CITY OF HOUSTON

John Whitmire
Mayor

HOUSTON AIRPORT SYSTEM

George Bush Intercontinental ~ William P. Hobby ~ Ellington Airport

Jim Szczesniak
Director of Aviation

June 12, 2025

SUBJECT: **Addendum No. 4**

REFERENCE: Invitation To Bid (ITB) for the Runway 4-22 Shoulders Pavement Rehabilitation & Lighting Upgrades at William P. Hobby Airport (HOU); Solicitation No. H06-RSPRLU-2025-006; Project No. 1057

To: All Prospective Bidders:

This Addendum is being issued for the following reasons:

I. **Replace** the following pages with the attached document outlined below:

1. Bid Form 00410B – Revised 06/06/2025
2. Item T – 904 – Sodding
3. Item L – 125 – Installation of Airport Lighting Systems
4. Sheet GI003 – Summary of Quantities
5. Sheet G201 – Phasing Notes
6. Sheet GC307 – Phasing Plan Work Areas 1, 2, and 8 Airfield Closure Plan
7. Sheet CD106 – Civil Demolition Plan
8. Sheet CP106 – Civil Paving Plan
9. Sheet CM601 – Airfield Signage Schedule
10. Sheet CM602 – Airfield Signage Schedule
11. Sheet CM603 - Airfield Signage Schedule
12. Sheet ED106 – Electrical Demolition Plan
13. Sheet ED107 – Electrical Demolition Plan
14. Sheet EP106 – Electrical Layout Plan
15. Sheet EP107 – Electrical Layout Plan
16. Sheet EP503 – Airfield Electrical Details

II. Respond to the following questions.

1. **Question:** The two lay down yards depicted on the drawings, since as mentioned on pre-bid it is not settle yet. Once they are settled, will they have fencing, or the Contractor be required to fence it?

   Response: The two areas depicted on the drawing have existing fencing. Both staging areas are to be utilized per Note 4 on Sheet GC100.

2. **Question:** Pictures Fig. 4-1, 4-2 and 4-5 provided on pre-bid presentation, are these depicted on drawings for quantities and type of repair requested?

   Response: Please reference Notes 1 and 2 on CP series in contract drawings and Item P-101.

3. **Question:** On RW/TW closure overview, it depicts runway 4-22 closed during most of the project with 13R-31L and 13L-31R open, except under certain circumstances. What are the working hours?

   Response: Please reference Sheet GC201 for working hours.

4. **Question:** Can the drawings file be supplied as .DWG and or .DWFX files?

   Response: No, the drawings will remain in the current format.

5. **Question:** Will the Airport be providing the low-profile barricades and runway closure devices?

   Response: No, please reference Item M-001.

6. **Question:** Does the Airport have a crew onsite to mark existing underground utilities?

   Response: This is the responsibility of the contractor to provide utility locates throughout the project.

7. **Question:** Will continuous paving of asphalt be allowed during airport operations?

   Response: Please reference GC201 for work areas and work hours.

8. **Question:** Will an airport representative be on site to assist with correct location of the PCC Slab Removal?

   Response: Yes, there will be a Resident Project Representative (RPR) on site.

9. **Question:** On TWY R in the meeting power point it is color coded to show just crack sealing. On drawing CD105 it shows that the entirety of TWY R to be PCC Slab Removal. Please confirm on correct approach.

   Response: Please reference Sheets CD105 and CP105 for work to be performed on TWY R.

10. **Question:** Will it be possible for all areas needing 2" cold milling to be done at once to avoid multiple mobilizations being needed.

    Response: Please reference GC201 for work areas and work hours.

11. **Question:** In the event that the underlying stabilized base course is hit with the saw blade during the saw cutting process what would repair need to consist of according to RPR? And would this repair be needing if the saw barely touches that stabilized base?

    Response: Contractor shall submit a Request for Information (RFI) for repair details as needed.

12. **Question:** Will the airport supply the new signage required?

    Response: Please reference Item L-125 included in this addendum for pay items.

13. **Question:** Completion in 145 days is stated in the Addendum 1 PDF and 166 days is stated in the Project Manual PDF. Please confirm the allotted amount of days for completion of the project.

    Response: The date of substantial completion is 166 days after date of commencement of the work.

14. **Question:** Will working around the clock be authorized to hit due date?

    Response: Yes, except for blackout dates; subject to change due to operational need.

15. **Question:** Who is the point of contact to schedule the Movement Driver Training Program?

    Response: Charles Deschamps with Airside Operations (Charles.Deschamps@houstontx.gov)

16. **Question:** Where is the contractor training located?

    Response: ALL TRADE lead contractors must attend. Call to schedule the class. General Contractors must complete our contractor safety training with HAS Safety Manger Stanley Tucker, or with Safety Advisor Mr. Amarchandra Maharaj (Robin) or Mr. David Edwards. Training is in-person, Wednesdays from 9am-10am. at 4500 Will Clayton Pkwy Humble, TX 77396. Please send a request for the class three (3) workdays prior and include company name, name and contract info of each person attending, and include the TIP Number, projects title and TIP Coordinator name. The Safety team can be reached at stanley.tucker@houstontx.gov, david.edwards2@houstontx.gov., and amarchandra.maharaj@houstontx.gov. This Safety training is good for one year from completion date.

17. **Question:** Will Blast fence be provided by the airport in the event it's required?

    Response: No.

18. **Question:** With Removal of PCC Slab is it acceptable to move them to a location not in the runway and transporting the bigger pieces to an isolated location to mitigate dust and debris?

    Response: RFI of means and methods at the time of construction.

19. **Question:** Will there be a designated area marked for fueling/refueling of contractor equipment?

    Response: Please refer to Section 8 of the Construction Safety Phasing Plan (CSPP) included in Addendum 1.

20. **Question:** Where new sod is required is there a specific type that is required? (ie. St Augustine, etc)

    Response: This is information can be found in 2023 HAS Design Standards on fly2houston.com.

21. **Question:** Is a diesel generator and site trailer allowed in the contractor staging area? Can the owner's rep. Trailer (away from the contractor's) also be powered by a diesel generator?

    Response: Please refer to Section 01505 Temporary Facilities.

22. **Question:** Will lights/edge lights be shut off or deenergized by HOU prior to commencement of work?

    Response: A representative (electrician) from the construction contractor and HAS Electrical will lockout/tagout airfield lighting 30 minutes after sunrise and 30 minutes before sunset. An airfield lighting inspection by Airside Operations is required if the airfield lights are secured. Contractor must remain on site until the airfield lighting inspection is completed, and no discrepancies are noted.

23. **Question:** Is HOU providing aircraft flaggers during work, as needed?

    Response: No, flagging operations are the responsibility of the contractor.

24. **Question:** Are records of past experience applicable if said experience is out-of-state?

    Response: Yes, records of out-of-state experience is applicable.

25. **Question:** Sign 132 (planset p. CM104) is listed as 2 modules while the almost identical sign 131 across Runway 4-22 is listed as 1 module.

    Response: Sign 132 has been revised from 2 modules to 1 module.

26. **Question:** Sign 175 (planset p. CM104) is listed as 4 modules while the identical sign 178 across Runway 4-22 is listed as 3 modules.

    Response: Sign 175 has been revised from 4 modules to 3 modules.

27. **Question:** Sign 261 (planset p. CM104) is listed as 3 modules however the sign legend will fit on a 2 module sign and the drawing makes it look like 2 modules.

    Response: Sign 261 has been revised from 3 modules to 2 modules.

28. **Question:** Sign 209 (planset p. CM106) is listed as 4 modules however the sign legend will fit on a 3 module sign and the drawing makes it look like 3 modules.

    Response: Sign 209 has been revised from 4 modules to 3 modules.

29. **Question:** Sign 212 (planset p. CM107) is listed as 4 modules however the sign legend will fit on a 3 module sign and the drawing makes it look like 3 modules.

    Response: Sign 212 has been revised from 4 modules to 3 modules.

30. **Question:** Do the bid quantities for the excavation items include the volume of topsoil to be stripped?

    Response: Please refer to Sheets CD301 and 302 as well as Item P-152 Excavation, Subgrade, and Embankment.

31. **Question:** Do the bid quantities for the embankment items include the volume of topsoil to be placed?

    Response: Please refer to Sheets CP301 and 302 as well as Items T-905 Topsoil and T-904 Sodding.

32. **Question:** Do the bid quantities for the excavation items include the volumes of any non-soil materials to be removed, such as asphalt, base, or concrete pavement?

    Response: Please refer to Sheets CD301 and 302.

33. **Question:** Can you please provide a preliminary construction schedule?

    Response: Please refer to Sheet GC201.

34. **Question:** Will the owner staff with a 3rd party consultant? If yes, who is the consultant?

    Response: HAS will provide an onsite RPR for construction oversite.

35. **Question:** Are all utilities relocated out of conflict in contractors work area?

    Response: No. Please refer to utility notes on Sheet GC001.

36. **Question:** Who is responsible for the testing on this project?

    Response: Please refer to Project Manuals, Volume 1 and 2.

37. **Question:** Are there any items that are subsidiary to an item that we should be made aware of?

    Response: Please refer to the response provided in Question #36.

38. **Question:** Can you please provide the Geotechnical Report?

    Response: A Geotechnical report was not required for this project.

39. **Question:** Can you please provide the cross sections, XSR Files, or any other electronic cross section files?

