

**URS CORPORATION – NY**  
**Contract No. C015548**  
**REPUBLIC AIRPORT**  
**RUNWAY 1-19 RUNWAY SAFETY AREA (RSA) IMPROVEMENTS**

DATE: April 29, 2016

ADDENDUM NO. 2 TO:

CONTRACT NO. C015548-S13-FRGRSA

COUNTY: SUFFOLK

IN THE LETTING OF  
May 9, 2016

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NOTICE TO PROSPECTIVE BIDDERS

The following Addendum is hereby made part of the Bid Documents for the “Runway 1-19 Runway Safety Area (RSA) Improvements”. Any revisions (additions, deletions, clarifications) provided in this Addendum shall supersede all related information contained in the Bid Documents issued on April 15, 2016 and Addendum #1 issued on April 22, 2016.

**Invitation to Bidders:**

1. The Contractor shall be advised that NTP is anticipated for July 2016, but no later than August 2016.
2. The Contractor shall be advised that this project will not contain a winter shutdown and Contractor shall consider the temperature constraints for items contained within this project when developing his/her schedule.
3. Special Note as outlined in Addendum No. 1 shall be replaced in its entirety with the following:

**SPECIAL NOTE - 1**

The New York State Department of Transportation is the owner of the Republic Airport. URS Corporation (an AECOM Company) acts as the Department’s agent for this contract. During the construction phase of this project, the Department intends to contract with URS Corporation for Design Support Services and for Construction Support Services. The Department intends to conduct full oversight of this contract, and process progress payments to URS Corporation for work completed on a bi-weekly basis unless the value of the work completed in a two week period drops below \$50,000, in which case progress payments to URS Corporation will be made on a monthly basis. In accordance with NYS Finance Law, Section 139-f(2), URS Corporation will make payments to the Contractor within 7 days of receipt of payment from the State. Construction work progress and the amount of work completed will be measured by the on-site

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Construction Inspection staff. Invoices from the Contractor to URS Corporation or from URS Corporation to the State will be used to reconcile progress payments.

4. The following Special Notes shall be added:

**SPECIAL NOTE - 2**

All work contemplated under this contract is to be covered by and in conformity with the contract specifications. Where not specifically provided for in the contract specifications, the work shall be governed by the NYSDOT Standard Specifications and Standard Sheets (US Customary Units) of [January 1, 2016 Letting](#). Contract plans have been designed in accordance with the latest FAA Advisory Circulars and NYSDOT policies and guidelines.

**SPECIAL NOTE - 3**

The following project specific information and engineering data is hereby made available as Supplemental Information Available to Bidders:

- Project AutoCad files
- Pre-Bid Meeting sign-in sheet
- Pre-Bid Meeting presentation
- Questions & Answers

**Electronic files disclaimer** electronic files to be delivered under this agreement contain information to be used for the production of the contract documents for the *Runway 1-19 Runway Safety Area Improvement* project (“project”). The official contract documents of record are those “hard copy” documents produced by URS Corporation / AECOM that bear the applicable seals and signatures. The parties agree that these electronic files are provided solely as an accommodation to the owner, shall not be deemed to be official contract documents, are only provided as a supplement to the official contract documents and shall only be used for the project. The parties further acknowledge and agree that electronic files are susceptible to potential corruption or modification, either intentionally or unintentionally, and that URS Corporation / AECOM makes no representation, warranty or guarantee that these electronic files are accurate or complete or that they will properly function on any software or hardware system. URS Corporation / AECOM is not responsible for the use of software or other electronic systems upon which these electronic files may be placed or used.

5. **Definition of Terms, page 12:** Delete “Minority or Women-Owned Business Enterprise (MWBE)” definition in its entirety
6. **DBE Goal, Item #17, pages 7-8:** Add the following to the end of this section:

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**Civil Rights Monitoring and Reporting**

The provisions of Section 105-21 of the NYSDOT Standard Specifications shall apply.

7. **Bid Forms:** Bid Forms shall be replaced in their entirety.
  
8. **Draft Agreement, page 62:** Attachment “A” to Agreement Article 3 shall read as follows:  
 Final Completion of all work: 180 consecutive calendar days after NTP
  
9. **Section 50-17** shall be removed in its entirety.
  
10. **Section 80, Execution and Progress, Subsection 80-08** shall be revised as follows:

The work area will not be considered complete until the site is graded in accordance with Note 11 in the Temporary Construction Notes -1;

<b>Schedule</b>	<b>Liquidated Damages Cost</b>	<b>Allowed Construction Time (as indicated in the Safety Phasing Plans)</b>
All phases	\$4,000 per 15-minute or portion thereof that Runway 14-32 is not open following a nighttime closure;	180 consecutive calendar days (CCD)
Phase 1	\$4,000 per calendar day or portion thereof beyond allowable construction duration;  \$4,000 per 15-minute or portion thereof that Runway 14-32 is not open following a nighttime closure;	165 consecutive calendar days (CCD)  2 calendar nights (Runway 14-32 closure)
Phase 2	\$4,000 per calendar day or portion thereof beyond allowable construction duration;	30 consecutive calendar days (CCD)
Phase 3	\$4,000 per calendar day or portion thereof beyond allowable construction duration;	10 consecutive calendar days (CCD)
Phase 4	\$4,000 per calendar day or portion thereof beyond allowable construction duration;	30 consecutive calendar days (CCD)
Phase 5	\$4,000 per calendar day or portion thereof beyond allowable construction duration;  \$4,000 per 15-minute or portion thereof that Runway 14-32 is not open following a nighttime closure;	70 consecutive calendar days (CCD)  15 calendar nights (Runway 14-32 closure)

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Phase 6	\$4,000 per calendar day or portion thereof beyond allowable construction duration;	15 consecutive calendar days (CCD)
	\$4,000 per 15-minute or portion thereof that Runway 14-32 is not open following a nighttime closure;	2 calendar nights (Runway 14-32 closure)

**11. Turf Establishment**

Contractor shall follow the NYSDOT Standards Specifications Section 610 for Turf Establishment with the exception of the following:

Seed shall conform to the requirements of Federal Spec JJJ-S-181b. Seed shall be applied as follows:

<u>Name</u>	<u>Variety</u>	<u>Wt. of Pure Live Seed per Acre</u>
Red Fescue (Festuca rubra)	Commercial	53.6 lb.
Perennial Ryegrass (Lolium perenne)	Commercial	30.3 lb
Sheep Fescue (Festuca ovina)	Commercial	16.1 lb.

**Drawings and Specifications**

1. Specification for Item D-751 shall be replaced in its entirety.
2. Specification for Item L-123 shall be replaced in its entirety.
3. Specification for Item L-125 shall be replaced in its entirety.

**Attachments:**

Revised Conceptual Plan  
Revised Bid Forms  
Revised Contract Plans  
Revised Specifications

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Addendum No. 2

BID FORM

a) **PROJECT IDENTIFICATION:**

**REPUBLIC AIRPORT RUNWAY 1-19 RUNWAY SAFETY AREA (RSA) IMPROVEMENTS**  
**Republic Airport**  
**Contract No. C015548-S13-FRGRSA**

b) **THIS PROPOSAL IS SUBMITTED TO:**

Andrea R. Luft, Project Manager  
URS Corporation – New York  
Republic Airport  
7150 Republic Airport Room 216  
East Farmingdale, New York 11735

c) **TIME OF COMPLETION:**

**One hundred eighty (180) Consecutive Calendar Days from Notice To Proceed for Final Completion.**

The undersigned **BIDDER** proposes and agrees, if this BID is accepted, to enter into an Agreement with **OWNER** in the form included in the Contract Documents to complete all work as specified or indicated in the Contract Documents for the Contract Price indicated in this Bid within the Contract Time and in accordance with the Contract Documents.

**BIDDER** accepts all of the Terms and Conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid Security. This Bid will remain open Sixty (60) days after the day of Bid opening. **BIDDER** will sign the Agreement and submit the Security for Faithful Performance and other documents required by the Contract Documents within ten (10) days after the date of URS Corporation's Notice of Intent to Award.

In submitting this Bid, **BIDDER** represents, as more fully set forth in the Agreement, that:

- (a) **BIDDER** has examined the site and locality where the work is to be performed, the legal requirements (federal, state and local laws, ordinances, rules and regulations) and the conditions affecting cost, progress or performance of the Work and has made such independent investigations as **BIDDER** deems necessary;
- (b) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any Agreement or rules of any group, association, organization or corporation; **BIDDER** has not directly or indirectly induced or solicited any other **BIDDER** to submit a false or sham bid; **BIDDER** has not solicited or induced any person, firm or a corporation to refrain from bidding; and **BIDDER** has not sought by collusion to obtain for himself any advantage over any other **BIDDER** or over **OWNER**;
- (c) **BIDDER** has read, understands and fully accepts all the terms and conditions of the Contract Documents, and its Bid is made in strict and full accordance with them.
- (d) **BIDDER** further understands and agrees that he is to furnish and provide for all the necessary material, machinery, implements, tools, labor, services, and other items of whatever nature, and to do and perform all the work necessary under the aforesaid conditions, to complete the project in

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accordance with the Contract Documents and to accept in full compensation therefore the amount of the total cost as stated in the Bid.

- (e) **BIDDER** further agrees that if at any time during the progress of work, **URS Corporation** adds, alters or omits portions of the work, **BIDDER** shall so perform such work and accept as compensation a price mutually agreed to prior to the start of the additional work.
- (f) **BIDDER** acknowledges receipt of the following addenda: (If none, so state and affix signature).

