

# 5

November 17, 2023 Letting

## Notice to Bidders, Specifications and Proposal



**Illinois Department  
of Transportation**

**Contract No. 46637  
Various Counties  
Section REGION 2 & 3 SIGN MAINTENANCE 24-18  
Various Routes  
District 2 Construction Funds**

Prepared by

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Checked by

(Printed by authority of the State of Illinois)



## **NOTICE TO BIDDERS**

- 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. November 17, 2023 prevailing time 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. 46637  
Various Counties  
Section REGION 2 & 3 SIGN MAINTENANCE 24-18  
Various Routes  
District 2 Construction Funds**

**Repair, maintenance, or replacements of damaged sign components, furnishing new overhead sign structures or repairs, installing new signs or supports at locations as described in a work order including all traffic control in regions 2 and 3.**

- 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 readvertise the proposed improvement, and to waive technicalities.

By Order of the  
Illinois Department of Transportation

Omer Osman,  
Secretary

INDEX  
FOR  
SUPPLEMENTAL SPECIFICATIONS  
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2023

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

ERRATA    Standard Specifications for Road and Bridge Construction                      (Adopted 1-1-22) (Revised 1-1-23)

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## **SPECIAL PROVISIONS**

### **STATE OF ILLINOIS**

The following Special Provisions supplement the “Standard Specifications for Road and Bridge Construction, Adopted Revised January 01, 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 Various Routes, Region 2 & 3 Sign Maintenance 24-18, Various Counties, Contract No. 46637 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 IMPROVEMENT:**

The work to be done under this contract will be primarily on freeways, interstates, and major arterials throughout Region 2, although work may be required to be done on other State-maintained highways at various locations.

#### **COMPLETION DATE:**

All work on this contract shall be completed on or before **December 30, 2028**. Should the Contractor fail to complete all work by December 30, 2028, the Contractor shall be liable in accordance with Article 108.09 with of the Standard Specifications.

#### **DESCRIPTION OF IMPROVEMENTS:**

The work shall consist of repairing or replacing damaged sign components, furnishing, or furnishing and installing new signs and supports or replacing damaged overhead sign structure components, end supports at locations described in a work order.

#### **WORK ORDERS:**

No work of any kind is to be performed by the Contractor unless a work order authorizing work has been issued by the Traffic Operations Engineer. A work order will show the date of issue, job number, location, code number(s), pay item(s), quantity of such pay item, and total cost. Only the amount of replacement or repairs shown on the work order is to be done by the Contractor. If at the time repairs are being made, it appears that additional work is needed, a revised work order must be obtained. The contractor will be responsible for all final field measurements prior to fabrication on all work orders. **The Contractor shall notify the District Contact at least 72 hours before beginning any work in the field and shall obtain permission to begin such work.**

It shall be the contractor’s responsibility to verify all dimensions and conditions existing in the field prior to construction and ordering materials.

Some work orders may require that the Contractor complete the work outlined in the work order during a district night-time hours.



Any damaged signs, supports, structures or structure components being replaced shall become the property of the contractor and this shall be reflected in the unit price of pay items.

Except as noted below, the Contractor shall complete all the work required on a work order within **75 days** after the date of issue of the work order or its revision unless otherwise extended in the work order or agreed in writing between the Contractor and the Engineer.

Unless otherwise extended on an individual work order the erection of existing sign panels shall be accomplished within **30 days**. Where sign panels are to be installed on new steel posts or a combination of new and existing steel posts, or on an overhead sign truss, where truss repairs are involved, and the Contractor cannot meet the 30-day deadline, the Contractor will be allowed to install the sign on temporary wood posts within the same 30-day period. The Contractor shall then have 45 additional days in which to fabricate and install the new steel posts, any required foundations, effect any truss repairs and re-erect the sign panel on the new posts or on the repaired truss.

The repair or re-erection of a signpost(s), where no new post(s) is involved, and the erection of an existing sign panel on the post(s) shall also be accomplished within **30 days**, installation of the panel on temporary supports will not be allowed.

#### **FAILURE TO COMPLETE A WORK ORDER ON TIME:**

Time is of the essence in the completion of each work order issued by the Department. Failure to make timely repairs will cause public inconvenience, endanger the public safety, and subject the Department to public criticism. All repairs shall be completed within the completion time designated for each work order.

The Contractor may request the Engineer extend an individual work order. The Engineer may extend an individual work order completion date upon written notification to the Contractor.

The Contractor understands and agrees that performance will be expected in varying amounts and at various locations within the area designated in the contract in accordance with the work orders issued by the Engineer.

Should the Contractor fail to complete the work order within the completion time stipulated, the Contractor shall be liable to the Department for liquidated damages of **\$100.00** per day per work order. The Department will deduct these liquidated damages from the monies due or to become due to the Contractor from the Department. The time required by the Engineer to approve sign designs or inspect work will not be counted against the balance of days remaining for the contractor to perform the work.

No additional compensation will be given for compliance with the completion times stipulated. The cost shall be considered included in the contract.

#### **QUANTITIES:**

The quantities specified in this contract indicate the estimated amount of work required in a one-year period. This is merely an estimate to allow Contractors to establish unit prices and permit the Department to determine the low bidder. It shall be understood that the unit prices of this contract shall prevail throughout the period of this contract regardless of the quantity.

**REIMBURSEMENT FROM THIRD PARTY FOR REPAIRS OR DAMAGES:**

The Department reserves the right to make recovery from Third Party or Parties for damage to any part of the existing installations and no part of such recovery or recoveries shall inure to the benefit of the Contractor. To enable the Department to assess damages against said Third Party or Parties, the Contractor shall, upon request, furnish the Engineer an itemized statement of the cost of any repairs to Third Party damage, separating the cost of labor, materials, and equipment.

**LOCATING UNDERGROUND CABLE:**

At those locations, where concrete foundations are to be installed, the Contractor shall notify the District Contact at least 72 hours before beginning any work in the field. The Contractor shall request that the Department find and mark all underground electric cable owned and maintained by the Department which may conflict with the construction operations. In the event the Contractor fails to notify the District Contact and cable is damaged, the Contractor shall replace the entire length of cable or conductors in conduit, in a manner satisfactory to the District Contact, at his/her own expense. Splicing below grade will not be permitted.

**CONTRACTOR'S RESPONSIBILITY FOR DAMAGE:**

The Contractor shall be held responsible for damages resulting from the operations of his equipment or employees and of any damage to a sign or sign structure prior to final inspection by the District Contact. The Contractor shall, at his own expense, restore any damaged property to a condition equal to that existing before damage was done, by repairing, rebuilding, or replacing it as directed by the Engineer.

**FINAL CLEANING UP:**

The final cleaning up shall conform to the requirements set forth in Article 104.06. Each time the Contractor accomplishes work at any location, he will be required to clean up the work area before payment for that work will be submitted.

All costs due to compliance with this Special Provision will be included with the contract and no additional compensation will be allowed.

**TRAFFIC CONTROL AND PROTECTION:**

The Contractor shall arrange his work in such a manner to keep interruptions to traffic flow at a minimum.

Traffic control and protection shall conform to Article 107.09 and Section 701 and to the following standards as required by the Engineer.

Standards 701006, 701101, 701106, 701201, 701301, 701400, 701401, 701406, 701411,  
701426, 701428, 701446, 701451, 701456, 701901

Additional traffic control and hour restrictions for closures may have to be imposed to facilitate the flow of traffic on certain sections of highways for some work orders this will also include TC-09 which you will find in the plan sheets.

Conformance to the traffic control and protection standards will not be paid for as a separate item but will be considered included with the various contract items and no additional compensation will be allowed. **This will also include traffic control and protection on interstates, freeways, expressways, and all major arterials.**

#### **FURNISH AND ERECT GRAFFITI RESISTANT SIGN PANEL:**

This work shall consist of furnishing and erecting an extruded graffiti resistant sign panel complete with reflectorized sign face, legend, and supplemental panels or plates, on existing sign support(s) or overhead sign structure at the location(s) specified in the work order. The type, size, and content of legend requirements will be as specified below or in the work order.

The aluminum extrusions and the installation shall be in according to the requirements of Section 1090 of the Standard Specification, as shown on the plans and/or as directed by the Engineer.

All Type III reflectorized guide signs, supplemental signs, including route shields and supplemental panels shall be fabricated using faces and legend of Type ZZ retroreflective sheeting. This shall include mainline, ramp, crossroad interchange approach directional signing, and route markers. All signs shall be fabricated such that the copy or text and background material is applied in the preferred orientation for the maximum retroreflectivity per the manufacturer's recommendation. Background sheeting and legend shall be provided by the same manufacturer.

This work shall consist of furnishing and erecting an extruded sign panel complete with reflectorized sign face and legend, and supplemental panels which shall be covered with graffiti resistant sheeting provided by the same manufacturer of the sheeting and legend.

This graffiti protection overlay shall assure similar day-night appearance and not reduce retroreflectivity as required by the sheeting called for in the contract, which shall be substantiated by supporting test results. All graffiti resistant films, when applied to the various types of reflective sheeting, must meet the same durability requirements as specified for that type of reflective sheeting. This work will be measured for payment in square feet from edge-to-edge (horizontally and vertically).

The Contractor shall package all signs to prevent damage during shipment.

This work will be paid, for at the contract unit price per square foot, for FURNISH AND ERECT GRAFFITI RESISTANT SIGN PANEL. This price shall include, furnishing all materials, fabricating the sign panel (including sign face and sign legend), furnishing all mounting hardware (including any 4WF1.79 sign brackets required for overhead sign structure mounting) and installing the sign panel on previously erected sign supports or sign structure and removing any existing sign panel(s) as required for the proper installation of the new panel(s). Removal of any existing sign panel(s) will be paid for in accordance with REMOVE SIGN PANEL TYPE 1, 2 or 3.

#### **FURNISH AND ERECT SIGN PANEL-LOGO:**

This work shall consist of installing LOGO service signing along the Interstate. Typical layouts and sign designs are shown in the plans. Specific details and locations will be described in the work order(s).

No mounting on bridges or overhead sign structures will be required for this pay item. The supplemental business LOGO panels and mileage plates will be furnished by others and made available to the Contractor at the appropriate District Sign Shop or at a location agreed upon by the Contractor and Engineer. The supplemental panels and plates will be riveted onto the main sign panel as shown in the work order(s). In addition to the holes in the sign panel, necessary to install the supplemental panels and plates, the Contractor shall also drill the upper left hole for all other possible supplemental business LOGO panels. (This is to facilitate spacing of future LOGO panels.)

This work will be paid for at the contract unit price per square foot for **FURNISH AND ERECT SIGN PANEL - LOGO**. This price shall include furnishing all materials, fabricating the sign panel (including sign face and sign legend), furnishing all mounting hardware, installing all supplemental LOGO panels and mileage plates, and installing the sign panel on previously erected sign supports.

The steel supports and concrete foundations for logo sign panels will be paid for under STRUCTURAL STEEL SIGN SUPPORT-BREAKAWAY, STRUCTURAL STEEL SIGN SUPPORT-BREAKAWAY COUPLING TYPE, and CONCRETE FOUNDATIONS respectively.

#### **OVERHEAD SIGN STRUCTURE - END SUPPORT:**

This work will consist of replacing a damaged or deteriorated end support(s) for an overhead sign structure-span or cantilever.

Materials shall meet the requirements of the sign structure detail sheets shown in the contract, conforming to the dimensions shown on the details attached to the work order and the applicable requirements of Section 1094.

This work shall be done in accordance with the requirements of Sections 733 and as specified herein.

This work shall include removing all grout, if grout is present, cleaning and painting the exposed anchor bolts, and installing a stainless-steel screen wire to enclose the void between the sign support base plates and the foundation. The exposed part of the anchor bolts shall be cleaned and painted with one coat of primer and meet the requirements of Section 4 and 5 of SSPC-PS25 for red iron oxide, zinc oxide, raw linseed oil, and alkyd primer. All debris resulting from this operation shall be removed from the right-of-way.

Any sign panels attached to the end support to be replaced shall be carefully removed and re-installed on the new end support as directed by the Engineer.

Shop drawings for the new end support(s) will be provided by the Contractor and approved in writing before any new materials are ordered.