    Response: No.

40. **Question:** Will an owner's field office be required?

    Response: Please refer to FAA GP 60-05 and Item C-105 in the Project Manual for RPR Field Office requirements.

41. **Question:** Is there any special insurance that is required?

    Response: Please refer to Document 00800 – Supplementary Conditions, Table 1 Required Coverages.

42. **Question:** Is there any additional maintenance bond required?

    Response: Please refer to Document 00612 – One – Year Maintenance Bond.

43. **Question:** What is the anticipated start date for the project?

    Response: This is still to be determined.

44. **Question:** Has the owner conducted testing of asphalt, concrete, soil, or groundwater for PFAS?

    Response: No testing has been conducted.

45. **Question:** Has there been any use of AFFF by the fire department in any of the work areas on this project?

    Response: It is unknown if AFFF was sprayed or used on this runway since 2008.

46. **Question:** Drawing CD103 shows a continuous 25' wide segment of existing CRCP (along RWY 4-22) tying into the isolation joint at STA 37+75 in Work Area 1. Please indicate if the last 10' of this segment and the thickened edge below have reinforcing steel, if the new (replacement) CRCP and thickened edge are to have reinforcing steel, and which drawing(s) and detail(s) to use.

    Response: Please refer to inset on Sheets CD401 and CP401 and Sections on CD302 and CP302.

47. **Question:** The phasing sheet work areas do not match the work areas on install pages EP106 & EP107 and demo pages ED106 & ED107. Please revise phasing.

    Response: Please refer to the revisions included with this addendum.

48. **Question:** A detail for bid item #57, 1w2" PVC in concrete encased turf is not provided. Please provide detail.

    Response: Please refer to the revisions included with this addendum.

49. **Question:** Bid Item #60 states to install new in pavement TW Centerline light however the plans say to install salvaged TW Centerline light. Please clarify are the Taxiway Centerline lights being installed on new cans in new full-strength pavement to be new or salvaged?

    Response: Please refer to the revisions included with this addendum.

50. **Question:** Bid item #62 states to install new Elevated RW edge light on a new can in existing shoulder pavement. 35ea of these lights are in a mill and overlay area while 14ea are going to be installed in an area where the pavement is not being milled and overlayed. Please provide a separate detail and separate pay item for RW Edge lights being installed on new cans in existing pavement vs mill and overlay areas.

    Response: There is a separate installation detail for each of these installation scenarios; EP501 has a detail for the new edge light in the mill and overlay section, and EP506 has a detail for new edge light in existing shoulder pavement. No separate pay item will be provided, both installation scenarios will be paid for under bid item #62.

51. **Question:** On TW B and TW Y on the electrical install sheets there are 1ea TW Centerline lights that appears to be new in existing full-strength pavement. Please provide note indicating if this is a new light, new base can or salvaged and/or existing. Please provide pay item if applicable pay item is not present.

    Response: The intent of this work is for the existing light to be salvaged and protected during the replacement of the pavement panel, then re-installed on a new L-868B base can. See updated Sheets EP106 and EP107 included in this addendum where keyed note 5 has been added to each of those taxiway centerline lights to clarify. Additionally, see revisions to Bid Form included in this addendum where the language for pay item L-125-5.2 has been updated to better reflect the scope.

52. **Question:** Bid item #5 1w2" CE in Turf has a quantity of 6,600LF however the plans are showing 4,100LF please verify quantity.

    Response: Please refer to the revisions to the Bid Form included in this addendum.

53. **Question:** Please confirm the two anticipated NTPs for material buy out and construction, and what those estimated dates are.

    Response: This is still to be determined. Please refer to Sheet GC201 for anticipated construction schedule.

54. **Question:** Please confirm that we are not restricted to set working hours, and that we will have full access to Runway 4-22 during construction.

    Response: Restricted hours will include blackout dates. Construction work and paving in intersections of active runways and taxiways must be phased and coordinated a minimum of two weeks in advance. Closure will be dependent on weather, airline operations, IROPS, and the scope of work to be conducted in the intersection of these areas. The runway and taxiway safety area must be FAR Part 139 compliant prior to reopening each day the intersection is closed. Runway 13R-31L can only be closed after the last flight arrival and must be reopened by 0430. Closures can be reduced or cancelled due to operational necessity. RWY 13L-31R can be closed continuously for short durations. This closure must be phased and coordinated a minimum of two weeks in advance. Closures can be reduced or cancelled due to operational necessity.

55. **Question:** Will we be allowed to work at night, if necessary?

    Response: Yes, working nights will be allowed with HAS prior approval.

56. **Question:** Does this project have Buy America requirements?

    Response: Yes, the project has Buy America requirements. Refer to Document 00410A Bid Form Part A, Section 1.0E.

57. **Question:** Does this project require E-Verify?

    Response: E-Verify is not typically an application contractors are required to utilize. However, contractors and their representatives must go through a background check and provide proper identification to fulfill the badging requirements, which may utilize E-Verify by the Owner.

58. **Question:** Bid item #15 Sidewalk Removal and bid item #29 Concrete Sidewalk are not shown on the plans. Please clarify where these bid items are located.

    Response: Please refer to revised Sheets CD106 and CP106 included this addendum.

59. **Question:** It was mentioned during the prebid that the construction laydown yard shown on the plans may not be available to us to store materials. Please clarify if the designated laydown yard will be available, or if there is another location we can utilize.

    Response: The laydown area will be determined at the pre-construction conference.

60. **Question:** Is a Badged individual (escort) allowed to escort sub-contractors and what is the rule on the Sub-contractor?

    Response: Please collaborate with HOU Security & Badging to ensure proper escort rules and regulations are followed 713-845-6500.

61. **Question:** Do you require a professional photographer for progress photos? Can the project manager take these photos?

    Response: Please refer to Section 01321 Construction Photographs for photograph requirements.

62. **Question:** Are drone flights allowed?

    Response: Please notify Airside Operations and follow the commercial operator procedures prior to flight.

63. **Question:** If runway 4-22 is to be open and close during project, are mobilizations charges apply for each open and close?

    Response: Please refer to Sheet GC201 and C-105 Mobilization for payment.

64. **Question:** Clarify work scope for drainage. Pipe replacement? Manhole, Cast in place or replace manhole?

    Response: Please refer to Sheets CD106 for existing conditions and CG106 for installation and associated details. Refer to Items D-701 and D-751 for additional information and payment.

65. **Question:** The traffic control, flagging and escort services bid items are missing. Please clarify.

    Response: Please refer to Item M-001 Maintenance and Protection of Traffic During Construction.

66. **Question:** Is detail 8/CP501 applicable welded mesh for all reinforced concrete pavements (6" through 18")? If no, please clarify and include the details.

    Response: CRCP Pavement reinforcement details are provided on CP504 and CP505 as indicated on Sheet CP303, Typical Sections.

When issued, Addendum shall automatically become part of the solicitation documents and shall supersede any previous specification(s) and/or provision(s) in conflict with the Addendum. Addendum will be incorporated into the Agreement as applicable. It is the responsibility of the bidder(s) to ensure that it has obtained all such letter(s). By submitting a bid on this project, bidder(s) shall be deemed to have received all Addendum and to have incorporated them into their bid.

If further clarification is needed regarding this solicitation, please contact Senior Procurement Specialist, David Martinez via email at david.martinez@houstontx.gov.

Sincerely,

DS

DocuSigned by:
Cathy Vander Plaats
02232028DE99414...

Cathy Vander Plaats
Aviation Procurement Officer
Houston Airport System

cc: File, ITB Solicitation No. H06-RSPRLU-2025-006

Attachments:

1. Bid Form 00410B – Revised 06/06/2025
2. Item T – 904 – Sodding
3. Item L – 125 – Installation of Airport Lighting Systems
4. Sheet GI003 – Summary of Quantities
5. Sheet G201 – Phasing Notes
6. Sheet GC307 – Phasing Plan Work Areas 1, 2, and 8 Airfield Closure Plan
7. Sheet CD106 – Civil Demolition Plan
8. Sheet CP106 – Civil Paving Plan
9. Sheet CM601 – Airfield Signage Schedule
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11. Sheet CM603 - Airfield Signage Schedule
12. Sheet ED106 – Electrical Demolition Plan
13. Sheet ED107 – Electrical Demolition Plan
14. Sheet EP106 – Electrical Layout Plan
15. Sheet EP107 – Electrical Layout Plan
16. Sheet EP503 – Airfield Electrical Details

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

ADDENDUM NO. THREE (**4**)
June 6, 2025

This Addendum shall be considered part of the Proposal, Contract, Specifications, and Plans for the Runway 4-22 Shoulder Pavement Rehabilitation and Lighting Upgrade Project at William P. Hobby Airport, Houston, TX, and is intended to correct, change, and/or add to the documents as described below:

PROJECT SPECIFICATIONS

1. **Delete the following specifications in their entirety and replace with the attached specification:**
    a. BID FORM PART B / BASE UNIT PRICE TABLE
    b. ITEM T-904 – SODDING
    c. ITEM L-125 – INSTALLATION OF AIRPORT LIGHTING SYSTEMS

