bonded to or directly embedded into the surface of the markings such that the beads are not easily removed when the film is scratched firmly with a thumb nail.

The glass bead refractive index shall be tested using the liquid immersion method.

Type B material shall have an inner mix of glass beads with a minimum refractive index of 1.50 and a top coating of ceramic beads bonded to top urethane wear surface with a minimum refractive index of 1.70. Beads with a refractive index greater than 1.80 shall not be used.

Type C material shall have glass beads with a minimum refractive index of 1.50 and a layer of skid resistant ceramic particles bonded to the top urethane wear surface. The urethane wear surface shall have a nominal thickness of 5 mils (0.13 mm).”

Revise Article 1095.03(n) of the Standard Specifications to read:

“(n) Sampling and Inspection.

(1) Sample. Prior to approval and use of preformed plastic pavement markings, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The independent laboratory test report shall state the lot tested, the manufacturer’s name, and the date of manufacture.

After initial approval by the Department, samples and certification by the manufacturer shall be submitted for each subsequent batch used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, the manufacturer’s name, and the date of manufacture.

- (2) Inspection. The Contractor shall provide a manufacturer's certification to the Engineer stating the material meets all requirements of this specification. All material samples for acceptance tests will be taken or witnessed by a representative of the Bureau of Materials and will be submitted to the Engineer of Materials, 126 East Ash Street, Springfield, Illinois 62704-4766 at least 30 days in advance of the pavement marking operations."

RAISED REFLECTIVE PAVEMENT MARKERS (BDE)

Effective: November 1, 2025

Revise the eighth sentence of the second paragraph of Article 781.03(a) of the Standard Specifications to read:

"A rapid setting epoxy selected from the Department's qualified product list for raised reflective pavement markers shall be poured into the cut to within 3/8 in. (9 mm) of the pavement surface."

Revise the first sentence of Article 1096.01 of the Standard Specifications to read:

"1096.01 Raised Reflective Pavement Markers. Raised reflective pavement markers shall meet the following requirements and be on the Department's qualified product list."

REMOVAL AND DISPOSAL OF REGULATED SUBSTANCES (BDE)

Effective: January 1, 2024

Revised: April 1, 2026

Revise the first paragraph of Article 669.04 of the Standard Specifications to read:

"669.04 Regulated Substances Monitoring. Regulated substances monitoring includes environmental observation and field screening during regulated substances management activities. The excavated soil and groundwater within the work areas shall be managed as either uncontaminated soil, hazardous waste, special waste, or non-special waste.

As part of the regulated substances monitoring, the monitoring personnel shall perform and document the applicable duties listed on form BDE 2732 "Regulated Substances Monitoring Daily Record (RSMDR)".

Revise the first two sentences of the nineteenth paragraph of Article 669.05 of the Standard Specifications to read:

"The Contractor shall coordinate waste disposal approvals with the disposal facility and provide the specific analytical testing requirements of that facility. The Contractor shall make all arrangements for collection, transportation, and analysis of landfill acceptance testing."

Revise the last paragraph of Article 669.05 of the Standard Specifications to read:

"The Contractor shall select a permitted landfill facility or CCDD/USFO facility meeting the requirements of 35 Ill. Admin. Code Parts 810-814 or Part 1100, respectively. The Department will review and approve or reject the facility proposed by the Contractor based upon information

provided in BDE 2730. The Contractor shall verify whether the selected facility is compliant with those applicable standards as mandated by their permit and whether the facility is presently, has previously been, or has never been, on the United States Environmental Protection Agency (U.S. EPA) National Priorities List or the Resource Conservation and Recovery Act (RCRA) List of Violating Facilities. The use of a Contractor selected facility shall in no manner delay the construction schedule or alter the Contractor's responsibilities as set forth.”

Revise the first paragraph of Article 669.07 of the Standard Specifications to read:

“669.07 Temporary Staging. Soil classified according to Articles 669.05(a)(2), (b)(1), or (c) may be temporarily staged at the Contractor’s option. All other soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) shall be managed and disposed of without temporary staging to the greatest extent practicable. If circumstances beyond the Contractor’s control require temporary staging of these latter materials, the Contractor shall request approval from the Engineer in writing.

Topsoil for re-use as final cover which has been field screened and found not to exhibit PID readings over daily background readings as documented on the BDE 2732, visual staining or odors, and is classified according to Articles 669.05(a)(2), (a)(3), (a)(4), (b)(1), or (c) may be temporarily staged at the Contractor’s option.”

Add the following paragraph after the fourth paragraph of Article 669.10 of the Standard Specifications.

“Regulated substances monitoring will be measured for payment per calendar day, where 4 or more hours of monitoring activities is defined as 1.0 calendar day and less than 4 hours of monitoring activities is defined as 0.5 calendar day.”

Revise the second paragraph of Article 669.11 of the Standard Specification to read:

“Regulated substances monitoring, including completion of form BDE 2732 for each day of work, will be paid for at the contract unit price per calendar day for REGULATED SUBSTANCES MONITORING. In no case will more than 1.0 calendar day be paid on a given calendar day.”

Add the following paragraph after the sixth paragraph of Article 669.11 of the Standard Specifications.

“The sampling and testing of effluent water derived from dewatering discharges for priority pollutants volatile organic compounds (VOCs), priority pollutants semi-volatile organic compounds (SVOCs), or priority pollutants metals, will be paid for at the contract unit price per each for VOCS GROUNDWATER ANALYSIS using EPA Method 8260B, SVOCs GROUNDWATER ANALYSIS using EPA Method 8270C, or RCRA METALS GROUNDWATER ANALYSIS using EPA Methods 6010B and 7471A. This price shall include transporting the sample from the job site to the laboratory.”

Revise the first sentence of the eight paragraph of Article 669.11 of the Standard Specifications to read:

“Payment for temporary staging of soil classified according to Articles 669.05(a)(1), (a)(3), (a)(4), (a)(5), (a)(6), or (b)(2) to be managed and disposed of, if required and approved by the Engineer, will be paid according to Article 109.04.”

SHORT TERM AND TEMPORARY PAVEMENT MARKINGS (BDE)

Effective: April 1, 2024

Revised: April 2, 2024

Revise Article 701.02(d) of the Standard Specifications to read:

“(d) Pavement Marking Tapes (Note 3)1095.06”

Add the following Note to the end of Article 701.02 of the Standard Specifications:

“Note 3. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape.”

Revise Article 703.02(c) of the Standard Specifications to read:

“(c) Pavement Marking Tapes (Note 1)1095.06”

Add the following Note to the end of Article 703.02 of the Standard Specifications:

“Note 1. White or yellow pavement marking tape that is to remain in place longer than 14 days shall be Type IV tape.”

Revise Article 1095.06 of the Standard Specifications to read:

1095.06 Pavement Marking Tapes. Type I white or yellow marking tape shall consist of glass spheres embedded into a binder on a foil backing that is precoated with a pressure sensitive adhesive. The spheres shall be of uniform gradation and distributed evenly over the surface of the tape.

Type IV tape shall consist of white or yellow tape with wet reflective media incorporated to provide immediate and continuing retroreflection in wet and dry conditions. The wet retroreflective media shall be bonded to a durable polyurethane surface. The patterned surface shall have approximately 40 ± 10 percent of the surface area raised and presenting a near vertical face to traffic from any direction. The channels between the raised areas shall be substantially free of exposed reflective elements or particles.

Blackout tape shall consist of a matte black, non-reflective, patterned surface that is precoated with a pressure sensitive adhesive.