This work will be paid for at the contract unit price each for **OVERHEAD SIGN STRUCTURE - END SUPPORT**. This price shall include removing any damaged or deteriorated end support(s) from the right-of-way, providing shop drawings, furnishing all materials, fabricating and erecting the end-support(s), galvanizing the exposed steel, removing all grout, cleaning and painting the exposed anchor bolts, installing the wire cloth, removing and reinstalling any existing sign panels, the installation of a sign structure number and providing all necessary traffic control. Removing and re-erecting the overhead sign structure will be paid for as REMOVE AND RE-ERECT OVERHEAD SIGN STRUCTURE-SPAN or REMOVE AND RE-ERECT OVERHEAD SIGN STRUCTURE-CANTILEVER.

**BRIDGE MOUNTED SIGN SUPPORT:**

This work shall consist of removing and replacing bridge-mount sign support(s). The type and number shall be indicated in each individual work order.

Materials shall meet the requirements of the bridge mount sign structure details shown in the contract, conforming to the dimensions shown on the detail sheets attached to the work order and the applicable requirements of Section 1094.

The damaged bridge-mount support(s) shall become the property of the Contractor and shall be removed completely from the right-of-way. The bid price shall reflect any salvage value of the support(s) removed.

Shop drawings for the replacement bridge-mount sign support(s) will be provided by the Contractor and approved in writing before any new materials are ordered.

This work will be paid for at the contract unit price each for **BRIDGE MOUNTED SIGN SUPPORT**, which price shall include removal of the damaged bridge support(s), providing shop drawings, fabricating, furnishing, and erecting the support brackets, angles, and any other necessary hardware.

**BREAKAWAY SLIP BASE CONNECTION BOLT SET:**

This work shall consist of furnishing a breakaway slip base connection bolt set for the installation of a structural steel sign support. The size of the connection bolt set shall be determined by the size of the sign support and as specified in the work order. The Contractor shall deliver the breakaway connection bolt set to the location specified in the work order or the district sign shop in the district where the work order was issued.

A breakaway slip base connection bolt set shall consist of the following items:

FOUR BOLTS, TWELVE FLAT WASHERS AND FOUR HEX NUTS.

The breakaway slip base connection bolt set shall meet the requirements of Section 727 of the Standard Specifications. The diameter and length of the bolt will be as specified in the work order.

This work will be paid for at the contract unit price each for **BREAKAWAY SLIP BASE CONNECTION BOLT SET**, which price shall include furnishing all necessary components to complete the installation for a breakaway slip base type connection for a structural steel sign support and delivery to the location or locations specified in the work order.

**STRUCTURAL STEEL SIGN SUPPORT – BREAKAWAY COUPLING TYPE:**

This work shall consist of furnishing galvanized structural steel breakaway sign supports for ground-mounted signs and breakaway coupling assemblies of the sizes and lengths shown in the work order. The supports shall be attached to the breakaway coupling assembly previously cast within a concrete foundation. Breakaway coupling type structural steel supports shall be used only for the installation of logo sign panels on Interstate Routes 70, 72, 270 and 255.

Materials shall meet the requirements of Articles 1006.04, 1006.08 and 1093.01 except all references to stub posts shall be omitted.

The fabrication of structural steel sign supports shall meet the requirements of Section 727. The structural steel breakaway sign supports shall be erected in a vertical position on anchor bars previously cast within concrete foundations with the faces of the supports flush with the sign throughout the contact area. The supports shall be plumbed and brought to final grade by using shims as shown on the plans.

The supports shall be connected to the anchor bars by means of a breakaway coupling assembly conforming to the requirements listed elsewhere in these Special Provisions.

Breakaway coupling assemblies shall be the "Break-Safe" system manufactured by Transco-Safety, Inc., 20 Jones Street, New Rochelle, New York 10801.

The breakaway couplings shall be manufactured from alloy steel meeting the requirements of AISI 4130H or 4340H and shall have a minimum tensile yield stress of 1,140 MPa (165,000 psi) and an ultimate tensile range of 1,240 to 1,480 MPa (180,000 to 215,000 psi). The breakaway coupling shall have a tensile breaking load of between 209 and 253 kN (47,000 and 57,000 pounds). The Rockwell C hardness shall be 26 minimum.

Hinge plates shall be alloy steel meeting the requirements of AISI 4340, AISI 4130, or an equivalent material and shall have a minimum tensile yield stress of 620 MPa (90,000 psi).

The hinge plates shall have tensile breaking load ranges as follows:

HI-1 73 - 88 kN, (16,400 - 19,700 lbs.) (10WF21-14WF30)

HI-2 30 - 36 kN, (6,700 - 8,100 lbs.) (6WF9-8WF20)

All bolts, nuts, and washers shall conform to AASHTO M1641. Brackets shall be aluminum alloy meeting the requirements of ASTM B-221, Alloy 6061-T6, or an approved equal. The bracket shall incorporate a load-concentrating boss, which shall be stainless steel meeting the requirements of ASTM A-582, Type 416, or approved equal.

Anchor plates shall be made from aluminum Alloy 6061-T6 or equivalent, having minimum yield strength of 240 MPa (35,000 psi).

Anchor bars shall be made from grade 60 steel, or equivalent material, with a minimum allowable tensile stress of 165 MPa (24,000 psi) and shall conform to ASTM designation A-307. The anchor bars shall be hot dip galvanized in conformance with ASTM designation A-153.

Breakaway couplings shall be clean, dry, and free from all foreign material and shall be primed and coated with a coating ground from fully homogenized cellulose acetate butyrate plastic and appropriate coloring agents applied by an electrostatic spray process.

The coating shall have a minimum thickness of .08 mm (3 mils) and be fused at a maximum temperature of 218° C (425° F). Chipped areas of the coated surface shall be repaired. After coating, all threaded surfaces shall be cleaned to allow them to function properly.

Location holes for the breakaway coupling shall be accurately positioned relative to the load concentration member in accordance with the approved shop drawings. All brackets shall be permanently labeled with bracket number to reflect the hole positioning.

The installation of the breakaway coupling assemblies shall be in accordance with the manufacturer's recommendations.

The Contractor shall provide the Engineer certification from the breakaway coupling assembly manufacturer that the assemblies meet all the requirements of these specifications. The Department reserves the right to test any component of the assembly and to reject any or all components failing to meet these specifications.

This work will be measured for payment in pounds of structural steel sign support erected in place. The mass (weight) of structural steel shall be computed based on the nominal weight per foot of the main post installed from the bottom to the top of the post. No allowance will be made for overrun and no deduction made for cuts, copes, and holes.

Bolts, screws, nuts, washers, shims, post brackets, and anchor bars will not be measured for payment, but will be considered as included with this pay item.

This work will be paid for at the contract unit price per pound for **STRUCTURAL STEEL SIGN SUPPORT - BREAKAWAY COUPLING TYPE**, which price shall include payment in full for furnishing and erecting the galvanized posts with all components as specified, including the breakaway coupling assemblies.

**FURNISH BREAKAWAY COUPLING SET:**  
Revised January 2003.

This work shall consist of furnishing a small or large breakaway coupling set for the installation of a structural steel sign support. The size of the coupling set shall be determined by the size of the sign support and as specified in the work order. The Contractor shall deliver the breakaway coupling set to the location specified in the work order or the district sign shop in the district where the work order was issued.

A breakaway coupling set shall consist of the following items:

FOUR BOLTS AND FOUR COUPLERS

The breakaway coupling set shall meet the requirements for breakaway coupling assemblies outlined in the Special Provision for Structural Steel Sign Support - Breakaway Coupling Type. This work will be paid for at the contract unit price each for **FURNISH BREAKAWAY COUPLING SET**, which price shall include furnishing all necessary components to complete the coupling type installation for a structural steel sign support and delivery to the location or locations specified in the work order.

**FURNISH HINGE PLATE SET:**

This work shall consist of furnishing a small or large hinge plate set for breakaway coupling type installation for structural steel sign support. The size of the hinge plate set shall be determined by the size of the sign support and as specified in the work order. The Contractor shall deliver the hinge plate set to the location specified in the work order or the district sign shop in the district where the work order was issued.

A hinge plate set shall consist of the following items:

FOUR HINGE PLATES AND A TOTAL OF EIGHT BOLTS, NUTS AND WASHERS

The hinge plate set shall meet the requirements for breakaway coupling assemblies outlined in the Special Provision for Structural Steel Sign Support - Breakaway Coupling Type.

This work will be paid for at the contract unit price each for **FURNISH HINGE PLATE SET**, which price shall include furnishing all necessary components to complete the hinge type installation for a structural steel sign support and delivery to the location or locations specified in the work order.

**RE-ERECT EXISTING STRUCTURAL STEEL SIGN SUPPORT – BREAKAWAY:**

This work shall consist of re-erecting an existing structural steel sign support on an existing stub post and torquing the fuse plate and base plate bolts. This item will only be used for those posts that have been knocked down and need no repair.

Any missing bolts or plates shall be replaced by the Contractor and shall be considered included with this pay item. Replacement bolts or plates shall meet the requirements of Article 727.

When the work order requires the Contractor to re-erect a sign support that was installed with a breakaway type coupling the Contractor shall furnish a breakaway coupling set to complete the re-erection. The furnishing of the breakaway coupling set will be paid for as **FURNISH BREAKAWAY COUPLING SET**.

This work will be paid for at the contract unit price each for **RE-ERECT EXISTING STRUCTURAL STEEL SIGN SUPPORT – BREAKAWAY**, which price shall include all labor, materials, and equipment required to complete the work.

**INSTALL SERVICE SIGN OR MILEAGE PLATE:**

This work shall consist of installing a service plate advertising gas, food, lodging, or camping business establishment or a mileage plate on a business logo panel. The service plates are fabricated from flat sheet aluminum and will be furnished predrilled by the business establishments and made available to the Contractor at the District Sign Shop where work is being performed or at such other location agreed upon by the Engineer and the Contractor.

**Mileage plates are fabricated from flat sheet aluminum and will be furnished predrilled by the District Sign Shop and made available to the Contractor at the District Sign Shop where work is being performed or at such other location agreed upon by the Engineer and the Contractor.**

The plates shall be installed using 5 mm (3/16-inch) aluminum rivets with 3 mm (0.125 inch) to 6 mm (0.250 inch) grip range to fully penetrate the sign panel extrusions and firmly attach the plates. Any plate damaged by the Contractor shall be replaced in exact kind at no cost to the Department. The business logo panel shall not be removed when installing a service or mileage plate. A minimum of six plates will be installed or removed on each work order calling for this pay item when the installation of service signs or mileage plates is the only work to be done.

This work will be paid for at the contract unit price each for **INSTALL SERVICE OR MILEAGE PLATE**, which price shall include payment in full for installing a service or mileage plate on a previously erected business logo panel.



**REMOVE SERVICE SIGN OR MILEAGE PLATE:**

This work shall consist of removing an existing service plate advertising a business establishment or a mileage plate from a previously erected business logo panel. Extreme care shall be taken not to damage or mar the plate in any way. Any plate damaged by the Contractor shall be replaced in exact kind at no cost to the Department. The plates shall be delivered to the District Sign Shop where work is being performed or at such other location agreed upon by the Engineer.

**A minimum of six plates will be removed on each work order calling for this pay item when the removal of existing service signs or mileage plates is the only work to be done.**

This work will be paid for at the contract unit price each for **REMOVE SERVICE OR MILEAGE PLATE**, which price shall include payment in full for removing a service or mileage plate from a previously erected business logo panel.

**TRANSFER SERVICE SIGNS:**

This work shall consist of removing an existing service sign advertising a business establishment from a previously or newly erected business logo panel and reinstalling the service sign on a newly erected business logo panel.

Extreme care shall be taken not to damage or mar the sign in any way. Any sign damaged by the Contractor shall be replaced in exact kind at no cost to the Department.

This work will be paid for at the contract unit price each for **TRANSFER SERVICE SIGN**, which price shall include payment in full for removing an existing service sign from a previously erected business logo panel and reinstalling the existing service sign on a newly erected business logo panel. The cost of transferring existing mileage plates and directional arrows for the service signs shall be considered included with this pay item.

**SIGN SUPPORT REPAIR:**

This work shall consist of repairing an existing breakaway sign support where the fuse plate has separated from the lower post, resulting in bending of the rear flange.

Any missing hardware shall be replaced by the Contractor and considered as included with the pay item. Replacement hardware shall meet the requirements of Article 727.

Care shall be taken to prevent damage or further damage to the sign. Any damage done by the Contractor to the existing sign shall be repaired by him at no cost to the State.

The post may be straightened by mechanical, or heat applied methods. There shall be no residual stress in the rear flange when the fuse plate is reattached. The fuse plate shall be attached before the rear reinforcement plates are attached.