PROJECT DRAWINGS

1. Delete the following sheets in their entirety and replace with the attached sheet:
    a. GI003 – SUMMARY OF QUANTITIES
    b. GC201 – PHASING NOTES
    c. GC307 – PHASING PLAN WORK AREAS 1, 2, AND 8 AIRFIELD CLOSURE PLAN
    d. CD106 – CIVIL DEMOLITION PLAN
    e. CP106 – CIVIL PAVING PLAN
    f. CM601 – AIRFIELD SIGNAGE SCHEDULE
    g. CM602 – AIRFIELD SIGNAGE SCHEDULE
    h. CM603 – AIRFIELD SIGNAGE SCHEDULE
    i. ED106 – ELECTRICAL DEMOLITION PLAN
    j. ED107 – ELECTRICAL DEMOLITION PLAN
    k. EP106 – ELECTRICAL LAYOUT PLAN
    l. EP107 – ELECTRICAL LAYOUT PLAN
    m. EP503 – AIRFIELD ELECTRICAL DETAILS

END OF ADDENDUM THREE (3)

Document 00410B

BID FORM – PART B

1.0 TOTAL BID PRICE HAS BEEN CALCULATED BY BIDDER, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

A. STIPULATED PRICE (HOU): $N/A

(Total Bid Price; minus Base Unit Prices, Extra Unit Prices, Cash Allowances and All Alternates, if any)

B. BASE UNIT PRICE TABLE:

Item No.	Spec Ref.	Base Unit Short Title	Unit of Measure	Estimated Quantity	Unit Price (this column controls)	Total in figures
[1]	C-100-3.1	Contractor Quality Control Program (CQCP)	Lump Sum	1		
[2]	C-102-5.1	Erosion and Sediment Control	Lump Sum	1		
[3]	C-105-4.1	Mobilization	Lump Sum	1		
[4]	P-101-5.1	Cold Milling, up to 2-inch Nominal Depth	Square Yard	18,500		
[5]	P-101-5.2	Asphalt Pavement Removal, 2 to 5-Inch Depth	Square yard	300		
A3 [6]	P-101-5.3	Continuously Reinforced Concrete Pavement Removal	Square Yard	***4,050***		
[7]	P-101-5.4	PCC Pavement Removal	Square Yard	***625***		
[8]	P-101-5.5	Isolated Partial Depth PCC Patch	Square Foot	***50***		
[9]	P-101-5.6	Isolated Full Depth PCC Patch	Square Foot	650		
[10]	P-101-5.7	Asphalt Pavement Crack Sealant	Linear Foot	***13,500***		
[11]	P-101-5.8	PCC Pavement Crack Sealant	Linear Foot	1,400		
[12]	P-101-5.9	Surface Preparation	Square Foot	***260,000***		
[13]	P-101-5.10	Remove Previously Abandoned Sign Foundations	Each Item	3		

[14]	P-101-5.11	Diamond Griding	Square Foot	***3,300***		
[15]	P-101-5.12	Sidewalk Removal	Square Yard	10		
[16]	P-152-4.1	Unclassified Excavation	Cubic Yard	2,300		
[17]	P-152-4.2	Unsuitable Excavation	Cubic Yard	230		
[18]	P-403-8.1	Asphalt Pavement	Ton	2,300		
[19]	P-501-8.1	Continuously Reinforced Concrete Pavement, 15-Inch Depth	Square yard	***3,700***		
[20]	P-501-8.2	Continuously Reinforced Concrete Pavement, Variable Depth, 12 to 15-Inch Depth	Square yard	***350***		
[21]	P-501-8.3	Reinforced Concrete Pavement, 6-Inch Depth	Square yard	125		
[22]	P-501-8.4	Non-Reinforced Concrete Pavement, 16-Inch Depth	Square yard	145		
[23]	P-501-8.5	Non-Reinforced Concrete Pavement, 18-Inch Depth	Square yard	425		
[24]	P-605-5.1	Joint Resealing	Linear Foot	16,000		
A3 [25]	P-608-8.1	Asphalt Surface Treatment, Taxiways	Square yard	***16,000***		
[26]	P-608-8.2	Asphalt Surface Treatment, Shoulders	Square yard	***15,800***		
[27]	P-608-8.3	High Speed Exit Taxiway Friction Testing	Lump Sum	1		
[28]	P-610-6.1	Concrete Isolation Joint Repair Slab	Square yard	110		
[29]	P-610-6.2	Concrete Sidewalk	Square Yard	10		
[30]	P-620-5.1	Waterborne Pavement Marking, Yellow, Red, and White	Square Foot	***170,000***		
[31]	P-620-5.2	Waterborne Pavement Marking, Black	Square Foot	***65,500***		
[32]	P-620-5.3	Preformed Marking	Square Foot	***15,100***		
[33]	P-620-5.4	Reflective Media	Pound	***12,250***		
[34]	P-621-5.1	Grooving	Square Yard	4,600		
[35]	D-701-5.1	12-Inch Class III Reinforced Concrete Pipe	Linear Foot	110		
[36]	D-701-5.2	4-Inch HDPE Pipe	Linear Foot	40		

[37]	D-751-5.1	Drainage Manhole	Each Item	1		
[38]	D-751-5.2	Drainage Inlet	Each Item	1		
[39]	T-904-5.1	Sodding	Square Yard	32,000		
[40]	T-905-5.1	Topsoil (Furnished from off the Site)	Cubic Yard	3,600		
[41]	L-105-5.1	Remove No. 8 AWG, L-824C in Duct	Linear Foot	66,100		
[42]	L-105-5.2	Remove 2-Inch Conduit (Including Cable) in Modified Pavement Areas or Turf	Linear Foot	***8,200***		
[43]	L-105-5.3	Remove Existing Elevated Edge Light and Base Can in Existing Pavement Areas VIA Coring	Each Item	***49***		
[44]	L-105-5.4	Remove Existing Elevated Edge Light, Base Can to Remain	Each Item	***13***		
[45]	L-105-5.5	Remove Existing In-Pavement Light and Base Can	Each Item	***12***		
[46]	L-105-5.6	Remove Existing In-Pavement Light, Base Can to Remain	Each Item	334		
[47]	L-105-5.7	Remove Existing Elevated Light and Base Can in Modified Pavement Areas	Each Item	4		
[48]	L-105-5.8	Remove Existing Elevated Light and Base Can in Turf	Each Item	4		
[49]	L-105-5.9	Remove Existing Guidance Sign and Foundation	Each Item	44		
[50]	***L-105-5.10***	***Remove and Salvage Existing In-Pavement Light Fixture, Base Can to be Removed***	***Each Item***	***29***		
[51]	***L-105-5.11***	***Remove and Salvage Existing Elevated Light Fixture, Base Can to be Removed VIA Coring***	***Each Item***	***10***		
[52]	L-108-5.1	Procure and Install No.8 AWG, L-824, Type C (5KV) Cable in Conduit	Linear Foot	***83,500***		
[53]	L-108-5.2	Procure and Install No. 6 AWG Bare Counterpoise Wire in Conduit Trench	Linear Foot	***9,900***		

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[54]	L-110-5.1	Procure and Install 1-Way, 2-Inch Schedule 40 PVC Conduit, Concrete Encased in New Full Strength Pavement	Linear Foot	1,500		
[55]	L-110-5.2	Procure and Install 1-Way, 2-Inch Schedule 40 PVC Conduit, Concrete Encased in Turf	Linear Foot	6,600		
[56]	L-110-5.3	Electrical Conduit Repair in Existing Pavement	Linear Foot	1,800		
[57]	L-125-5.1	Install Salvaged Elevated Taxiway Edge Light on New Base Can in Existing Shoulder Pavement	Each Item	8		
[58]	L-125-5.2	***Install Salvaged LED In-Pavement Taxiway Centerline Light on New Base Can in New Full-Strength Pavement***	Each Item	29		
[59]	L-125-5.3	Procure and Install New LED In-Pavement Touchdown Zone Light on New Base Can in New Full Strength Pavement	Each Item	12		
[60]	L-125-5.4	Procure and Install New LED Elevated Runway Edge Light on New Base Can in Existing Shoulder Pavement	Each Item	***48***		
[61]	L-125-5.5	Procure and Install New LED In-Pavement Runway Edge Light on Existing Base Can	Each Item	15		
[62]	L-125-5.6	Procure and Install New LED Elevated Runway Edge Light on Existing Base Can	Each Item	***13***		
[63]	L-125-5.7	Install Salvaged Elevated Runway Edge Light on New Base Can in Existing Shoulder Pavement	Each Item	2		
[64]	L-125-5.8	Procure and Install New LED Elevated Runway Threshold End Light on New Base Can in New Shoulder Pavement	Each Item	8		
[65]	L-125-5.9	Procure and Install New LED In-Pavement Runway Centerline Light on Existing Base Can	Each Item	151		
[66]	L-125-5.10	Procure and Install New LED In-Pavement Touchdown Zone Light on Existing Base Can	Each Item	168		
[67]	L-125-5.11	Procure and Install New Transformer in Existing Sign or Light Fixture	Each Item	17		

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	[68]	L-125-5.12	Procure and Install New L-858(L) LED Airfield Lighting Sign, Size 2, 1-Module on New Foundation	Each Item	***11***		
	[69]	L-125-5.13	Procure and Install New L-858(L) LED Airfield Lighting Sign, Size 2, 2-Module on New Foundation	Each Item	6		
	[70]	L-125-5.14	Procure and Install New L-858(L) LED Airfield Lighting Sign, Size 2, 3-Module on New Foundation	Each Item	***22***		
A3	***[71]***	***L-125-5.15***	***Procure and Install New L-858(L) LED Airfield Lighting Sign, Size 4, 1-Module on New Foundation***	***Each Item***	***5***		
	[72]	M-001-6.1	Maintenance and Protection of Airfield Traffic	Lump Sum	1		
	[73]	M-002-4.1	Crushed Aggregate Base Course	Square yard	***350***		
	[74]	M-002-4.2	Geogrid for Base Reinforcement	Square yard	***350***		
	[75]	M-002-4.3	Geotextile	Square yard	***350***		

TOTAL BASE UNIT PRICES	_____

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C. CASH ALLOWANCE TABLE:

Item No.	Spec Ref.	Cash Allowance Short Title	Cash Allowance in figures (1)
[1]		Existing Utility Line Relocation, Abandonment, or Removal	$25,000
[2]		Site Condition Specific Safety Conditions	$25,000
[3]		Contaminated Material Handling	$25,000
[4]		Building Permit: For obtaining the Building Permit from the City of Houston	$32,000
TOTAL CASH ALLOWANCES			$107,000

(1) Fixed Unit Price determined prior to Bid. Cannot be adjusted by the Bidder.