- (a) Color. The white and yellow markings shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

Color	Daylight Reflectance %Y
White	65 min.
Yellow *	36 - 59

*Shall match Aerospace Material Specification Standard 595 33538 (Orange Yellow) and the chromaticity limits as follows.

x	0.490	0.475	0.485	0.530
y	0.470	0.438	0.425	0.456

- (b) Retroreflectivity. The white and yellow markings shall be retroreflective. Reflective values measured in accordance with the photometric testing procedure of ASTM D 4061 shall not be less than those listed in the table below. The coefficient of retroreflected luminance, R_L , shall be expressed as average millicandelas/footcandle/sq ft (millicandelas/lux/sq m), measured on a 3.0 x 0.5 ft (900 mm x 150 mm) panel at 86 degree entrance angle.

Coefficient of Retroreflected Luminance, R_L , Dry					
Type I			Type IV		
Observation Angle	White	Yellow	Observation Angle	White	Yellow
0.2°	2700	2400	0.2°	1300	1200
0.5°	2250	2000	0.5°	1100	1000

Wet retroreflectance shall be measured for Type IV under wet conditions according to ASTM E 2177 and meet the following.

Wet Retroreflectance, Initial R_L	
Color	R_L 1.05/88.76
White	300
Yellow	200

- (c) Skid Resistance. The surface of Type IV and blackout markings shall provide a minimum skid resistance of 45 BPN when tested according to ASTM E 303.
- (d) Application. The pavement marking tape shall have a precoated pressure sensitive adhesive and shall require no activation procedures. Test pieces of the tape shall be applied according to the manufacturer's instructions and tested according to ASTM D 1000, Method A, except that a stiff, short bristle roller brush and heavy hand pressure will be substituted for the weighted rubber roller in applying the test pieces to the metal test panel. Material tested as directed above shall show a minimum adhesion value of 750 g/in. (30 g/mm) width at the temperatures specified in ASTM D 1000. The adhesive shall be resistant to oils, acids, solvents, and water, and shall not leave objectionable stains or residue after removal. The material shall be flexible and conformable to the texture of the pavement.
- (e) Durability. Type IV and blackout tape shall be capable of performing for the duration of a normal construction season and shall then be capable of being removed intact or in large sections at pavement temperatures above 40 °F (4 °C) either manually or with a roll-up device without the use of sandblasting, solvents, or grinding. The Contractor shall provide a manufacturer's certification that the material meets the requirements for being removed after the following minimum traffic exposure based on transverse test decks with rolling traffic.

- (1) Time in place - 400 days
- (2) ADT per lane - 9,000 (28 percent trucks)
- (3) Axle hits - 10,000,000 minimum

Samples of the material applied to standard specimen plates will be measured for thickness and tested for durability in accordance with ASTM D 4060, using a CS-17 wheel and 1000-gram load, and shall meet the following criteria showing no significant change in color after being tested for the number of cycles indicated.

Test	Type I	Type IV	Blackout
Minimum Initial Thickness, mils (mm)	20 (0.51)	65 (1.65) ^{1/} 20 (0.51) ^{2/}	65 (1.65) ^{1/} 20 (0.51) ^{2/}
Durability (cycles)	5,000	1,500	1,500

- 1/ Measured at the thickest point of the patterned surface.
- 2/ Measured at the thinnest point of the patterned surface.

The pavement marking tape, when applied according to the manufacturer's recommended procedures, shall be weather resistant and shall show no appreciable fading, lifting, or shrinkage during the useful life of the marking. The tape, as applied, shall be of good appearance, free of cracks, and edges shall be true, straight, and unbroken.

(f) Sampling and Inspection.

- (1) Sample. Prior to approval and use of Type IV pavement marking tape, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The independent laboratory test report shall state the lot tested, the manufacturer's name, and the date of manufacture.

After initial approval by the Department, samples and certification by the manufacturer shall be submitted for each subsequent batch of Type IV tape used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, the manufacturer's name, and the date of manufacture.

- (2) Inspection. The Contractor shall provide a manufacturer's certification to the Engineer stating the material meets all requirements of this specification. All material samples for acceptance tests shall be taken or witnessed by a representative of the Bureau of Materials and shall be submitted to the Engineer of Materials, 126 East Ash Street, Springfield, Illinois 62704-4766 at least 30 days in advance of the pavement marking operations."

SIGN PANELS AND APPURTENANCES (BDE)

Effective: January 1, 2025

Revised: January 1, 2026

Add Article 720.02(c) of the Standard Specifications to read:

“(c) Aluminum Epoxy Mastic1008.03”

Revise the second and third paragraphs of Article 720.02 of the Standard Specifications to read:

“The sign mounting support channel shall be manufactured from steel or aluminum and shall be according to Standard 720001.

Steel support channels shall be according to ASTM A 1011 (A 1011M), ASTM A 635 (A 635M), ASTM A 568 (A 568M), or ASTM A 684 (A 684M), and shall be galvanized. Galvanizing shall be according to ASTM A 653 (A 653M) when galvanized before fabrication, and AASHTO M 111 (M 111M) when galvanized after fabrication. Field or post fabricated drilled holes shall be spot painted with one coat of aluminum epoxy mastic paint prior to installation.”

Revise the fifth paragraph of Article 720.02 of the Standard Specifications to read:

“The stainless steel banding for mounting signs or sign support channels to light or signal standards shall be according to ASTM A 240 (A 240M) Type 302 stainless steel.”

Revise the first sentence of the tenth paragraph of Article 720.03 of the Standard Specifications to read:

“The backs of all sign panels shall be marked in a manner designed to last as long as the sign face material, in letters and numerals at least 3/8 in. (9.5 mm) but no more than 3/4 in. (19 mm) in height with the month and year of manufacture, the name of the sign manufacturer, the name of the sign sheeting manufacturer, the method of manufacture (“screened”, “EC film”, “direct applied”, or “digital print”), and the initials IDOT.”

Revise the first sentence of the fourth paragraph of Article 1091.03(a)(10) of the Standard Specifications to read:

“Transparent colors screened, or transparent acrylic electronic cutting films, or digital printing on white sheeting, shall meet the minimum initial coefficient of retroreflection values of the 0.2 degree observation angle, -4.0 degree entrance angle values as listed in the previous tables for the color being applied.”

Add the following after the fourth paragraph of Article 1091.03(a)(10) of the Standard Specifications:

“Digitally printed signs shall be produced using digital print technologies and ink systems, products and processes that comply with the sheeting manufacturer’s recommendation. The digitally printed signs shall be fabricated with a full sign protective overlay film designed to provide a smooth surface needed for retroreflectivity, and to protect the sign from fading and UV degradation. The overlamine shall comply with the sheeting manufacturer’s recommendations to ensure proper adhesion and transparency.”

Add the following after the third paragraph of Article 1106.01 of the Standard Specifications:

“Digitally printed signs may omit protective overlay film.”

SOURCE OF SUPPLY AND QUALITY REQUIREMENTS (BDE)

Effective: January 2, 2023

Revised: January 1, 2026

Revise the third through ninth paragraphs of Article 106.01 of the Standard Specifications to read:

“Articles, materials, and supplies shall be classified into only one of the following categories.

- (a) Iron and Steel. All iron and steel products, which are to be incorporated into the work, shall be domestically manufactured or produced and fabricated, unless an exception is expressly permitted under Federal and/or State law and written permission is given by the Department. The Contractor shall obtain from the iron or steel producer and/or fabricator, in addition to the mill analysis, a certification that all iron or steel materials meet these domestic source requirements.