<u>Addendum</u>	<u>Date</u>	<u>Signature</u>
<u>1</u>	<u>4/22/16</u>	_____
<u>2</u>	<u>4/29/16</u>	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

- (g) Statement of Team Members (List Below):

{Type of Contractor}	
-	
-	
-	
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-	

- (h) **BIDDER** will complete all the Work for the Total Amount Shown in the Cost Proposal:

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SUMMARY OF QUANTITIES					
ITEMIZED BID PROPOSAL – RUNWAY 1-19 RUNWAY SAFETY AREA (RSA) IMPROVEMENTS					
BASE BID					
ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
105-4.1	MOBILIZATION/DEMobilIZATION _____ _____ LS	LS	1		
105-4.2	CONSTRUCTION LAYOUT SURVEYING _____ _____ LS	LS	1		
X-6	TEMPORARY CONSTRUCTION ITEMS _____ _____ LS	LS	1		
203.07	SELECT GRANULAR FILL _____ _____ CY	CY	459		
203.20	SELECT GRANULAR SUBGRADE _____ _____ CY	CY	522		
206.0201	TRENCH AND CULVERT EXCAVATION _____ _____ CY	CY	1,769		
<del>207.22</del>	<del>GEOTEXTILE DRAINAGE _____ _____ SY</del>	<del>SY</del>	<del>650</del>		
304.12	SUBBASE COURSE, TYPE 2 _____ _____ CY	CY	1,228		

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BASE BID					
ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
402.127302	12.5 F3 TOP COURSE HMA, 70 SERIES COMPACTION _____ TON	TON	621		
402.377902	37.5 F9 BASE COURSE HMA, 70 SERIES COMPACTION _____ TON	TON	1,147		
407.0102	DILUTED TACK COAT _____ GAL	GAL	328		
490.30	MISCELLANEOUS COLD MILLING OF BITUMINOUS CONCRETE _____ SY	SY	33		
552.17	SHIELDING AND SHORING _____ SF	SF	15,588		
610.1601	TURF ESTABLISHMENT – ROADSIDE _____ SY	SY	5,334		
621.04	CLEANING DRAINAGE STRUCTURE _____ EA	EA	70		
627.50140008	CUTTING PAVEMENT _____ LF	LF	841		



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BASE BID					
ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
634.9703011	MISCELLANEOUS WORK _____ FPLS	FPLS	1	\$200,000	\$200,000
648.06	DRILL HOLE, 4 INCH DIAMETER 0 TO 50 FEET DEPTH RANGE (2 borings @ est. 30' each) _____ LF	LF	60		
648.17	FURNISHING EQUIPMENT FOR MAKING BORINGS _____ EA	EA	1		
L-104-6.1-1	TEMPORARY SERVICES FOR AIRFIELD LIGHTING CIRCUITS DURING CONSTRUCTION _____ LS	LS	1		
L-105-7.1-1	REMOVE EXISTING ELEVATED LIGHT FIXTURE AND BASE (DELIVER FIXTURE TO AIRPORT) _____ EA	EA	120		
L-105-7.1-2	REMOVE EXISTING SEMIFLUSH RUNWAY EDGE LIGHT FIXTURE AND BASE (DELIVER FIXTURE TO AIRPORT) _____ EA	EA	5		
L-105-7.1-4	REMOVE EXISTING AIRFIELD LIGHTING CABLE IN CONDUIT OR DUCT _____ LS	LS	1		

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BASE BID					
ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
<del>L-105-7.1-5</del>	<del>REMOVE AIRFIELD GUIDANCE SIGN FOR REINSTALLATION _____ EA</del>	<del>EA</del>	<del>37</del>		
L-105-7.1-6	REMOVE AIRFIELD GUIDANCE SIGN AND BASE _____ EA	EA	30		
L-105-7.1-7	REMOVE EXISTING 1-WAY, 2-INCH DUCT, DIRECT-BURIED, COMPLETE _____ LF	LF	14,640		
L-105-7.1-8	REMOVE EXISTING DUCTBANK, UNPAVED AREAS _____ LF	LF	200		
L-105-7.1-9	REMOVE EXISTING DUCTBANK, PAVED AREAS _____ LF	LF	200		
L-105-7.1-10	REMOVE EXISTING ELECTRICAL HANDHOLE _____ EA	EA	6		
L-105-7.1-11	REMOVE EXISTING ELECTRICAL STRUCTURE (GREATER THAN 4'X4') _____ EA	EA	2		
L-108-5.1-1	1/C NO. 8 AWG, L-824, TYPE C, 5 KV CABLE, INSTALLED IN DUCTBANK OR CONDUIT _____ LF	LF	39,400		

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BASE BID					
ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
L-108-5.1-2	1/C NO. 6 AWG, 600V, BARE COPPER COUNTERPOISE WIRE INSTALLED IN TRECH WITH GROUND RODS AND GROUND CONDUCTORS  LF	LF	17,000		
L-108-5.1-3	1/C NO. 6 AWG, 600V, GROUND CABLE FOR AIRPORT LIGHTING CIRCUIT  LF	LF	17,500		
L-110-5.1-1	1-WAY, 2" PVC CONDUIT, SCHEDULE 40, DIRECT-BURIED  LF	LF	6,000		
L-110-5.1-2	1-WAY, 2" PVC CONDUIT, SCHEDULE 40, IN NEW PAVEMENT  LF	LF	500		
L-110-5.1-3	1-WAY, 2" PVC CONDUIT, SCHEDULE 40, IN EXISTING PAVEMENT  LF	LF	8,000		
L-110-5.1-4	4-WAY, 4" PVC CONDUIT, SCHEDULE 40, CONCRETE-ENCASED  LF	LF	320		
L-115-5.1-1	CONCRETE-ENCASED L-867B JUNCTION BOX WITH 3/4" THICK BLANK COVER  EA	EA	4		

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BASE BID					
ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
L-115-5.1-2	ELECTRICAL HANDHOLE 4'X4'X4', AIRCRAFT RATED  _____ EA	EA	5		
L-123-5.1-1	NEW (SIZE 1) L-858(L) GUIDANCE SIGN ON EXISTING BASE - 1 MODULE  _____ EA	EA	11		
L-123-5.1-2	NEW (SIZE 1) L-858(L) GUIDANCE SIGN ON EXISTING BASE - 2 MODULE  _____ EA	EA	18		
L-123-5.1-3	NEW (SIZE 1) L-858(L) GUIDANCE SIGN ON EXISTING BASE - 3 MODULE  _____ EA	EA	16		
L-123-5.1-4	NEW (SIZE 1) L-858(L) GUIDANCE SIGN ON EXISTING BASE - 4 MODULE  _____ EA	EA	5		
L-123-5.2-1	NEW (SIZE 1) L-858(L) GUIDANCE SIGN ON NEW BASE - 1 MODULE, COMPLETE  _____ EA	EA	1		
L-123-5.2-2	NEW (SIZE 1) L-858(L) GUIDANCE SIGN ON NEW BASE - 2 MODULE, COMPLETE  _____ EA	EA	6		
L-123-5.2-3	NEW (SIZE 1) L-858(L) GUIDANCE SIGN ON NEW BASE - 3 MODULE, COMPLETE  _____ EA	EA	13		

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BASE BID					
ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
L-123-5.2-4	NEW (SIZE 1) L-858(L) GUIDANCE SIGN ON NEW BASE - 4 MODULE, COMPLETE  _____ EA	EA	4		
L-123-5.2-5	NEW (SIZE 5) L-858B(L) DISTANCE REMAINING SIGN ON NEW BASE, COMPLETE  _____ EA	EA	4		
L-125-5.1-1	NEW L-861T(L) LIGHT FIXTURE AND BASE, COMPLETE  _____ EA	EA	27		
L-125-5.1-2	NEW L-861/L-861E(L) LIGHT FIXTURE AND BASE, COMPLETE  _____ EA	EA	59		
L-125-5.1-3	NEW L-850C(L) INPAVEMENT LIGHT FIXTURE AND BASE, COMPLETE  _____ EA	EA	9		
L-125-5.1-4	REINSTALL L-861T LIGHT FIXTURE ON NEW BASE, COMPLETE  _____ EA	EA	32		
L-125-5.3-1	NEW L-849(L) RUNWAY END IDENTIFIER LIGHTS (REILS) ON NEW BASE  _____ EA	EA	2		

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ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
L-125-5.3-2	NEW L-880(L) PRECISION APPROACH PATH INDICATOR LIGHTS (PAPIs) On New Base  EA	EA	2		
L-125-5.4-1	FIELD LIGHTING VAULT CIRCUIT CONNECTIONS  ALLOW	ALLOW	1		
D-701-5.2	18-INCH RCP PIPE CLASS V  LF	LF	769		
D-701-5.4	EXISTING DRAINAGE PIPE REMOVAL  LF	LF	150		
D-705-5.1	6-INCH PVC UNDERDRAIN PIPE  LF	LF	3,985		
D-705-5.3	12-INCH PVC UNDERDRAIN PIPE OUTFALL  LF	LF	700		
D-705-5.5	UNDERDRAIN CLEANOUT  EA	EA	28		
D-751-5.2	LEACHING BASIN  EA	EA	15		

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BASE BID					
ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
D-751-5.3	CATCH BASIN _____ EA	EA	1		
D-751-5.5	ADJUST STRUCTURE TO GRADE _____ EA	EA	33		
D-751-5.6	EXISTING DRAINAGE STRUCTURE REMOVAL _____ EA	EA	2		
P-101-5.1	PAVEMENT DEMOLITION _____ SY	SY	50,500		
P-101-5.2	PAVEMENT MILLING, VARIABLE DEPTH _____ SY	SY	975		
P-101-5.3	PAVEMENT MARKING REMOVAL _____ SF	SF	105,000		
P-151-4.1	CLEARING AND GRUBBING _____ AC	AC	0.04		
P-152-4.1	UNCLASSIFIED EXCAVATION, HAULED OFF SITE _____ CY	CY	48,965		

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ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
P-152-4.2	BORROW EXCAVATION _____ _____CY	CY	4,000		
P-152-4.3	UNDERCUT EXCAVATION _____ _____CY	CY	7,100		
P-152-4.4	UNSUITABLE EXCAVATION _____ _____CY	CY	4,000		
P-154-5.1	SUBBASE COURSE, AASHTO M43 #3 STONE _____ _____CY	CY	7,100		
P-154-5.2	GEOTEXTILE FABRIC, WOVEN CLASS 2 _____ _____SY	SY	26,300		
P-156-5.1	INLET PROTECTION _____ _____EA	EA	86		
P-156-5.2	SILT FENCE _____ _____LF	LF	8,949		
P-156-5.4	STABILIZED CONSTRUCTION ENTRANCE _____ _____EA	EA	3		
P-209-5.1	CRUSHED AGGREGATE BASE COURSE _____ _____CY	CY	8,000		