When the work order requires the Contractor to repair a sign support that was installed with a breakaway type coupling the Contractor shall furnish a breakaway coupling set to complete the repair of the sign support. The furnishing of the breakaway coupling set will be paid for as **FURNISH BREAKAWAY COUPLING SET**.

This work will be paid for at the contract unit price each for **SIGN SUPPORT REPAIR**. This price shall include straightening of the post, repair or replacement of the fuse plate, re-erection of the existing sign and post if they were removed to facilitate the support repair, attachment of the rear reinforcement plate, replacement of any necessary hardware, and all necessary painting.

**REMOVE EXISTING SIGN SUPPORT:**

This work shall consist of removing an existing steel sign support. The support, including hardware, shall become the property of the Contractor.

This work will be paid for at the contract unit price each for **REMOVE EXISTING SIGN SUPPORT**, which price shall include complete removal of the sign support, including hardware, from the right-of-way.

The removal of any concrete foundations will be paid for as **REMOVE CONCRETE FOUNDATION - GROUND MOUNT**.

**TIGHTEN FUSE AND BASE PLATE:**

This work shall consist of tightening the bolts on the fuse plate and base plate of a structural steel breakaway sign support. The bolts shall be tightened in accordance with the sign support details shown in the contract. The tightening of the base and fuse plates for at least 16 structural steel breakaway sign supports will be included on each work order calling for this pay item.

The Contractor shall replace any missing bolts, nuts or washers with new ones of the size specified on the sign support details shown in the contract. This work shall be considered included with this pay item. Replacement bolts, nuts or washers shall meet the requirements of Article 727.

The work will be paid for at the contract unit price each per sign support for **TIGHTEN FUSE AND BASE PLATE**. This price shall include payment in full for tightening all bolts on the fuse and base plate for a structural steel breakaway sign support and replacing any missing bolts, nuts, or washers on the fuse and base plate.

**TEMPORARY WOOD POST:**

This work shall consist of furnishing and installing 100 mm (4-in) by 150 mm (6-in) wood posts as temporary sign supports for ground-mounted signs, utilizing direct burial.

This work shall be done in accordance with the requirements of Section 730 and as specified herein.

Should a longer support than specified be necessary; the Contractor shall provide and install the longer support. The method for attaching the sign to the wood posts is shown in the plans.

The temporary wood post(s) shall be supplied in the quantity shown on the work order and shall be found at a specified offset near of the permanent sign location.

The height of the sign shall be a minimum of 900 mm (3 feet) from the top of pavement to the bottom of the sign and a minimum of 1500 mm (5 feet) from the top of the ground to the bottom of the sign. The wood post(s) shall be removed and become the property of the Contractor when the permanent post(s) is installed.

This work will be paid for at the contract unit price each for **TEMPORARY WOOD POST**, which price shall include payment in full for furnishing, erecting, drilling, and removing of wood post(s) and refilling the hole(s) to match the surrounding area.

#### **MOUNTING BRACKET – TYPE B:**

This work shall consist of furnishing a steel tubing bracket **for mounting auxiliary panels on ground-mount signs of the sizes shown in the plans and** attaching the bracket to existing sign supports at the location(s) specified in the work order.

The bracket shall meet all requirements of the EXIT PANEL DETAIL SHEET - B contained herein.

This work will be paid for at the contract unit price each for **MOUNTING BRACKET - TYPE B**, which price shall include payment in full for furnishing bracket with all components as specified and attaching it to existing sign supports.

#### **MOUNTING BRACKET TYPE B REPAIR:**

This work shall consist of repairing the damaged or bent components of an existing mounting bracket - Type B.

Care shall be taken to prevent damage or further damage to the existing sign. Any damage done by the Contractor to the existing sign; shall be repaired by him at no cost to the State.

The bracket may be straightened by mechanical or heat-applied methods.

This work will be paid for at the contract unit price each for **MOUNTING BRACKET TYPE B REPAIR**. This price shall include straightening of the bracket components, reattachment of the existing sign if it was removed to facilitate the bracket repair, reattachment of the bracket to the sign supports if the bracket was removed to facilitate repair, and all necessary painting.

#### **REPLACE WALKWAY SUPPORT BRACKET:**

This work shall consist of furnishing all necessary material and labor to remove the damaged walkway support bracket and replace it with a new bracket of the same type and material as the existing. The size of the bracket required will be as indicated on the sign structure detail sheets attached to the work order.

This item does not include replacement or repair of any existing walkway or lighting fixtures.

Shop drawings for the replacement walkway support bracket will be provided by the Contractor and approved in writing before any new materials are ordered.

This work will be paid for at the contract unit price each **for REPLACE WALKWAY SUPPORT BRACKET** and shall be payment in full for furnishing all materials, providing shop drawings, fabricating and erecting this item complete in place.

**SIGN PANEL BACKPLATE:**

This work shall consist of furnishing and installing blank sign panels complete with reflectorized sign faces cut without legend or symbols and installing them within previously erected sign frames. The sign blanks shall be 3 mm (0.125-inch) thick 5052-H38 aluminum conforming to Section 1090 and the background sheeting shall be brown conforming to the Type B requirements of Section 1091.

This work will be paid for at the contract unit price per square foot for **SIGN PANEL BACKPLATE**, which shall include furnishing the sign backplate and installing it in a previously erected sign frame. The cost of removing an existing backplate from a frame assembly to installing the new backplate will not be paid for as a separate item but will be considered included with the contract and no additional compensation will be allowed.

**REST AREA POST AND PANEL SIGN SYSTEM:**

The signs shall match signs previously installed in the rest area and meet the requirements of the following special provisions for the post and panel sign system. The system shall be the Series 325 manufactured by: Charleston Industries, Inc., 955 Estes Avenue, Elk Grove Village, IL 60007, 1-800-722-0209, in Illinois: (847) 228-7150.

Alternate systems will be considered provided that the component parts are completely interchangeable with the previously installed signs. The engineer's decision as to the acceptability of alternate systems will be final.

**INSTALL REST AREA SIGN:**

This work shall consist of installing a new rest area sign provided by the Department at the site of installation or at the location specified on the work order. The sign may be installed on an existing signpost and frame or a new signpost and frame. All signs that are removed or replaced shall be returned to the Department location the replacement sign was supplied.

This work will be paid for at the contract unit price per each for **INSTALL REST AREA SIGN** which price shall include all necessary hardware, equipment, and labor required to complete the work order.

**SIGN FRAME – SERIES 325 (DOUBLE):**

This work shall consist of furnishing and installing sign frames on two posts. The entire frame is to be slid into the slots in the posts and secured by tamperproof screws. The frame shall meet the requirements shown on the plans.

Frames will be measured for payment in feet. Such measurements are to be the outside perimeter of the frame.

This work will be paid for at the contract unit price per foot for **SIGN FRAME – SERIES 325 (DOUBLE)**, which shall include furnishing the sign frame complete with all necessary hardware and installing it on previously erected posts.

**SIGN FRAME – SERIES 325 (SINGLE):**

This work shall consist of furnishing and installing sign frames on single posts. Brackets shall be welded to the frames as shown in the plans to accept a Series 218 - center mounted post. The entire frame shall be bolted securely to the post. The frames shall meet the requirements shown on the plans.

Frames will be measured for payment in feet. Measurement shall be to the outside perimeter of the frame.

This work will be paid for at the contract unit price per foot for **SIGN FRAME – SERIES 325 (SINGLE)**, which shall include furnishing the sign frame complete with all necessary hardware and installing it on a previously erected post.

**SIGNPOSTS – SERIES 325 OR 218:**

This work shall consist of furnishing and installing Series 325 posts for two-post installations and Series 218 post for single post installations, on existing concrete surfaces or by direct burial in concrete as specified in the plans. The posts shall meet the requirements shown in the plans. All signpost lengths and elevations shall be field verified by the Contractor before ordering any material.

The installations shall be by direct burial, in concrete foundations, or attached to concrete surfaces by base plates as noted on the sign layouts. All posts shall be true, plumb, and if two-post installations, parallel to each other. Spacing templates shall be utilized by the Contractor, when installing two-post installations.

The concrete shall be Class SI meeting the applicable portions of Section 503.

The foundation shall be drilled to the dimensions shown in the plans. The post shall be installed plumb and centered in the hole before placement of the concrete. The hole above the foundation shall be filled with black dirt.

This work will be paid for at the contract unit price per foot for **SIGN POST-SERIES 325 OR SIGN POST-SERIES 218**, measured from the bottom of the post in the ground for direct burial or from the base plate where specified, which shall include all necessary drilling, back-filling and seeding, disposal of excess earth, setting of the post and furnishing all concrete. The cost of removing a frame assembly to installing the new post will not be paid for as a separate item but will be considered included with the contract and no additional compensation will be allowed.

**BASE PLATE - SERIES 325 OR 218:**

This work shall consist of furnishing and installing base plates on Series 325 posts for two-post installations and Series 218 posts for single post installations. The base plates shall be factory welded to the posts as shown on the plans. The base plates shall be securely bolted to the foundations or to the concrete anchors with a 6 mm (1/4-inch) thick neoprene pad placed between the concrete and the base plate. The required concrete "J" bolts or concrete anchors, including their installation and the neoprene pads shall be considered as included with this item.

This work will be paid for at the contract unit price each for **BASE PLATE-SERIES 325 OR BASE PLATE-SERIES 218**, which work shall include furnishing and welding base plates to the posts and including the concrete "J" bolts, concrete anchors and neoprene pads, as required. Installation of the posts will be paid for under the pay item for SIGN POST- SERIES 325 OR SIGN POST-SERIES 218.

### **REMOVE EXISTING SIGNPOST:**

This work shall consist of removing an existing rest area signpost that is part of the post and panel sign system. The post, including any hardware not reused, shall become the property of the Contractor and the bid price shall reflect any salvage value.

This work will be paid for at the contract unit price each of **REMOVE EXISTING SIGNPOST**, which price shall include the complete removal of the signpost, including any concrete foundation and base plate, from the right-of-way. The cost of removing a sign and frame assembly from an existing signpost and relocating the sign and frame assembly to a new post(s) will not be paid for as a separate item but will be considered included in the contract and no additional compensation will be allowed.

### **TEMPORARY SIGN SUPPORT REPAIR:**

This work shall consist of making temporary repairs to an existing breakaway sign support(s) until the replacement sign support has been installed so an existing sign panel may remain in service.

The Contractor shall have the option of making repairs to the existing support, if that is feasible, temporarily installing a used steel breakaway support that matches dimensions of the existing stub post or temporarily installing a wood sign support.

If the existing sign support is repaired, repairs shall be in accordance with the provisions for SIGN SUPPORT REPAIR.

If a temporary wood sign support is installed, the wood sign support shall meet the provisions outlined under TEMPORARY WOOD POST

Any missing hardware shall be replaced by the Contractor and considered as included with the pay item. Replacement hardware shall meet the requirements of Article 727 of the Standard Specifications.

Care shall be taken to prevent damage or further damage to the sign. Any damage done, by the Contractor, to the existing sign shall be repaired by him, at no cost to the State.

The Contractor shall make the temporary sign support repairs within one week of notification. This work will be paid for at the contract unit price each for **TEMPORARY SIGN SUPPORT REPAIR**. This price shall include the removal and/or, re-erection of the existing sign and providing the necessary traffic control.

### **REPAIR SIGN PANEL:**

This work shall consist of repairing a sign panel that has been damaged by vehicle impact where the sign has been damaged but not severe enough to require complete replacement of the sign panel. The Contractor shall be responsible for the removing all dirt and debris from the face of the sign prior to re-erecting the sign panel.

This work may require the assembly of extruded aluminum panels that have been pulled apart, the reattachment of any sign legend, shields, borders, overlay panels and end caps that may have come loose or fallen off the sign panel from vehicle impact. In some cases, the sign panel may have to be removed from the sign supports, repairs completed, and re-erected on the sign supports.

Extruded aluminum panels that have been pulled apart shall be re assembled using 3/8" stainless steel bolts installed at 24" spacing. Stainless steel bolts shall conform to ASTM A 276, Type 304. Stainless steel locking nuts shall be used conforming to ASTM A 194 Grade 8. Stainless steel washers shall conform to ASTM A 240, Type 304. Any loose or fallen off sign legend, shields, borders, and overlay panels shall be reattached by the same method as the existing undamaged sign panel.

This work will be paid for at the contract unit price each for **REPAIR SIGN PANEL**. This price shall include removing and re-erecting the sign panel, if necessary, to facilitate the repair of the sign panel, making all required repairs to the sign legend, shields, borders and overlay panels to restores the sign to a serviceable condition and providing the necessary traffic control.