The applications of all coatings, epoxy, galvanizing, painting, etc. to iron and steel products shall be domestically applied.

- (b) Manufactured Products. Manufactured products shall include articles, materials or supplies that have been processed into a specific form or shape; or have been combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies. Manufactured products incorporated into the work shall have the final assembly for the manufacturing process occur domestically.

A manufactured product may include components that are construction materials, iron or steel products, or exempt materials.

Precast concrete products and intelligent transportation systems (ITS) or other electronic hardware systems shall comply with the requirements of Article 106.01(a) in addition to the requirements of manufactured products.

- (c) Construction Materials. All manufacturing processes for construction materials shall occur within the United States. Construction materials shall include an article, material, or supply consisting of only one of the following.

- (1) Non-ferrous metals;

- (2) Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);

- (3) Glass (including optic glass);

- (4) Fiber optic cable (including drop cable);

- (5) Optical fiber;

(6) Lumber;

(7) Drywall;

(8) Engineered wood.

Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization of the construction material.

- (d) Exempt Materials. Materials exempt from domestic production requirements are cement or cementitious materials, aggregates, aggregate binding agents or additives, or items not permanently incorporated into the work. Exempt materials may be combined with other materials into a final form to produce a manufactured product.”

SPEED DISPLAY TRAILER (BDE)

Effective: April 2, 2014

Revised: January 1, 2022

Revise the last paragraph of Article 701.11 of the Standard Specifications to read:

“When not being utilized to inform and direct traffic, sign trailers, speed display trailers, arrow boards, and portable changeable message boards shall be treated as nonoperating equipment.”

Add the following to Article 701.15 of the Standard Specifications:

“(m) Speed Display Trailer. A speed display trailer is used to enhance safety of the traveling public and workers in work zones by alerting drivers of their speed, thus deterring them from driving above the posted work zone speed limit.”

Add the following to Article 701.20 of the Standard Specifications:

“(k) When speed display trailers are shown on the Standard, this work will not be paid for separately but shall be considered as included in the cost of the Standard.

For all other speed display trailers, this work will be paid for at the contract unit price per calendar month or fraction thereof for each trailer as SPEED DISPLAY TRAILER.”

Add the following to Article 1106.02 of the Standard Specifications:

“(o) Speed Display Trailer. The speed display trailer shall consist of a LED speed indicator display with self-contained, one-direction radar mounted on an orange see-through trailer. The height of the display and radar shall be such that it will function and be visible when located behind concrete barrier.

The speed measurement shall be by radar and provide a minimum detection distance of 1000 ft (300 m). The radar shall have an accuracy of ± 1 mile per hour.

The speed indicator display shall face approaching traffic and shall have a sign legend of "YOUR SPEED" immediately above or below the speed display. The sign letters shall be between 5 and 8 in. (125 and 200 mm) in height. The digital speed display shall show two digits (00 to 99) in mph. The color of the changeable message legend shall be a yellow legend on a black background. The minimum height of the numerals shall be 18 in. (450 mm), and the nominal legibility distance shall be at least 750 ft (250 m).

The speed indicator display shall be equipped with a violation alert that flashes the displayed detected speed when the work zone posted speed limit is exceeded. The speed indicator shall have a maximum speed cutoff. On roadway facilities with a normal posted speed limit greater than or equal to 45 mph, the detected speeds of vehicles traveling more than 25 mph over the work zone speed limit shall not be displayed. On facilities with normal posted speed limit of less than 45 mph, the detected speeds of vehicles traveling more than 15 mph over the work zone speeds limit shall not be displayed. On any roadway facility if detected speeds are less than 25 mph, they shall not be displayed. The display shall include automatic dimming for nighttime operation.

The speed indicator measurement and display functions shall be equipped with the power supply capable of providing 24 hours of uninterrupted service."

STEEL COST ADJUSTMENT (BDE)

Effective: April 2, 2004

Revised: November 1, 2025

Description. Steel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in steel prices when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract. Failure to indicate "Yes" for any item of work will make that item of steel exempt from steel cost adjustment.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

- Metal Piling (excluding temporary sheet piling)
- Structural Steel
- Reinforcing Steel

Other steel materials such as dowel bars, tie bars, welded reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), and frames and grates will be subject to a steel cost adjustment when the pay items they are used in have a contract value of \$10,000 or greater.

The adjustments shall apply to the above items when they are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply when the item is added as extra work and paid for at a lump sum price or by force account.

Documentation. The following documentation shall be furnished to the Engineer.

- (a) The dates and quantity of steel, in lb (kg), shipped from the mill to the fabricator.
- (b) The quantity of steel, in lb (kg), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$$SCA = Q \times D$$

Where: SCA = steel cost adjustment, in dollars
Q = quantity of steel incorporated into the work, in lb (kg)
D = price factor, in dollars per lb (kg)

$$D = MPI_M - MPI_L$$

Where: MPI_M = The Materials Cost Index for steel as published by the Engineering News-Record for the month the steel is shipped from the mill. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

MPI_L = The Materials Cost Index for steel as published by the Engineering News-Record for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

The unit weights (masses) of steel that will be used to calculate the steel cost adjustment for the various items will be derived from submitted documentation.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the MPI_M will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the MPI_L and MPI_M in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(MPI_L - MPI_M) \div MPI_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the items of work are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

STRUCTURAL REPAIR OF CONCRETE (BDE)

Effective: January 1, 2026

Add the following Section 532 to the Standard Specifications:

“SECTION 532. STRUCTURAL REPAIR OF CONCRETE

532.01 Description. This work shall consist of repairing concrete on a bridge substructure, culvert, retaining wall, or other structure.

532.02 Materials. Materials shall be according to the following.

Item	Article/Section
(a) Portland Cement Concrete (Note 1)	1020
(b) R1, R2, or R3 Concrete	1018
(c) Packaged, Dry, Combined Materials for Concrete	1017.02, 1017.03
(d) High Performance Shotcrete	1015
(e) Reinforcement Bars.....	1006.10
(f) Anchor Bolts.....	1006.09
(g) Water.....	1002
(h) Curing Compound	1022.01
(i) Cotton Mats.....	1022.02
(j) Protective Coat.....	1023
(k) Epoxy (Note 2)	1025
(l) Mechanical Bar Splicers.....	508.06(c)
(m) Polymer Modified Portland Cement Mortar (Note 3)	

Note 1. The concrete shall be Class SI, except the cement and finely divided minerals shall be a minimum 6.65 cwt/cu yd (395 kg/cu m) with no reductions permitted, the cement shall not be below 4.70 cwt/cu yd (279 kg/cu m), the coarse aggregate shall be a CA 16, the strength shall be a minimum 4000 psi (27,500 kPa) at 28 days, and the slump shall be 5-10 in. (125-250 mm). A self-consolidating concrete mixture will also permitted. Slump flow range, visual stability index, J-Ring, L-Box, and hardened visual stability index requirements shall be according to Article 1020.04.

Note 2. ASTM C 881, Type IV, Grade 2 or 3, Class A, B, or C may also be used.