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ITEM	DESCRIPTION WITH WRITTEN UNIT PRICE	UNIT	QTY.	UNIT PRICE	ITEM COST
P-401-8.1	BITUMINOUS CONCRETE PAVEMENT - SURFACE COURSE (PG 64-22) _____ TON	TON	3,000		
P-401-8.2	BITUMINOUS CONCRETE PAVEMENT - BASE COURSE (PG 64-22) _____ TON	TON	7,200		
P-620-5.1	PAVEMENT MARKING – PERMANENT _____ SF	SF	200,000		
P-620-5.2	PAVEMENT MARKING – TEMPORARY _____ SF	SF	95,000		
P-621-5.1	SAW CUT GROOVING _____ SY	SY	5,820		
T-901-5.1	SEEDING – HYDROSEED _____ AC	AC	13.80		
T-901-5.2	SEEDING-HYDROSEED WITH SOIL STABILIZATION _____ AC	AC	1.80		
T-905-5.1	TOPSOILING, 4" DEPTH _____ SY	SY	79,334		

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**TOTAL BASE BID COST:** \_\_\_\_\_  
(TOTAL PRICE IN NUMBERS)

\_\_\_\_\_  
(TOTAL PRICE IN WORDS)

- (i) **BIDDER** agrees that the Work will be substantially completed within the number of Calendar Days indicated in the Agreement.
- (j) **BIDDER** accepts the provisions of the Agreement as to Liquidated Damages in the event of failure to complete the work on time.
- (k) The terms used in the Bid are defined in the General Conditions of the Contract Documents and have the meanings assigned to them in the General Conditions.
- (l) The following documents are attached to and made a part of the Bid:
  - a. Bid Submission Checklist
  - b. Bid Form
  - c. Bid Bond
  - d. Non-Collusion Affidavit
  - e. Bidder's Experience and Financial Statement
  - f. References
  - g. Equal Employment Opportunity Report Statement
  - h. Consent of Surety
  - i. New York State Vendor Responsibility Questionnaire (online)
  - j. Certification of Non-Segregated Facilities
  - k. Buy American Certificate
  - l. Jurat
  - m. New Procurement Lobbying Law Interim Guidelines and Procedures
  - n. Compliance Procurement Lobbying Law
  - o. Offerer Disclosure of Prior Non-Responsibility Determinations
  - p. Offerer's Affirmation of Understanding on and Agreement Pursuant to State finance Law
  - q. AAP 10 NYS – D/M/WBE Solicitation Log
  - r. AAP 22 NYS – Pre-Award D/M/WBE Material Supplier Commitment Information
  - s. AAP 23 NYS – Pre-Award D/M/WBE Trucking Commitment Information
  - t. AAP 35 NYS – Workforce Participation Plan
  - u. Schedule 'A' New York State Insurance Requirements
  - v. Standard Clauses for All New York State Contracts

\_\_\_\_\_  
Legal Name of Person, Partnership or Corporation

Date: \_\_\_\_\_ 2014

By:

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Title



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**If Corporation:**

State of \_\_\_\_\_

County of \_\_\_\_\_

On this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ before me personally appeared \_\_\_\_\_  
\_\_\_\_\_ to me known, who, being by me sworn, did say that he resides at (give  
address) \_\_\_\_\_

\_\_\_\_\_ that he is the (give title) \_\_\_\_\_ of the (name of  
Corporation), \_\_\_\_\_ the Corporation  
described in and which executed the above instrument; that he knows the seal of the Corporation; that the seal affixed by  
order of the Board of Directors of the Corporation, and that he signed his name thereto by like order.

\_\_\_\_\_  
Notary Public

State of \_\_\_\_\_

Qualified in \_\_\_\_\_

My Commission expires \_\_\_\_\_

**ACKNOWLEDGEMENT BY BIDDER:**

**If Individual or Partnership:**

State of \_\_\_\_\_

County of \_\_\_\_\_

On this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ before me personally appeared \_\_\_\_\_  
\_\_\_\_\_ to be known and known to me to be the same person(s) described in and who  
executed the within instrument, and he (or they severally) acknowledged to me that he (or they) executed the same.

\_\_\_\_\_  
Notary Public

State of \_\_\_\_\_

Qualified in \_\_\_\_\_

My Commission expires \_\_\_\_\_

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**If Corporation:**

State of \_\_\_\_\_

County of \_\_\_\_\_

On this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ before me personally appeared \_\_\_\_\_  
\_\_\_\_\_ to me known, who, being by me sworn, did say that he resides at (give  
address) \_\_\_\_\_

\_\_\_\_\_ that he is the (give title) \_\_\_\_\_ of the (name of  
Corporation), \_\_\_\_\_ the Corporation  
described in and which executed the above instrument; that he knows the seal of the Corporation; that the seal affixed by  
order of the Board of Directors of the Corporation, and that he signed his name thereto by like order.

\_\_\_\_\_  
Notary Public

State of \_\_\_\_\_

Qualified in \_\_\_\_\_

My Commission expires \_\_\_\_\_

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**ITEM D-751 MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES**

**DESCRIPTION**

**751-1.1** This item shall consist of construction of manholes, catch basins, inlets, and inspection holes, in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the Engineer.

**MATERIALS**

**751-2.1 General.** Materials shall meet the requirements shown on the plans and specified below. All product and material shop drawings and product data shall be submitted to the Engineer for approval. Full approval of the shop drawings and product data are required prior to the ordering or fabrication of any product.

**751-2.2 Brick.** The brick shall conform to the requirements of ASTM C32, Grade MS.

**751-2.3 Mortar.** Mortar shall consist of one part Portland cement and two parts sand. The Portland cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

**751-2.4 Concrete.** Plain and reinforced concrete used in structures, connections of pipes with structures, and the support of structures or frames shall conform to the requirements of Item P-610.

**751-2.5 Precast concrete pipe manhole rings.** Precast concrete pipe manhole rings shall conform to the requirements of ASTM C478. Unless otherwise specified, the risers and offset cone sections shall have an inside diameter of not less than 36 inches nor more than 48 inches. There shall be a gasket between individual sections and sections cemented together with mortar on the inside of the manhole.

**751-2.6 Frames, covers, and grates.** The castings shall conform to one of the following requirements:

- a. ASTM A48, Class 35B: Gray iron castings
- b. ASTM A47: Malleable iron castings
- c. ASTM A27: Steel castings
- d. ASTM A283, Grade D: Structural steel for grates and frames
- e. ASTM A536, Grade 65-45-12: Ductile iron castings
- f. ASTM A897: Austempered ductile iron castings

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings, aircraft gear configuration and/or direct loading, specified.

Each frame and cover or grate unit shall be provided with fastening members to prevent it from being dislodged by traffic but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

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**751-2.7 Steps.** The steps or ladder bars shall be gray or malleable cast iron or galvanized steel. The steps shall be the size, length, and shape shown on the plans and those steps that are not galvanized shall be given a coat of bituminous paint, when directed.

**751-2.8 Precast inlet structures.** Manufactured in accordance with and conforming to ASTM C1433 with the following modifications.

Structures shall be designed to meet the following criteria:

- a) At rest lateral earth pressure using a coefficient of  $K = 0.5$
- b) Gulfstream 550 design load

The assumptions for the criteria are based on the following:

- a) Wheel load criteria is based on the assumption that for the design aircraft 95% of the taxi weight is distributed to the main landing gear.
- b) Lateral earth loads from wheel loads adjacent to the structure will be calculated using the Soil Elasticity Method. Position wheel loads to obtain the maximum forces on the structure.
- c) Structural vertical design shall take into consideration any joints in the structure. Proper consideration supported by calculations shall be given to the load transfer across joints.
- d) Design criteria for concrete shall be based on Ultimate Strength as defined in ACI 318 current edition.
- e) Submit calculations for a precast concrete structure that is aircraft rated meeting the above criteria. Calculations and shop drawings shall be signed and sealed by an Engineer licensed in the State of New York if precast structure is not detailed on the design drawing.

Manhole base and top slabs may be precast or cast-in-place conforming to the reinforcing and dimensions as indicated on the plans. Precast concrete units must have a minimum 28-day compressive strength of 5,000 psi and conform to the requirements of P-610.

**751-2.9 Non-shrink grout.** Non-shrink grout shall be free of any metallic contents. Non-shrink grout shall conform to the requirements of ASTM C1090 and ASTM C1107. Non-shrink grout shall have a minimum compressive strength of 5,000 psi or as noted on the plans.

**751-2.10 Flowable Fill (CLSM).** Flowable fill (CLSM) for trench drain backfill shall conform to the requirements of Item P-153.

**751-2.11 Filter Fabric (geotextile).** Filter fabric shall conform to AASHTO M288, Class 2.

## CONSTRUCTION METHODS

### 751-3.1 Unclassified excavation.

a. The Contractor shall excavate for structures and footings to the lines and grades or elevations, shown on the plans, or as staked by the Engineer. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximately only; and the Engineer may direct, in writing, changes in dimensions or elevations of footings necessary for a satisfactory foundation.



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b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the Engineer. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. Where concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing is placed.

c. The Contractor shall do all bracing, sheathing, or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for the structure.

d. All bracing, sheathing, or shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage finished masonry. The cost of removal shall be included in the unit price bid for the structure.

e. After excavation is completed for each structure, the Contractor shall notify the Engineer. No concrete or reinforcing steel shall be placed until the Engineer has approved the depth of the excavation and the character of the foundation material.

**751-3.2 Concrete structures.** Concrete structures shall be built on prepared foundations, conforming to the dimensions and shape indicated on the plans. The construction shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the Engineer before the concrete is placed.

All invert channels shall be constructed and shaped accurately to be smooth, uniform, and cause minimum resistance to flowing water. The interior bottom shall be sloped to the outlet.