#### **REPLACE OVERHEAD SIGN WALKWAY:**

This work shall consist of removing the damaged portion of the existing walkway and replacing the damaged walkway with new walkway of the same type and material as the existing.

Materials shall meet the requirements of the sign structure detail sheets shown in the contract; conform to the dimensions shown on the details attached to the work order and the applicable requirements of Section 1094.

Fabrication of the walkway shall meet the requirements of the applicable portions of Section 733.

Any damaged lighting items in the damaged portion of the walkway shall be removed and become the property of the contractor.

The replacement or repair of any damaged handrail, light support channels, or hardware shall be included in the cost of replacing the overhead sign walkway.

The removed portions of walkway shall become the property of the Contractor and shall be removed completely from the right-of-way.

All damaged walkway support brackets shall be paid for under **REPLACE WALKWAY SUPPORT BRACKET**.

Shop drawings for the replacement walkway will be provided by the Contractor and approved in writing before any new materials are ordered.

The work will be measured for payment in feet of the overall length of the walkway installed, end-to-end.

This work will be paid for at the contract unit price per foot for **REPLACE OVERHEAD SIGN WALKWAY**, which price shall include removal of the damaged portion of the existing walkway, providing shop drawings, furnishing the required new walkway, replacing as required the handrail, light support channels, and hardware and removing the damaged walkway from the right-of-way. No electrical work will be required for this pay item.

**SIGN SUPPORT BRACKET:**

Description: This work shall consist of furnishing, fabricating, and installing sign support extensions to attach additional sign panels to an existing sign panel.

Materials: Sign support extensions shall be aluminum according to Section 1006.29 of the Standard Specifications. The depth shall be 4 in. (100 mm) and the weight shall be a minimum of 1.79 lb./ft (2.60 kg/m).

Installation: 3 sign support extensions shall be used for sign panels with 3 existing posts or less. 4 sign support extensions shall be used for sign panels with 4 or more existing posts. Sign support extensions shall extend from 4 ft below the top of the existing signpost to the top of the new sign panel and shall be spaced as determined by the Engineer. Sign support extensions shall be clipped to the sign panels in accordance with Highway Standard 720021.

Method of Measurement: Sign support extensions will be measured for payment in each.

Basis of Payment: This work will be paid for at the contract unit price per EACH for **SIGN SUPPORT BRACKET**.

**REMOVE AND REINSTALL SIGN PANEL:**

This work shall consist of removing an existing sign panel from temporary sign supports and reinstalling it on an overhead sign structure. Where the temporary posts were installed by others, this work shall also consist of removing the temporary posts which will then become the property of the Contractor.

This work will be paid for at the contract unit price per square meter (square foot) for **REMOVE AND REINSTALL SIGN PANEL**, which price shall include removing the existing sign panel from temporary supports, installing it on the overhead sign structure, furnishing all necessary mounting hardware to complete the installation and removing any temporary supports.

**RE-ERECT SIGN PANEL:**

This work shall consist of re-erecting a new or existing sign panel on new or existing posts. The sign panel shall be provided by the Department at the site of installation or at the location specified on the work order. The Contractor shall be responsible for the removing all dirt and debris from the face of the sign prior to re-erecting the sign panel.

The replacement of any damaged or missing mounting hardware shall meet the requirements of Article 1090.03.

This work will be paid for at the contract unit price per square foot for **RE-ERECT SIGN PANEL**, which price shall include all necessary hardware, equipment, and labor required to complete the work order.

**REPLACE AND TIGHTEN SIGN MOUNTING CLIPS PER EACH SIGN:**

This work shall consist of replacing missing post clips and post clip bolts or tightening loose post clip bolts on signs mounted on overhead sign structures. Stainless steel bolts, nuts and washers shall be used with aluminum post clips for all overhead - mounted signs.



Aluminum post clips shall conform to ASTM B 108, Alloy SG 70A-T 6. A flat washer shall be used under each nut to prevent gouging of the clip. Stainless steel bolts, nuts and washers for fastening extruded aluminum sign panels to supports shall conform to ASTM A 276, Type 304. Nuts shall conform to ASTM A 194 Grade 8 and be of the self - locking type. Washers shall conform to ASTM A 240, Type 304.

This work will be paid for at the contract unit price each per sign location for **REPLACE AND TIGHTEN SIGN MOUNTING CLIPS PER EACH SIGN**, which price shall include furnishing and installing post clips and post clip bolts complete with washers and tightening all loose sign clip bolts for each overhead sign location shown in the plans and providing all necessary traffic control.

#### **REMOVE SIGN COMPLETE:**

This work shall consist of removing an existing ground-mounted sign and supports as shown in the work order. The removal items shall consist of the sign panel and exit panel, and the structural steel supports. The sign panel shall become the property of the State and shall be delivered to the District Sign Shop in the District in which the work is being performed. The supports, including hardware, shall become the property of the Contractor. The bid price shall reflect any salvage value for the supports and hardware.

Where the existing sign and supports are to be removed and be replaced by a new sign and new supports, the new sign shall be completely installed prior to the removal of the existing sign. However, duplicate signs are not to exist for periods in excess of 24 hours.

This work will be paid for at the contract unit price each for **REMOVE SIGN COMPLETE** and shall be payment in full for all labor and equipment necessary to remove the sign and supports as herein specified and no additional compensation will be allowed.

The removal of any concrete foundations will be paid for as REMOVE CONCRETE FOUNDATION-GROUND MOUNT.

#### **INTERNAL TRUSS DAMPER:**

This work shall consist of furnishing and installing a truss damper on an aluminum overhead sign structure-span or cantilever. The damper shall be attached to the overhead sign structure as indicated on the attached details.

The damper design shall be like those shown in the plans. The Contractor shall submit shop drawings for the damper for approval prior to fabrication and before any materials are ordered.

This work will be paid for at the contract unit price each for **INTERNAL TRUSS DAMPER** price shall include providing the shop drawings, furnishing and installing the damper complete with all necessary hardware and providing the necessary traffic control.

#### **INTERNAL MEMBER TRUSS CLAMP:**

This work shall consist of furnishing and installing stainless steel internal member truss clamp on an aluminum overhead sign structure - span or cantilever. The clamp shall be attached at the joint of an interior member with the main top or bottom chords where a partial fracture of an internal member has occurred.

The clamp design shall be like those shown in the plans. Shop drawings for the clamp shall be provided by the Contractor for approval prior to fabrication and before any materials are ordered.

This work will be paid for at the contract unit price each for **INTERNAL MEMBER TRUSS CLAMP**, which price shall include providing the shop drawings, fabricating the clamp, furnishing and installing the clamp complete with all necessary hardware and providing the necessary traffic control.

### **REMOVE OVERHEAD SIGN STRUCTURE – WALKWAY:**

This work shall consist of the complete removal and disposal of the overhead sign structure external walkway, handrail, and related mounting hardware according to the requirements of Section 736 of the Standard Specifications and as specified on the work order.

The removed overhead sign structure external walkway shall become the property of the Contractor and shall be completely disposed of off the right of way. Any salvage value of the elements to be removed shall be reflected in the Contractor's bid for the removal of the overhead sign structure walkway.

This work will be paid for at the agreed unit price in feet for **REMOVE OVERHEAD SIGN STRUCTURE - WALKWAY** which price shall include all labor and equipment to complete this work.

### **STRUCTURAL REPAIR OF CONCRETE**

Effective: March 15, 2006  
Revised: August 9, 2019

Description. This work shall consist of structurally repairing concrete.

Materials. Materials shall be according to the following.

Item	Article/Section
(a) Portland Cement Concrete (Note 1)	1020
(b) R1, R2, or R3 Concrete (Note 2)	
(c) Normal Weight Concrete (Notes 3 and 4)	
(d) Shotcrete (High Performance) (Notes 5 and 6)	
(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	1023.01
(k) Epoxy (Note 7)	1025
(l) Mechanical Bar Splicers	508.06(c)

Note 1. The concrete shall be Class SI, except the cement factor shall be a minimum 6.65 cwt/cu yd (395 kg/cu m), the coarse aggregate shall be a CA 16, and the strength shall be a minimum 4000 psi (27,500 kPa) compressive or 675 psi (4650 kPa) flexural at 14 days. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump, but a cement factor reduction according to Article 1020.05(b)(8) is prohibited. A self-consolidating concrete mixture is also acceptable per Article 1020.04, except the mix design requirements of this note regarding the cement factor, coarse aggregate, strength, and cement factor reduction shall apply.

Note 2. The R1, R2, or R3 concrete shall be from the Department's qualified product list of Packaged, Dry, Rapid Hardening, Cementitious Materials for Concrete Repairs. The R1, R2, or R3 concrete shall comply with the air content and strength requirements for Class SI concrete as indicated in Note 1. Mixing shall be per the manufacturer's recommendations, except the water/cement ratio shall not exceed the value specified for Class SI concrete as indicated in Note 1. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump, and a retarder may be required to allow time to perform the required field tests. The admixtures shall be per the manufacturer's recommendation, and the Department's qualified product list of Concrete Admixtures shall not apply.

Note 3. The "high slump" packaged concrete mixture shall be from the Department's qualified product list of Packaged, Dry, Formed, Concrete Repair Mixtures. The materials and preparation of aggregate shall be according to ASTM C 387. The cement factor shall be 6.65 cwt/cu yd (395 kg/cu m) minimum to 7.05 cwt/cu yd (418 kg/cu m) maximum. Cement replacement with fly ash or ground granulated blast-furnace slag shall be according to Section 1020. The "high slump" packaged concrete mixture 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 "high slump" packaged concrete mixture 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. The coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). The packaged concrete mixture shall comply with the air content and strength requirements for Class SI concrete as indicated in Note 1. Mixing shall be per the manufacturer's recommendations, except the water/cement ratio shall not exceed the value specified for Class SI concrete as indicated in Note 1. A high range water-reducing admixture shall be used to obtain a 5-7 in. (125-175 mm) slump. The admixture shall be per the manufacturer's recommendation, and the Department's qualified product list of Concrete Admixtures shall not apply. A maximum slump of 10 in. (250 mm) may be permitted if no segregation is observed by the Engineer in a laboratory or field evaluation.

Note 4 The "self-consolidating concrete" packaged concrete mixture shall be from the Department's qualified product list of Packaged, Dry, Formed, Concrete Repair Mixtures. The materials and preparation of aggregate shall be according to ASTM C 387. The cement factor shall be 6.65 cwt/cu yd (395 kg/cu m) minimum to 7.05 cwt/cu yd (418 kg/cu m) maximum. Cement replacement with fly ash or ground granulated blast-furnace slag shall be according to Section 1020. The "self-consolidating concrete" packaged concrete mixture 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 "self-consolidating concrete" packaged concrete mixture 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. The concrete mixture should be uniformly graded, and the coarse aggregate shall be a maximum size of 1/2 in. (12.5 mm). The fine aggregate proportion shall be a maximum 50 percent by weight (mass) of the total aggregate used. The packaged concrete mixture shall comply with the air content and strength requirements for Class SI concrete as indicated in Note 1. Mixing shall be per the manufacturer's recommendations, except the water/cement ratio shall not exceed the value specified for Class SI concrete as indicated in Note 1. The admixtures used to produce self-consolidating concrete shall be per the manufacturer's recommendation, and the Department's qualified product list of Concrete Admixtures shall not apply. The packaged concrete mixture shall meet the self-consolidating requirements of Article 1020.04.

Note 5. Packaged shotcrete that includes aggregate shall be from the Department's qualified product 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 non-chloride 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 6 Packaged shotcrete that does not include pre-blended aggregate shall be from the Department's qualified product 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 5, 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 5. The aggregate gradation shall be according to the manufacturer. The shotcrete shall be batched and mixed with added aggregate according to the manufacturer.

Note 7. In addition ASTM C 881, Type IV, Grade 2 or 3, Class A, B, or C may be used.

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.

Hydrodemolition Equipment – Hydrodemolition equipment for removing concrete shall be calibrated, and shall use water according to Section 1002.

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

General. The repair methods shall be either formed concrete repair or shotcrete. The repair method shall be selected by the Contractor with the following rules.

- (a) Rule 1. 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.
- (b) Rule 2. Formed concrete repair shall not be used for overhead applications.
- (c) Rule 3. If formed concrete repair is used for locations that have reinforcement with less than 0.75 in. (19 mm) of concrete cover, the concrete mixture shall contain fly ash or ground granulated blast-furnace slag at the maximum cement replacement allowed.
- (d) Rule 4. 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.
- (e) Rule 5. 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.