Note 3. Polymer modified portland cement mortar shall be a packaged product consisting of cementitious materials, fine aggregate, and a polymer modifier; and shall have successfully completed and remain current with the AASHTO Product Eval and Audit Rapid Hardening Concrete Patching Materials (RHCP) testing program. The mortar shall be a workable mix capable of bonding and holding its own plastic weight when mixed and placed according to manufacturer’s instructions on vertical and overhead surfaces. It shall have a minimum compressive strength of 1,500 psi (10,300 kPa) at 24 hours, 4,000 psi (27,500 kPa) at 7 days, and 5,000 psi (34,500 kPa) at 28 days when tested according to ASTM C 109 or AASHTO T 106. In addition, the mortar shall have a minimum bond strength of 1,500 psi (10,300 kPa) at 7 days when tested according to ASTM C 882. For prestressed concrete applications, the mortar shall have a water-soluble chloride ion content of less than 0.06 percent by weight of cementitious material when tested according to ASTM C 1218 or AASHTO T 260; and for non-prestressed concrete

applications, the water-soluble chloride ion content shall be less than 0.15 percent by weight of cementitious material. The Department will maintain a Qualified Product List of Polymer Modified Portland Cement Mortar.

532.03 Equipment. Equipment shall be according to Article 503.03 and the following.

Item	Article/Section
(a) Hydrodemolition Equipment.....	1101.11
(b) High Performance Shotcrete Equipment (Note1)	

Note 1. The batching, mixing, pumping, hose, nozzle, and auxiliary equipment shall be for the wet-mix shotcrete method and meet the requirements of ACI 506R.

CONSTRUCTION REQUIREMENTS

532.04 General. The repair method shall be either formed concrete repair or shotcrete according to the following.

- (a) Formed Concrete Repair. For formed concrete repair, a subsequent patch to repair the placement point after initial concrete placement will not be allowed. As an example, this may occur in a vertical location located at the top of the repair.

Formed concrete repair shall not be used for overhead applications except as noted for polymer modified portland cement mortar.

Polymer modified portland cement mortar shall only be used for repairs between 3/8 in. (10 mm) and 2 in. (50 mm) deep on horizontal, vertical, and overhead surfaces.

- (b) Shotcrete. Shotcrete shall not be used for any repair greater than 6 in. (150 mm) in depth, except in horizontal applications where the shotcrete may be placed from above in one lift.

Shotcrete shall not be used for column repairs greater than 4 in. (100 mm) in depth, unless the shotcrete mixture contains 3/8 in. (9.5 mm) aggregate.

The Contractor shall provide a current copy of ACI 506R to the Engineer a minimum of one week prior to the start of construction.

The shotcrete personnel who perform the work shall have current American Concrete Institute (ACI) nozzle men certification for vertical wet and overhead wet applications, except one individual may be in training. This individual shall be adequately supervised by a certified ACI nozzle men as determined by the Engineer and a copy of the nozzle men certificate(s) provided to the Engineer.

532.05 Temporary Shoring or Cribbing. When a temporary shoring or cribbing support system is required, the Contractor shall provide details and computations, prepared and sealed by an Illinois Licensed Structural Engineer, to the Department for approval. Whenever possible, the support system shall be installed prior to starting the associated concrete removal. If no system is specified, but during the course of removal the need for temporary shoring or cribbing becomes apparent or is directed by the Engineer due to a structural concern, the Contractor shall not proceed with any further removal work until an approved support system is installed.

532.06 Concrete Removal. The Contractor shall provide ladders or other appropriate equipment for the Engineer to mark the removal areas. Repair configurations will be kept simple, and squared corners will be indicated whenever possible. The repair perimeter shall be sawed a depth of 1/2 in. (13 mm) or less, as required to avoid cutting the reinforcement. If the concrete is broken or removed beyond the limits of the initial saw cut, the new repair perimeter shall be recut. The areas to be repaired shall have all loose, unsound concrete removed completely by the use of hydrodemolition equipment or chipping hammer with a 15 lb. (7 kg) maximum class. The concrete removal shall extend along the reinforcement bar until the reinforcement is free of bond inhibiting corrosion. Reinforcement bars with 50 percent or more exposed area shall be undercut to a depth of 3/4 in. (19 mm) or the diameter of the reinforcement bar, whichever is greater.

The minimum repair depth shall be 1 in. (25 mm). The substrate profile shall be $\pm 1/16$ in. (± 1.5 mm). The perimeter of the repair area shall have a vertical face.

If sound concrete is encountered before existing reinforcement bars are exposed, further removal of concrete shall not be performed unless the minimum repair depth is not met.

If a repair is located at the ground line, any excavation required below the ground line to complete the repair shall be included in this work.

Once concrete removal has started, the Contractor shall have 14 calendar days to complete each repair location.

The Engineer shall be notified of concrete removal that exceeds 6 in. (150 mm) in depth, one fourth the cross section of a structural member, more than half the vertical column reinforcement is exposed in a cross section, more than six consecutive reinforcement bars are exposed in any direction, within 1.5 in. (38 mm) of a bearing area, or other structural concern. Excessive deterioration or removal may require further evaluation of the structure or installation of temporary shoring and cribbing support system.

532.07 Surface Preparation. Prior to placing the concrete or shotcrete, the Contractor shall blast clean the repair area and exposed reinforcement to provide a surface that is free of oil, dirt, and loose material.

The repair area and perimeter vertical face shall have a rough surface. Just prior to concrete or shotcrete placement, the repair area shall be saturated with water to a saturated surface-dry condition. Any standing water shall be removed.

If a succeeding layer of shotcrete is to be applied, the initial shotcrete surface and remaining exposed reinforcement shall be free of curing compound, oil, dirt, loose material, rebound, and overspray. Preparation may be by lightly brushing or blast cleaning if the previous shotcrete surface was less than 36 hours prior. If more than 36 hours prior, the surface shall be prepared by blast cleaning.

532.08 Reinforcement. Exposed reinforcement bars shall be cleaned of concrete and corrosion by blast cleaning. After cleaning, exposed reinforcement will be evaluated to determine if replacement or additional reinforcement bars are required.

Reinforcing bars that have been cut or have lost 25 percent or more of their original cross-sectional area shall be supplemented by new in kind reinforcement bars. New bars shall be

lapped a minimum of 32 bar diameters to existing bars. A mechanical bar splicer shall be used when it is not feasible to provide the minimum bar lap. No welding of bars will be permitted.

Intersecting reinforcement bars shall be tightly secured to each other using 0.006 in. (0.15 mm) or heavier gauge tie wire and shall be adequately supported to minimize movement during concrete placement or application of shotcrete.

Where the depth of concrete removal is greater than 8 in. (205 mm) and there is no existing reinforcement extending into the repair area, the Contractor shall anchor the new concrete to the existing concrete with 3/4 in. (19 mm) diameter hook bolts spaced at 15 in. (380 mm) maximum centers both vertically and horizontally, and a minimum of 12 in. (305 mm) away from the perimeter of the repair according to Section 584.

532.09 Repair Methods. Within 3 calendar days of the surface preparation and after the repair areas are approved by the Engineer, the concrete or shotcrete shall be placed according to the following.

- (a) Formed Concrete Repair. Falsework and forms shall be according to Articles 503.05 and Article 503.06. Formwork shall provide a smooth and uniform concrete finish and shall approximately match the existing concrete structure. Air vents may be provided to reduce voids and improve surface appearance. The Contractor may use exterior mechanical vibration, as approved by the Engineer, to release air pockets. The concrete shall be Class SI concrete; packaged R1, R2, or R3 concrete; packaged, dry, combined materials for concrete; or polymer modified portland cement mortar. The concrete shall be placed and consolidated according to Article 503.07.

Curing shall be according to Article 1020.13.

The surfaces of the completed repair shall be finished according to Article 503.15.

- (b) Shotcrete. In the field, shotcrete shall be tested for air content according to Illinois Modified AASHTO T 152 or AASHTO T 152. The sample shall be obtained from the discharge end of the nozzle by shooting a pile large enough to scoop a representative amount for filling the air meter measuring bowl. Shotcrete shall not be shot directly into the measuring bowl for testing.