**751-3.3 Precast concrete structures.** Precast concrete structures shall conform to ASTM C478 and Item P-610. Precast concrete structures shall be constructed on prepared or previously placed slab foundations conforming to the dimensions and locations shown on the plans. All precast concrete sections necessary to build a completed structure shall be furnished. The different sections shall fit together readily. Joints between precast concrete risers and tops shall be full-bedded in cement mortar and shall be smoothed to a uniform surface on both interior and exterior of the structure. The top of the upper precast concrete section shall be suitably formed and dimensioned to receive the metal frame and cover or grate, or other cap, as required. Provision shall be made for any connections for lateral pipe, including drops and leads that may be installed in the structure. The flow lines shall be smooth, uniform, and cause minimum resistance to flow. The metal steps that are embedded or built into the side walls shall be aligned and placed at vertical intervals of 12 inches. When a metal ladder replaces the steps, it shall be securely fastened into position.

**751-3.5 Inlet and outlet pipes.** Inlet and outlet pipes shall extend through the walls of the structures a sufficient distance beyond the outside surface to allow for connections. They shall be cut off flush with the wall on the inside surface of the structure, unless otherwise directed. Non-shrink grout shall be placed around these pipes to form a tight, neat connection.

**751-3.6 Placement and treatment of castings, frames, and fittings.** All castings, frames, and fittings shall be placed in the positions indicated on the plans or as directed by the Engineer, and shall be set true to line and elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

When frames or fittings are placed on previously constructed masonry, the bearing surface of the masonry shall be brought true to line and grade and shall present an even bearing surface so the entire face or back

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of the unit will come in contact with the masonry. The unit shall be set in mortar beds and anchored to the masonry as indicated on the plans or as directed by the Engineer. All units shall set firm and secure.

After the frames or fittings have been set in final position, the concrete or mortar shall be allowed to harden for seven (7) days before the grates or covers are placed and fastened down.

**751-3.7 Installation of steps.** The steps shall be installed as indicated on the plans or as directed by the Engineer. When the steps are to be set in concrete, they shall be placed and secured in position before the concrete is placed. When the steps are installed in brick masonry, they shall be placed as the masonry is being built. The steps shall not be disturbed or used until the concrete or mortar has hardened for at least seven (7) days. After seven (7) days, the steps shall be cleaned and painted, unless they have been galvanized.

When steps are required with precast concrete structures, they shall be cast into the side of the sections at the time the sections are manufactured or set in place after the structure is erected by drilling holes in the concrete and cementing the steps in place. Steps shall be embedded into the walls of the riser and conical top section a minimum of 3 inches. All rungs shall project a minimum clear distance of 4 inches from the interior walls.

Instead of steps, prefabricated ladders may be installed. The ladder shall be held in place by grouting the supports in drilled holes.

**751-3.8 Backfilling.**

a. After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8 inches in loose depth, and compacted to the density required in Item P-152. Each layer shall be deposited evenly around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the Engineer.

b. Backfill shall not be placed against any structure until approved by the Engineer. For concrete structures, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill and placing methods.

c. Backfill shall not be measured for direct payment. Performance of this work shall be considered an obligation of the Contractor covered under the contract unit price for the structure involved.

**751-3.9 Cleaning and restoration of site.** After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankments, shoulders, or as approved by the Engineer. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

**751-3.9 Concrete structure removal.** The locations of structures to be removed shall be as shown on the plans. Excavation required for structure removal shall be performed in accordance with OSHA requirements for slope embankments. All structures shown to be removed shall be disposed of off airport property. Backfilling to proposed grades shall be as indicated in Paragraph 751-3.7. All backfill shall be compacted to the density required under Item P-152.

**751-3.10 Modifications to Existing Drainage Structures.** Modifications to existing drainage structures shall consist of core drilling existing drainage structures to allow for connection of proposed drainage piping, filling in of existing pipe penetrations to allow for connection of proposed drainage piping at a different configuration, or a combination of these.

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Penetrations to structures for pipe installation are to be core drilled to a diameter 1-inch greater than the intended pipe's outside diameter. Annular space between the pipe and wall shall be filled with non-shrink grout.

**751-3.11 Existing Drainage Structures Grade Adjustments.** Existing drainage structures to be raised to proposed grades shall be adjusted in accordance with the details contained in the drawings.

**METHOD OF MEASUREMENT**

**751-4.1** Manholes, inlets, and leaching basins shall be measured by the unit.

**751-4.2** Structure removal shall be measured by the unit.

**751-4.3** Modifications or grade adjustments to existing drainage structures shall be measured by the unit.

**BASIS OF PAYMENT**

**751-5.1** The accepted quantities of manholes, catch basins, inlets, and inspection holes will be paid for at the contract unit price per each in place when completed. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials; furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plans; and for all labor equipment, tools and incidentals necessary to complete the structure.

**751-5.2** Structure removal will be paid for at the contract unit price per each. This price shall be full compensation for excavation, backfilling, hauling and disposal of removed structures off-site; and for all labor equipment, tools and incidentals necessary to remove the structure.

**751-5.3** Modifications or grade adjustments to existing drainage structures will be paid for at the contract unit price per each. This price shall be full compensation for excavation, backfilling, core drilling, filling in of existing pipe penetrations, and furnishing and installation of such specials and connections as may be required to allow for tying in of proposed piping; and for all labor equipment, tools and incidentals necessary to complete the required tie-in.

Payment will be made under:

Item D-751-5.1	Not In Contract
Item D-751-5.2	Leaching Basin - per each
Item D-751-5.3	Catch Basin - per each
Item D-751-5.4	Not In Contract
Item D-751-5.5	Adjust Structure to Grade - per each
Item D-751-5.6	Existing Drainage Structure Removal - per each

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**MATERIAL REQUIREMENT**

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C32	Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C478	Standard Specification for Precast Reinforced Concrete Manhole Sections
ASTM C1433	Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers

**END OF ITEM D-751**

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**ITEM L-123 AIRFIELD SIGNAGE SYSTEMS**

**DESCRIPTION**

**123-1.1 GENERAL.** This item shall consist of airfield signage modifications installed in accordance with the contract drawings, the referenced specifications and applicable advisory circulars. This item includes the removal and replacement of signage/sign panels on new foundation/bases, installation of new signage on new foundation/bases, and installation or extension of new concrete sign maintenance pad in accordance with the contract drawings, the referenced specifications and applicable advisory circulars. The modifications are to be installed on existing bases or at the location in accordance with the dimensions, design and details shown on the contract drawings. This item shall include furnishing and installing signs, sign panels, transformers, base cans, mounting assemblies, base plates, adapter rings, concrete work, cable connections, all lamps, testing of the installation and all incidentals and appurtenances necessary to place the systems in operation as completed units to the satisfaction of the Engineer. All work shall be constructed and installed in accordance with the drawings and specifications.

This item does not include the installation of underground electrical duct as it is covered within Item L-110. Requirements for airfield lighting underground cable are specified within Item L-108.

**123-1.2 REFERENCED MATERIALS.** Additional details pertaining to specific systems covered in this section are contained in the Federal Aviation Administration (FAA) Advisory Circulars (AC's), latest edition, listed below:

150/5340-1	Standards for Airport Markings
150/5340-30	Design and Installation Details for Airport Visual Aids
150/5340-18	Standards for Airport Sign Systems
150/5340-26	Maintenance of Airport Visual Aid Facilities
150/5345-1	Approved Airport Equipment
150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
150/5345-26	FAA Specification for L-823 Plug and Receptacle, Cable Connectors
150/5345-42	Specification for Airport Light Bases, Transformer Houses, Junction Boxes and Accessories
150/5345-47	Isolation Transformers for Airport Lighting Systems
150/5345-53	Airport Lighting Equipment Certification Program
150/5370-2	Operational Safety on Airports During Construction
150/5370-10	Standards for Specifying Construction of Airports

The Contractor is responsible for obtaining and using the latest edition of the referenced FAA Advisory Circulars. This is not all inclusive but is offered as a convenience to the Contractor.

**123-1.3 SUBMITTALS.** Shop drawings of each airfield lighting component, indicating FAA approval, shall be submitted to the Engineer for review and approval and be approved prior to ordering any materials for this item. This submittal shall include the proposed method of installation for all airfield lighting components. The submittal shall include data on all component parts of the item or system, and shall include the manufacturers list of recommended spare parts for one year's use. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the contract documents. The Contractor's submittals shall be in accordance with Item L-106, Submittals, Record Documents and Maintenance Manuals.

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**123-1.4 QUALIFICATIONS.** The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

**123-1.5 SPARE PARTS.** The Manufacturer/Contractor by submitting a bid assures the Owner that it will sell to the Owner or any of the Owner's designated representatives any and all parts for materials furnished under this contract at the lowest price the Contractor or its subcontractors, or suppliers furnish them to any second party. This pricing requirement shall apply for five (5) years from the date of final acceptance of the contract. In furnishing parts at this price, the Contractor shall provide the parts within one week of an approved purchase agreement. The Owner shall have the right to verify that the prices the Owner pays for the parts are the lowest and if they are determined not to be, then the Owner shall receive a payment from the Manufacturer/Contractor in the amount of one and one-half (1.5) times the difference. The Contractor is responsible to coordinate and obtain this agreement, in writing, from the manufacturer.

## **MATERIALS**

### **123-2.1 GENERAL.**

Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified and listed under Advisory Circular (AC) 150/5345-53, Airport Lighting Equipment Certification Program, latest edition.

All other equipment and materials covered by other referenced specification shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification. The Contractor shall submit the manufacturer's certificate of compliance and the applicable specification sections to the Engineer for approval before the equipment and material are ordered.

Manufacturers certifications shall not relieve the Contractor of his responsibility to provide materials in accordance with these specifications and acceptable to the Engineer. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the Engineer and replaced with materials which do comply with these specifications, at the sole cost of the Contractor.

New panels shall be of the same manufacturer, type, size, style as the existing panels and signs. This list shall include the name of each item, the Federal Aviation Administration specification number, the manufacturer's name, the manufacturer's catalog number, and the size, type and rating volt-amp of each sign reference to the contract documents indicating intended use of each item.

All items required per this section are for use on a 6.6 amp primary series circuit unless specifically noted otherwise.

### **123-2.2 GUARANTEES.**

**a.** Except as modified below, all equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of twelve (12) months or the manufacturer's standard guarantee period whichever is greater, from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.