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D. TOTAL BID PRICE (HOU): **$**_____
(Add Totals for Stipulated Price (A), Base Unit Price, Extra Unit Price, Cash Allowance, and All Alternates, if any)

2.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: _____
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

**By: _____
Signature Date

Name: _____
(Print or type name) Title

Address: _____
(Mailing)

_____
(Street, if different)

Telephone and Fax Number: _____
(Print or type numbers)

* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

** Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

ITEM T-904 SODDING

DESCRIPTION

904-1.1 This item shall consist of furnishing, hauling, and placing approved live sod on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

904-2.1 SOD. Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. At least 70% of the plants in the cut sod shall be composed of the species stated in the special provisions, and any vegetation more than 6 inches in height shall be mowed to a height of 3 inches or less before sod is lifted. Sod, including the soil containing the roots and the plant growth showing above, shall be cut uniformly to a thickness not less than that stated in the special provisions. ***The species of sod shall be Bermuda, Coastal Bermuda, and/ or Saint Augustine.*** *A3*

904-2.2 LIME. Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 (850 µm) mesh sieve and 50% will pass through a No. 100 (150 µm) mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Contractor shall perform soil testing to determine the proper amount of lime to be added to the soil.

904-2.3 FERTILIZER. Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Contractor shall perform soil testing to determine the proper amount of fertilizer to be added to the soil.

904-2.4 WATER. The water shall be sufficiently free from oil, acid, alkali, salt, or other harmful materials that would inhibit the growth of grass.

904-2.5 SOIL FOR REPAIRS. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

904-3.1 GENERAL. Areas to be solid, strip, or spot sodded shall be shown on the plans. Areas requiring special ground surface preparation such as tilling and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans.

Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the RPR before the various operations are started. The Contractor shall demonstrate to the RPR before starting the various operations that the application of required materials will be made at the specified rates.

904-3.2 PREPARING THE GROUND SURFACE. After grading of areas has been completed and before applying fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. The ground surface shall be prepared so that the top soil and sod are can be applied to a total combined thickness of 4 inches. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

904-3.3 APPLYING FERTILIZER AND GROUND LIMESTONE. Following ground surface preparation, fertilizer shall be uniformly spread at a rate which will provide not less than the minimum quantity of each fertilizer ingredient, as stated in the special provisions. If use of ground limestone is required, it shall then be spread at a rate that will provide not less than the minimum quantity stated in the special provisions. These materials shall be incorporated into the soil to a depth of not less than 2 inches by discing, raking, or other suitable methods. Any stones larger than 2 inches in any diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

904-3.4 OBTAINING AND DELIVERING SOD. After inspection and approval of the source of sod by the RPR, the sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted, it shall have a uniform thickness of not less than 2 inches . Sod sections or strips shall be cut in uniform widths, not less than 10 inches , and in lengths of not less than 18 inches , but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside. The Contractor may be required to mow high grass before cutting sod.

The sod shall be transplanted within 24 hours from the time it is stripped, unless circumstances beyond the Contractor's control make storing necessary. In such cases, sod shall be stacked, kept moist, and protected from exposure to the air and sun and shall be kept from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, approval to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

904-3.5 LAYING SOD. Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the RPR, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches immediately prior to laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitch forks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and ensure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen, when replacing it, shall work from ladders or treaded planks to prevent further displacement. Screened soil of good quality shall be used to fill all cracks between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately one inch below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than one (1) vertical to 2-1/2 horizontal and in v-shaped or flat-bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches in length and have a cross-sectional area of not less than 3/4 sq inch. The pegs shall be driven flush with the surface of the sod.

904-3.6 WATERING. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface. ***Newly installed sod shall be watered consistently every day for 20 minutes for the first 2 weeks and then every other day for 4 weeks. After 4 weeks, watering must be done 3 times per week until the end of the 16th week. Rain events may reduce the frequency of watering required if approved by the RPR. Watering shall be performed by one of the following: Hand watering with a hose and attached sprinkler, water truck or tanker, temporary watering system using a battery-operated controller attached to a water source. The contractor shall submit a watering plan prior to the placement of any sod.***

A3

904-3.7 ESTABLISHING TURF. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work. All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the RPR. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing

specific areas. Weeds or other undesirable vegetation shall be mowed and the clippings raked and removed from the area.

904-3.8 REPAIRING. When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil, as directed by the RPR, and shall then be sodded as specified in paragraph 904-3.5.

METHOD OF MEASUREMENT

904-4.1 This item shall be measured on the basis of the area in square yards of the surface covered with sod and accepted.

BASIS OF PAYMENT

904-5.1 This item will be paid for on the basis of the contract unit price per square yard for sodding, which price shall be full compensation for all labor, equipment, material, staking, and incidentals necessary to satisfactorily complete the items as specified.

Payment will be made under:

Item T-904-5.1 Sodding - per square yard

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM C602 Standard Specification for Agricultural Liming Materials

END OF ITEM T-904

ITEM L-125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

125-2.1 GENERAL.

Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not performs as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

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

All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in electronic PDF format, tabbed by specification section. The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR’s opinion, does not meet the system design and the standards and codes, specified herein.

All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months 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.

EQUIPMENT AND MATERIALS

125-3.1 CONDUIT/DUCT. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-3.2 CABLE AND COUNTERPOISE. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-3.3 TAPE. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-3.4 CABLE CONNECTIONS. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-3.5 RETROREFLECTIVE MARKERS. Retroreflective markers shall be type L-853 and shall conform to the requirements of AC 150/5345-39.

125-3.6 RUNWAY AND TAXIWAY LIGHTS. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

a. Refer to the contract documents for type of light, base and transformer including class, mode, style and option as appropriate for project.

b. See engineering FAA Engineering Brief No. 67 “Light Sources other than Incandescent and Xenon for Airport Lighting and Obstruction Lighting Fixtures for additional information on LED fixtures.

c. Refer to plan drawings for fixture installation details.

d. Fixture Hold Down Bolts. Fixture hold down bolts and installations shall adhere to the following requirements.

1. Bolts shall be all-thread, 18-8, Grade 2 Carbon Steel with Fluoropolymer Coating. Bolts shall be colored orange or pink.

2. Bolts information shall be submitted for approval of the Engineer. Submittal shall be specifically identified, at a minimum, the bolt material, dimensions and threading.

3. Bolt material shall be readily identifiable in the field by appropriate ASTM markings on the bolts or by having material identified on bolt packaging, as approved by the Engineer.

4. Normally, bolts are supplied with the bases, not the fixtures. However, the usual bolts supplied with the bases are too short to extend into base can. The Contractor shall install bolts long enough to extend 1 inch inside the rim of the can after proper installation to hold down fixtures. Bolts of appropriate length and type shall be ordered accordingly.

5. Lock washers shall be installed on each bolt as per fixture base manufacturer's recommendations. Appropriate lock washers are usually provided with bases.

e. Spacer Rings. Install as allowed by the FAA criteria.

f. Concrete. Concrete shall adhere to requirements of Item P-610. Reinforcing steel shall conform to provisions of Item P-610. Precast base cans are not approved for use.

g. Sealer Products. Products used shall conform to applicable requirements for Joint Sealing Filler. Submit materials with satisfactory adhesive and waterproofing qualities for approval of the Owners representative. The joint sealer shall be a 2-component, Polyurethane P-606 compliant sealant similar to Q-Seal 295 or equal.

h. Joints. Use joint sealing material across concrete pavement joints. Where conduit is being installed in saw cut trench in existing pavement, OZ Gedney Type DX Expansion Fitting shall be installed at intersection of conduit installation and existing concrete pavement expansion joints.

125-3.7 RUNWAY AND TAXIWAY SIGNS. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

a. Refer to the contract documents for sign type, size style class and mode.

b. The nameplate required by 150/5345-44, latest edition, shall be made of metal with the data stamped into the metal nameplate.

c. Provide 6 inch high, die cut labels for each sign, labels shall be 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-inch height.

d. 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.

125-3.8 RUNWAY END IDENTIFIER LIGHT (REIL). Not required.

125-3.9 PRECISION APPROACH PATH INDICATOR (PAPI). Not required.

125-3.10 CIRCUIT SELECTOR CABINET. Not required.