Compressive strength shall be according to ASTM C 1140, except the test panel shall be cured according to Article 1020.13(a)(3) or (5) while stored at the jobsite and during delivery to the laboratory. At the discretion of the Engineer, the test panel may be reduced to 18x18x3.5 in. (457x457x89 mm).

The method of alignment control (i.e., ground wires, guide strips, depth gages, depth probes, and formwork) to ensure the specified shotcrete thickness and reinforcing bar cover is obtained shall be according to ACI 506R. Ground wires shall be removed after completion of cutting operations. Guide strips and formwork shall be of dimensions and a configuration that do not prevent proper application of shotcrete. Metal depth gauges shall be cut 1/4 in. (6 mm) below the finished surface. All repaired members shall be restored as close as practicable to their original dimensions.

Air temperature limits according to the first paragraph of Article 1020.14(b) shall apply in cold weather. Shotcrete shall not be applied when the air temperature is greater than

90 °F (32 °C). The applied shotcrete shall have a minimum temperature of 50 °F (10 °C) and a maximum temperature of 90 °F (32 °C). The shotcrete shall not be applied during periods of rain unless protective covers or enclosures are installed. If necessary, lighting shall be provided to provide a clear view of the shooting area.

The shotcrete shall be applied according to ACI 506R and shall be done in a manner that does not result in cold joints, laminations, sandy areas, voids, sags, or separations. In addition, the shotcrete shall be applied in a manner that results in maximum densification of the shotcrete. Shotcrete which is identified as being unacceptable while still plastic shall be removed and re-applied.

The nozzle shall normally be at a distance of 2-5 ft. (0.6-1 m) from the receiving surface and shall be oriented at right angles to the receiving surface. Exceptions to this requirement will be permitted to fill corners, encase large diameter reinforcing bars, or as approved by the Engineer. For any exception, the nozzle shall never be oriented more than 4 degrees from the surface. Care shall be taken to keep the front face of the reinforcement bar clean during shooting operations. Shotcrete shall be built up from behind the reinforcement bar. Accumulations of rebound and overspray shall be continuously removed prior to application of new shotcrete. Rebound material shall not be incorporated in the work.

Whenever possible, shotcrete shall be applied to the full thickness in a single layer. When two or more layers are required, the minimum number shall be used and shall be done in a manner without sagging or separation. A flash coat (i.e. a thin layer of up to 1/4 in. (6 mm) applied shotcrete) may be used as the final lift for overhead applications.

Prior to application of a succeeding layer of shotcrete, the initial layer of shotcrete shall be prepared according to the surface preparation and reinforcement bar cleaning requirements. Upon completion of the surface preparation and reinforcement bar treatment, water shall be applied according to the surface preparation requirements unless the surface is moist. The second layer of shotcrete shall then be applied within 30 minutes.

Shotcrete shall be cut back to line and grade using trowels, cutting rods, screeds or other suitable devices. The shotcrete shall be allowed to stiffen sufficiently before cutting. For depressions, cut material may be used for small areas. Rebound material shall not be incorporated in the work. For the final finish, a wood float or a manufacturer approved finishing aid shall be used to approximately match the existing concrete texture.

Contractor operations for curing shall be continuous with shotcrete placement and finishing operations. Curing shall be accomplished using wetted cotton mats, membrane curing, or a combination of both. Cotton mats shall be applied according to Article 1020.13(a)(5), except the exposed layer of shotcrete shall be covered within 10 minutes after finishing and wet curing shall begin immediately. Curing compound shall be applied according to Article 1020.13(a)(4), except the curing compound shall be applied as soon as the shotcrete has hardened sufficiently to prevent marring the surface, and each of the two separate applications shall be applied in opposite directions to ensure coverage. Note 5 of the Index Table in Article 1020.13 shall also apply.

When a shotcrete layer is to be covered by a succeeding shotcrete layer within 36 hours, the repair area shall be protected by wet curing with either burlap or cotton mats until the succeeding layer is applied. Intermittent hand fogging may be used for the first hour and a half if wet curing with mats begins within 10 minutes after fogging has ceased.

The curing period shall be for 7 days, except when there is a succeeding layer of shotcrete. In this instance, the initial shotcrete layer shall be cured until the surface preparation and reinforcement bar treatment is started.

The concrete or shotcrete shall not be placed when frost is present on the surface of the repair area, or the surface temperature of the repair area is less than 40 °F (4 °C). All repaired members shall be restored as close as practicable to their original dimensions.

If temperatures below 45 °F (7 °C) are forecast during the curing period, Protection Method I according to Article 1020.13(d)(1) or Protection Method II according to Article 1020.13(d)(2) shall be used.

532.10 Protective Coat. Protective coat shall be applied to the completed repair at reinforcement bar locations with less than 3/4 in. (19 mm) of cover according to Article 503.19, except blast cleaning shall be performed to remove curing compound.

532.11 Inspection. After curing but no sooner than 28 days after placement of concrete or shotcrete, the Contractor shall provide ladders or other necessary equipment for the Engineer to inspect the repaired areas.

A repaired area with cracks, voids, or delamination shall be considered as nonconforming. Any of the following shall be cause for removal and replacement of a repaired area.

- (a) A single surface crack greater than 0.01 in. (0.25 mm) in width and greater than 12 in. (300 mm) in length.
- (b) Two or more surface cracks greater than 0.01 in. (0.25 mm) in width that total greater than 24 in. (600 mm) in length.
- (c) Map cracking in one or more regions totaling 15 percent or more of the gross surface area of the repair.
- (d) Two or more surface voids with least dimension of 3/4 in. (19 mm) each.
- (e) A repaired area not within 1/4 in. (6 mm) of the original dimensions.

Cracks greater than 0.007 in. (0.2 mm) in width shall be repaired with epoxy according to Section 590. For cracks less than or equal to 0.007 in. (0.2 mm) in width, the epoxy shall be applied to the surface of the crack as determined by the Engineer. Voids shall be repaired according to Article 503.15.

532.12 Method of Measurement. This work will be measured for payment in place and the area computed in square feet (square meters). For a repair at a corner, both sides will be measured.

532.13 Basis of Payment. This work will be paid for at the contract unit price per square foot (square meter) for STRUCTURAL REPAIR OF CONCRETE (DEPTH GREATER THAN 5 INCHES or STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES).

Concrete protected according to Article 1020.13(d) will be paid according to Article 503.22.

When not specified to be paid for elsewhere, the work to design, install, and remove the temporary shoring and cribbing will be paid according to Article 109.04.

With the exception of reinforcement damaged by the Contractor, supplemental reinforcement bars, mechanical bar splicers, hook bolts, and protective coat will be paid according to Article 109.04.”

SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Add the following to Section 109 of the Standard Specifications.

“109.14 Subcontractor and Disadvantaged Business Enterprise Payment Reporting.
The Contractor shall report all payments made to the following parties:

- (a) first tier subcontractors;
- (b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;
- (c) material suppliers or trucking firms that are part of the Contractor’s submitted DBE utilization plan.

The report shall be made through the Department’s on-line subcontractor payment reporting system within 21 days of making the payment.”

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: November 2, 2017

Revised: April 1, 2019

Replace the second paragraph of Article 109.12 of the Standard Specifications with the following:

“This mobilization payment shall be made at least seven days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor’s work.