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b. The lamp life, as rated by the manufacturer (not the supplier), shall be warranted for the specified number of hours. Should ten percent (10%) of the lamps fail prior to the rated life of the lamp, then the entire system using the failing lamp type shall be relamped, at the Contractor's expense, and the warranty time shall start over. At the Owner's option, with written permission of the Engineer, the Contractor may elect to supply 100% spare lamps at the time of Owner's acceptance of the lighting system.

c. The lamp prices shall be furnished to the Owner in the bid and the prices shall be guaranteed for a period of five (5) years.

**123-2.3 BASIS OF DESIGN.** The airfield signage systems are designed using the below listed maximum fixture wattages. Approved sign lamps with higher wattages are permissible provided the Contractor assumes all costs for the redesign of the airfield lighting and necessary power distribution systems and all costs incurred furnishing and installing any additional equipment. In no case shall the Contractor be allowed to reduce the size of the constant current regulators or the power distribution systems.

L-858Y R, L	Location, Information, Boundary, Destination Mandatory Sign	1 Module	LED - 84 VA / 83 VA
		2 Module	LED - 92 VA / 118 VA
		3 Module	LED - 165 VA / 170 VA
		4 Module	LED - 198 VA / 197 VA

**123-2.4 L-858 SIGNS.** The signs shall be L-858Y, R, L and B and shall be internally lighted as indicated on the plans. The size of the units are size 1 for the L-858Y, L and R and Size 5 for L-858B distance remaining sizes. The L-858B, Y, R, L units shall be Style 2 or 3 as required by the circuit the respective sign is connected to. All units shall be Class 1. All signs shall be furnished with tethers on a minimum of two legs per module. The tethers shall be fabricated from 3/16" stainless steel aircraft cable with a formed eye on both ends and shall be of ample length to attach the sign (min. of 6" of slack) to the flange plate and allow the frangible coupling and disconnect plug to function properly. The bolting pattern, method of anchoring, etc., shall be per the sign manufacturer's recommendation. The sign manufacturer shall submit to the Engineer calculations showing the sign and anchoring methods will withstand a 200 MPH jet blast in accordance with Paragraph 4.1.2 of AC 150/5345-44, latest edition. The signs shall be supplied with the messages as shown on the sign schedule.

Each sign shall be furnished with an on-off toggle switch with weatherproof cover. The switch shall be used by maintenance personnel to de-energize the sign so maintenance work can be performed. The switch shall be located immediately adjacent to the load side of the L-823 disconnect plug. The weatherproof cover shall provide protection from driving rain and shall have a spring operated closing device. The weatherproof cover shall also provide physical protection for the switch handle.

The nameplate required by FAA AC 150/5345-44 shall be made of metal with the data stamped into the metal nameplate.

Provide 3-M Scotch-Lite or approved equivalent 6 inch high, die cut labels for each sign, labels shall be

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reflective film, with pressure-sensitive adhesive backing, suitable for exterior applications. Labels shall be UV resistant. Labels shall be yellow for installation on black surface, black for installation on other surfaces. Text shall be: number and letter style; Helvetica medium, upper case, 6" in height.

The quantity of sign modules is based on two (2) characters per module. Payment shall be made on the basis of a module consisting of two characters, regardless of the manufacturing methods or techniques.

**123-2.5 LIGHT BASES.** All light bases (base cans) shall meet the requirements of FAA AC 150/5345-42, latest edition. The light bases shall be L-867 type for the non-load bearing units and L-868 for the load bearing units. The sizes of the units shall be as shown in the Plans and in this specification. Telescoping base cans may be used for the L-867 non-load bearing base cans. Two piece base cans, may be used, where paving interferences require their use. All light bases, transformer houses and junction boxes shall be Class 1, galvanized steel.

**123-2.6 CABLES.** Cables shall comply with specification L-108, Installation of Underground Cable for Airports.

**123-2.7 L-823 CONNECTORS.** Connectors shall comply with specification L-108, Installation of Underground Cable for Airports.

**123-2.8 ISOLATION TRANSFORMER.** The isolation transformers shall be L-830, 6.6 amp primary to 6.6 amp secondary, sized per the fixture manufacturer's recommendations and conforming to AC 150/5345-47, latest edition.

**123-2.9 FRANGIBLE COUPLINGS.** All elevated items shall be installed on frangible couplings in accordance with the respective Federal Aviation Administration Advisory Circular. Frangible couplings shall be metallic and provide an electrical grounding path between the fixture/sign and the base can.

**123-2.10 LAMPS.** Airfield sign lamps shall be quartz lamps of size and type to provide distribution and minimum output requirements as detailed in FAA AC 150/5345-44, latest edition. All airfield signs shall be installed with lamps.

Lamps shall be a generic, standard design manufactured by at least two of the following manufacturers:

- a. G.E. Lighting.
- b. Sylvania.
- c. Phillips.

Proprietary lamps, that is, lamps intended to be used only for one manufacturer's product(s) and that are manufactured for this sole purpose, are not acceptable.

Lamps shall be readily available from local commercial electrical supply dealers for assured availability and supply to the airport.

**123-2.20 TAPE.** Plastic electrical tapes shall be Scotch Electrical Tape number 88 as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equal. Electrical coating shall be Scotchkote as manufactured by the Minnesota Mining and Manufacturing Company, or approved equal.

**123-2.11 CONCRETE.** Concrete for backfill shall comply with Specification P-610, Structural Portland



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Cement Concrete and have a maximum size coarse aggregate of 1 inch.

**123-2.12 CONDUIT.** Conduit shall comply with specification L-110,

**123-2.13 HEAT SHRINK KIT.** Heat shrinkable tubing with integral sealant for waterproofing L-823 connectors shall be Sigmaform Corporation Type APL, or Raychem Corporation Type ADL, or Crouse Hinds Type HSK or approved equal.

**123-2.14 REINFORCING STEEL.** All reinforcing steel shall be ASTM A 615, Grade 60.

**123-2.15 BOLTING HARDWARE.** All airfield bolting hardware shall be stainless steel and shall meet FAA requirements. All bolts 1/4" and larger shall be hex head type. All bolts smaller than 1/4" trade size shall be recessed allen type. All bolted connections shall utilize an anti-rotational locking type device. The base can cover and fixture mounting bolts shall extend through the base can mounting flange into the base can a minimum of 0.5". The bolts shall have enough thread length so they do not shoulder out before the fixture is securely tightened.

**123-2.16 ANTI-SEIZE COMPOUND.** The anti-seize compound shall be Ideal "Noalox" or approval equal. Use Dow Corning Compound III valve lubricant curing sealant to seal between sections of base cans, spacer rings, adaptor rings or fixtures.

**123-2.17 FILLERS AND ADHESIVES.** Joint sealing filler shall comply with Specification P-605, Joint Sealing Filler and adhesive compounds shall comply with Specification P-606, Adhesive Compounds, Two-Component, For Sealing Wire and Lights and Pavement. The P-605 and P-606 compounds shall be formulated so they are compatible with the pavement type with which they are to be used.

**123-2.18 STRAIN RELIEF CONNECTORS.** Strain relief connectors shall be Liquid Tight Thomas & Betts 2500 series with WMG-PG wire mesh cable grip or approved equal.

**123-2.19 DELIVERY, STORAGE AND HANDLING.** Ship materials and equipment disassembled only to the extent necessary for reasons of shipping limitations, handling facilities, and to avoid damage during shipment. Maintain materials and equipment in new condition. This shall include the use of heat lamps, suitable coverings, indoor storage, etc. to properly protect the equipment and materials. Any equipment or materials, in the opinion of the Owner or Engineer, damaged during construction or storage periods shall be replaced by and at the expense of the Contractor.

**125-2.20 IDENTIFICATION MARKERS.** Fixture, manhole and sign identification markers shall be brass bench markers by Surv-Kap of Tucson, Arizona model number M/M-B2 with flat top or approved equal.

**123-2.21 SIGN LEGENDS.** Sign legend panels shall include all incidentals required for a complete and operational unit to the satisfaction of the Engineer.

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**CONSTRUCTION METHODS**

**123-3.1 INSTALLATION**

**Signs, Base Cans.** All signs, base cans, etc. shall be installed as shown in the plans or approved shop drawings and in accordance with the applicable FAA Advisory Circulars and manufacturers' recommendations. Survey instruments shall be used to position all items to insure precise orientation. Tolerances given in the FAA Advisory Circulars, these specifications, and the plans shall not be exceeded. Where no tolerance is given, no deviation is permitted. Items not installed in accordance with the FAA Advisory Circulars, these specifications and plans shall be removed and replaced by and at the expense of the Contractor.

Signs shall be oriented at 90 degrees to the direction of the taxing path from which it is viewed unless noted otherwise.

For all signs, the concrete pad shall extend to not less than eighteen (18) inches out from the edge of the sign all around. The concrete pad shall be in accordance with the drawings. The concrete pad shall be poured in place and rest on undisturbed soil. The pad shall be reinforced with steel bars formed and placed as indicated in the Plans. Exposed concrete surface shall be finished smooth with a steel trowel or rubbed to a smooth finish. All horizontal edges to be chamfered one (1) inch at 45 degrees.

During construction of the pad, the transformer base shall be adjusted and firmly held in place so that machined upper surface of base flange will be level within -2 degrees and not more than 1/4 inch above the surface of pad. All other bearing areas for additional flange supports shall be in the same horizontal plane as the transformer base flange.

The Contractor shall completely survey and stake out each areas signage layout prior to starting any installation. Should any irregularities occur in the layout, the Engineer shall be notified immediately. The bid item price shall include the necessary surveyed layout for each item and the cost for any additional adjustment or resurvey of the location of the items due to the existing geometric conditions. The new signage installation shall be coordinated with and blend into the signage installation.

All loose material shall be removed from all excavations for electrical equipment, raceways, manholes, pads, etc. The bottom of the excavation shall be compacted to 95% compaction in accordance with ASTM D 1557 prior to the installation of the electrical item and backfill.

The Contractor shall be responsible for final calibration and adjustments of the signs.

The contractor shall clean each sign that is installed new or reinstalled as part of this contract. Contractor shall replace all lamps in each sign that is removed and reinstalled as part of this contract. Lamps shall be equivalent wattage and type as the existing lamps.