**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 review and approval. When ever 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 appropriate and approved support system is installed.

**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 preferred. The repair perimeter shall be sawed a depth of 1/2 in. (13 mm) or less, as required to avoid cutting the reinforcement. Any cut reinforcement shall be repaired or replaced at the expense of the Contractor. 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 chipping hammers, hydrodemolition equipment, or other methods approved by the Engineer. The concrete removal shall extend along the reinforcement bar until the reinforcement is free of bond inhibiting corrosion. Reinforcement bar with 50 percent or more exposed shall be undercut to a depth of 3/4 in. (19 mm) or the diameter of the reinforcement bar, whichever is greater.

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.

The repair depth shall be a minimum of 1 in. (25 mm). The substrate profile shall be  $\pm$  1/16 in. ( $\pm$  1.5 mm). The perimeter of the repair area shall have a vertical face.

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.

The Contractor shall have a maximum of 14 calendar days to complete each repair location with concrete or shotcrete, once concrete removal has started for the repair.

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 6 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.

**Surface Preparation.** Prior to placing the concrete or shotcrete, the Contractor shall prepare the repair area and exposed reinforcement by blast cleaning. The blast cleaning shall provide a surface that is free of oil, dirt, and loose material.

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 (i.e. shotcrete material leaner than the original mixture which ricochets off the receiving surface), and overspray. Preparation may be by lightly brushing or blast cleaning if the previous shotcrete surface is less than 36 hours old. If more than 36 hours old, the surface shall be prepared by blast cleaning.

The repair area and perimeter vertical face shall have a rough surface. Care shall be taken to ensure the sawcut face is roughened by blast cleaning. Just prior to concrete or shotcrete placement, saturate the repair area with water to a saturated surface-dry condition. Any standing water shall be removed.

Concrete or shotcrete placement shall be done within 3 calendar days of the surface preparation or the repair area shall be prepared again.

**Reinforcement.** Exposed reinforcement bars shall be cleaned of concrete and corrosion by blast cleaning. After cleaning, all exposed reinforcement shall be carefully 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 shall be performed.

Intersecting reinforcement bars shall be tightly secured to each other using 0.006 in. (1.6 mm) or heavier gauge tie wire, and shall be adequately supported to minimize movement during concrete placement or application of shotcrete.

For reinforcement bar locations with less than 0.75 in. (19 mm) of cover, protective coat shall be applied to the completed repair. The application of the protective coat shall be according to Article 503.19, 2nd paragraph, except blast cleaning shall be performed to remove curing compound.

The Contractor shall anchor the new concrete to the existing concrete with 3/4 in. (19 mm) diameter hook bolts for all repair areas 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 hook bolts shall be spaced at 15 in. (380 mm) maximum centers both vertically and horizontally, and shall be a minimum of 12 in. (305 mm) away from the perimeter of the repair. The hook bolts shall be installed according to Section 584.

**Repair Methods.** All repair areas shall be inspected and approved by the Engineer prior to placement of the concrete or application of the shotcrete.

- (a) Formed Concrete Repair. Falsework shall be according to Article 503.05. Forms shall be according to Article 503.06. Formwork shall provide a smooth and uniform concrete finish, and shall approximately match the existing concrete structure. Formwork shall be mortar tight and closely fitted where they adjoin the existing concrete surface to prevent leakage. 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 that may be entrapped.

The concrete for formed concrete repair shall be a Class SI Concrete, or a packaged R1, R2, or R3 Concrete, or a packaged Normal Weight Concrete at the Contractor's option. The concrete shall be placed and consolidated according to Article 503.07. The concrete 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.

Curing shall be done according to Article 1020.13.

If temperatures below 45°F (7°C) are forecast during the curing period, protection methods shall be used. Protection Method I according to Article 1020.13(d)(1), or Protection Method II according to Article 1020.13(d)(2) shall be used during the curing period.

The surfaces of the completed repair shall be finished according to Article 503.15.

- (b) Shotcrete. Shotcrete shall be tested by the Engineer for air content according to Illinois Modified 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.

For compressive strength of shotcrete, a 18 x 18 x 3.5 in. (457 x 457 x 89 mm) test panel shall be shot by the Contractor for testing by the Engineer. A steel form test panel shall have a minimum thickness of 3/16 in. (5 mm) for the bottom and sides. A wood form test panel shall have a minimum 3/4 in. (19 mm) thick bottom, and a minimum 1.5 in. (38 mm) thickness for the sides. 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. After delivery to the laboratory for testing, curing and testing shall be according to ASTM C 1140.

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.

For air temperature limits when applying shotcrete in cold weather, the first paragraph of Article 1020.14(b) shall apply. For hot 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. The shotcrete shall not be applied 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). 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 to 5 ft. (0.6 to 1.5 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 45 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. The maximum thickness shall be according to Rules 4 and 5 under Construction Requirements, General. 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. Cutting shall not cause cracks or delaminations in the shotcrete. 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 shall be used to approximately match the existing concrete texture. A manufacturer approved finishing aid may be used. Water shall not be used as a finishing aid. All repaired members shall be restored as close as practicable to their original dimensions.

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. The curing compound shall be according to Article 1022.01. Note 5 of the Index Table in Article 1020.13 shall apply to the membrane curing method.

When a shotcrete layer is to be covered by a succeeding shotcrete layer within 36 hours, the repair area shall be protected with intermittent hand fogging, or wet curing with either burlap or cotton mats shall begin within 10 minutes. Intermittent hand fogging may be used only for the first hour. Thereafter, wet curing with burlap or cotton mats shall be used until the succeeding shotcrete layer is applied. Intermittent hand fogging may be extended to the first hour and a half if the succeeding shotcrete layer is applied by the end of this time.

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.

If temperatures below 45°F (7°C) are forecast during the curing period, protection methods shall be used. Protection Method I according to Article 1020.13(d)(1), or Protection Method II according to Article 1020.13(d)(2) shall be used during the curing period

Inspection of Completed Work. The Contractor shall provide ladders or other appropriate equipment for the Engineer to inspect the repaired areas. After curing but no sooner than 28 days after placement of concrete or shooting of shotcrete, the repair shall be examined for conformance with original dimensions, cracks, voids, and delaminations. Sounding for delaminations will be done with a hammer or by other methods determined by the Engineer.

The acceptable tolerance for conformance of a repaired area shall be within 1/4 in. (6 mm) of the original dimensions. A repaired area not in dimensional conformance or with delaminations shall be removed and replaced.

A repaired area with cracks or voids shall be considered as nonconforming. Exceeding one or more of the following crack and void criteria shall be cause for removal and replacement of a repaired area.

1. The presence of a single surface crack greater than 0.01 in. (0.25 mm) in width and greater than 12 in. (300 mm) in length.
2. The presence of 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.
3. The presence of map cracking in one or more regions totaling 15 percent or more of the gross surface area of the repair.
4. The presence of two or more surface voids with least dimension 3/4 in. (19 mm) each.

A repaired area with cracks or voids that do not exceed any of the above criteria may remain in place, as determined by the Engineer.

If a nonconforming repair is allowed to remain in place, 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 may be applied to the surface of the crack. Voids shall be repaired according to Article 503.15.

Publications and Personnel Requirements. The Contractor shall provide a current copy of ACI 506R to the Engineer a minimum of one week prior to start of construction.

The shotcrete personnel who perform the work shall have current American Concrete Institute (ACI) nozzlemen 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 nozzlemen as determined by the Engineer. A copy of the nozzlemen certificate(s) shall be given to the Engineer.

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.

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 IN. (125 MM), STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 IN. (125 MM).

When not specified to be paid for elsewhere, the work to design, install, and remove the temporary shoring and cribbing will be paid for according to Article 109.04.

With the exception of reinforcement damaged by the Contractor during removal, the furnishing and installation of supplemental reinforcement bars, mechanical bar splicers, hook bolts, and protective coat will be paid according to Article 109.04.

#### **DRILL WEEP HOLE:**

This work shall consist of drilling weep holes as described in the work order, using a 1/4 inch drill bit mounted on a portable electric drill.

The work will be paid for at the agreed unit price each for **DRILL WEEP HOLE**, which price shall include all equipment and labor necessary to safely drill any hole described in the work order.

**REMOVAL OF SIGN LIGHTING, NO SALVAGE:**

This item shall consist of disconnecting, completely removing and disposing of existing sign lighting as specified herein. This pay item shall also include removal of the associated conduit, wire and disconnect switch from the sign structure.

Luminaire removal shall be in accordance with Section 842, the cleaning and painting of sign structure caused by the removal of sign lighting and associated conduit shall be in accordance with section 506 of the Standard Specifications for Road and Bridge Construction, current version.

The Contractor shall coordinate any electrical work with the Department's Electrical Maintenance Contractor (EMC) prior to any work.

Prior to the removal of any equipment, the Contractor shall notify the Engineer to obtain the approval for equipment removal. No removal work shall be permitted until approved by the Engineer.

The removal of sign luminaires shall include all associated conduit, wire up to the handhole on the sign structure, if existing otherwise up to the nearest feed to the sign lighting (Junction Box or Light Pole), disconnect switch and hardware. All appurtenances shall become the property of the contractor and shall be disposed of according to the Article 202.03.

This work will be paid for at the agreed unit price each for **REMOVE EXISTING SIGN LIGHTING UNIT, NO SALVAGE** which price shall include all labor and equipment to complete the work described herein.

**METAL SCREEN:**

This work shall consist of cleaning and installing stainless steel screen wire to enclose the void between the sign support base plates and the foundation.

The stainless-steel mesh shall meet the requirements of Section 733 and be installed as shown in the details of Overhead Sign Structures Support Frame Base Sheet OS-A-6A.

The work will be paid for at the agreed unit price each for **METAL SCREEN**, which price shall include cleaning and installing the screen wire around each sign support base plate.

**OVERHEAD SIGN STRUCTURE – TRUSS ONLY:**

This work shall consist of furnishing and installing a Type IA or IIA overhead sign structure-truss on or existing end supports at the location shown in the plans.

The Contractor shall be responsible for field verifying the existing dimensions for the end supports to assure the proper fit for the replacement truss on the existing end supports.

This work shall include all labor, material, and equipment necessary for proper execution and completion of the work as shown on the plans and as herein specified. It shall include all work not specifically included in the contract documents which is reasonably and properly inferable and necessary for proper completion of the improvement.

Materials shall meet the requirements of the sign structure detail sheets shown in the contract, conforming to the dimensions shown on the details included in the contract, and the applicable requirements of Section 1094.

The replacement overhead sign structure-span shall include the fabrication and installation of truss grating, to facilitate inspections, the entire length of the span conforming to the details shown in the contract.

The cost of fabricating and installing the truss grating and the truss damper shall be included in the cost of fabricating and installing the replacement overhead sign structure-span.

Due to the downsizing of the overhead sign structures a retrofit for the support frame at those locations where the existing end supports will be used is required. The retrofit for the existing end supports shall meet the requirements shown on the "OVERHEAD SIGN STRUCTURES EXISTING SUPPORT FRAME RETROFIT FOR ALUMINUM TRUSS" as shown on detail sheet OS-A-12 RETROFIT. The cost of the retrofit shall be included in the cost of fabricating and installing the replacement overhead sign structure-truss.

This work shall be done in accordance with Section 733, including providing all necessary mounting hardware and as specified herein.

Shop drawings for the new structure will be provided by the Contractor and approved in writing before any new materials are ordered or fabrication is begun.

Before starting work, the Contractor shall provide an erection plan to the Engineer detailing the method of erection proposed to be followed and the amount and type of equipment proposed to be used. The plan shall be subject to the approval of the Engineer. The approval of the Engineer shall not be considered as relieving the Contractor of the responsibility for the safety of the Contractor's method or equipment or from carrying out the work in full.

Traffic control and protection shall be included under this pay item. It shall be understood that the freeway will be closed a maximum of 15 minutes to remove and re-erect the sign structure and the time of the week allowed for closure will be as directed by the Engineer.

Basis of Payment: This work will be paid for at the contract unit price per foot for **OVERHEAD SIGN STRUCTURE- TRUSS ONLY** Type Specified which price shall include providing all necessary traffic control.

#### **TIGHTEN SUPPORT ANCHOR BOLTS:**

This work shall consist of tightening the anchor bolts for an overhead sign structure support. For existing gaps between the base plate and the anchor bolt nuts less than 1/4 inch, the anchor bolt nut shall be firmly seated against the base plate of the overhead sign structure support to the satisfaction of the Engineer.

