



# STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION



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April 11, 2014

Subject: Project No. 165-481  
F.A.P. No. N/A FAA & State Funds  
B.I.A. Rehabilitation of Taxiways J, S and U.

## NOTICE TO CONTRACTORS:

This is to notify all concerned and especially the prospective bidders that the bid opening for the subject project is still scheduled for April 16, 2014 at 2:00 P.M. in the Conference Room of the Department of Transportation Administration Building, 2800 Berlin Turnpike, Newington, Connecticut.

**Addendum No. 1** is attached and can also be obtained on the Statewide Contracting Portal at [http://www.biznet.ct.gov/scp\\_search/BidResults.aspx?groupid=64](http://www.biznet.ct.gov/scp_search/BidResults.aspx?groupid=64)

This Addendum is required to add a new special provision, revise special provisions and add a new contract item.

Bid Proposal Forms (0165-0481.EBS file and amendment file 0165-0481.00# if applicable) are available for those bidders that have received approval from the Department to bid on the subject project.

To retrieve the official Bid Proposal Forms, please download the electronic bid proposal file and amendment files, if applicable at <https://www.bidx.com>.

**Pre-Bid Questions and Answers:** Questions pertaining to DOT advertised construction projects must be presented through the CTDOT Pre-Bid Q and A Website. The Department cannot guarantee that all questions will be answered prior to the bid date. **PLEASE NOTE - at 12:01 am, the day before the bid, the subject project(s) being bid will be removed from the Q and A Website, Projects Advertised Section, at which time questions can no longer be submitted through the Q and A Website. At this time, the Q and A for those projects will be considered final, unless otherwise stated and/or the bid is postponed to a future date and time to allow for further questions and answers to be posted.**

*H. J. Emond*

For: Gregory D. Straka  
Contracts Manager  
Division of Contracts Administration

**APRIL 11, 2014**  
**B.I.A. REHABILITATION OF TAXIWAYS J, S AND U**

**STATE PROJECT NO. 165-481**  
**TOWNS OF WINDSOR LOCKS, EAST GRANBY AND SUFFIELD**

**ADDENDUM NO. 1**

This Addendum addresses the following questions and answers contained on the “CT DOT QUESTIONS AND ANSWERS WEBSITE FOR ADVERTISED CONSTRUCTION PROJECTS”:

Question and Answer Nos. 2, 9, 10, 12 and 15

**SPECIAL PROVISIONS**

**NEW SPECIAL PROVISION**

The following Special Provision is hereby added to the Contract:

- **ITEM NO. 0970005A – TRAFFICPERSON (STATE POLICE OFFICER)**

**REVISED SPECIAL PROVISIONS**

The following Special Provisions are hereby deleted in their entirety and replaced with the attached like-named Special Provisions:

- **NOTICE TO CONTRACTOR – SPECIFIC CONTRACTOR ACCESS REQUIREMENTS**
- **ITEM #0000114A - TAXIWAY EDGE LIGHTS BASE MOUNTED**
- **ITEM #0000135A - REMOVE TAXIWAY AND RUNWAY EDGE LIGHTS**
- **ITEM #0000419A – GROUND ROD JUNCTION BOX**
- **ITEM #0004020A – TAXIWAY EDGE LIGHT (L-861T)**
- **ITEM # 0406267A – MILLING OF HMA 0” TO 4”**
- **ITEM # 0406268A – MILLING OF HMA OVER 4” TO 8”**
- **ITEM #0970007A- TRAFFICPERSON (UNIFORMED FLAGGER)**
- **ITEM #1017200A - SURGE ARRESTORS**

**CONTRACT ITEMS**

**NEW CONTRACT ITEM**

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QUANTITY</u>
<u>0970005A</u>	<u>TRAFFICPERSON (STATE POLICE OFFICER)</u>	<u>EST</u>	<u>\$33,000.00</u>

The Bid Proposal Form has been revised to reflect these changes.

There will be no change in the number of calendar days due to this Addendum.

The foregoing is hereby made a part of the contract.

## **NOTICE TO CONTRACTOR – SPECIFIC CONTRACTOR ACCESS REQUIREMENTS**

### **Contractor Employee Access:**

The Contractor is hereby advised that due to the limited size and security requirements of its airside work area, only contractor and subcontractor construction vehicles will be permitted in the areas controlled by airport security. No private vehicles will be permitted in the areas controlled by airport security. The Contractor shall be responsible for coordinating and identifying parking provisions for all employees' private vehicles at Bradley International Airport outside the AOA. The contractor shall maintain a mandatory sign in and sign out sheet for all persons working on the airport. The sign in/out sheet will be submitted to the Airport Operations together with the Daily Preconstruction Checklist.

### **Contractor Work Area Access:**

The airside work area is delineated on the contract plans by the "Limits of Construction" Boundary. The contractor, his personnel, subcontractors and suppliers will not be allowed outside the "Limits of Construction". Access to the work area must be provided by trained escort personnel.

All equipment shall travel only on approved access roads. All equipment is to be parked and/or fueled, service and maintained at locations approved by the Engineer.