125-3.11 LIGHT BASE AND TRANSFORMER HOUSINGS. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be as noted on the contract documents and shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures

125-3.12 ISOLATION TRANSFORMERS. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

INSTALLATION

125-4.1 INSTALLATION. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

125-4.2 TESTING. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-4.3 SHIPPING AND STORAGE. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-4.4 ELEVATED AND IN-PAVEMENT LIGHTS. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

a. Install and mount the products to comply with the requirements of the National Electric Code, Item L-111 and Item L-108.

b. General Cable Installation Requirements

1. The primary cable shall enter the light base and transformer housing as shown on the plans.

2. Primary cable slack shall be provided inside the light fixture base following Item L-108. In general, enough slack shall be left in the cable to permit installation aboveground of the connections between the primary cable and the isolation transformer primary leads. A similar length of primary cable slack shall be provided for any unconnected cable installed in a fixture base can.

3. The transformer secondary leads shall be connected to the lamp leads with a disconnecting plug and receptacle. The secondary connection shall not be taped; the cable connections to the insulating transformer's leads shall be made following Item L-108.

4. The connector joints in the primary circuit shall be wrapped with at least 3 layers of synthetic rubber tape and 2 layers of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint. Refer to section L-108.

5. Ends of cables shall be sealed with heat shrinkable tubing until the splice is made to prevent the entrance of moisture.

c. General Duct and Conduit Installation Requirements. Trenching, installation of ducts and conduits, concrete backfilling, trench backfilling, installation of duct markers and the type of material used shall conform to Item L-110.

d. General Light Fixture Base Installation Requirements.

1. Caution shall be exercised during light base installation to prevent the collection of foreign matter in products and on operating components. All installation residue shall be collected as installation progresses. As directed by Owners Representative, a cover shield shall be used to protect components from foreign matter during installation.

2. Fixture base shall be installed in existing reinforced concrete or asphalt pavements with connecting conduit as shown on the plans. Precast base cans are not approved for use.

3. Light bases shall be set level. Leveling jig shall be required as specified and as directed by the RPR. Turn leveling tool over to owner for spare parts.

4. Where fixtures bases are encased in concrete, use PVC coated rigid galvanized steel conduit for fixture connection through the encasement. Transition to PVC Schedule 40 outside of the encasement.

5. Install reinforcement in the concrete encasement consisting of No. 4 bar tie bar cage. Base can encasement shall be cast-in-place. Pre-cast base cans are not allowed.

6. Flexible, seal tight steel conduit shall not be used unless specifically approved by the RPR. If approved for use, a maximum length of two (2) feet of flexible, sealtight steel conduit can be installed at the connection point to fixture base cans, only where rigid conduit connections cannot be made. Any flexible, sealtight steel conduit bend radius shall meet the cable manufacturer's minimum bend radius requirements or shall meet bend radius requirements for rigid conduit. The more stringent requirement shall govern, as determined by the RPR.

7. Light or bases shall have 1, 2 or more 2-inch threaded metallic hubs for all required conduit entrances, or as indicated on the plans. Grommeted conduit entrances are strictly prohibited. The cable entrance hubs shall be oriented in the proper direction so as to align with the connecting conduit.

8. Stub-in conduit connections into existing light bases shall be Meyers Hub installation, where required on the plans and as noted on plan details.

9. Furnish base with a drain conduit connection as shown in contract drawings.

10. Furnish a light base ground consisting of a #6 AWG bare copper wire jumper bonded to the external ground lug on the base to a ground rod installed adjacent to the base.

11. Furnish a light fixture bonding conductor consisting of a (minimum 6-foot length) #6 AWG stranded copper wire rated for 600V with green XHHW insulation. Connect conductor from internal ground lug on base can to light fixture base plate following light fixture manufacturers recommendations.

12. When existing light fixtures are removed for the purpose of installing new conductors, lockwashers shall be re-installed using new hold down bolts.

13. Breakage of fixture hold down bolts normally and regularly occurs in the field during fixture removal or fixture installation. When breakage occurs, the Contractor shall adhere to the following requirements:

a) The Contractor shall submit a broken bolt removal process for approval of the OAR.

b) Submittal shall include information about the planned broken bolt removal process and jig required to effectively drill and tap broken bolts, when necessary.

c) Whenever encountered, broken bolts shall be removed.

d) Where drilling and tapping is required, a jig approved for use by the RPR shall be used.

e) All broken bolts shall be replaced with new hold down bolts. In the event that light fixture bases are permanently damaged in the course of removing broken bolts, the Contractor shall be held responsible for the immediate repair/replacement of the lighting base. Permanent damage includes drilling of holes which exceed the required 3/8 inch bolt diameter and/or any “off centered” impressions that penetrate the inner lip of the existing bolt holes.

f) Use of "helicoils" shall be strictly prohibited as a method of dealing with stripped bolt holes, unless specifically approved in extreme emergency conditions by the Owners Representative.

g) Light fixture bases to be used as junction boxes shall be installed at the approximate locations indicated in the plans, or as directed by the Owners Representative.

h) For elevated fixtures installed on standard L-867

1) Use 18-8 stainless steel bolts with 2-piece locking washer sets.

2) Provide material submittal of anti-seize compound to Engineer for approval prior to use.

3) Perform Bolt Clamping Force Test as noted in Section X-100 to determine required bolt torque.

i) For fixtures installed on stainless steel base cans or L-868 type galvanized steel base cans:

1) Use ceramic coated “orange” bolts, MCB Industries #L201-2416x1.75 or equal, with 2-piece locking washer sets.

2) Do NOT apply anti-seize compound.

3) Perform Bolt Clamping Force Test as noted in Section X-100 to determine required bolt torque.

j) For new fixtures installed on existing L-868 type base cans:

1) Remove existing bolts and install new ceramic coated “orange” bolts, MCB Industries #L201-2416x1.75 or equal, with 2-piece locking washer sets.

2) Do NOT apply anti-seize compound.

3) Perform Bolt Clamping Force Test as noted in Section X-100 to determine required bolt torque.

4) Provide new fixture ID following contract documents.

e. General Cable Installation Requirements

1. The primary cable shall enter the light base and transformer housing as shown on the plans.

2. Primary cable slack shall be provided inside the light fixture base following Item L-108. In general, enough slack shall be left in the cable to permit installation aboveground of the connections between the primary cable and the isolation transformer primary leads. A similar length of primary cable slack shall be provided for any unconnected cable installed in a fixture base can.

3. The transformer secondary leads shall be connected to the lamp leads with a disconnecting plug and receptacle. The secondary connection shall not be taped; the cable connections to the insulating transformer's leads shall be made following Item L-108.

4. The connector joints in the primary circuit shall be wrapped with at least 1 layer of synthetic rubber tape and 2 layers of plastic tape, one-half lapped, extending at least 1-1/2 inches on each side of the joint.

5. Ends of cables shall be sealed with heat shrinkable tubing until the splice is made to prevent the entrance of moisture.

f. Installing Light Fixtures at Existing Bases

1. At locations indicated on the plans, the Contractor shall install light fixtures at existing fixture bases. This shall include providing the following items, as required and directed by the RPR.

a) Remove and salvage existing base cover plates.

b) Refurbish and prepare the base flange with flange rings or spacer rings, as required and directed by the OAR, in order to properly install the specified light fixture.

c) Clean out and refurbish the interior of the bases, including conduits.

d) If no ground lug exists on the interior, provide new ground lug with ground strap following base manufacturer’s recommendations.

e) Install primary airfield lighting circuit cable or verify existing airfield light cable is properly installed.

f) Install fixture isolation transformers of proper specified rating and wattage.

g) Install specified fixtures.

h) Install concrete collar as shown on the contract documents.

g. An identification tag shall be installed with each light or sign as shown in the plans. Circuit identification tags identifying each circuit shall be attached to each circuit as shown in the plans. Refer to section L-108.

h. 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.

i. Demolition and Salvage. At locations noted on plans, the following shall be required:

1. Existing light fixtures, bases, cables and other materials identified as salvageable by the RPR shall be removed. Salvageable materials shall be delivered to the owner's salvage area or disposed of as directed by the RPR.

125-4.5 SIGNS, BASE CANS.

a. 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.

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

c. 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 a minimum of six (6) inches thick. 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.

d. 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.

e. 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 RPR 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.

f. 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.

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

h. An identification monument shall be installed with each fixture, sign, etc. as shown in the plans.

i. Provide three feet (3') of slack in each end of each cable in each base can. All connections shall be able to be made above ground.

j. Painted and galvanized surfaces that are damaged shall be repaired according to the manufacturer's recommendations, to the satisfaction of the RPR. Use cold galvanizing compound or to repair galvanized surfaces. Obtain paint and primer, of same batch number, from the equipment manufacturer to repair painted surfaces.

k. All signs shall use an L-867D size Base Can shall be used.

l. Dewatering necessary to construct L-125 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-125. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-125 Item.

METHOD OF MEASUREMENT

125-5.1 This item provides for the installation of an elevated light of the type shown on a base can of the type shown that is consistent with the line item description and contract drawings. All equipment noted as new shall be procured as part of this item, and all equipment previously salvaged to be re-installed shall be completed as noted. This item includes installation of the light fixture with, lens, lamps, new or salvaged L-867B base can with grade 2 carbon steel coated bolting hardware with CEC lock washers, nylon bushing, gasket, spacers, multi-hole adapter ring, connector kit, isolation transformer, heat shrinks, cable tags, light ID marker, concrete encasement with reinforcement, safety ground, stainless steel ground rod including all terminations, testing and all items necessary to complete installation. Incidental to this item, if required, is the special height base can with bricks. Incidental to this item is the testing to determine the required bolt torque following section X-100 including, but not limited to, testing for determination of the K factor, mock-up of lighting assembly and all materials and tools necessary to conduct the test following EB-83A. Measurement for this item will be per each, installed complete and accepted by the OAR.