For existing gaps between the base plate and the anchor bolt nuts equal to or greater than 1/4 inch, the threads above the nut shall be cleaned to allow raising of the nut approximately 1/4 inch. A U-shaped galvanized steel shim(s) of adequate thickness shall be inserted between the base plate and existing washer, and the anchor bolt nut shall be firmly seated against the shim(s) and base plate of the overhead sign structure support to the satisfaction of the Engineer.

After seating, the anchor nut shall be final torqued to the following specifications:

Anchor Bolt Threaded Diameter (inches)	Anchor Nut Torque (ft-lb)
1	380
1 1/8	540
1 1/4	760
1 1/2	1330
1 3/4	2100
2	3150
2 1/4	4610
2 1/2	6300

Any damage to anchor bolts or failure to reach the specified torque shall immediately be reported to the Engineer.

This work will be paid for at the contract unit price each for TIGHTEN SUPPORT ANCHOR BOLTS, which price shall be payment in full for tightening all bolts for an overhead sign structure support, supplying and inserting the necessary shim(s), and providing all necessary traffic control.

**TIGHTEN U-BOLT:**

This work shall consist of tightening existing U-bolts at the locations shown in the plans.

The U-bolts shall be tightened enough to bring the U-bolt against the tube and leave nuts/washers with less than 1/8-inch gap to the support or as directed by the Engineer.

U-bolts that cannot be tightened but are loose shall be replaced. Replacement U-bolts shall be either 8 mm or 20 mm (5/16" or 3/4") stainless steel U-bolts of the appropriate dimensions, two stainless steel washers and two hexagon locknuts per bolt.

The 8 mm (5/16 inch) U-bolts are located at the connection of the walkway support and sign brackets to the truss and the 20 mm (3/4 inch) U-bolts are located at the connection of the overhead sign structure to the end support. The U-bolt, washers, and locknuts shall meet the requirements of Section 733 and the Overhead Sign Structure Base Sheet OS-A-1. All U-bolts shall be of sufficient length to fully engage the locknut.

The Contractor shall field verifying dimensions prior to ordering any material.

This work will be paid for at the contract unit price each for TIGHTEN U-BOLT, which price shall be payment in full for properly tightening loose U-bolts, replacing any U-bolts that cannot be tightened and providing all necessary traffic control.

## FIBER WRAP

Description. This work shall consist of furnishing all materials, labor, equipment, and supervision necessary for the installation of externally bonded Fiber Reinforced Polymer (FRP) reinforcement, field applied at the locations shown in the plans and as directed by the Engineer.

Materials. The FRP composite system shall be a proprietary system consisting of all associated fiber reinforcement and polymer adhesives/resins. FRP composites consisting of fiber reinforcement and polymers provided by more than one Manufacturer are not allowed. The system shall be from one of the following companies:

Master Builders, Inc.  
23700 Chagrin Blvd.  
Cleveland OH 44122

SIKA Corporation  
201 Polito Ave.  
Lyndhurst NJ 07071

R.J. Watson, Inc.  
P.O. Box 85  
East Amherst NY 14051

The fabric for the FRP composite system shall be continuous filament woven fabric. Primary fibers for the fabric shall be electrical (E) glass fibers or Carbon. Acceptable fabrics are:

Master Builders, Inc.  
MBRACE CF 530  
MBRACE EG 900

SIKA Corporation  
HEX 103C  
HEX 100G

R.J. Watson, Inc.  
SCH-41S  
SHE-51

The epoxy shall be supplied by the manufacturer as a part of the system designed for use with the selected fabric. Polyester resin shall not be allowed as a substitute for epoxy resin.

Submittals. The Contractor shall submit the following to the Department at least three weeks prior to beginning installation the following information for approval:

Manufacturer's product data sheets indicating physical, mechanical and chemical characteristics of all materials used in the FRP system. Information should include manufacturer's name and product number for all materials. Information shall include dry fabric thickness and minimum effective composite thickness per layer. For epoxy resins it shall include mix ratio by weight and volume, pot life, shelf life, resin gel time at proposed cure temperatures, mixing and application instructions & temperature ranges, and storage requirements. For paint it shall include mixing instructions, application method, application temperature ranges and storage requirements.

Tensile properties of the composite material as determined by tensile testing in accordance with ASTM D 3039. Ultimate tensile strength and rupture strain values shall be determined by subtracting three standard deviations from the average values of twenty or more tensile tests.

Manufacturer's installation instructions, maintenance instructions and general recommendations regarding each material to be used. Installation instructions shall include curing procedures for the composite system if required.

Manufacturer's Material Safety Data Sheets (MSDS) for all materials to be used.

The material supplier's name, address, and phone number, and the name, telephone and fax number of a contact person employed by that company.

Complete, step-by-step procedures and specifications for repairs of any defects. Procedure shall specify that if a defective composite area is greater than 50 square inches, the defective area shall be repaired by removing and reapplying.

Complete, step-by-step procedures for repairs of any future defects or damage. Including recommendations for any periodic maintenance or inspections, if required. Also include recommended materials and procedures for future repainting including surface preparation.

Qualifications. The Manufacturer/Supplier must approve the Applicator. A field representative who has completed the course of instruction (supported by the Manufacturer / Supplier) in the installation of the products specified in this section must be present on-site during installation of the FRP system.

Delivery, Storage, and Handling. The products shall be delivered and stored in original, unopened containers. Containers must be clearly marked with legible and intact labels listing the Manufacturer's name, brand name, product identification and batch number.

Storage of fiber reinforcement and epoxies must be in areas protected from dust, moisture, and chemical exposure. Epoxies must be stored in areas with an ambient temperature between 50- and 75-degrees F and away from direct sunlight, flame sources or other hazards. Epoxy resins must be stored separately from hardeners.

The fiber reinforcement must not be handled roughly. For specific hazards of resin components consult the Manufacturer's MSDS.

## CONSTRUCTION DETAILS

### Surface Preparation

The surface shall be free from fins, sharp edges, and protrusions that will cause voids behind the casing or that, in the opinion of the Engineer, will damage the fiber.

The surfaces to receive the composite wrap shall be smooth and free of voids or undulations that would prevent full contact between the concrete and the wrap.

The contact surfaces shall be clean, free from oil, dirt, salt, etc., completely dry at the time of application of the composite. High pressure cleaning that would damage the surface will not be allowed. Newly repaired or patched surfaces that have set, and cured a minimum of 7 days, shall be coated with water-based epoxy paint or other approved sealer.

### Application

The ambient temperature and the temperature of the epoxy resin components shall be between 55° F and 95° F at the time of mixing. Care shall be taken to ensure that the surface temperature of the concrete that the FRP system is being applied to is within the appropriate range for the epoxy resins. The composite shall be applied when the relative humidity is less than 85% and the surface temperature is more than 5° F above the dew point. Applications shall begin within one hour after the batch has been mixed.

The components of the epoxy resin shall be mixed with a mechanical mixer for a minimum of 5 minutes and applied uniformly to the fiber at a rate that shall insure complete saturation of the fabric.

A primer of epoxy shall be applied to the surface to be wrapped.

The FRP composite shall be applied to the prepared surface by wrapping using methods that produce a uniform force that is distributed across the entire width of the fabric. The primary fibers of the fabric shall not deviate from a vertical line more than 1/2 inch per foot, and the transverse fibers shall be perpendicular to the primary. Entrapped air shall be released or rolled over before the epoxy sets.

Beam repairs called for in this project shall consist of a single layer of fabric with any necessary splice overlap installed with the primary fibers oriented at a right angle to the longitudinal axis of the beam, providing shear reinforcement. If additional layers are required by the Engineer or recommended by the Manufacturer, successive layers of composite materials shall be placed before polymerization of the previous layer of epoxy is too complete to achieve complete bond between layers. If polymerization does occur between layers the surface must be roughened using a light abrasive that will not damage the fiber.

After the last layer of fabric is installed a final layer of epoxy shall be applied with care to insure coating of all edges and seams.

The individual supervising the installation of the fiber wrap shall be the same individual noted in the approved Information and Installation Manual. This individual shall be on site full time when fiber wrap is being installed. This individual shall not be removed or reassigned from the project without the written permission of the Engineer.

The Contractor shall maintain a Wrapping Log. The Wrapping Log shall be always available for review by the Engineer, and upon completion of all wrapping the Engineer shall be given a copy. The log shall provide material traceability and records for the wrapping of each beam. As a minimum the Wrapping Log shall contain:

Project name, contract number and bridge number.

Material information including product description, date of manufacturer and lot or batch numbers and location that products are installed.

Daily fabrication, inspection and verification data for the day's construction. Include as a minimum the locations, composite thickness measurements, ambient temperature and humidity readings at the beginning, middle and end of each shift (or at the beginning and end of installation), documentation of any required curing process, thickness of any paint or protective coating applied, location of any damaged areas that are repaired.

#### Coating System Application

A final coating is required to protect the fibers from the elements, specifically UV radiation and to give the final aesthetic effect.

After 96 hours from final application of epoxy, if the final epoxy coat is completely polymerized, the exterior surface of the composite wrap shall be cleaned and roughened by a light abrasive. Care should be taken during the roughening process so that the fibers are not damaged. All cleaned and roughened surfaces shall be dry before painting.

The area to be painted shall receive a total dry film thickness of not less than 4 mils.

Laboratory Testing. The Contractor shall prepare and furnish to the Department one 12" x 12" sample of the cured composite system for each separate repair.

The Department will randomly test the samples at their discretion and will furnish the Contractor results of all tests made. The Department will precondition the samples at 140°F for 48 hours. Five 3/4" x 9" coupons will be cut from each sample and tested in accordance with ASTM D3039. Test results will include ultimate tensile strength, tensile modules, and percent elongation.

If the average of the five coupons fails to meet the specified requirements, two additional coupons will be taken from the same sample. If the average of the seven samples also fails, the Department will test the sample made prior to the failed sample and the sample made after the failed sample. This process will continue until the limits of the defective work are identified.



After the defective area is identified the Contractor shall reapply the entire composite system to the defective area.

Field Inspection. The Engineer will inspect the cured composite system for defects consisting of external abrasions or blemishes, delaminations, voids, external cracks, chips, cuts, loose fibers, foreign inclusions, depressible raised areas or fabric wrinkles. The following repair criteria shall apply.

All defects greater than 1" long or a defective area greater than one square inch shall be repaired in accordance with the approved Information and Installation Manual.

If the number of defects of any size within an individual repair exceeds 10, the repair shall either be repaired or replaced as directed by the Engineer.

#### Method of Measurement

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

#### Basis of Payment.

This work will be paid for at the contract unit price per square foot for **FIBER WRAP**.

### **FURNISH AND INSTALL SADDLE SHIM BLOCK**

This work shall consist of furnishing and installing new saddle shim blocks with 3 mm (1/8") fabric or neoprene pad, new truss to end support U-bolts, washers and locknuts.

The saddle shim block shall be either ASTM B-26 Alloy 356-F or ASTM B-209 Alloy 6061-T651 made to match the chords outside diameter and original shim block thickness. The replacement saddle shim block shall be of a width and length as shown on the **saddle shim detail** in the plans with 4 holes drilled to match the existing U-bolt hole locations.

The horizontal chord shall be lifted just enough to slide the saddle shim and neoprene or fabric pad in place. Extreme care shall be taken when making this lift, and jacks with radiused contact faces or softeners shall be used to distribute loads evenly and not permanently deform the chords.

This work will be paid for at the contract unit price each for FURNISH AND INSTALL SADDLE SHIM BLOCK, which price includes providing the U-bolts and all necessary traffic control.

### **REPLACE HANDRAIL SUPPORT**

This work shall consist of replacing a damaged or deteriorated handrail support.

The handrail support shall be fabricated in accordance with the requirements of Section 733 and Overhead Sign Structures Aluminum Handrail Details Base Sheet OS-A-11.

Shop drawings for the replacement handrail supports will be provided by the Contractor and approved in writing before ordering any materials.

This work will be paid for at the contract unit price each for REPLACE HANDRAIL SUPPORT, which price shall include furnishing all materials, providing shop drawings, fabricating, and erecting the handrail support and providing the necessary traffic control.

## REPAIR HANDRAIL LOCKING PIN CONNECTION

This work shall consist of reaming the existing handrail locking pin hole to obtain the proper alignment for the installation of the locking pin and installing an oversized stainless steel locking pin. The locking pin with attached safety chain shall meet the material requirements of the details shown on Overhead Sign Structures Base Sheet OS-A-11. The Contractor shall attach the locking pin safety chain to the angle of the handrail post hinge with a stainless-steel screw in lieu of welding the locking pin safety chain to the handrail post hinge pin.