The Contractor shall provide at least three emergency contact phone numbers of supervisory personnel who can be reached on a 24 hour per day 7 day per week basis. These individuals must be able to direct field forces for response to the airport within one (1) hour's notice.

### **Contractor Delivery Access:**

**During the Mobilization and Demobilization Phases** the Contractor will be provided one access point at the gate located off Perimeter Rd. as denoted on the contract drawings.

During the Mobilization and Demobilization Phases deliveries and access to the work area shall be scheduled with Airport Security at least 24 hours in advance so that the gate may be manned and opened. State Police Officers must be present any time this gate is unlocked. Trucks must be escorted by an authorized vehicle with a ramp pass as furnished by the Airport from this gate to the Contractor airside work area. The drivers of the trucks do not need to be badged but they shall not leave their vehicle between the gate and the Contractor work area and they will be subject to identification verification by State Police Officers. All vehicles entering the worksite are subject to search by State Police Officers. Any delays or expenses incurred as a result of driver identification verification (for example if the driver is detained due to an outstanding warrant) or searches of vehicles will be at the Contractor's expense. Note that vehicle ramp

permits will not be issued to the Contractor under any circumstances. Contractor vehicles will be restricted to the area defined as "Limits of Constructions" in the contract plans, with the exception of delivery vehicles, which must be escorted as stated above.

Deliveries through these gates will require escort vehicles to the work area. Delivery truck drivers do not need to be permanently badged but their identifications will be checked by State Police Officers. Trucks must be escorted by an authorized vehicle with a ramp pass as furnished by the Airport from this gate to the Contractor airside work area. All vehicles entering the worksite are subject to search by State Police Officers. No claim for delay or extra compensation will be considered for any delays or expenses incurred as a result of driver identification verification (for example if the driver is detained due to an outstanding warrant) or for searches of vehicles.

All State Police Officers will be paid for under the Contract "Item No. 0970005A -Trafficperson (State Police Officer)". Airport escort personnel and vehicles will be paid for under the Contract item "Trafficperson (Uniformed Flagger)".

The Contractor shall coordinate all aspects of access and use of the gates with the Engineer so as to not unreasonably restrict the access to any of the airport facilities. The Contractor shall coordinate vehicle access so vehicles are not queued in front of the gate, blocking access to the airport facilities or otherwise restricting traffic flow in the area. The Contractor shall minimize noise and control dust at the access gate and keep the area in front of the access gate, including drainage systems and the roadway, clean by preventing accumulation of, or removing, dust, dirt, trash, and debris. The Contractor shall provide the Engineer for approval a truck route and queuing plan.

The Contractor is notified that due to potential increases in the Threat Level index as determined by the Transportation Security Administration and the Office of Homeland Security, All vehicles entering Airport property may be subject to search and inspection by State Police Officers. No claim for delay or extra compensation will be considered due to these instances.

**ITEM #0000114A - TAXIWAY EDGE LIGHTS BASE MOUNTED**

**ITEM #0004020A – TAXIWAY EDGE LIGHT (L-861T)**

**ITEM #0000135A - REMOVE TAXIWAY AND RUNWAY EDGE LIGHTS**

**ITEM #0000419A – GROUND ROD JUNCTION BOX**

**ITEM #1017200A - SURGE ARRESTORS**

**DESCRIPTION**

**1.1** This item shall consist of airport lighting systems furnished and installed in accordance with this Specification, the referenced specifications, and the applicable Advisory Circulars. The systems are installed at the location and in accordance with the dimensions, design, and details shown on the Drawings. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the Engineer. The airport lighting systems shall consist of the following work:

- (a) Furnishing and installing base mounted L-861T Medium Intensity Taxiway Edge Lights (MITL), series connected, on new or existing base cans as shown on the Drawings.
- (b) This item shall consist of furnishing and installing ground rod junction boxes for the purpose of installing new Surge Arrestors in accordance with these specifications, at the specified locations shown on the plans. This item shall include the, excavation and backfilling for the ground rod junction box installation, installation of 6" compacted gravel pad, Type L-867 ground rod junction box, associated lugs, couplings, grommets, flexible sealer, coverplate, gaskets, bolts and concrete encasement.
- (c) This item shall consist of furnishing and installing Field Lightning Arrestor(s) or Surge Arrestor in existing or new L-867 ground rod junction boxes. This will be done to further reduce the risk of lightning damage on series circuits in accordance with these specifications.
- (d) This work shall consist of furnishing and installing materials for the adjustment to grade of existing taxiway edge lights, as well as existing elevated runway edge lights where pavements are to be inlaid/overlaid. The adjustments shall be made as shown on the Contract Drawings. Adjustment heights will vary depending upon the thickness of inlay at each light and the total height of existing riser(s) and spacer(s) that are to be removed. The contractor shall be responsible to verify all riser/extension heights required for

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adjustments prior to performing the adjustment. In order to perform the adjustments, the existing fixtures shall be removed, stored as directed while this work is in progress, and then reinstalled on the adjusted bases. Light bases shall be covered temporarily with a Contractor provided steel plate during milling and paving. When encountered, broken bolts shall be drilled, tapped and replaced, and core drilling, P606 epoxy backfill, and P605 flexible sealer provided where specified. New gaskets, bolts, silicone sealer, washers, nuts, etc. shall be provided by the contractor, for all lights and bases that have been adjusted.