Assemble units and connect to the system in accordance with the manufacturer's recommendations and instructions.

An identification tag shall be installed with each fixture, sign, etc. as shown in the plans. Brass circuit identification tags identifying each circuit shall be attached to each circuit as shown in the plans.

Provide six feet (6') of slack in each end of each cable in each base can. All connections shall be able to

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be made above ground.

Painted and galvanized surfaces that are damaged shall be repaired according to the manufacturer's recommendations, to the satisfaction of the Owner and Engineer. Use LPS-1G cold galvanizing compound or approved equal to repair galvanized surfaces. Obtain paint and primer, of same batch number, from the equipment manufacturer to repair painted surfaces.

Dow Corning Compound III valve lubricant non-curing sealant or approved equal shall be used to seal between sections of base cans, spacer rings, adapter rings or fixtures.

Where three (3) or more conduits enter a L-867-B base can, a L-867D base can shall be used. Drain connections are excluded from the conduit count.

All threaded portions of frangible couplings, etc., shall be coated with Ideal "Noalox" compound or approved equal before being assembled.

If a light can is installed incorrectly or the duct/conduit is plugged/broken or the concrete joints are installed incorrectly or the light base can is sawed by the concrete saw, the concrete slabs on both sides of the light base can and the light shall be removed and replaced at the Contractor's expense.

Dewatering necessary to construct L-123 Items and related erosion and turbidity control shall be in accordance with federal, state, and local requirements and is incidental to its respective pay item as a part of L-123. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-123 Item.

**123-3.2 TESTING.** This section describes the testing and demonstrations furnished by the Contractor. All items furnished and/or installed by the Contractor shall be tested and demonstrated in accordance with these specifications. All equipment and labor required for testing and demonstrations shall be furnished by the Contractor.

**a.** Fully test the installation by continuous operation for a period of not less than seventy-two (72) hours as a completed unit, prior to acceptance by the Owner.

**b.** Up to two (2) walk-throughs may be initiated by the Owner or the Engineer during which the signs would be required to be in operation. Additional walk-throughs may be necessary depending upon the number of discrepancies found on the previous walk-throughs.

**c.** The Contractor is responsible for lamp replacements and necessary maintenance of airfield items during the testing, construction and walk-through periods.

**d.** Test cabling per specification L-108, Installation of Underground Cable for Airports.

**e.** Demonstrate all features and functions of all systems and instruct the Owner's personnel in the proper and safe operation of the systems.

**f.** The Contractor shall perform the necessary inspection and tests for some items concurrently with the installation because of subsequent inaccessibility of some components. The Engineer shall be notified by the Contractor forty-eight (48) hours in advance of any testing.

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There are no approved "repair" procedures for items that have failed testing other than complete replacement. Any other corrective measures shall be approved in writing by the Engineer.

**123-3.3 OPERATION AND MAINTENANCE MANUALS.** The Contractor shall provide data for all equipment, material and components supplied or furnished under this section in the Operation and Maintenance Manuals. This data shall include cut sheets from the manufacturer and the manufacturer's installation, operation and maintenance manuals, recommended spare parts lists, any required test results, and other data as required by Section L-106, Submittals, Record Documents and Maintenance Manuals. The manuals shall be in accordance with Section L-106. Final payment for any contract amounts shall not be processed without proper submittal of these manuals and review and approval by the Engineer.

**123-3.4 CONTRACT DRAWINGS.** Where the electrical drawings indicate (diagrammatically or otherwise) the work intended and the functions to be performed, even though some minor details are not shown, the Contractor shall furnish all equipment, material, and labor to complete the installation work, and accomplish all the indicated functions of the electrical installation. Further, the Contractor shall be responsible for taking the necessary actions to ensure that all electrical work is coordinated and compatible with the civil plans.

**123-3.5 MINOR DEPARTURES.** Minor departures from exact dimensions shown in the electrical plans may be permitted where required to avoid conflict or unnecessary difficulty in placement of a dimensional item, provided contract requirements are met. The Contractor shall promptly obtain approval from the Owner and/or the FAA Resident Engineer prior to undertaking any such proposed departure.

**METHOD OF MEASUREMENT**

**123-4.1 GENERAL.** The quantity of airfield lighting units to be paid for under this item shall be the number of each type installed, complete and in place, ready for operation, and accepted by the Engineer. Each airfield lighting unit shall include the installation of an identification plate or tag as detailed in the plans.

**BASIS OF PAYMENT**

**123-5.1 GENERAL.** Payment will be made at the contract unit price for each item completed in accordance with the plans and specifications that is installed by the Contractor 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, and for all labor, equipment, tools, incidentals, and appurtenances necessary to complete these items.

Payment will be made under:

Item L-123-5.1-1	New (Size 1) L-858(L) Guidance Sign On Existing Base - 1 Module – per Each
Item L-123-5.1-2	New (Size 1) L-858(L) Guidance Sign On Existing Base - 2 Module – per Each
Item L-123-5.1-3	New (Size 1) L-858(L) Guidance Sign On Existing Base - 3 Module – per Each
Item L-123-5.1-4	New (Size 1) L-858(L) Guidance Sign On Existing Base - 4 Module – per Each

L-858 Y,R,L, B sign, Remove existing size 1 sign. Existing concrete base to remain. Furnish and install sign on existing concrete base.

**123-5.2 NEW AIRFIELD GUIDANCE SIGN.** This item includes all materials, labor, transportation and services required to furnish and install a new airfield guidance sign and base where designated within the contract drawings. Furnish and install new L-858(L) 2, 3 or 4-module or Size 5 L-858B(L) airfield

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guidance sign, concrete base with a L-867B 24” deep base can, with ½” thick galvanized steel cover plate and gasket, stainless steel bolts and lock washers, new properly sized L-830 isolation transformer(s), L-823 connector kits, ground rod and associated equipment. This item includes all incidentals required to provide a complete and operational sign to the satisfaction of the Engineer. Align and level as required.

Payment will be made under:

Item L-123-5.2-1	New (Size 1) L-858(L) Guidance Sign On New Base - 1 Module, complete – per Each
Item L-123-5.2-2	New (Size 1) L-858(L) Guidance Sign On New Base - 2 Module, complete – per Each
Item L-123-5.2-3	New (Size 1) L-858(L) Guidance Sign On New Base - 3 Module, complete – per Each
Item L-123-5.2-4	New (Size 1) L-858(L) Guidance Sign On New Base - 4 Module, complete – per Each
Item L-123-5.2-5	New (Size 5) L-858B(L) Distance Remaining Sign On New Base, complete – per Each

**END OF ITEM L-123**

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**ITEM L-125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS**

**DESCRIPTION**

**125-1.1** This item shall consist of Airport lighting additions and modifications installed in accordance with the contract drawings, the referenced specifications and applicable advisory circulars. This item shall include the removal of existing economy approach aids and installation of new economy approach aids. The modifications and additions are to be installed at the location and in accordance with the dimensions, design and details shown on the contract drawings. This item shall include the furnishings of all equipment, materials, services, testing and incidentals necessary to place the systems in operation as completed units to the satisfaction of the Engineer.

This item does not include the installation of underground electrical duct as it is covered within Item L-110. Requirements for airfield lighting underground cable are specified within Item L-108.

**125-1.2 SUBMITTALS.** Shop drawings of each airfield lighting component, indicating FAA approval, shall be submitted to the Engineer for review and approval and be approved prior to ordering any materials for this item. This submittal shall include the proposed method of installation for all airfield lighting components. The submittal shall include data on all component parts of the item or system, and shall include the manufacturers list of recommended spare parts for one years use. The data submitted shall be sufficient, in the opinion of the Engineer, to determine compliance with the contract documents. The Contractor's submittals shall be in accordance with Item L-106, Submittals, Record Documents and Maintenance Manuals.

**125-1.3 QUALIFICATIONS.** The Engineer reserves the right to reject any and all equipment, materials or procedures, which, in the Engineer's opinion, does not meet the system design and the standards and codes, specified herein.

**125-1.4 SPARE PARTS.** The Manufacturer/Contractor by submitting a bid assures the Owner that it will sell to the Owner or any of the Owner's designated representatives any and all parts for materials furnished under this contract at the lowest price the Contractor or its subcontractors, or suppliers furnish them to any second party. This pricing requirement shall apply for five (5) years from the date of final acceptance of the contract. In furnishing parts at this price, the Contractor shall provide the parts within one week of an approved purchase agreement. The Owner shall have the right to verify that the prices the Owner pays for the parts are the lowest and if they are determined not to be, then the Owner shall receive a payment from the Manufacturer/Contractor in the amount of one and one-half (1.5) times the difference. The Contractor is responsible to coordinate and obtain this agreement, in writing, from the manufacturer.

**EQUIPMENT AND MATERIALS**

**125-2.1 GENERAL**

Airport lighting equipment and materials covered by FAA Specifications shall have the prior approval of the Federal Aviation Administration, and shall be listed in the lasted addendums for Advisory Circular 150/5345-53 entitled, "Approved Airport Lighting Equipment Certification Program".

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.



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Before any electrical materials are ordered, the Contractor shall furnish the Engineer a list of the materials and equipment to be incorporated in the work. This list shall include the name of each item, the Federal Aviation Administration specification number, the manufacturer's name, the manufacturer's catalog number, and the size, type and/or rating of each item, catalog cuts, test data, fuse curves, outline drawings, nameplate drawings, wiring diagrams, and schematic diagrams.

After the list has been approved by the Engineer and prior to installation, the Contractor shall assemble the equipment and materials at a single location, on-site, and request inspection by the Engineer. None of the equipment or materials, other than duct or conduit, may be used on the job until such an inspection has been completed.

In the case that more than one manufacturer is proposed for a single item, the Engineer will select the specific item he feels best fulfills the requirements of the specification, and it shall be the responsibility of the Contractor to furnish that item.

**125-2.2 MATERIALS** The quantity of lights to be paid for under this item shall be the number of each type installed as completed units in place, ready for operation and accepted by the Engineer. All equipment shall conform to the individual FAA equipment specifications and installed at the locations specified within the plan drawings.