125-5.2 This item provides for the installation of an in-pavement light of the type shown on a base can of the type shown that is consistent with the line item description and contract drawings. All equipment noted as new shall be procured as part of this item, and all equipment previously salvaged to be re-installed shall be completed as noted. This item includes installation of the light fixture with, lens, lamps, new or salvaged L-868B base can including all required parts and sections with grade 2 carbon steel coated bolting hardware with CEC lock

washers, nylon bushing, gasket, spacers, multi-hole adapter ring, connector kit, isolation transformer, heat shrinks, cable tags, light ID marker, concrete encasement with reinforcement, safety ground, stainless steel ground rod including all terminations, testing and all items necessary to complete installation. Incidental to this item, if required, is the special height base can with bricks. Incidental to this item is the testing to determine the required bolt torque following section X-100 including, but not limited to, testing for determination of the K factor, mock-up of lighting assembly and all materials and tools necessary to conduct the test following EB-83A. Measurement for this item will be per each, installed complete and accepted by the OAR.

125-5.3 This item provides for the procurement and installation of a new isolation transformer in an existing light fixture or sign. Isolation transformer shall be sized as noted on contract drawings, and installed complete with all required connections, heat shrinking, cable ID markers, and all other components required for a complete and accepted system to the satisfaction of the OAR. Measurement for this item will be per each, installed complete and accepted by the OAR.

A3 **125-5.4** ***This item provides for the installation of airfield lighting signs of the type shown that is consistent with the line item description and contract drawings. Measurement for these items shall be for each sign, installed complete and accepted by the OAR.***

BASIS OF PAYMENT

A3 **125-6.1** ***Payment for this item will be made at the contract unit price per each completed and accepted sign and light assembly, which constitutes full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, supervision, equipment, tools and incidentals necessary to complete this item.*** Unsuitable materials removed must be disposed of off-site by the Contractor in accordance with local laws and regulations. All other materials removed must be hauled separately to the EMMS, unless otherwise directed by the OAR. The cost of removing and disposing of the material will not constitute a pay item and will be considered incidental to installation.

Payment will be made under:

Item L-125-5.1	Install salvaged elevated taxiway edge light on new base can in existing shoulder pavement, per Each
Item L-125-5.2	Procure and install new LED inpavement taxiway centerline light on new base can in new full strength pavement, per Each
Item L-125-5.3	Procure and install new LED inpavement touchdown zone light on new base can in new full strength pavement, per Each
Item L-125-5.4	Procure and install new LED elevated runway edge light on new base can in existing should pavement, per Each
Item L-125-5.5	Procure and install new LED inpavement runway edge light on existing base can, per Each
Item L-125-5.6	Procure and install new LED elevated runway edge light on existing base can, per Each

Item L-125-5.7	Install salvaged elevated runway edge light on new base can in existing shoulder pavement, per Each
Item L-125-5.8	Procure and install new LED elevated runway threshold and light on new base can in new shoulder pavement, per Each
Item L-125-5.9	Procure and install new LED inpavement runway centerline light on existing base can, per Each
Item L-125-5.10	Procure and install new LED inpavement touchdown zone light on existing base can, per Each
Item L-125-5.11	Procure and install new isolation transformer in existing sign or light fixture, per Each
A3 ***Item L-125-5.12***	***Procure and Install New L-858(L) LED Airfield Lighting Sign, Size 2, 1-Module on New Foundation, per Each***
Item L-125-5.13	***Procure and Install New L-858(L) LED Airfield Lighting Sign, Size 2, 2-Module on New Foundation, per Each***
Item L-125-5.14	***Procure and Install New L-858(L) LED Airfield Lighting Sign, Size 2, 3-Module on New Foundation, per Each***
Item L-125-5.15	***Procure and Install New L-858(L) LED Airfield Lighting Sign, Size 4, 1-Module on New Foundation, per Each***

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures

AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures

END OF ITEM L-125

SUMMARY OF QUANTITIES

ITEM	ITEM DESCRIPTION	QTY	UNIT
C-100-3.1	CONTRACTOR QUALITY CONTROL PLAN (CQCP)	1	LS
C-102-5.1	EROSION AND SEDIMENT CONTROL	1	LS
C-105-4.1	MOBILIZATION	1	LS
P-101-5.1	COLD MILLING, UP TO 2-INCH NOMINAL DEPTH	18,500	SY
P-101-5.2	ASPHALT PAVEMENT REMOVAL, 2 TO 5-INCH DEPTH	300	SY
P-101-5.3	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT REMOVAL	4,050	SY
P-101-5.4	PCC PAVEMENT REMOVAL	625	SY
P-101-5.5	ISOLATED PARTIAL DEPTH PCC PATCH	50	SF
P-101-5.6	ISOLATED FULL DEPTH PCC PATCH	650	SF
P-101-5.7	ASPHALT PAVEMENT CRACK SEALANT	13,500	LF
P-101-5.8	PCC PAVEMENT CRACK SEALANT	1,400	LF
P-101-5.9	SURFACE PREPARATION	260,000	SF
P-101-5.10	REMOVE PREVIOUSLY ABANDONED SIGN FOUNDATIONS	3	EA
P-101-5.11	DIAMOND GRINDING	3,300	SF
P-101-5.12	SIDEWALK REMOVAL	10	SY
P-152-4.1	UNCLASSIFIED EXCAVATION	2,300	CY
P-152-4.2	UNSUITABLE EXCAVATION	230	CY
P-403-8.1	ASPHALT PAVEMENT	2,300	TON
P-501-8.1	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT, 15-INCH DEPTH	3,700	SY
P-501-8.2	CONTINUOUSLY REINFORCED CONCRETE PAVEMENT, VARIABLE DEPTH, 12 TO 15-INCH DEPTH	350	SY
P-501-8.3	REINFORCED CONCRETE PAVEMENT, 6-INCH DEPTH	125	SY
P-501-8.4	NON-REINFORCED CONCRETE PAVEMENT, 16-INCH DEPTH	145	SY
P-501-8.5	NON-REINFORCED CONCRETE PAVEMENT, 18-INCH DEPTH	425	SY
P-605-5.1	JOINT RESEALING	16,000	LF
P-608-8.1	ASPHALT SURFACE TREATMENT, TAXIWAYS	16,000	SY
P-608-8.2	ASPHALT SURFACE TREATMENT, SHOULDERS	15,800	SY
P-608-8.3	HIGH SPEED EXIT TAXIWAY FRICTION TESTING	1	LS
P-610-6.1	CONCRETE ISOLATION JOINT REPAIR SLAB	110	SY
P-610-6.2	CONCRETE SIDEWALK	10	SY
P-620-5.1	WATERBORNE PAVEMENT MARKING, YELLOW, RED, AND WHITE	170,000	SF
P-620-5.2	WATERBORNE PAVEMENT MARKING, BLACK	65,500	SF
P-620-5.3	PREFORMED MARKING	15,100	SF
P-620-5.4	REFLECTIVE MEDIA	12,250	LB
P-621-5.1	GROOVING	4,600	SY
D-701-5.1	12-INCH CLASS III REINFORCED CONCRETE PIPE	110	LF
D-701-5.2	4-INCH HDPE PIPE	40	LF
D-751-5.1	DRAINAGE MANHOLE	1	EA
D-751-5.2	DRAINAGE INLET	1	EA
T-904-5.1	SODDING	32,000	SY
T-905-5.1	TOPSOIL (FURNISHED FROM OFF THE SITE)	3,600	CY
L-105-5.1	REMOVE NO. 8 AWG, L-824C IN DUCT	66,100	LF
L-105-5.2	REMOVE 2-INCH CONDUIT (INCLUDING CABLE) IN MODIFIED PAVEMENT AREAS OR TURF	8,200	LF
L-105-5.3	REMOVE EXISTING ELEVATED EDGE LIGHT AND BASE CAN IN EXISTING PAVEMENT AREAS VIA CORING	49	EA
L-105-5.4	REMOVE EXISTING ELEVATED EDGE LIGHT, BASE CAN TO REMAIN	13	EA
L-105-5.5	REMOVE EXISTING IN-PAVEMENT LIGHT AND BASE CAN	12	EA
L-105-5.6	REMOVE EXISTING IN-PAVEMENT LIGHT, BASE CAN TO REMAIN	334	EA
L-105-5.7	REMOVE EXISTING ELEVATED LIGHT AND BASE CAN IN MODIFIED PAVEMENT AREAS	4	EA
L-105-5.8	REMOVE EXISTING ELEVATED LIGHT AND BASE CAN IN TURF	4	EA
L-105-5.9	REMOVE EXISTING GUIDANCE SIGN AND FOUNDATION	44	EA
L-105-5.10	REMOVE AND SALVAGE EXISTING IN-PAVEMENT LIGHT FIXTURE, BASE CAN TO BE REMOVED	29	EA
L-105-5.11	REMOVE AND SALVAGE EXISTING ELEVATED LIGHT FIXTURE, BASE CAN TO BE REMOVED VIA CORING	10	EA
L-108-5.1	PROCURE AND INSTALL NO. 8 AWG, L-824, TYPE C (5KV) CABLE IN CONDUIT	83,500	LF
L-108-5.2	PROCURE AND INSTALL NO. 6 AWG BARE COUNTERPOISE WIRE IN CONDUIT TRENCH	9,900	LF
L-110-5.1	PROCURE AND INSTALL 1-WAY, 2-INCH SCHEDULE 40 PVC CONDUIT, CONCRETE ENCASED IN NEW FULL STRENGTH PAVEMENT	1,500	LF
L-110-5.2	PROCURE AND INSTALL 1-WAY, 2-INCH SCHEDULE 40 PVC CONDUIT, CONCRETE ENCASED IN TURF	6,600	LF
L-110-5.3	ELECTRICAL CONDUIT REPAIR IN EXISTING PAVEMENT	1,800	LF