Value of Subcontract Reported on Form BC 260A	Mobilization Percentage
Less than \$10,000	25%
\$10,000 to less than \$20,000	20%
\$20,000 to less than \$40,000	18%
\$40,000 to less than \$60,000	16%
\$60,000 to less than \$80,000	14%
\$80,000 to less than \$100,000	12%
\$100,000 to less than \$250,000	10%
\$250,000 to less than \$500,000	9%
\$500,000 to \$750,000	8%
Over \$750,000	7%”

SUBMISSION OF BIDDERS LIST INFORMATION (BDE)

Effective: January 2, 2025

Revised: March 2, 2025

In accordance with 49 CFR 26.11(c) all DBE and non-DBEs who bid as prime contractors and subcontractors shall provide bidders list information, including all DBE and non-DBE firms from whom the bidder has received a quote or bid to work as a subcontractor, whether or not the bidder has relied upon that bid in placing its bid as the prime contractor.

The bidders list information shall be submitted with the bid using the link provided within the “Integrated Contractor Exchange (iCX)” application of the Department’s “EBids System”.

SUBMISSION OF PAYROLL RECORDS – FEDERAL AID CONTRACT (BDE)

Effective: April 1, 2026

If the prevailing rate of wages published by the Illinois Department of Labor (IDOL) is equal to or greater than the prevailing wage determination by the United States Secretary of Labor for the same locality for the same type of construction used to classify the federal construction project, the requirements of the Illinois Prevailing Wage Act (820 ILCS 130) shall apply, including the “ILLINOIS PREVAILING WAGE ACT” section below. If not, only the requirements of the Davis-Bacon Act shall apply, including the “DAVIS-BACON ACT” section below.

DAVIS-BACON ACT. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

“STATEMENTS AND PAYROLLS

The payroll records shall include the worker’s name, social security number, last known address, telephone number, email address, classification(s) of work actually performed, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof), daily and weekly number of hours actually worked in total, deductions made, and actual wages paid.

The Contractor and each subcontractor shall submit certified payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers, last known addresses, telephone numbers, and email addresses shall not be included on weekly submittals. Instead, the payrolls need only include an identification number for each employee (e.g., the last four digits of the employee’s social security number). The submittals shall be made using LCPTracker Pro software. The software is web-based and can be accessed at <https://lcptracker.com/>. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option (“No Work”, “Suspended”, or “Complete”) selected.”

ILLINOIS PREVAILING WAGE ACT. Revise the following section of Check Sheet #1 of the Recurring Special Provisions to read:

“STATEMENTS AND PAYROLLS

- (1) Prevailing Wages. All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto. If the Department of Labor revises the wage rates, the Contractor will not be allowed additional compensation on account of said revisions.
- (2) Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of five years from the later of the date of final payment under the contract or completion of the contract, records of the wages paid to his/her workers. The payroll records shall include the worker’s name, the worker’s address, the worker’s telephone number when available, the worker’s social security number, the worker’s classification or classifications, the worker’s gross and net wages paid in each pay period, the worker’s number of hours worked each day, and the worker’s starting and ending times of work each day. However, any Contractor or subcontractor who remits contributions to a fringe benefit fund that is not jointly maintained and jointly governed by one or more employer and one or more labor organization must additionally submit the worker’s hourly wage rate, the worker’s hourly overtime wage rate, the worker’s hourly fringe benefit rates, the name and address of each fringe benefit fund, the plan sponsor of each fringe benefit, if applicable, and the plan administrator of each fringe benefit, if applicable. Upon seven business days’ notice, these records shall be available at a location within the State, during reasonable hours, for inspection by the Department or the Department of Labor; and Federal, State, or local law enforcement agencies and prosecutors.

- (3) Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15th day of each calendar month, file a certified payroll for the immediately preceding month to the Illinois Department of Labor (IDOL) through the Certified Transcript of Payroll Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at <https://labor.illinois.gov>. Payrolls shall be submitted in the format prescribed by the IDOL.

In addition to filing certified payroll(s) with the IDOL, the Contractor and each subcontractor shall certify and submit payroll records to the Department each week from the start to the completion of their respective work, except that full social security numbers shall not be included on weekly submittals. Instead, the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). In addition, starting and ending times of work each day may be omitted from the payroll records submitted. The submittals shall be made using LCPTracker Pro software. The software is web-based and can be accessed at <https://lcptracker.com/>. When there has been no activity during a work week, a payroll record shall still be submitted with the appropriate option ("No Work", "Suspended", or "Complete") selected.

- (4) Employee Interviews. The Contractor and each subcontractor shall permit his/her employees to be interviewed on the job, during working hours, by compliance investigators of the Department or the Department of Labor."

SURFACE TESTING OF PAVEMENTS – IRI (BDE)

Effective: January 1, 2021

Revised: January 1, 2023

Description. This work shall consist of testing the ride quality of the finished surface of pavement sections with new concrete pavement, PCC overlays, full-depth HMA, and HMA overlays with at least 2.25 in. (57 mm) total thickness of new HMA combined with either HMA binder or HMA surface removal, according to Illinois Test Procedure 701, "Ride Quality Testing Using the International Roughness Index (IRI)". Work shall be according to Sections 406, 407, or 420 of the Standard Specifications, except as modified herein.

Hot-Mix Asphalt (HMA) Overlays

Add the following to Article 406.03 of the Standard Specifications:

"(n) Pavement Surface Grinding Equipment..... 1101.04"

Revise Article 406.11 of the Standard Specifications to read:

406.11 Surface Tests. Prior to HMA overlay pavement improvements, the Engineer will measure the smoothness of the existing high-speed mainline pavement. The Contractor shall measure the smoothness of the finished high-speed mainline, low-speed mainline, and miscellaneous pavements after the pavement improvement is complete but within the same construction season. Testing shall be performed in the presence of the Engineer and according to Illinois Test Procedure 701. The pavement will be identified as high-speed mainline, low-speed mainline, or miscellaneous as follows.

(a) Test Sections.

- (1) High-Speed Mainline Pavement. High-speed mainline pavement consists of pavements, ramps, and loops with a posted speed limit greater than 45 mph. These sections shall be tested with an inertial profiling system (IPS).
- (2) Low-Speed Mainline Pavement. Low-speed mainline pavement consists of pavements, ramps, and loops with a posted speed limit of 45 mph or less. These sections shall be tested using a 16 ft (5 m) straightedge or with an IPS analyzed using the rolling 16 ft (5 m) straightedge simulation in ProVAL.
- (3) Miscellaneous Pavement. Miscellaneous pavement are segments that either cannot readily be tested by an IPS or conditions beyond the control of the Contractor preclude the achievement of smoothness levels typically achievable with mainline pavement construction. This may include the following examples or as determined by the Engineer.
 - a. Pavement on horizontal curves with a centerline radius of curvature of less than or equal to 1,000 ft (300 m) and the pavement within the superelevation transition of such curves;
 - b. Pavement on vertical curves having a length less than or equal to 200 ft (60 m) in combination with an algebraic change in tangent grade greater than or equal to 3 percent as may occur on urban ramps or other constricted-space facilities;
 - c. The first and last 50 ft (15 m) of a pavement section where the Contractor is not responsible for the adjoining surface;
 - d. Intersections and the 25 ft (7.6 m) before and after an intersection or end of radius return;
 - e. Variable width pavements;
 - f. Side street returns, to the end of radius return;
 - g. Crossovers;
 - h. Pavement connector for bridge approach slab;
 - i. Bridge approach slab;
 - j. Pavement that must be constructed in segments of 600 ft (180 m) or less;
 - k. Pavement within 25 ft (7.6 m) of manholes, utility structures, at-grade railroad crossings, or other appurtenances;
 - l. Turn lanes; and
 - m. Pavement within 5 ft (1.5 m) of jobsite sampling locations for HMA volumetric testing that fall within the wheel path.