<u><b>Type</b></u>	<u><b>Description</b></u>
L-823	Cable Connectors
L-830	Series Isolation Transformers
L-867	Non-load bearing light bases and Junction Boxes
L-868	Load bearing light bases

Each new light unit shall be furnished complete with all accessories including lens, isolation transformer, frangible fitting, base and base plate. All equipment necessary to make the required connections must also be supplied.

All existing lights and transformers to be removed shall become the property of the County. These lights shall be removed without damage and stored at a location designated by the Engineer.

The class designation applies only to in-pavement fixtures:

- a. Class 2 Base Mounted fixtures

The mode designation describes the type of electrical power supply required for the fixtures.

- a. Mode 1 Constant current fixture, supplied by 6.6 or 20 amps. All items per the specification section are for use on a 6.6 amp primary series circuit.

Styles. The style designation applies only to in-pavement fixtures and describes the total height above finished grade.

- a. Style 3 =  $X \leq \frac{1}{4}$  inch

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Environmental Requirements. The light fixtures shall achieve specified performance under the following environmental conditions.

- a. Temperature - exposure to any temperature from -55° C to +55° C.
- b. Temperature Shock - exposure of the hot light fixture to cold water spray.
- c. Salt Fog - exposure to corrosive salt atmosphere.
- d. Wind - exposure to wind velocities of 350 mph for all L-861 and L-862 fixtures, and 150 mph for all other elevated fixtures.
- e. Rain - exposure to rain, snow, ice and standing water.
- f. Solar Radiation - exposure to solar radiation.

The photometric performance of the fixtures is defined in Tables 1, 2 and 3 of AC 150/5345-46, latest edition.

**125-2.3 LIGHT BASES.** Light base transformer housings shall be Type L-867, Size B for all elevated light fixtures. Light base transformer housings shall be Type L-868, Size B for all in-pavement light fixtures. Rigid galvanized steel junction boxes shall be L-867 Size D. Light Base Transformer Housing and Junction box shall conform to Advisory Circular 150/5345-42, entitled "Specification for Airport Light Base and Transformer Housings, Junction Boxes, and Accessories." Furnish and install the complete light base assembly including concrete foundation, connectors, cover plate and incidentals required for each complete installation. Light base and transformer housing shall have four 2" threaded hubs around the perimeter of the base, 90 degrees apart for conduit stub outs.

**125-2.4 ELEVATED TAXIWAY EDGE LIGHT.** Elevated taxiway edge lights shall be FAA L-861(L), omnidirectional blue. Fixtures shall mount on a 12 inch diameter (Size B) L-867 base can. Furnish and install the complete light base assembly including, connectors, and incidentals required to make a working elevated taxiway edge light.

**125-2.5 ELEVATED RUNWAY EDGE LIGHT.** Elevated runway edge lights shall be FAA L-861(L)/861E(L). Fixtures shall mount on a 12 inch diameter (Size B) L-867 base can. Lens color and light beam direction shall be as shown within the plan drawings. Furnish and install the complete light base assembly including, connectors, and incidentals required to make a working elevated runway edge light.

**125-2.6 INPAVEMENT RUNWAY EDGE LIGHT.** In-pavement runway edge lights shall be FAA L-850C(L), bidirectional: class 2, mode 1, style 3 with lens colors as denoted within the contract drawings and in compliance with relevant FAA advisory circulars. Fixtures shall mount on a 12 inch diameter (Size B) L-868 two-section base can with spacer rings, and top flange with pavement ring. Furnish and install the complete light base assembly including, connectors, and incidentals required to make a working runway in-pavement edge light.

**125-2.7 PAPI SYSTEM.** Installation of the equipment shall be according to the manufacturer's instructions and as shown on the drawings. A professional survey crew shall verify existing elevations and locations shown prior to any excavation work. Remove existing PAPI systems in their entirety, and after the successful installation of the new 880(L) PAPI system.



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**125-2.8 REIL SYSTEM.** Installation of the equipment shall be according to the manufacturer's instructions and as shown on the drawings. A professional survey crew shall verify existing elevations and locations shown prior to any excavation work. Remove existing REIL systems in their entirety, and after the successful installation of the new 849(L) REIL systems.

**125-2.9 CABLES.** Cables shall comply with specification L-108, Installation of Underground Cable for Airports.

**125-2.10 L-823 CONNECTORS.** Connectors shall comply with specification L-108, Installation of Underground Cable for Airports.

**125-2.11 ISOLATION TRANSFORMER.** The isolation transformers shall be L-830, 6.6 amp primary to 6.6 amp secondary, sized per the fixture manufacturer's recommendations and conforming to AC 150/5345-47, latest edition.

**125-2.12 FRANGIBLE COUPLINGS.** All elevated items shall be installed on frangible couplings in accordance with the respective Federal Aviation Administration Advisory Circular. Frangible couplings shall be metallic and provide an electrical grounding path between the fixture/sign and the base can.

**125-2.13 COLORED FILTERS.** Colored filters, or colored lenses, to be used for Airfield Lighting Fixtures shall conform to the requirements of the manufacturer and all applicable FAA Advisory Circulars.

**125-2.14 TAPE.** Plastic electrical tapes shall be Scotch Electrical Tape number 88 as manufactured by the Minnesota Mining and Manufacturing Company, or an approved equivalent. Electrical coating shall be Scotchkote as manufactured by the Minnesota Mining and Manufacturing Company, or approved equivalent.

**125-2.15 CONCRETE.** Concrete for backfill shall comply with Specification P-610, Structural Portland Cement Concrete.

**125-2.16 CONDUIT.** Conduit shall comply with specification L-110, Installation of Airport Underground Electrical Duct.

**125-2.17 HEAT SHRINK KIT.** Heat shrinkable tubing with integral sealant for waterproofing L-823 connectors shall be Sigmaform Corporation Type APL,- Raychem Corporation Type ADL, Crouse Hinds Type HSK or approved equivalent.

**125-2.18 IDENTIFICATION/NUMBER PLATES.** The identification/number plates shall be as shown in the contract documents.

**125-2.19 REINFORCING STEEL.** All reinforcing steel shall be ASTM A 615, Grade 60.

**125-2.20 BOLTING HARDWARE.** All airfield bolting hardware shall be stainless steel and shall meet FAA requirements. In-Pavement light fixtures shall be stainless steel bolts and shall meet FAA requirements. All bolts 1/4" and larger shall be hex head type. All bolts smaller than 1/4" trade size shall

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be recessed allen type. All bolted connections shall utilize an anti-rotational locking type device. The base can cover and fixture mounting bolts shall extend through the base can mounting flange into the base can a minimum of 0.5". The bolts shall have enough thread length so they do not shoulder out before the fixture is securely tightened.

**125-2.21 ANTI-SEIZE COMPOUND.** The anti-seize compound shall be Ideal "Noalox" or approved equivalent. Use GE-RTV-118 non-curing sealant to seal between sections of base cans, spacer rings, adaptor rings or fixtures. Also, use on frangible coupling for light stem to base plate.

**125-2.22 FILLERS AND ADHESIVES.** Joint sealing filler shall comply with Specification P-605 and Joint Sealing Filler and adhesive compounds shall comply with Specification P-606, Adhesive Compounds, Two-Component, For Sealing Wire and Lights and Pavement. The P-605 and P-606 compounds shall be formulated so they are compatible with the pavement type with which they are to be used.

**125-2.23 DELIVERY, STORAGE AND HANDLING.** Ship materials and equipment disassembled only to the extent necessary for reasons of shipping limitations, handling facilities, and to avoid damage during shipment. Maintain materials and equipment in new condition. This shall include the use of heat lamps, suitable coverings, indoor storage, etc. to properly protect the equipment and materials. Any equipment or materials, in the opinion of the Owner or Engineer, damaged during construction or storage periods shall be replaced by and at the expense of the Contractor.

**125-2.24 L-823 CONNECTORS.** Connectors shall comply with specification L-108, Installation of Underground Cable for Airports.

**125-2.25 BONDING WIRE.** All fixtures shall be bonded to the internal grounding lug in the light can. Bonding conductor shall comply with specification L-108, Underground Power Cable. All fixtures shall be provided from the manufacturer with a bonding lug.

### **CONSTRUCTION METHODS**

**125-3.1 GENERAL.** The installation and testing details for the systems shall be as specified in the applicable advisory circulars. Contractor shall make sufficient inspections to insure the following:

1. Each fixture is installed correctly, at the proper height, in line with the other fixtures, level and properly oriented.
2. Light fixtures with symmetrical lenses are properly oriented with respect to the runway longitudinal sides. Check all lights for alignment
3. The identification number for each light unit is as assigned in the plans. Identification of the runway/taxiway edge lights shall be accomplished by attaching a stainless steel identification tap, stamped with the corresponding light number, to the base plate of each fixture. Tags shall be large tag style NE (by Keyes-Davis Company or approved equal). Letters numbers to be filled with black enamel ½" delta Letter on top, and identification numbers on the bottom. #'s. No special packaging required. Tags size shall be 2-1/2" high, 2-1/4" wide A hole of adequate diameter shall be drilled through one end of the tag to attach the tag to a

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mounting bolt prior to installation. Drilling of the hole shall not affect the durability of the tag.

4. Manufacturers have supplied approved equipment for all equipment covered by Federal Aviation Administration specifications. Check equipment for general conformance with specification requirements.
5. All cables, wiring and splices have been installed in accordance with these detailed specifications, the plans, the National Electrical Code and Local codes. Inspect and test insulation resistance of underground cables before backfilling.

**125-3.2 REMOVALS.** Removal of existing light fixtures, etc., shall be performed carefully to prevent damage to existing equipment. Removed items not to be reinstalled shall be delivered and turned over to airport maintenance, unless otherwise directed by the Engineer, in which case these items shall be disposed of off airport property at the Contractor's expense.

**125-3.3 ADJUST EXISTING ELEVATED LIGHT TO NEW GRADE.** Report in writing to the Engineer any broken globes, lamp burnouts, or other defects found at the time lights are removed. Carefully remove existing light along with its base plate where applicable. It shall be Contractor responsibility to safely and properly store fixtures and replace or repair at their own expense any unreported defects that appear at reinstallation time. After new top section is installed, install existing light on modified existing base.