This work will be paid for at the contract unit price each for REPAIR HANDRAIL LOCKING PIN CONNECTION, which price includes providing all necessary traffic control.

## FURNISH & INSTALL HANDRAIL

This work shall consist of furnishing and installing new or replacement handrail on an overhead sign structure. The length required will be as shown on the plans and shall be verified by the Contractor before ordering any material.

Materials shall meet the requirements of Section 733 of the Standard Specifications.

Shop drawings for the handrail will be provided by the Contractor and approved in writing before ordering any materials.

The work shall be performed and measured in accordance with Section 733.

This work will be paid for at the contract unit price per lineal foot for FURNISH AND INSTALL HANDRAIL, which price includes providing all necessary traffic control.

## TIGHTEN CANTILEVER CONNECTION

This work shall consist of tightening all the mounting bolts of the top collar and the bottom mounting plate for the connections of the cantilever support and the aluminum overhead sign structure at the locations shown in the plans. **This procedure is not specifically intended to close existing gaps between mounting plates but to tighten those bolts that are loose.**

All bolts used to assemble the top collar and the bottom mounting plate shall be systematically tightened in accordance with the applicable requirements of Section 733 of the Standard Specifications or as directed by the Engineer. Bolts that cannot be tightened, but are loose, shall be replaced with bolts meeting the applicable requirements of Section 733 of the Standard Specifications.

If a gap exists, between the bottom mounting plate on the support and the truss plate, an aluminum or stainless-steel shim of geometry approved by the Engineer, shall be inserted to fill the gap between the mounting plate and the truss plate to avoid bending of the mounting plates when tightening the bolts.

The Contractor shall loosen the bolts in the bottom mounting plate and the top collar prior to installing the shims. The Contractor shall raise the truss slightly (approximately 1/4") by use of a crane or jacks (procedures similar to those outlined in the Special Provision for Relocate Saddle Shim Block to avoid damage to chords), insert the shims, and lower the truss. After shimming, the bolts shall be systematically tightened in accordance with the applicable requirements of Section 733 of the Standard Specifications or as directed by the Engineer. Bolts that are damaged and cannot be reused shall be replaced with bolts meeting the applicable requirements of Article 1006.08 of the Standard Specifications.

This work will be paid for at the contract unit price each for TIGHTEN CANTILEVER CONNECTION, which price shall include tightening all bolts, replacing those bolts which cannot be tightened but are loose, furnishing and installing aluminum or stainless-steel shims for those locations that have gaps between the bottom mounting plate and the truss plate, and providing the necessary traffic control. Each cantilever shall be considered as having two connections.

### **TIGHTEN END SUPPORT CONNECTION**

This work shall consist of tightening all the mounting bolts of the top and the bottom connections of the end support for a Vierendeel overhead sign structure at the locations shown in the plans.

All bolts used to assemble the top and bottom connections of the end supports for a Vierendeel overhead sign structure shall be systemically tightened in accordance with the applicable requirements of Section 733 of the Standard Specifications or as directed by the Engineer. Bolts that cannot be tightened but are loose, shall be replaced.

The replacement bolts shall be of the appropriate diameter, high strength, with two washers and a locknut. The bolts shall be of sufficient length to fully engage the locknut. Replacement bolts, nuts and washers shall meet the applicable requirements of Article 1006.08, except that all hardware shall be hot dipped galvanized according to ASSHTO M 111.

This work will be paid for at the contract unit price each for TIGHTEN END SUPPORT CONNECTION, which price shall include tightening all bolts, replacing those bolts which cannot be tightened but are loose, and providing the necessary traffic control.

### **OVERHEAD SIGN SUPPORT GROUT REPAIR**

This work shall consist of removing essentially all grout, between the base plates and the foundation, cleaning and painting the exposed anchor bolts, and installing a stainless-steel screen wire to enclose the void between the sign support base plates and the foundation. The stainless-steel mesh shall meet the requirements of Section 733 and be installed as shown on the details Overhead Sign Structures Support Frame Base Sheet OS-A-6A.

The exposed part of the anchor bolts shall be cleaned and painted with one coat of primer. The primer shall meet the requirements of Section 4 and 5 of SSPC-PT25 for red iron oxide, zinc oxide, raw linseed oil, and alkyd primer.

All debris resulting from this operation shall be removed from the right-of-way.

Basis of Payment: This work will be paid for at the contract unit price each for OVERHEAD SIGN SUPPORT GROUT REPAIR, which price includes providing the necessary traffic control.

### **FURNISH AND INSTALL WALKWAY TIE DOWN BOLTS**

This work shall consist of furnishing and installing missing walkway tie down bolts, field drilling any necessary holes in the walkway for the installation of the bolts and tightening loose bolts at the locations shown in the plans. The size and number of the tie down bolts shall be as shown on Overhead Sign Structures Base Sheet OS-A-10 or as shown on the shop fabrication drawings for each overhead sign structure available from the district office.

Walkway tie down bolts not of sufficient length to fully engage the locknut shall be replaced whenever possible with longer bolts of sufficient length to fully engage the lock-nut. Walkway tie down bolts that cannot be tightened shall be replaced.

All bolts, nuts, washers used to attach the walkway to the sign structures shall be stainless steel. The stainless-steel bolts, nuts, and washers shall meet the applicable requirements of Section 733. All bolts shall be of sufficient length to fully engage the locknut.

This work will be paid for at the contract unit price for each overhead sign structure location for FURNISH AND INSTALL WALKWAY TIE DOWN BOLTS, which price includes tightening loose bolts, replacing damaged bolts and providing all necessary traffic control.

#### **REPLACE WALKWAY SUPPORT BRACKET BOLT**

This work shall consist of replacing the existing deteriorated walkway support bracket bolts for a Vierendeel overhead sign structure at the locations shown in the plans. The bolts furnished shall be ½" diameter, high strength, with 2 washers and a locknut. The bolts shall be of sufficient length to fully engage the locknut.

Replacement bolts, nuts, washers shall meet be according to Article 1006.08, except that all hardware shall be hot dipped galvanized according to AASHTO M 111. Samples of the bolts, washers and nuts shall be submitted to the Bureau of Materials and Physical Research for approval prior to installation.

This work will be paid for at the contract unit price each for REPLACE WALKWAY SUPPORT BRACKET BOLT, which price shall include furnishing and installing the galvanized bolt complete with washers and locknuts and providing all necessary traffic control.

#### **SAFETY CHAIN**

This work shall consist of removing a defective existing safety chain from the walkway, if one is present, and furnishing and installing a new one.

The chain shall be 3/16" diameter, Type 304L Stainless Steel, with approximately 12 links per foot. The safety chain shall be furnished and installed on the walkway and walkway support bracket as shown on the Overhead Sign Structures Aluminum Handrail Details Base Sheet OS-A-11.

For those locations where the chain must be attached to the walkway support bracket and the walkway support bracket is located behind the sign the "Alternate Safety Chain Attachment" method shall be used.

This work will be paid for at the contract unit price each for SAFETY CHAIN, which price shall include providing the alternate safety chain attachment bracket, when required, and providing all necessary traffic control.

#### **REPLACE U-BOLT:**

This work shall consist of replacing missing or damaged U-bolts. Replacement U-bolts shall be either 8 mm or 20 mm (5/16" or 3/4") stainless steel U-bolts of the appropriate dimensions, two stainless steel washers and two hexagon locknuts per bolt. This work may also include field drilling any holes necessary in the appropriate members for the installation of the U-bolts.

The 8 mm (5/16 inch) U-bolts are located at the connection of the walkway support and sign brackets to the truss and the 20 mm (3/4 inch) U-bolts are located at the connection of the overhead sign structure to the end support. The U-bolt, washers, and locknuts shall meet the requirements of Section 733 and the Overhead Sign Structure Base Sheet OS-A-1. All U-bolts shall be of sufficient length to fully engage the locknut.

The Contractor shall field verify dimensions prior to ordering any material.

This work will be paid for at the contract unit price each for REPLACE U-BOLT, which price includes providing all necessary traffic control.

### **RELOCATE SADDLE SHIM BLOCK**

This work shall consist of loosening or removing the two U-bolts on the lower horizontal chord and saddle shim as necessary, lifting the lower horizontal chord if required, relocating the saddle shim and neoprene or fabric pad to its proper alignment, and retightening the U-bolt lock nuts as necessary to secure the truss in place.

The horizontal chord shall be lifted just enough to slide the saddle shim and neoprene or fabric pads back in place. Extreme care shall be taken when making this lift, and jacks with radiused contact faces or softeners shall be used to distribute loads evenly and not permanently deform the chords.

If missing, a replacement 3 mm (1/8 inch) neoprene pad will be provided by the Contractor and placed between the saddle shim and lower horizontal chord.

If the existing U-bolt is damaged and cannot be reused, it shall be replaced and paid for in accordance with REPLACE U-BOLT located within these special provisions.

This work will be paid for at the contract unit price each for RELOCATE SADDLE SHIM BLOCK, which price shall include loosening or removing the existing U-bolts, lifting the lower horizontal chord, moving the saddle shim and pad into place, inserting a new pad if necessary, tightening the U-bolt lock nuts and providing all necessary traffic control.

### **REPLACE HAND-HOLE COVER BOLT**

This work shall consist of replacing a missing or damaged hand-hole cover mounting bolt at the locations shown in the plans and as directed by the Engineer. All damaged bolts shall be drilled out and the hole re-tapped.

The replacement hand-hole cover mounting bolt shall be in accordance with the requirements of Section 733 and Highway Standard OS-A-6, "Overhead Sign Structures Support Frame for Aluminum Truss Detail".

This work will be paid for at the contract unit price each for REPLACE HANDHOLE COVER BOLT, which price shall include furnishing, installing the bolt and providing the necessary traffic control.

### **REPLACE HANDHOLE COVER**

This work shall consist of replacing a missing handhole cover at the locations shown in the plans and as directed by the Engineer. Any missing or damaged mounting bolts, that are not salvageable, shall be replaced. All broken bolts shall be drilled out and the hole re-tapped.

The handhole cover and mounting hardware shall be fabricated in accordance with the requirements of Section 733 and Highway Standard OS-A-6, "Overhead Sign Structures Support Frame for Aluminum Truss Detail".

This work will be paid for at the contract unit price each for REPLACE HANDHOLE COVER. Which price shall include furnishing all materials, providing necessary drawings, fabricating, and installing the handhole cover and providing the necessary traffic control.

### **REPLACE SPLICE FLANGE BOLT**

This work shall consist of furnishing and installing a missing or replacing an undersized stainless steel splice flange bolt complete with stainless steel washers and lock nut for an aluminum overhead sign structure or a galvanized bolt complete with nut and lock washer for a Vierendeel painted steel overhead sign structure.

The size of the bolt shall be as shown on the shop fabrication drawings for the overhead sign structure available from the district office.

This work will be paid for at the contract unit price each for REPLACE SPLICE FLANGE BOLT, which price includes furnishing and installing the stainless-steel bolt complete with washers and lock nut or the galvanized bolt complete with nut and lock washer and providing all necessary traffic control.

### **REMOVE ELECTRIC SERVICE**

Description: This work shall consist of the disconnections, removal, and disposal of the existing electric connection to the sign lighting. Removal of the existing sign luminaires and other electrical components are included under the various pay items. This work shall also consist of reconnecting the electrical circuit to keep all highway lighting operational.

Disconnection and removal of the existing sign luminaires and other electrical components shall meet the requirements of Section 845 of the Standard Specifications. All lights and other electrical components removed shall become the property of the Contractor and salvaged or disposed of off right-of-way in a manner approved by the engineer.

The Contractor must disconnect the existing power feed to the sign lighting units and remove the wiring back to the nearest location where the sign lighting is spliced to the roadway lighting circuit. The Contractor must provide all materials and labor required to maintain operation of the existing lighting circuit.

Abandoned underground electric cables shall be removed with conduit and duct to a depth of 1 foot below ground level and the hole shall be backfilled. Cables in unit duct may be removed from the duct and become property of the Contractor. The empty duct shall be removed to a depth of 1 foot below ground level and the hole backfilled.

When a sign truss location is wired in series between light poles and the existing sign truss foundation will be removed, new Unit Duct will be required and paid for between the light poles according to Section 816 to maintain operation of the existing lighting circuit. Removal of the old electric cables and duct between each light pole and the old truss foundation will be as specified herein.

When a sign truss location is wired in series between light poles and the existing sign truss foundation will be re-used to set the new overhead sign structure, the Contractor may use the new end supports as a handhole/junction box to maintain operation of the existing lighting circuit.