Miscellaneous pavement shall be tested using a 16 ft (5 m) straightedge.

- (4) International Roughness Index (IRI). An index computed from a longitudinal profile measurement using a quarter-car simulation at a simulation speed of 50 mph (80 km/h).
 - (5) Mean Roughness Index (MRI). The average of the IRI values for the right and left wheel tracks.
 - a. MRI_O . The MRI of the existing pavement prior to construction.
 - b. MRI_I . The MRI value that warrants an incentive payment.
 - c. MRI_F . The MRI value that warrants full payment.
 - d. MRI_D . The MRI value that warrants a financial disincentive.
 - (6) Areas of Localized Roughness (ALR). Isolated areas of roughness, which can cause significant increase in the calculated MRI for a given subplot.
 - (7) Subplot. A continuous strip of pavement 0.1 mile (160 m) long and one lane wide. A partial subplot greater than or equal to 264 ft (80 m) will be subject to the same evaluation as a whole subplot. Partial subplots less than 264 ft (80 m) shall be included with the previous subplot for evaluation purposes.
- (b) Corrective Work. Corrective work shall be completed according to the following.
- (1) High-Speed Mainline Pavement. For high-speed mainline pavement, any 25 ft (7.6 m) interval with an ALR in excess of 200 in./mile (3,200 mm/km) will be identified by the Engineer and shall be corrected by the Contractor. Any subplot having a MRI greater than MRI_D , including ALR, shall be corrected to reduce the MRI to the MRI_F , or replaced at the Contractor's option.
 - (2) Low-Speed Mainline Pavement. Surface variations in low-speed mainline pavement which exceed the 5/16 in. (8 mm) tolerance will be identified by the Engineer and shall be corrected by the Contractor.
 - (3) Miscellaneous Pavements. Surface variations in miscellaneous pavement which exceed the 5/16 in. (8 mm) tolerance will be identified by the Engineer and shall be corrected by the Contractor.

Corrective work shall be completed with pavement surface grinding equipment or by removing and replacing the pavement. Corrective work shall be applied to the full lane width. When completed, the corrected area shall have uniform texture and appearance, with the beginning and ending of the corrected area perpendicular to the centerline of the paved surface.

Upon completion of the corrective work, the surface of the subplot(s) shall be retested. The Contractor shall furnish the data and reports to the Engineer within 2 working days after corrections are made. If the MRI and/or ALR still do not meet the requirements, additional corrective work shall be performed.

Corrective work shall be at no additional cost to the Department.

- (c) Smoothness Assessments. Assessments will be paid to or deducted from the Contractor for each subplot of high-speed mainline pavement per the Smoothness Assessment Schedule. Assessments will be based on the MRI of each subplot prior to performing any corrective work unless the Contractor has chosen to remove and replace the pavement. For pavement that is replaced, assessments will be based on the MRI determined after replacement.

The upper MRI thresholds for high-speed mainline pavement are dependent on the MRI of the existing pavement before construction (MRI_0) and shall be determined as follows.

Upper MRI Thresholds ^{1/}	MRI Thresholds (High-Speed, HMA Overlay)	
	$MRI_0 \leq 125.0$ in./mile ($\leq 1,975$ mm/km)	$MRI_0 > 125.0$ in./mile ^{1/} ($> 1,975$ mm/km)
Incentive (MRI_I)	45.0 in./mile (710 mm/km)	$0.2 \times MRI_0 + 20$
Full Pay (MRI_F)	75.0 in./mile (1,190 mm/km)	$0.2 \times MRI_0 + 50$
Disincentive (MRI_D)	100.0 in./mile (1,975 mm/km)	$0.2 \times MRI_0 + 75$

1/ MRI_0 , MRI_I , MRI_F , and MRI_D shall be in in./mile for calculation.

Smoothness assessments for high-speed mainline pavement shall be determined as follows.

SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, HMA Overlay)	
Mainline Pavement MRI Range	Assessment Per Sublot ^{1/}
$MRI \leq MRI_I$	$+ (MRI_I - MRI) \times \$20.00$ ^{2/}
$MRI_I < MRI \leq MRI_F$	$+ \$0.00$
$MRI_F < MRI \leq MRI_D$	$- (MRI - MRI_F) \times \$8.00$
$MRI > MRI_D$	$- \$200.00$

1/ MRI , MRI_I , MRI_F , and MRI_D shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed \$300.00.

Smoothness assessments will not be paid or deducted until all other contract requirements for the pavement are satisfied. Pavement that is corrected or replaced for reasons other than smoothness, shall be retested as stated herein.”

Hot-Mix Asphalt (HMA) Pavement (Full-Depth)

Revise the first paragraph of Article 407.03 of the Standard Specifications to read:

“407.03 Equipment. Equipment shall be according to Article 406.03.”

Revise Article 407.09 of the Standard Specifications to read:

“407.09 Surface Tests. The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows:

The testing of the existing pavement prior to improvements shall not apply and the smoothness assessment for high-speed mainline pavement shall be determined according to the following table.

SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, Full-Depth HMA)	
Mainline Pavement MRI, in./mile (mm/km)	Assessment Per Sublot ^{1/}
≤ 45.0 (710)	+ (45 – MRI) × \$45.00 ^{2/}
> 45.0 (710) to 75.0 (1,190)	+ \$0.00
> 75.0 (1,190) to 100.0 (1,580)	– (MRI – 75) × \$20.00
> 100.0 (1,580)	– \$500.00

1/ MRI shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed \$800.00.”

Portland Cement Concrete Pavement

Delete Article 420.03(i) of the Standard Specifications.

Revise Article 420.10 of the Standard Specifications to read:

“420.10 Surface Tests. The finished surface of the pavement shall be tested for smoothness according to Article 406.11, except as follows.

The testing of the existing pavement prior to improvements shall not apply. The Contractor shall measure the smoothness of the finished surface of the pavement after the pavement has attained a flexural strength of 250 psi (3,800 kPa) or a compressive strength of 1,600 psi (20,700 kPa).

Membrane curing damaged during testing shall be repaired as directed by the Engineer at no additional cost to the Department.

- (a) Corrective Work. No further texturing for skid resistance will be required for areas corrected by grinding. Protective coat shall be reapplied to areas ground according to Article 420.18 at no additional cost to the Department.

Jointed portland cement concrete pavement corrected by removal and replacement, shall be corrected in full panel sizes.

- (b) Smoothness Assessments. Smoothness assessment for high-speed mainline pavement shall be determined as follows.

SMOOTHNESS ASSESSMENT SCHEDULE (High-Speed, PCC)	
Mainline Pavement MRI, in./mile (mm/km) ^{3/}	Assessment Per Sublot ^{1/}
≤ 45.0 (710)	+ (45 – MRI) × \$60.00 ^{2/}
> 45.0 (710) to 75.0 (1,190)	+ \$0.00
> 75.0 (1,190) to 100.0 (1,580)	– (MRI – 75) × \$37.50
> 100.0 (1,580)	– \$750.00

1/ MRI shall be in in./mile for calculation.

2/ The maximum incentive amount shall not exceed \$1200.00.

3/ If pavement is constructed with traffic in the lane next to it, then an additional 10 in./mile will be added to the upper thresholds.”