For all light adjustments, all existing risers and spacers are to be removed down to the original light base and replaced with new risers/spacers to the appropriate elevation, unless otherwise noted.

- (e) Any miscellaneous connections of lights to existing or new cable, where shown on the Drawings.
- (f) Providing steel covers where fixtures are being removed but not replaced.

This item shall also include the removal and disposal of existing taxiway stake mounted and base mounted edge lights. The existing stake mounted lights to be removed consist of a 30 inch long metal angle iron direct buried stake bolted to an elevated edge light and an adjacent direct buried isolation transformer. The existing base mounted lights to be removed consist of a twenty-four inch deep steel light base with six inches of concrete around the entire perimeter of the steel light base and an isolation transformer. Steel covers shall also be provided and installed as shown on the Contract Drawings.

**1.2** Additional details and information pertaining to a specific system covered in this item are contained in the following latest Federal Aviation Administration Advisory Circulars listed below:

AC 150/5340-30G	Design and Installation Details for Airport Visual Aids
AC 150/5345-1	Approved Airport Lighting Equipment
AC 150/5345-26D	Specification for L-823 Plug & Receptacle, Cable Connectors
AC 150/5345-42G	Specification for Airport Light Base and Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-47C	Isolation Transformers for Airport Lighting Systems
AC 150/5345-46D	Specification for Runway and Taxiway Edge Lights

**EQUIPMENT AND MATERIALS**

**2.1 GENERAL.**

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- (a) Lighting equipment and materials covered by FAA specifications shall have the prior approval of the Federal Aviation Administration, Airports Service, Washington, D.C. 20591, and shall be above listed in Advisory Circular 150/5345-1, Approved Airport Lighting Equipment, latest edition.
- (b) All other equipment and materials covered by other referenced specifications shall be subject to acceptance through the manufacturer's certification of compliance with the applicable specifications. Lists of the equipment and materials required for a particular system are contained in the applicable advisory circulars listed above.

**2.2 TAPE.** Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 33, respectively, as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal.

**2.3 CONCRETE.** Concrete for base mounted lights shall be as specified in another section of these Specifications.

**2.4 PLASTIC CONDUIT.** General. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the Engineer.

- (a) Flexible conduit. All flexible conduits shall be schedule 40 PVC conduit.
- (b) Plastic Conduit. Plastic conduit and fittings shall conform to the requirements of Fed. Spec. W-C-1094A, NEMA, TC-6-1971, and shall be UL approved for 90 degree C conductor rating. The following types are approved.
  - 1) Type I - Suitable for underground use either directly in the earth or encased in concrete.
  - 2) Type II - Suitable for either above ground or underground use.
  - 3) Flexible PVC conduit for connection to light bases as shown on the drawings.
- (c) PVC pipe couplings shall be of the slip-on type and shall be of the same or greater wall thickness as the adjoining pipe. Fittings shall be made of PVC plastic having a cell classification of 12454B, 12454C, or 13343C as defined in ASTM D-1784. Joints shall be sealed using a primer and cement conforming to ASTM D-2564. Concrete shall be Class "B".

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**2.5 CABLE CONNECTORS.** Cable connectors shall conform to FAA L-823 connectors referred to in another section of these Specifications.

**2.6 ELEVATED LIGHTS**

**Taxiway Edge Lights.** New taxiway edge lights will be medium intensity type conforming to the requirements of FAA specifications L-861T. Lamp shall be quartz halogen and shall conform to the requirements set forth on the Contract Drawings. Light fixture shall operate on a 30/45W, 6.6A (secondary) isolation transformer that meets all applicable requirements of AC 150/5345-47.

**2.7 LIGHT BASES.**

- a. Light bases for elevated fixtures shall conform to FAA Spec. L-867 Class 1A, steel bases, size B (12" diameter, 24" deep) as shown on the Drawings.
- b. Ground Rod Junction Box for new Lightning Arrestors shall conform to FAA Spec. L-867 Class 1A, steel bases, size LB-4 (17" diameter, 28" deep) as shown on the Drawings.

**2.8 ISOLATION TRANSFORMERS.** Transformers shall be L-830, 6.6A/6.6A and shall be sized per manufacturer's recommendations to maximize efficiency in use with the fixtures.

**2.9 SNOW MARKERS.** Snow markers shall be Sherwin Industries, Code #S1503, 42 inch of 2410 Copper Hill Place, Midlothian, Va. 23112, or approved equal. Snow markers shall be FAA approved and shall be provided with each new elevated light fixture.