**125-3.4 PHASING AND INTERRUPTIONS.** All existing electrical equipment and lighting systems shall be kept in operation, unless prior approval of the Engineer has been received and as otherwise specified below and on the Drawings. The Contractor may use salvaged materials for temporary construction where required. The permission for temporary work and using salvaged materials shall be obtained from the Engineer. Lighting for active runway and taxiway surfaces shall be maintained at all times.

**125-3.5 PLACING INPAVEMENT LIGHTS.** The top elevation of the light base with respect to the runway or taxiway surface and azimuth alignment with respect to the runway or taxiway centerline are two parameters that must be met. The light beam must be aligned parallel to the centerline of the runway or taxiway with a tolerance of + or - 1/2 degree. The lighting fixture must be level. The top of the fixture edge must have a tolerance of +0 inch and minus 1/16 inch from the top of pavement.

A jig or fixture approved by the Engineer is required to hold the base in position while the concrete anchor is being placed. The Engineer must approve the light base azimuth alignment and elevation before the concrete anchor is placed and it is the electrical contractor's responsibility for maintaining correct alignment of the light base throughout construction operations. The jig must remain in place until the concrete has set. Care must be taken while placing the concrete anchor that neither the jig nor the light base be disturbed. The surface of the replacement pavement around the light fixture must be flush with the surrounding area.

**125-3.6 INSPECTION AND VISUAL EXAMINATION.** The most important of all inspection and test procedures is thorough visual inspections. Visual inspections shall be made frequently during installation, at completion of installation, and before energizing the circuits. A careful visual inspection can reveal defects that can be corrected prior to acceptance tests and energization. Serious damage may

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occur if defects are subjected to electrical tests or energization. Visual inspections shall include appraisal of:

1. Correctness of external connections.
2. Good work performance.
3. Cleanliness.
4. Safety hazards.
5. Specific requirements listed herein for individual items. While all equipment manufactured under specifications pass strict factory tests prior to shipment, it shall be inspected for shipping damage immediately upon receipt.

**125-3.7 ELECTRICAL TESTS ON SERIES LIGHTING CIRCUITS.** Before modifying any series circuit, verify the performance of the existing circuit by checking the supply voltage to the regulator and measuring the output current from the regulator on all brightness steps under existing load.

Check cable connections and perform electrical tests on cable as specified in Section L-108.

**125-3.8 MISCELLANEOUS COMPONENTS.** All components being installed or modified shall be visually inspected for damage, correct connections, proper fuse and circuit breaker ratings, and compliance with codes.

**125-3.9 FINAL ACCEPTANCE TESTS.** After components and circuits have been inspected, as specified in the preceding paragraphs, the entire system shall be inspected and tested as follows:

1. Each lighting circuit shall be tested by operating it continuously at maximum brightness for at least 15 minutes, and at medium intensity for 2 hours. Visual inspection shall be made at the beginning and end of this test to determine that the correct number of lights is operating at full brightness. Dimming of some or all of the lights in a circuit is an indication of grounded cables.
2. Repeat the above test using the local control switches on the regulators.
3. Each lighting circuit shall be tested by operating it continuously at maximum brightness for at least 15 minutes and at medium brightness for 6 hours. Visual inspection shall be made at the beginning and end of this test to determine that the correct numbers of lights are operating at full brightness. Dimming of some or all of the lights in a circuit is an indication of grounded cables.
4. All circuits must be continuous and free of short circuits and unspecified grounds.
5. In addition to the above, all equipment shall be subjected any and all performance tests specified in the manufacturer's instructions.
6. Contractor shall submit all test results to Engineer in writing.

**125-3.10 GUARANTEE.** All equipment furnished and work performed under the Contract Documents shall be guaranteed against defects in materials or workmanship for a period of one (1) year from the date of final acceptance. This guarantee does not replace any responsibility for errors or omissions as set forth in state law. Any long-term warranties issued or offered by manufacturers for items of equipment shall be turned over to the Airports Authority.

Any failure of equipment or work due to defects in materials or workmanship shall be corrected by the Contractor at no cost to the Authority.

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The Contractor shall ascertain that all lighting system components furnished by him (including FAA approved equipment) are compatible in all respects with each other and the remainder of the new/existing system. Any incompatible components furnished by this Contractor shall be replaced by him at no additional cost to the Airports Authority with a similar unit approved by the Engineer (different model or manufacturer) that is compatible with the remainder of the airport lighting system.

The Contractor-installed equipment (including FAA approved) shall not generate any electromagnetic interference in the existing and/or new communications, weather and air traffic control equipment. Any equipment generating such interference shall be replaced by the Contractor at no additional cost with the equipment meeting applicable specifications and not generating any interference.

**125-3.11 OPERATION AND MAINTENANCE MANUALS.** The Contractor shall provide data for all equipment, material and components supplied or furnished under this section in the Operation and Maintenance Manuals. This data shall include cut sheets from the manufacturer and the manufacturer's installation, operation and maintenance manuals, recommended spare parts lists, any required test results, and other data as required by Section L-106, Submittals, Record Documents and Maintenance Manuals. The manuals shall be in accordance with Section L-106. Final payment for any contract amounts shall not be processed without proper submittal of these manuals and review and approval by the Engineer.

**125-3.12 CONTRACT DRAWINGS.** Where the electrical drawings indicate (diagrammatically or otherwise) the work intended and the functions to be performed, even though some minor details are not shown, the Contractor shall furnish all equipment, material, and labor to complete the installation work, and accomplish all the indicated functions of the electrical installation. Further, the Contractor shall be responsible for taking the necessary actions to ensure that all electrical work is coordinated and compatible with the civil plans.

### **METHOD OF MEASUREMENT**

**125-4.1 GENERAL** The quantity of airfield lighting units to be paid for under this item shall be the number of each type installed, complete and in place, ready for operation, and accepted by the Engineer. Each airfield lighting unit shall include the installation of an identification plate or tag as detailed in the plans.

### **BASIS OF PAYMENT**

**125-5.1 GENERAL.** Payment will be made at the contract unit price for each item completed in accordance with the plans and specifications that is furnished and installed by the Contractor 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, testing of lighting fixture separately and as a system, coordination with paving operations, and for all labor, equipment, tools, incidentals, and appurtenances necessary to complete these items.

Payment will be made under:

- Item L-125-5.1-1: New L-861T(L) Light Fixture and Base, Complete – per each
- Item L-125-5.1-2: New L-861/L-861E(L) Light Fixture and Base, Complete – per each
- Item L-125-5.1-3: New L-850C(L) Inpavement Light Fixture and Base, Complete – per each

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**125-5.2 REINSTALLATION OF EXISTING FIXTURE ON NEW BASE.** Payment will be made at the contract unit price for each item reinstalled on a new contractor furnished base in accordance with the plans and specifications that is installed by the Contractor 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, testing of lighting fixture separately and as a system, coordination with paving operations, and for all labor, equipment, tools, incidentals, and appurtenances necessary to complete these items.

Item L-125-5.2-1: Reinstall L-861T Light Fixture on New Base, Complete – per each

**125-5.3 NAVIGATIONAL AID.** Payment for Navigational Aid pay item shall be made at the contract unit price. Work under this item shall include, but not be limited to, excavation of earth; site preparation; new concrete bases, hardware and grounding equipment, conduit, fittings and terminations, boost transformer, power and control wiring, connection of controls and wiring, connection of power cables, backfill and compaction, commissioning, removal and disposal of existing navigational aid, foundation, and underground distribution, and all labor, equipment, tools and incidentals necessary to complete this item in accordance with these specifications, as indicated on the drawings, and as directed by the Engineer.

Payment will be made under:

Item L-125-5.3-1: New L-849(L) Runway End Identification Lights (REILs) On New Base, Complete – per each

Item L-125-5.3-2: New L-880(L) Precision Approach Path Indicator Lights (PAPIs) On New Base, Complete – per each

**125-5.4** Payment for Field Lighting Vault Circuit Connections shall be at the contract allowance. Work under this item shall include, but not be limited to, new circuit connection to new/spare constant current regulators, recalibration of circuits, connection of controls and wiring, ALCS graphic update to existing system to control new/spare regulator, and all labor, equipment, tools and incidentals necessary to complete this item in accordance with these specifications, as indicated on the drawings, and as directed by the Engineer.

Payment will be made under:

Item L-125-5.4-1: Field Lighting Vault Circuit Connections– allowance

**MATERIAL REQUIREMENTS**

(Latest editions shall be referenced)

AC 150/5345-10	Specification for Constant Current Regulators and Regulator Monitors
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-26	Specification L-823, Plug and Receptacle Cable Connectors
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Base and Transformer Housings, Junction Boxes and Accessories
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Isolation Transformers for Airport Lighting Systems
AC 150/5345-53	Approved Lighting Equipment Certification Program



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**END OF ITEM L-125**

**ADDENDUM TO PLANS AND SPECIFICATIONS**

**Runway 1-19 Runway Safety Area Improvements  
Republic Airport**

**ADDENDUM NO. 2 – ACKNOWLEDGEMENT OF RECEIPT**

The undersigned acknowledges that Addendum No. 2 to the Plans and Specification for the Runway 1-19 Runway Safety Area Improvements project has been received by the undersigned and will be incorporated in all copies of said Plans and Specifications in the possession of the undersigned.

It is understood that all proposals submitted in response to this project will be presumed to be based upon full knowledge of the contents of Addendum No. 2.

\_\_\_\_\_  
(Company Name)

By: \_\_\_\_\_  
(Signature –Authorized Company/Official)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

**IMPORTANT**

**NOTE: PLEASE SIGN AND DATE THIS “ACKNOWLEDGEMENT OF RECEIPT” AND RETURN VIA EMAIL TO:**

**ANDREA LUFT**  
**at**  
**[Andrea.Luft@aecom.com](mailto:Andrea.Luft@aecom.com)**

**BIDS WILL NOT BE ACCEPTED BY CONTRACTORS WHO HAVE NOT COMPLETED AND RETURNED THIS RECEIPT**

**Contact Andrea at 212-896-0331 if there are any errors with the transmission.**