Removal of Existing Pavement and Appurtenances

Revise the first paragraph of Article 440.04 of the Standard Specifications to read:

“440.04 HMA Surface Removal for Subsequent Resurfacing. The existing HMA surface shall be removed to the depth specified on the plans with a self-propelled milling machine. The removal depth may be varied slightly at the discretion of the Engineer to satisfy the smoothness requirements of the finished pavement. The temperature at which the work is performed, the nature and condition of the equipment, and the manner of performing the work shall be such that the milled surface is not torn, gouged, shoved or otherwise damaged by the milling operation. Sufficient cutting passes shall be made so that all irregularities or high spots are eliminated to the satisfaction of the Engineer. When tested with a 16 ft (5 m) straightedge, the milled surface shall have no surface variations in excess of 3/16 in. (5 mm).”

General Equipment

Revise Article 1101.04 of the Standard Specifications to read:

“1101.04 Pavement Surface Grinding Equipment. The pavement surface grinding device shall have a minimum effective head width of 3 ft (0.9 m).

- (a) Diamond Saw Blade Machine. The machine shall be self-propelled with multiple diamond saw blades.
- (b) Profile Milling Machine. The profile milling machine shall be a drum device with carbide or diamond teeth with spacing of 0.315 in. (8 mm) or less and maintain proper forward speed for surface texture according to the manufacturer’s specifications.”

SURVEYING SERVICES (BDE)

Effective: April 1, 2025

Delete the fourth paragraph of Article 667.04 of the Standard Specifications.

Delete Section 668 of the Standard Specifications.

VEHICLE AND EQUIPMENT WARNING LIGHTS (BDE)

Effective: November 1, 2021

Revised: November 1, 2022

Add the following paragraph after the first paragraph of Article 701.08 of the Standard Specifications:

“The Contractor shall equip all vehicles and equipment with high-intensity oscillating, rotating, or flashing, amber or amber-and-white, warning lights which are visible from all directions. In accordance with 625 ILCS 5/12-215, the lights may only be in operation while the vehicle or equipment is engaged in construction operations.”

WORK ZONE TRAFFIC CONTROL DEVICES (BDE)

Effective: March 2, 2020

Revised: January 1, 2026

Add the following to Article 701.03 of the Standard Specifications:

“(q) Temporary Sign Supports1106.02”

Revise Article 701.03(p) of the Standard Specifications to read:

“(p) Detectable Pedestrian Channelizing Barricades 1106.02(m)”

Revise the third paragraph of Article 701.14 of the Standard Specifications to read:

“For temporary sign supports, the Contractor shall provide a FHWA eligibility letter for each device used on the contract. The letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device. The signs shall be supported within 20 degrees of vertical. Weights used to stabilize signs shall be attached to the sign support per the manufacturer’s specifications.”

Revise the first paragraph of Article 701.15 of the Standard Specifications to read:

“ **701.15 Traffic Control Devices.** For devices that must meet crashworthiness standards, the Contractor shall provide a manufacturer’s self-certification or a FHWA eligibility letter for each Category 1 device and a FHWA eligibility letter for each Category 2 and Category 3 device used on the contract. The self-certification or letter shall provide information for the set-up and use of the device as well as a detailed drawing of the device.”

Revise the first six paragraphs of Article 1106.02 of the Standard Specifications to read:

“ **1106.02 Devices.** Work zone traffic control devices and combinations of devices shall meet crashworthiness standards for their respective categories. The categories are as follows.

Category 1 includes small, lightweight, channelizing and delineating devices that have been in common use for many years and are known to be crashworthy by crash testing of similar devices or years of demonstrable safe performance. These include cones, tubular markers, plastic drums, and delineators, with no attachments (e.g. lights). Category 1 devices shall be MASH compliant.

Category 2 includes devices that are not expected to produce significant vehicular velocity change but may otherwise be hazardous. These include vertical panels with lights, barricades, temporary sign supports, and Category 1 devices with attachments (e.g. drums with lights). Category 2 devices shall be MASH compliant.

Category 3 includes devices that are expected to cause significant velocity changes or other potentially harmful reactions to impacting vehicles. These include crash cushions (impact attenuators), truck mounted attenuators, and other devices not meeting the definitions of Category 1 or 2. Category 3 devices manufactured after December 31, 2019 shall be MASH compliant. Category 3 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350, may be used on contracts let before December 31, 2029. Category 3 devices shall be crash tested for Test Level 3 or the test level specified.

Category 4 includes portable or trailer-mounted devices such as sign supports, speed feedback displays, arrow boards, changeable message signs, temporary traffic signals, and area lighting supports. It is preferable for Category 4 devices manufactured after December 31, 2019 to be MASH-16 compliant; however, there are currently no crash tested devices in this category, so it remains exempt from the NCHRP 350 or MASH compliance requirement.

For each type of device, when no more than one MASH compliant is available, an NCHRP 350 compliant device may be used, even if manufactured after December 31, 2019.”

Revise the first paragraph of Section 1106.02(a) of the Standard Specifications to read:

“(a) Lights. Lights shall meet the requirements of Chapter 13 of the “Equipment and Materials Standards of the Institute of Transportation Engineers,” 1998, Institute of Transportation Engineers, and shall be visible on a clear night from a distance of 3000 ft (900 m). Lights are classified as follows.”

Revise Articles 1106.02(g), 1106.02(k), 1106.02(l), and 1106.02(m) of the Standard Specifications to read:

“(g) Truck Mounted/Trailer Mounted Attenuators. The attenuator shall be approved for use at Test Level 3. Test Level 2 may be used for normal posted speeds less than or equal to 45 mph.

(k) Temporary Water Filled Barrier. The water filled barrier shall be a lightweight plastic shell designed to accept water ballast and be on the Department’s qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings.

(l) Movable Traffic Barrier. The movable traffic barrier shall be on the Department’s qualified product list.

Shop drawings shall be furnished by the manufacturer and shall indicate the deflection of the barrier as determined by acceptance testing; the configuration of the barrier in that test; and the vehicle weight, velocity, and angle of impact of the deflection test. The Engineer shall be provided one copy of the shop drawings. The barrier shall be capable of being moved on and off the roadway on a daily basis.

(m) Detectable Pedestrian Channelizing Barricades. The top panel or handrail shall be continuous and there should be at least a 2 in. (50 mm) gap between the hand trailing edge and its support. When visible to vehicular traffic, the top rail shall have alternating white and orange retroreflective stripes sloping at 45 degrees. The bottom panel shall be continuous and have alternating white and orange retroreflective stripes sloping at 45 degrees. Barricade stripes shall be 6 in. (150 mm) in width. The predominant color for other barricade components shall be white, orange, or silver.”

WORKING DAYS (BDE)

Effective: January 1, 2002

The Contractor shall complete the work within 45 working days.

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants /

Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA- 1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. Conformance. (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. Fringe benefits not expressed as an hourly rate.

Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. Unfunded plans. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. Interest. In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. Withholding requirements. The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. Priority to withheld funds. The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

3. Records and certified payrolls (29 CFR 5.5)

a. Basic record requirements (1) Length of record retention. All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) Information required. Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) Additional records relating to fringe benefits. Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) Additional records relating to apprenticeship. Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. Certified payroll requirements (1) Frequency and method of submission. The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) Information required. The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDLegacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) Statement of Compliance. Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) Use of Optional Form WH-347. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature*. The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification*. The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention*. The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents*. The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers*. The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements*. If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures*. Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay*. Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits*. Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio*. The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates*. Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity*. The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. **Subcontracts.** The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. **Anti-retaliation.** It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;
- b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;
- c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or
- d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;

- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY
SYSTEM OR APPALACHIAN LOCAL ACCESS**

ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.