**2.10 FIELD LIGHTNING ARRESTOR.** The Field Lightning Arrestor (FLA) or Surge Arrestor shall be designed to divert a lightning surge current to earth ground of 25,000A (8/20 microsecond discharge). An earth ground lug shall be connected to the body of the FLA and be sized for at least a 4AWG wire. The FLA shall be designed such that it can be used on any series circuit: 6.6A using a 4KW to 30KW CCR or 20A using a 15KW to 70KW CCR. The FLA shall be ruggedly manufactured and be liquid tight according to NEMA 6P (IP 68). The FLA shall use an aluminum body with integrated heatsink (for optimum component cooling when surge current is present). For ease of identification, the FLA heatsink shall be red anodized. Connection of the FLA on the series circuit primary shall be by means of FAA L-823 male and female primary connectors. The resistance between the end of the male and female L-823 connector shall be <3 ohms. The FLA shall be designed to have an insulation resistance of >2G ohms when measured between either one of the primary leads and the earth ground lug.

**2.11 STEEL COVERS.** Blank steel covers shall be galvanized, 3/8" thick for all L-867 applications.

**2.12 BASE EXTENSIONS.** The base extensions and spacers shall be made of high-tensile machine steel, drilled and/or tapped to fit existing light bases. Base extensions shall be in

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accordance with Advisory Circular 150/5345-42, Specification for Airport Light Bases, Transformer Housings, Junction Cans, and Accessories.

Tabulations of the various types and sizes of base extensions or spacers to be ordered by the Contractor are as shown in the Contract Drawings.

**2.13 SEALERS.** Silicone sealer for metal to metal contacting surfaces on spacers, light bases, base extensions and flange rings shall be GE Type RTC #18 or approved equal.

**2.14 BOLTS.** Bolts used for all mechanical connections shall be 18-8 stainless steel bolts (3/8" – 16) unless otherwise directed by the Engineer. Bolts shall be furnished with washers and locking nuts as required. Bolts used to retain fixtures or cover plates shall include two piece locking washers. All bolts shall be of sufficient length so as to extend a minimum of 1 inch below the base can or extension.

**2.15 ANTI-SEIZE COMPOUND.** Anti-seizing compound shall be provided by the Contractor for all fixture or cover plate retaining bolts.

**2.16 GROUT.** Grout shall conform to the P-606 performance requirements specified in the FAA AC 150/5370 *Standards for Specifying Construction of Airports*, latest edition.

**2.17 JOINT SEALING FILLER.** Joint filler for light adjustments shall conform to specification Item #000605A-JOINT SEALING FILLER.

## CONSTRUCTION METHODS

**3.1 GENERAL.** The system shall be installed in accordance with the National Electrical Code and/or local code requirements.

The contractor shall furnish and install each fixture as specified in the proposal and shown in the plans. Fixtures shall be mounted on an industry standard 1.5-inch slip fit hubbed frangible coupling. The fixture shall then be mated to a standard FAA L-867 base at the locations shown on the plans.

**Taxiway lights installed at Point of Curves (PC) shall be field located using the existing taxiway geometry and guidance sign location as a reference. No light fixtures shall be installed without the approval of the Engineer.**

All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

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### **New Base Mounted MITL**

- (a) **Light Base Elevated Light Fixtures.** The light base shall be installed on undisturbed soil as shown in the Plans. If the soil is unsuitable, then an adequate depth of soil should be removed and replaced with compacted acceptable material. The cable entrance hubs shall be oriented in the proper direction. Level the light base so that the mounting flange surface is approximately one inch above the finished grade. With the base properly oriented and held at the proper elevation, place approximately 6 inches of concrete backfill around the outside of the base. The top of the concrete is sloped away from the flange portion of the base so the sloped outer edges of the concrete are at surface grade.
- (b) **Base Mounted Elevated Light Fixtures.** Prior to mounting the light fixture on the base, an L-823 connector kit is installed on the primary power cable ends and the appropriate L-830 isolation transformer is installed. Install heat shrink kits on the connector joints in the primary circuit as shown on the Contract Drawings. Plug the light disconnecting plug into the transformer secondary receptacle. Wrap the secondary connector joint with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 12 inches on each side of the joint. Typical fixture details are shown in the plans

### **New Base Mounted In Pavement Edge Light**

- (a) **Placing Light Bases** The new edge light bases shall be installed at the locations indicated on the drawings. The exact location and elevation of each base shall be determined in the field by the Contractor. The bases shall be encased in concrete in conformance with the details shown on the contract drawings. The bases shall be carefully oriented, aligned and leveled so that the light fixtures can be properly installed. Each light base installed shall be placed on bedding materials and backfilled with material consisting of hard, durable particles go graded that 100% will pass a ¼ sieve, and not more than 20% will pass a #200 sieve and shall be free from injurious amounts of loam, silt, clay, or organic matter.

**3.2 REMOVAL OF EXISTING FIXTURES.** The Contractor shall carefully remove all existing base mounted fixtures and isolation transformers. The Contractor shall legally dispose of obsolete transformers off airport property. The cost to dispose of the isolation transformers is incidental to the removal of the fixtures.

Removed fixtures shall be turned over to the airport and shall be stored at a location determined by the Resident Engineer.