Although lighting is not to be provided on the new trusses at this time, the Contractor shall be required to install all conduit and ground rods during construction of the new foundations as detailed on the base sheets for the support frames, end columns, and foundations.

Any open conduit stubs in the end supports shall be capped by the contractor after removal of the existing electrical components.

Method of Measurement: Disconnection, removal, and disposal of the existing electric connection to the sign lighting and reconnecting the electrical circuit to keep all highway lighting operational will be measured for payment as each. This work in its entirety at each sign truss location will be considered one (1) each.

Basis of Payment: This work will be paid at the contract unit price per each for REMOVE ELECTRIC SERVICE which price shall be payment in full for completing the work described above.

### **RELOCATE ELECTRIC SERVICE:**

This work shall consist of disconnecting, reconnecting and relocating electrical service to the sign lighting for an overhead sign structure to be relocated. The Contractor shall disconnect the electric cable to the sign lighting, pull and coil the cable so it will not be damaged during removal of the overhead sign structure, the removal of the end supports and the removal of the existing concrete foundations.

Once the new concrete foundation has been constructed and the new end supports for the overhead sign structure has been erected the electric cable for the sign lighting shall be relocated and extended from the existing foundation to the new foundation. If may be necessary to extend or relocate the existing conduit and cable to the new concrete foundation. The splicing of conduit will be permitted, if necessary, for extending the conduit to the relocated concrete foundation. If the existing cable is of insufficient length to reach the new concrete foundation, it may be necessary to replace a section of the existing cable. No underground splicing of cable will be permitted. After all connections have been completed to the satisfaction of the Engineer, electric service shall be restored to the overhead sign structure and tested for proper operation.

Basis of Payment: This work will be paid for at the contract lump sum price for RELOCATE ELECTRIC SERVICE, which price shall be payment in full for completing the work described above and providing all necessary traffic control.

### **COMPENSABLE DELAY COSTS (BDE)**

Effective: June 2, 2017  
1, 2019

Revised: April

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."

**DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)**

Effective: September 1, 2000  
2019

Revised: March 2,

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract the Contractor signs with a subcontractor.

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 contracts funded in whole or in part with federal or state funds. 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:

- (a) Withholding progress payments;
- (b) Assessing sanctions;
- (c) Liquidated damages; and/or
- (d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates, in the absence of unlawful discrimination and in an arena of fair and open competition, DBE companies can be expected to perform **0.00%** of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

- (a) The bidder documents enough DBE participation has been obtained to meet the goal or,
- (b) The bidder documents a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in

providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at:

<http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index>.

**BIDDING PROCEDURES.** Compliance with this Special Provision is a material bidding requirement and failure of the bidder to comply will render the bid not responsive.

The bidder shall submit a DBE Utilization Plan (form SBE 2026), and a DBE Participation Statement (form SBE 2025) for each DBE company proposed for the performance of work to achieve the contract goal, with the bid. If the Utilization Plan indicates the contract goal will not be met, documentation of good faith efforts shall also be submitted. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract. The required forms and documentation must be submitted as a single .pdf file using the "Integrated Contractor Exchange (iCX)" application within the Department's "EBids System".

The Department will not accept a Utilization Plan if it does not meet the bidding procedures set forth herein and the bid will be declared not responsive. In the event the bid is declared not responsive, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty and may deny authorization to bid the project if re-advertised for bids.

**GOOD FAITH EFFORT PROCEDURES.** The contract will not be awarded until the Utilization Plan is approved. All information submitted by the bidder must be complete, accurate and adequately document enough DBE participation has been obtained or document the good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. This means the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts the bidder has made. Mere *pro forma* efforts, in other words efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases and will be considered by the Department.
  - (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.
  - (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE

- participation, even when the Contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
  - (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.
    - b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable. In accordance with the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.
  - (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
  - (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
  - (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.
  - (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines the bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided it is otherwise eligible for award. If the Department determines the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification will also include a statement of reasons for the adverse determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department,

the bidder will be notified and will be allowed no more than a five calendar day period to cure the deficiency.

- (c) The bidder may request administrative reconsideration of an adverse determination by emailing the Department at "[DOT.DBE.UP@illinois.gov](mailto:DOT.DBE.UP@illinois.gov)" within the five calendar days after the receipt of the notification of the determination. The determination shall become final if a request is not made on or before the fifth calendar day. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be reviewed by the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.
- (c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.
- (d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:
  - (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.

- (2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.

(e) DBE as a material supplier:

- (1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
- (2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.
- (3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

**CONTRACT COMPLIANCE.** Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

- (a) **NO AMENDMENT.** No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be emailed to the Department at [DOT.DBE.UP@illinois.gov](mailto:DOT.DBE.UP@illinois.gov).
- (b) **CHANGES TO WORK.** Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, a new Request for Approval of Subcontractor will not be required. However, the Contractor must document efforts to assure the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.
- (c) **SUBCONTRACT.** The Contractor must provide copies of DBE subcontracts to the Department upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.
- (d) **ALTERNATIVE WORK METHODS.** In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the

Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:

- (1) The replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or
- (2) The DBE is aware its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or
- (3) The DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.

(e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

- (1) The listed DBE subcontractor fails or refuses to execute a written contract;
- (2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements;
- (4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;



- (5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.
- (6) The Contractor has determined the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides written notice to the Contractor of its withdrawal;
- (8) The listed DBE is ineligible to receive DBE credit for the type of work required;
- (9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;
- (10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the Contractor can self-perform the work for which the DBE contractor was engaged or so that the Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated or fails to complete its work on the Contract for any reason, the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

- (f) FINAL PAYMENT. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than 30 calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.
- (g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.
- (h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth

in paragraph (c) of “Good Faith Effort Procedures” of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

## **ILLINOIS WORKS APPRENTICESHIP INITIATIVE – STATE FUNDED CONTRACTS (BDE)**

Effective: June 2, 2021

Revised: September 2, 2021

Illinois Works Jobs Program Act (30 ILCS 559/20-1 et seq.). For contracts having an awarded contract value of \$500,000 or more, the Contractor shall comply with the Illinois Works Apprenticeship Initiative (30 ILCS 559/20-20 to 20-25) and all applicable administrative rules. The goal of the Illinois Apprenticeship Works Initiative is that apprentices will perform either 10% of the total labor hours actually worked in each prevailing wage classification or 10% of the estimated labor hours in each prevailing wage classification, whichever is less. The Contractor may seek from the Department of Commerce and Economic Opportunity (DCEO) a waiver or reduction of this goal in certain circumstances pursuant to 30 ILCS 559/20-20(b). The Contractor shall ensure compliance during the term of the contract and will be required to report on and certify its compliance. An apprentice use plan, apprentice hours, and a compliance certification shall be submitted to the Engineer on forms provided by the Department and/or DCEO.

## **SPEED DISPLAY TRAILER (BDE)**

Effective: April 2, 2014  
2022

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  $\pm 1$  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."

#### **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 PAYROLL RECORDS (BDE)**

Effective: April 1, 2021  
November 2, 2023

Revised:

FEDERAL AID CONTRACTS. 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.”

STATE CONTRACTS. Revise Item 3 of Section IV of Check Sheet #5 of the Recurring Special Provisions to read:

- “3. Submission of Payroll Records. The Contractor and each subcontractor shall, no later than the 15<sup>th</sup> day of each calendar month, file a certified payroll for the immediately preceding month to the Illinois Department of Labor (IDOL) through the Illinois Prevailing Wage Portal in compliance with the State Prevailing Wage Act (820 ILCS 130). The portal can be found on the IDOL website at <https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/Prevailing-Wage-Portal.aspx>. 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.”

#### **TRAFFIC SPOTTERS (BDE)**

Effective: January 1, 2019

Revise Article 701.13 of the Standard Specifications to read:

“**701.13 Flaggers and Spotters.** Flaggers shall be certified by an agency approved by the Department. While on the job site, each flagger shall have in his/her possession a current driver’s license and a current flagger certification I.D. card. For non-drivers, the Illinois Identification Card issued by the Secretary of State will meet the requirement for a current driver’s license. This certification requirement may be waived by the Engineer for emergency situations that arise due to actions beyond the Contractor’s control where flagging is needed to maintain safe traffic control on a temporary basis. Spotters are defined as certified flaggers that provide support to workers by monitoring traffic.

Flaggers and spotters shall be stationed to the satisfaction of the Engineer and be equipped with a fluorescent orange, fluorescent yellow/green, or a combination of fluorescent orange and fluorescent yellow/green vest meeting the requirements of ANSI/ISEA 107-2004 or ANSI/ISEA 107-2010 for Conspicuity Class 2 garments. Flaggers shall be equipped with a stop/slow traffic control sign. Spotters shall be equipped with a loud warning device. The warning sound shall be identifiable by workers so they can take evasive action when necessary. Other types of garments may be substituted for the vest as long as the garments have a manufacturer’s tag identifying them as meeting the ANSI Class 2 requirement. The longitudinal placement of the flagger may be increased up to 100 ft (30 m) from that shown on the plans to improve the visibility of the flagger. Flaggers shall not encroach on the open lane of traffic unless traffic has been stopped. Spotters shall not encroach on the open lane of traffic, nor interact with or control the flow of traffic.

For nighttime flagging, flaggers shall be illuminated by an overhead light source providing a minimum vertical illuminance of 10 fc (108 lux) measured 1 ft (300 mm) out from the flagger’s chest. The bottom of any luminaire shall be a minimum of 10 ft (3 m) above the pavement. Luminaire(s) shall be shielded to minimize glare to approaching traffic and trespass light to adjoining properties. Nighttime flaggers shall be equipped with fluorescent orange or fluorescent orange and fluorescent yellow/green apparel meeting the requirements of ANSI/ISEA 107-2004 or ANSI/ISEA 107-2010 for Conspicuity Class 3 garments.

Flaggers and spotters shall be provided per the traffic control plan and as follows.

- (a) Two-Lane Highways. Two flaggers will be required for each separate operation where two-way traffic is maintained over one lane of pavement. Work operations controlled by flaggers shall be no more than 1 mile (1600 m) in length. Flaggers shall be in sight of each other or in direct communication at all times. Direct communication shall be obtained by using portable two-way radios or walkie-talkies.

The Engineer will determine when a side road or entrance shall be closed to traffic. A flagger will be required at each side road or entrance remaining open to traffic within the operation where two-way traffic is maintained on one lane of pavement. The flagger shall be positioned as shown on the plans or as directed by the Engineer.

- (b) Multi-Lane Highways. At all times where traffic is restricted to less than the normal number of lanes on a multilane pavement with a posted speed limit greater than 40 mph and the workers are present, but not separated from the traffic by physical barriers, a flagger or spotter shall be furnished as shown on the plans. Flaggers shall warn and direct traffic. Spotters shall monitor traffic conditions and warn workers of errant approaching vehicles or other hazardous conditions as they occur. One flagger will be required for each separate activity of an operation that requires frequent encroachment in a lane open to traffic. One spotter will be required for each separate activity with workers near the edge of the open lane or with their backs facing traffic.

Flaggers will not be required when no work is being performed, unless there is a lane closure on two-lane, two-way pavement.”

#### **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.”

#### **WEEKLY DBE TRUCKING REPORTS (BDE)**

Effective: June 2, 2012

November 1, 2021

Revised:

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Engineer on Department form “SBE 723” within ten business days following the reporting period. The reporting period shall be Sunday through Saturday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

## **WORK ZONE TRAFFIC CONTROL DEVICES (BDE)**

Effective: March 2, 2020

Add the following to Article 701.03 of the Standard Specifications:

“(q) Temporary Sign Supports            1106.02”

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 manufactured after December 31, 2019 shall be MASH-16 compliant. Category 1 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2024.

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 manufactured after December 31, 2019 shall be MASH-16 compliant. Category 2 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, may be used on contracts let before December 31, 2024.

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-16 compliant. Category 3 devices manufactured on or before December 31, 2019, and compliant with NCHRP 350 or MASH 2009, 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 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-16 compliant is available, an NCHRP 350 or MASH-2009 compliant device may be used, even if manufactured after December 31, 2019.”

Revise Articles 1106.02(g), 1106.02(k), and 1106.02(l) 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.”



## **REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES**

The Prevailing rates of wages are included in the Contract proposals which are subject to Check Sheet #5 of the Supplemental Specifications and Recurring Special Provisions. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and Check Sheet #5 of the Contract, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at <http://www.state.il.us/agency/idol/> or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.