**3.3 INSPECTION.** The Contractor shall do the following in the presence of the Engineer:

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- (a) Inspect each light fixture to determine that it is installed correctly, at the proper height in line with the other fixtures, level and properly oriented.
- (b) Check identification number for each light unit to determine that the number at the installation is as assigned in the plans.
- (c) Check equipment covered by Federal Aviation Administration specifications to determine if the manufacturers have supplied approved equipment. The equipment is also checked for general conformance with specification requirements.
- (d) Inspect all cables, wiring, and splices to obtain assurance that the installation is in accordance with these Specifications, National Electrical Code, and local codes. Inspect and test insulation resistance of underground cables before backfilling.
- (e) Check all ducts and duct markers to determine that the installation is in accordance with these Specifications. Inspect underground ducts before backfill is made.
- (f) Check the input voltage at the power and control circuits to determine that the voltage is within limits required for proper equipment operation. Select the proper voltage tap on equipment where taps are provided.
- (g) Check fuses and circuit breakers to determine if they are of the proper rating.
- (h) If appropriate, check base plate for damage during installation and refinish according to manufacturer's instructions.
- (i) Check the current or voltage at the lamps to determine if the regulator current or supply voltage is within specified tolerance. If a current or voltage exceeds rated values the lamp life will be reduced.

**3.4 PLACING THE FIELD LIGHTNING ARRESTORS.** The contractor shall furnish and install Field Lightning (Surge) Arrestors in base cans on the airfield at approximately every 2000 feet around the entire series circuit or as shown in the Plans.

**3.5 FIELD LIGHTNING ARRESTOR.** The series circuit shall be megged after installation of the FLAs and the meg value (in ohms) recorded. Megging shall be performed at 1000VDC for 1 minute. After installation of the FLAs on the series circuit, the series circuit meg value shall be greater than 50M ohms.

The CCR, with connected load, shall be calibrated according to the manufacturer's instructions using a True RMS meter. The CCR shall then be fully tested by continuous operation for not less than 24 hours prior to acceptance. The test shall include operating the CCR in each step (Local and Remote) not less than 10 times at the beginning and end of the 24-hour test. No alarms shall

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occur after the CCR at any time. Each light shall illuminate properly during each portion of the test.

**3.6 LIGHT ADJUSTMENT.** Existing lights shall be adjusted to grade as shown on the detailed Drawings. Existing fixtures, flange rings, mounting ring, and existing risers and spacers shall be removed to allow for the pavement to be milled and inlaid. The existing fixtures, flange rings, isolation transformer and mounting ring shall be carefully stored. Because of potential differences in individual flange ring thicknesses the Contractor shall identify or otherwise insure flange ring locations so that they will be reinstalled on their original light bases. Any existing flange rings that are damaged shall be replaced by the Contractor as directed by the Engineer at no additional cost. New gaskets and bolts shall be furnished for each light adjusted. Bolts used to retain fixtures or cover plates shall include two piece locking washers and threads of said bolts shall be treated with anti-seizing compound prior to installation. All broken bolts shall be drilled, tapped, and replaced regardless of whether the bolts are existing or new. After paving has been completed, temporary covers shall be removed, existing light bases shall be cleaned, new fixtures and base plates shall be cleaned, installed, lights tested and put back into service.

The Contractor shall provide an adequate number of coring crews and light adjustment crews at all times to perform light adjustments as described in this Specification within the specified time frames on the phasing plans. Should the Contractor be recalled by Operations prior to completing this work, the work shall be rescheduled and completed as soon as the area is made available to the Contractor by Operations.

All excess spacer rings and risers shall become the property of the Airport.

Where existing risers are being removed and replaced, all existing risers shall become the property of the Contractor unless directed by the Engineer to turn them over to the Airport.

The installation of the base extensions and spacers shall be as detailed on the Drawings. The overall height of adjustments for each light or base is tabulated on the Drawings. The Contractor shall verify light adjustment heights for each light during the daytime closure period and be prepared to correct any abnormalities encountered. The verification process is considered incidental to the light adjustment process. Where base extensions are added, a new gasket or sealant shall be installed between the existing base and the base extension and between the base extensions and the flange ring.

The Contractor shall furnish all materials, labor services, tools, equipment and other facilities necessary to complete the installation in strict accordance with the applicable Specifications and Drawings.

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There is no additional compensation associated with light removal for milling or paving operations for lights that are not scheduled to be adjusted; it is considered incidental to the paving.

### **3.7 METHOD OF ADJUSTMENT FOR EDGE LIGHTS EXTENSIONS.**

1. Disconnect existing fixture from transformer.
2. Remove and store existing light fixture, isolation transformer and base plate. Remove existing risers and spacers down to the original light base, which shall become the property of the Contractor unless directed by the Engineer to turn over to Airport.
3. Install temporary Contractor provided steel plate to protect light base with size as indicated on the Drawings.
4. Connect primary existing leads together to re-establish circuit.
5. After hot mix asphalt milling and inlay, core or hand-chip to locate the center of the temporary steel plate.
6. Core-drill around existing light base to depth required to remove temporary steel plate.
7. Remove core. The hole must be cleaned so as to be free of water (dry), oil, dust, and any loose, excess particles.
8. Remove temporary steel cover.
9. Install new Contractor provided riser, spacer(s), bolts, and two piece lockwashers between risers and/or spacers as indicated on the Drawings. Drill and tap any broken bolts.
10. Prepare P-606 Grout as per manufacturer's instructions. The epoxy shall be poured in two or more lifts. No lift shall be greater than 6" or less than 2" in depth. The P-606 Grout shall be poured level with the bottom of the flange ring or mounting ring. P-605 flexible sealer shall be installed from the bottom of the flange ring up to the grade of the new inlay.

P-606 Grout shall be mixed and applied using method approved by the manufacturer and the Airport.

Any excess P-606 Grout or P-605 flexible sealer which gets on existing pavement, temporary steel covers or light fixtures where it does not belong shall be immediately cleaned off

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12. Remove temporary steel plate and inspect the inside of the light base. Clean out any debris or P-606 Grout that may have “seeped” in the light base to the satisfaction of the Engineer and re-install transformer.
13. Install new transformer.
14. Install new light fixture and make all necessary electrical connections to isolation transformers. All electrical connections shall also be taped with electrical tape.
15. Test lighting system, verify that all lights on subject circuit are operational, and return the lighting system to service.

**A LIGHT ADJUSTMENT ONCE STARTED MUST BE COMPLETED, AND THE LIGHT MUST BE FULLY OPERATIONAL AT THE END OF THE WORK SHIFT.**

## **METHOD OF MEASUREMENT**

**4.1** The quantity of “Taxiway Edge Lights Base Mounted” to be paid for under this item shall be the number of new base mounted taxiway lights installed on existing base cans, including the light fixture, base plate, isolation transformer, ground rod and grounding, countersunk ground bolt, core drill, spacer ring(s), snow marker, identification tag, L-823 connectors, stainless steel hardware, heat shrink, and incidentals installed as shown on the Drawings, complete in place, ready for operation, and accepted by the Engineer.

Light base adjustments made on existing bases shall be included for measurement as part of this item and shall include but not be limited to, the spacer rings, base extensions, grout, sealer, cored hole, bolts, lockwashers, ready for operation and accepted by the Engineer. Only one price will be paid for the adjustment, regardless of the height of extension or number of steps required.

Lights that are required to be removed and plated to allow for paving operations and that do not require adjustment will not be measured separately for payment and shall be considered incidental to the paving operation.

Base can adjustments required for existing grounding boxes shall not be measured separately for payment but shall be considered incidental to other light base adjustments in this project. This work shall include but not be limited to, the spacer rings, base extensions, grout, sealer, cored hole, bolts, lockwashers, ready for operation and accepted by the Engineer.

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**4.2** The quantity of “New Elevated Taxiway Edge Light” to be paid for under this item shall be the number of new base mounted taxiway lights, including the light fixture, base can, concrete encasement, base plate, isolation transformer, ground rod and grounding, flexible conduit, couplings, conduit stubs, L-823 connectors, stainless steel hardware, heat shrink, and incidentals installed as shown on the Drawings, complete in place, ready for operation, and accepted by the Engineer.

**4.3** The quantity of “Remove Existing Fixture” to be paid for under this item shall be the number of runway or taxiway lights removed, including the light fixture, isolation transformer, L-823 connectors and heat shrink, and incidentals as shown on the Drawings and accepted by the Engineer. New steel covers and associated hardware shall be included for measurement as designated on the Plans.

**4.4** The quantity of “Surge Arrestors” to be paid for under this item shall be the number of new assemblies installed in new or existing base cans, including the lightning arrestor, grounding, L-823 connectors, identification tag, heat shrink, and incidentals installed as shown on the Drawings, complete in place, ready for operation, and accepted by the Engineer.

New base cans are not included in this measurement but shall be paid for elsewhere in this Specification.

**4.5** The quantity of “Ground Rod Junction Box” to be paid for under this item shall be the number of new assemblies installed for the purpose of housing new Surge Arrestors. Measurement shall include the base can, concrete encasement, steel cover, ground rod and grounding, stainless steel bolts, conduit stubs, and incidentals installed as shown on the Drawings, complete in place, ready for operation, and accepted by the Engineer.

The new Surge Arrestors are not included in this measurement but shall be paid for elsewhere in this Specification.

## **BASIS OF PAYMENT**

**5.1** Payment will be made at the contract unit price for each complete new fixture, base mounted, installed in place and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, restoration of the site around each light as shown on the Plans and for all labor, equipment, tools and incidentals necessary to complete this item.

**5.2** Payment will be made at the contract unit price for each complete new surge arrestor assembly, base mounted, installed in place and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these

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materials, restoration of the site around each light as shown on the Plans and for all labor, equipment, tools and incidentals necessary to complete this item

**5.3** Payment will be made at the contract unit price for each complete removed runway or taxiway edge light, stake or base mounted, and accepted by the Engineer. This price shall be full compensation for furnishing all materials and for all preparation, and assembly of these materials, restoration of the site around each light as shown on the Plans and for all labor, equipment, tools and incidentals necessary to complete this item.

**5.4** Payment will be made at the contract unit price for each completed junction box installed in place by the Installer and accepted by the Engineer. This price shall be full compensation for furnishing and installing all materials and for all labor, equipment, tools and incidentals necessary to complete this item.

Payments will be made under:

<u>Pay Item#</u>	<u>Pay Item</u>	<u>Unit</u>
0000114A	Taxiway Edge Light Base Mounted	Each
0004020A	Taxiway Edge Light (L-861T)	Each
0000135A	Remove Taxiway and Runway Edge Light	Each
0000419A	Ground Rod Junction Box	Each
1017200A	Surge Arrestors	Each

**FAA SPECIFICATIONS REFERENCED IN THIS SECTION**

<u>Number</u>	<u>Title</u>
AC 150/5345-46B	Specifications for Runway and Taxiway Light Fixtures
AC 150/5345-53A	Airport Lighting Equipment Certification Program

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**ITEM #0406267A – MILLING OF HMA 0” TO 4”**

**ITEM #0406268A – MILLING OF HMA OVER 4” TO 8”**

**DESCRIPTION**

**1.1** This item shall consist of preparation of existing pavement surfaces for overlay, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable drawings.

**EQUIPMENT**

**2.1** The equipment for milling the pavement surface shall be designed and built for milling flexible pavements and shall have a minimum 6 foot cutting width. It shall be self-propelled with sufficient power, traction, and stability to maintain depth and slope and shall be capable of removing the existing bituminous concrete pavement to the line, grade, and typical cross-section shown on the plans.

The milling machine shall be equipped with a built in automatic grade control system that can control the longitudinal profile and the transverse cross-slope to produce the specified results. The longitudinal controls shall be capable of operating from any longitudinal grade reference, including string line, ski (30 feet minimum), mobile string line (30 foot minimum), or matching shoe. The transverse controls shall have an automatic system for controlling cross-slope at a given rate.

The machine shall be capable of operating at a minimum speed of 10 feet per minute and be able to provide a 0 to 4 inch deep cut (minimum) in one pass. It shall be designed so that the operator can at all times observe the milling operation without leaving the control area of the machine.

The teeth on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture.

The machine shall be equipped with an integral pickup and conveying device to immediately remove material being milled from the surface of the roadway and discharge the millings into a truck, all in one operation. The machine shall also be equipped with a means of effectively limiting the amount of dust escaping from the milling and removal operation in accordance with local, State, and Federal air pollution control laws and regulations.

When milling smaller areas or areas where it is impractical to use the above described equipment, the use of a smaller or lesser equipped milling machine may be permitted when approved by the Engineer.

A sweeper equipped with a water tank, spray assembly to control dust, a pick-up broom, a dual gutter broom, and a dirt hopper shall be provided by the Contractor. The sweeper shall be capable of removing millings and loose debris from the textured pavement. Other sweeping equipment may be provided in lieu of the sweeper when approved by the Engineer.

## CONSTRUCTION

**3.1 MILLING OF EXISTING PAVEMENT** The pavement surface shall be removed to the line, grade, and typical cross-section shown on the plans. The milling operation shall proceed in accordance with the requirements of the “Maintenance and Protection of Traffic” and “Prosecution and Progress” specifications.

The milled surface shall provide a satisfactory riding surface with a uniform textured appearance. The milled surface shall be free from gouges, excessive longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, or poor workmanship. Any unsatisfactory surfaces produced are the responsibility of the Contractor and shall be corrected at the Contractor’s expense and to the satisfaction of the Engineer.

When removing a bituminous concrete pavement from an underlying Portland cement concrete pavement, all of the bituminous concrete pavement shall be removed to the greatest extent practicable, leaving a uniform surface of Portland cement concrete, unless otherwise directed by the Engineer.

Unless otherwise specified, milling shall be done to improve rideability and/or cross-slope. The existing pavement shall be removed to the average depth shown on the plans, in a manner that will restore the pavement surface to a uniform cross-section and longitudinal profile. The longitudinal profile of the milled surface shall be established by a stringline, mobile stringline, or mobile ski. The cross-slope of the milled surface shall be established by a second sensing device or by an automatic cross-slope control mechanism. The Contractor will be responsible for providing all grades necessary to remove the material to the proper line, grade, and typical cross-section shown on the plans. The Engineer may waive the requirement for automatic grade or slope controls where the situation warrants such action.

Protection shall be provided around existing catch basin inlets, manholes, utility valve boxes, and any similar structures. Any damage to such structures as a result of the milling operation is the Contractor’s responsibility and shall be repaired at the Contractor’s expense.

To prevent the infiltration of milled material into the storm sewer system the Contractor shall take special care to prevent the milled material from falling into the inlet openings or inlet grates. Any milled material that has fallen into inlet openings or inlet grates shall be removed at the Contractor’s expense.

At all permanent limits of milling, a clean vertical face shall be established prior to paving. No vertical faces, transverse or longitudinal, shall be left exposed to traffic. If any vertical face is formed in an area exposed to traffic a temporary paved transition will be established. If a vertical face is not formed and the milling machine is used to temporarily transition the milled pavement surface to the existing pavement surface, the length of the temporary transition shall be as approved by the engineer and airport operations manager.

Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper or other approved equipment to remove, to the greatest extent practicable, material which will become airborne under traffic. This operation shall be conducted in a manner so as to minimize the potential for creation of a traffic hazard and to comply with local, State, and Federal air pollution control laws and regulations. Any damage done to traffic as a result of milled material becoming airborne is the responsibility of the Contractor and shall be repaired at the Contractor's expense.

The milled surface will be tested with a 10 foot straightedge furnished by the Contractor. The variation of the top of ridges from the testing edge of the straightedge, between any two ridge contact points, shall not exceed 3/8 inch. The variation of the top of any ridge from the bottom of the groove adjacent to that ridge shall not exceed 3/8 inch. Any point in the surface not meeting these requirements shall be corrected as directed by the Engineer at the Contractor's expense.

The Contractor may be waived of the straightedge surface requirements stated in the preceding paragraph in areas where a surface lamination between bituminous concrete layers or a surface lamination of bituminous concrete on Portland cement concrete causes a non-uniform texture to occur. This is subject to the approval of the Engineer.

**3.2 PREPARATION OF JOINTS AND CRACKS.** All joints and cracks in bituminous and concrete pavements to be overlaid with asphaltic concrete shall be cleaned of joint and crack sealer, debris, and vegetation in accordance with Pay Item #0601941A and #0601948A.

**3.3 REMOVAL OF PAINT AND RUBBER.** All paint and rubber over 1 ft wide that will affect the bond of the new overlay shall be removed from the surface of the existing pavement. Chemicals, high-pressure water, heater scarifier (asphaltic concrete only), cold milling, or sandblasting may be used. Any methods used shall not cause major damage to the pavement. Major damage is defined as changing the properties of the pavement or removing pavement over 1/8 in deep. If chemicals are used, they shall comply with the state's environmental protection regulations. No material shall be deposited on the runway shoulders. All wastes shall be disposed of off airport property at the Contractor's expense. This specification shall not be used for removal of rubber deposits to improve skid resistance or obliterate traffic markings where a new overlay is not to be constructed.

## **METHOD OF MEASUREMENT**

### **4.1 MEASUREMENT.**

**a. General:** If there is no quantity shown in the bidding schedule, the work covered by this section shall be considered as a subsidiary obligation of the Contractor covered under the other contract items. Only accepted work will be measured.

**b. Pavement Removal:** This work will be measured for payment by the number of square yards of area from which the milling of asphalt has been completed and the work accepted. No

area deductions will be made for minor unmilled areas such as catch basin inlets, manholes, utility boxes and any similar structures.

The depth of removal will be calculated by taking a measurement at a minimum every 250 feet per each pass of the milling machine, or as directed by the Engineer. The average depth of each section will determine which payment item is applicable.

**c. Paint and Rubber Removal:** The unit of measurement for paint and rubber removal shall be considered incidental.

**BASIS OF PAYMENT**

**5.1 PAYMENT.** This work will be paid for at the contract unit price per square yard for “Milling of HMA (0 to 4 inches) and (Over 4 to 8 inches)”. This price shall include all equipment, tools, labor, and materials incidental thereto.

No additional payments will be made for multiple passes with the milling machine to remove the bituminous surface.

No separate payments will be made for cleaning the pavement prior to paving; providing protection and doing handwork removal of bituminous concrete around catch basin inlets, manholes, utility valve boxes and any similar structures; repairing surface defects as a result of the Contractors negligence; providing protection to underground utilities from the vibration of the milling operation; removal of any temporary milled transition; removal and disposal of millings; furnishing a sweeper and sweeping after milling. The costs for these items shall be included in the contract unit price.

Payment will be made under:

<u>Pay Item #</u>	<u>Pay Item</u>	<u>Unit</u>
0406267A	Milling of HMA 0-4 inches	Square Yard
0406268A	Milling of HMA Over 4-8 inches	Square Yard

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**ITEM #0970005A - TRAFFICPERSON (STATE POLICE OFFICER)**

**ITEM #0970007A - TRAFFICPERSON (UNIFORMED FLAGGER)**

Work under this item shall conform to the requirements of Form 816, Section 9.70, Trafficperson, supplemented and amended as follows:

**Article 9.70.01 Description:** Add the following:

Access into and through the Airport Airside is strictly control under the Airport Security Office. The success of the security is also heavily dependent upon personnel fully complying with the security procedures. The contractor shall provide responsible personnel with vehicles for the specific purpose of escorting vehicles from the main entrance gates to within the project limits. These personnel will be trained by the Airport Security and will be required to pass security background checks.

**Article 9.70.04 Method of Measurement:** Add the following:

This work will be measured for payment by the number of actual hours provided that are approved by the Engineer.

**Article 9.70.05 Basis of Payment:** Add the following:

This work will be paid for at the contract unit price per hours actually provided and approved. This price shall include all safety garments, STOP/SLOW paddles, flashlights, equipment, tools, and materials incidental thereto. This item shall also include the cost of the escort vehicles.

Payment will be made under:

<u>Pay Item #</u>	<u>Pay Item</u>	<u>Unit</u>
0970005A	Trafficperson (State Police Officer)	Est.
0970007A	Trafficperson (Uniform Flagger)	Hour