SUMMARY OF QUANTITIES

ITEM	ITEM DESCRIPTION	QTY	UNIT
L-125-5.1	INSTALL SALVAGED ELEVATED TAXIWAY EDGE LIGHT ON NEW BASE CAN IN EXISTING SHOULDER PAVEMENT	8	EA
L-125-5.2	INSTALL SALVAGED LED IN-PAVEMENT TAXIWAY CENTERLINE LIGHT ON NEW BASE CAN IN NEW FULL-STRENGTH PAVEMENT	29	EA
L-125-5.3	PROCURE AND INSTALL NEW LED IN-PAVEMENT TOUCHDOWN ZONE LIGHT ON NEW BASE CAN IN NEW FULL STRENGTH PAVEMENT	12	EA
L-125-5.4	PROCURE AND INSTALL NEW LED ELEVATED RUNWAY EDGE LIGHT ON NEW BASE CAN IN EXISTING SHOULDER PAVEMENT	48	EA
L-125-5.5	PROCURE AND INSTALL NEW LED IN-PAVEMENT RUNWAY EDGE LIGHT ON EXISTING BASE CAN	15	EA
L-125-5.6	PROCURE AND INSTALL NEW LED ELEVATED RUNWAY EDGE LIGHT ON EXISTING BASE CAN	13	EA
L-125-5.7	INSTALL SALVAGED ELEVATED RUNWAY EDGE LIGHT ON NEW BASE CAN IN EXISTING SHOULDER PAVEMENT	2	EA
L-125-5.8	PROCURE AND INSTALL NEW LED ELEVATED RUNWAY THRESHOLD END LIGHT ON NEW BASE CAN IN NEW SHOULDER PAVEMENT	8	EA
L-125-5.9	PROCURE AND INSTALL NEW LED IN-PAVEMENT RUNWAY CENTERLINE LIGHT ON EXISTING BASE CAN	151	EA
L-125-5.10	PROCURE AND INSTALL NEW LED IN-PAVEMENT TOUCHDOWN ZONE LIGHT ON EXISTING BASE CAN	168	EA
L-125-5.11	PROCURE AND INSTALL NEW ISOLATION TRANSFORMER IN EXISTING SIGN OR LIGHT FIXTURE	17	EA
L-125-5.12	PROCURE AND INSTALL NEW L-858(L) LED AIRFIELD LIGHTING SIGN, SIZE 2, 1-MODULE ON NEW FOUNDATION	11	EA
L-125-5.13	PROCURE AND INSTALL NEW L-858(L) LED AIRFIELD LIGHTING SIGN, SIZE 2, 2-MODULE ON NEW FOUNDATION	6	EA
L-125-5.14	PROCURE AND INSTALL NEW L-858(L) LED AIRFIELD LIGHTING SIGN, SIZE 2, 3-MODULE ON NEW FOUNDATION	22	EA
L-125-5.15	PROCURE AND INSTALL NEW L-858(L) LED AIRFIELD LIGHTING SIGN, SIZE 4, 1-MODULE ON NEW FOUNDATION	5	EA
M-001-6.1	MAINTENANCE AND PROTECTION OF AIRFIELD TRAFFIC	1	LS
M-002-4.1	CRUSHED AGGREGATE BASE COURSE	350	SY
M-002-4.2	GEOGRID FOR BASE REINFORCEMENT	350	SY
M-002-4.3	GEOTEXTILE	350	SY

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TEXAS P.E. FIRM F-2966

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	REVISION 1	3-31-25	KRC
2	ADDENDUM 3	5-30-25	KRC

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

SUMMARY OF QUANTITIES

ISSUED FOR PERMIT

PROJECT MGR:	KRC
DESIGNER:	HML
DRAWN BY:	ACE
CHECKED BY:	KRC
SCALE:	AS SHOWN
DATE:	03/21/2025

03/21/2025
STATE OF TEXAS
KEVIN R. CONTI
127462
LICENSED PROFESSIONAL ENGINEER
F-2966

APPROVED BY: DATE:
DIRECTOR
HOUSTON AIRPORT SYSTEM

TIP NO: TIP-24-259-HOU
BSG NO: BSG- 2024-341-HOU
PROJECT NO: P1057
A.I.P. NO: 3-48-0110-060-2025
H.A.S. NO: 1057
SHEET NO: GI003

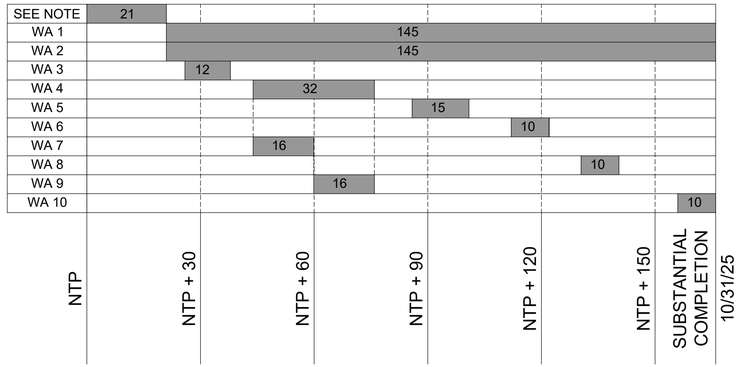
GENERAL PHASING NOTES:

1. THE CONSTRUCTION SAFETY PHASING PLAN (CSPP) HAS BEEN DEVELOPED IN COORDINATION WITH HOU OPERATIONS AND OTHER STAKEHOLDERS TO MINIMIZE THE IMPACTS TO THE AIRFIELD OPERATIONS AT HOU. THE CONTRACTOR SHALL PREPARE AND SUBMIT A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) THAT DESCRIBES HOW THE CONTRACTOR WILL FOLLOW THE REQUIREMENTS OF THE CSPP AND INDICATE ANY ASPECT THAT CANNOT BE FOLLOWED TO ALLOW FOR COORDINATION WITH HOU AND ALL IMPACTED STAKEHOLDERS.
2. PRIOR TO COMMENCING WORK IN ANY AREA, THE CONTRACTOR SHALL SUBMIT A WORK AUTHORIZATION NOTICE (WAN) TO HOU OPERATIONS FOR APPROVAL AT LEAST 72 HOURS IN ADVANCE. NO WORK WILL BE PERMITTED WITHOUT PRIOR APPROVAL OF THE WAN. WHEN WORK INCLUDES EXTENDED MOVEMENT AREA CLOSURES, ADDITIONAL ADVANCE NOTIFICATION MAY BE REQUIRED. WANS WILL BE PRESENTED TO THE STAKEHOLDERS BY THE HAS PROJECT MANAGER ON TUESDAYS.
3. PRIOR TO THE START OF WORK IN ANY WORK AREA THE CONTRACTOR SHALL CONDUCT A PRE-WORK COORDINATION MEETING. THE CONTRACTOR SHALL REVIEW THE PLACEMENT OF ALL LOW-PROFILE BARRICADES AND RUNWAY CLOSURE DEVICES, AS WELL AS DISCUSS ANY TEMPORARY MODIFICATIONS TO THE AIRFIELD LIGHTING SYSTEMS, STOCKPILE LOCATIONS, NIGHTTIME ILLUMINATION PLAN, AND IDENTIFY ANY OTHER ANTICIPATED IMPACTS TO THE AIRPORT FACILITIES OR UTILITIES.
4. REPLACEMENT OF THE HOME RUNS FOR THE AIRFIELD LIGHTING CIRCUITS ARE OUTSIDE OF THE WORK AREAS SHOWN ON THE PLANS, THIS WORK SHALL BE COORDINATED AT LEAST 14 CONTINUOUS CALENDAR DAYS (CCD) PRIOR TO THE WORK COMMENCING WITH THE RPR TO FACILITATE ANY ADDITIONAL AIRFIELD CLOSURES THAT WOULD BE NECESSARY.
5. MARKING MAY OCCUR OUTSIDE OF THE WORK AREAS INDICATED. THIS WORK SHALL BE COORDINATED WITH THE RPR 14 CCD PRIOR TO COMMENCING WORK FOR ANY ADDITIONAL CLOSURES THAT WOULD BE REQUIRED.
6. ALL OF THE CONSTRUCTION ACTIVITIES SHALL BE PERFORMED WITHIN THE WORKING HOURS PROVIDED FOR EACH WORK AREA. ANY WORK OCCURRING DURING NIGHTTIME HOURS SHALL BE PROPERLY ILLUMINATED AND ALL LIGHTS DIRECTED AWAY FROM AIRCRAFT. LIGHTING MAY NEED TO BE ADJUSTED IF DIRECTED BY THE RPR.
7. WITHIN THE FIRST WORKING SHIFT OF ANY WORK AREA, ALL LOW-PROFILE BARRICADES AND RUNWAY CLOSURE DEVICES SHALL BE IN PLACE, OPERATIONAL, AND ACCEPTED. NO OTHER CONSTRUCTION ACTIVITIES CAN BEGIN UNTIL THESE ITEMS ARE PROPERLY INSTALLED AND ACCEPTED. ALL BARRICADES AND RUNWAY CLOSURE DEVICES SHALL REMAIN IN PLACE FOR EACH WORK AREA UNTIL THE WORK HAS BEEN COMPLETED AND ACCEPTED BY THE RPR.
8. WHEN THE WORK AREA IS TURNED OVER TO HOU AT THE END OF THE WORKING SHIFT OR THE COMPLETION OF THE WORK AREA, ALL LOW-PROFILE BARRICADES AND RUNWAY CLOSURE DEVICES SHALL BE REMOVED AND RETURNED TO THE CONTRACTOR STAGING AREA. THE CONTRACTOR SHALL ALLOW FOR TIME FOR HOU TO INSPECT THE AREA AND THE CONTRACTOR SHALL PERFORM ANY CORRECTIVE ACTIONS REQUIRED BY THE RPR PRIOR TO THE WORK AREA BEING TURNED OVER TO THE AIRPORT.
9. TEMPORARY LIGHTING MODIFICATIONS REQUIRED FOR THE WORK AREA SHALL BE COORDINATED WITH HOU AT LEAST 10 CONTINUOUS CALENDAR DAYS PRIOR TO THE START OF THE WORK. ALL MODIFICATIONS SHALL BE PERFORMED WITHIN THE FIRST WORKING SHIFT OF THE WORK AREA. THIS WORK MAY REQUIRE TEMPORARY CLOSURES OF TAXIWAYS/ APRONS/ RUNWAYS. ANY LOW-PROFILE BARRICADES REQUIRED FOR THIS WORK SHALL BE ERECTED AS DIRECTED BY THE RPR.
10. CONTRACTOR SHALL VERIFY FUNCTIONING OF BARRICADE LIGHTS, LIGHTED RUNWAY CLOSURE MARKERS, AND BARRICADE WATER LEVELS DAILY. THE CONTRACTOR SHALL REPLACE ANY NON-FUNCTIONAL LIGHTS OR LOW-PROFILE BARRICADES THAT HAVE BECOME DAMAGED OR HAVE LOST REFLECTIVITY, WITHIN 24 HOURS OF THEM BEING IDENTIFIED AS NON-FUNCTIONAL. THE CONTRACTOR SHALL MAINTAIN AN ADEQUATE NUMBER OF SPARE BULBS, FLASHERS, ETC. TO ALLOW FOR THE REPLACEMENT OF NON-FUNCTIONAL ITEMS WITHIN THE TIME INDICATED. LIGHTED RUNWAY CLOSURE MARKERS SHALL BE OPERATIONAL 24/7. LOW PROFILE BARRICADE LIGHTING SHALL BE OPERATIONAL FROM DUSK TO DAWN AND DURING TIMES OF LOW LIGHT.
11. LIGHTED RUNWAY CLOSURE DEVICES WILL BE FURNISHED BY AND WILL REMAIN THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PLACEMENT AND MAINTENANCE (BULBS. FUEL, ETC.) OF THE DEVICES DURING THE RUNWAY CLOSURES. NO WORK SHALL OCCUR IN A WORK AREA THAT REQUIRES A RUNWAY CLOSURE WITHOUT THESE CLOSURE DEVICES IN PLACE UNLESS OTHERWISE NOTED. INOPERATIVE RUNWAY CLOSURE DEVICES MUST BE REPLACED WITHIN 30 MINUTES.
12. THE CONTRACTOR'S PERSONNEL AND EQUIPMENT SHALL REMAIN WITHIN THE WORK AREAS AND SHALL NOT CROSS A BARRICADE UNDER ANY CIRCUMSTANCE WITHOUT PRIOR APPROVAL FROM THE ESCORT TO ENTER AN ACTIVE PORTION OF THE AIRFIELD (AS SHOWN ON THE PLANS).
13. LOW-PROFILE BARRICADES SHALL BE PLACED TO MARK ALL OPEN EXCAVATIONS, PAVEMENT DROPS GREATER THAN 3 INCHES, OR OTHER HAZARDOUS CONDITIONS, OR AS DIRECTED BY THE RPR IN ADDITION TO THE ONES REQUIRED FOR THE CLOSURE OF AIRFIELD PAVEMENTS.
14. ALL AIRFIELD LIGHTING (EDGE LIGHTS, CENTERLINE LIGHTS, RUNWAY GUARD LIGHTS, ETC) ON CLOSED PAVEMENTS OR LEADING TO CLOSED PAVEMENTS SHALL BE OBSCURED OR DEENERGIZED SO NO VISIBLE LIGHT IS EMITTED. THE CONTRACTOR SHALL COORDINATE THIS WITH THE RPR 48 HOURS PRIOR TO WORK BEGINNING IN EACH WORK AREA.
15. ALL AIRFIELD GUIDANCE SIGNS LEADING TO A CLOSED PAVEMENT AREA SHALL BE COVERED. THE CONTRACTOR SHALL COORDINATE WITH THIS WITH THE RPR 48 HOURS PRIOR TO WORK BEGINNING IN EACH WORK AREA.
16. AT LEAST TWO CROSSINGS OF RW 4-22 SHALL BE AVAILABLE FOR AIRCRAFT AT ALL TIMES.
17. ANTICIPATED CONSTRUCTION SCHEDULE DOES NOT ACCOMMODATE THE FOLLOWING BACKOUT DATES, AT WHICH TIMES THE AIRFIELD WILL BE UNAVAILABLE TO THE CONTRACTOR:

    - 0600 ON 7-3-2025 THROUGH 2359 ON 7-7-2025
    - 0600 ON 11-20-2025 THROUGH 2359 ON 12-1-2025
    - 0600 ON 12-18-2025 THROUGH 2359 ON 1-5-2026
    - 0600 ON 3-5-2026 THROUGH 2359 ON 3-16-2026
    - 0600 ON 6-11-2026 THROUGH 2359 ON 7-6-2026

    THE FINAL CONSTRUCTION SCHEDULE SHALL TAKE THESE DATES INTO ACCOUNT AND THE DURATION OF THE IMPACTED WORK AREAS WILL BE ADJUSTED TO ACCOMMODATE THESE DATES.

ANTICIPATED CONSTRUCTION SCHEDULE (CCD)



NOTE:
1. SUBMITTAL AND PROCUREMENT PERIOD

RW / TW CLOSURE OVERVIEW

	RW 4-22	RW 13L-31R	RW 13R-31L	TW B	TW C	TW H	TW H2	TW J	TW K	TW K1	TW K2	TW M	TW R	TW Y	TW Z	WORKING HOURS	DURATION CALENDAR DAYS
WORK AREA 1	CLOSED	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED	CLOSED BETWEEN RW 4-22 - TW K	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	8:00 AM - 6:00 PM	145
WORK AREA 2	CLOSED	OPEN	OPEN	CLOSED BETWEEN RW 4-22 - TW Z	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED	OPEN	OPEN	OPEN	OPEN	8:00 AM - 6:00 PM	145
WORK AREA 3	CLOSED	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED BETWEEN RW 4-22 - TW K2	OPEN	OPEN	OPEN	OPEN	CLOSED BETWEEN RW 4-22 - TW Z	OPEN	8:00 AM - 6:00 PM	12
WORK AREA 4	CLOSED	OPEN	OPEN	OPEN	CLOSED BETWEEN TW K - TW Z	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED BETWEEN RW 4-22 - TW K	OPEN	OPEN	8:00 AM - 6:00 PM	32
WORK AREA 5	CLOSED	CLOSED	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED BETWEEN TW H - TW K	OPEN	OPEN	OPEN	8:00 AM - 6:00 PM	15
WORK AREA 6	CLOSED	OPEN	CLOSED NIGHTLY	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	12:30 AM - 4:30 AM	10
WORK AREA 7	OPEN	OPEN	OPEN	OPEN	CLOSED BETWEEN RW 4-22 - TW K	OPEN	OPEN	OPEN	CLOSED BETWEEN RW 13L-31R - SIGNATURE	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	8:00 AM - 6:00 PM	16
WORK AREA 8	OPEN	OPEN	OPEN	CLOSED AT TW Z INTERSECTION	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED AT TW B INTERSECTION	8:00 AM - 6:00 PM	10
WORK AREA 9	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED BETWEEN TW R - SIGNATURE	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	8:00 AM - 6:00 PM	16
WORK AREA 10	CLOSED	OPEN	OPEN	OPEN	OPEN	CLOSED BETWEEN RW 4-22 - RW 4 RUN-UP PAD	OPEN	OPEN	OPEN	CLOSED	OPEN	OPEN	OPEN	OPEN	OPEN	8:00 AM - 6:00 PM	10

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TEXAS P.E. FIRM F-2966

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM 3	5-30-25	KRC

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

PHASING NOTES

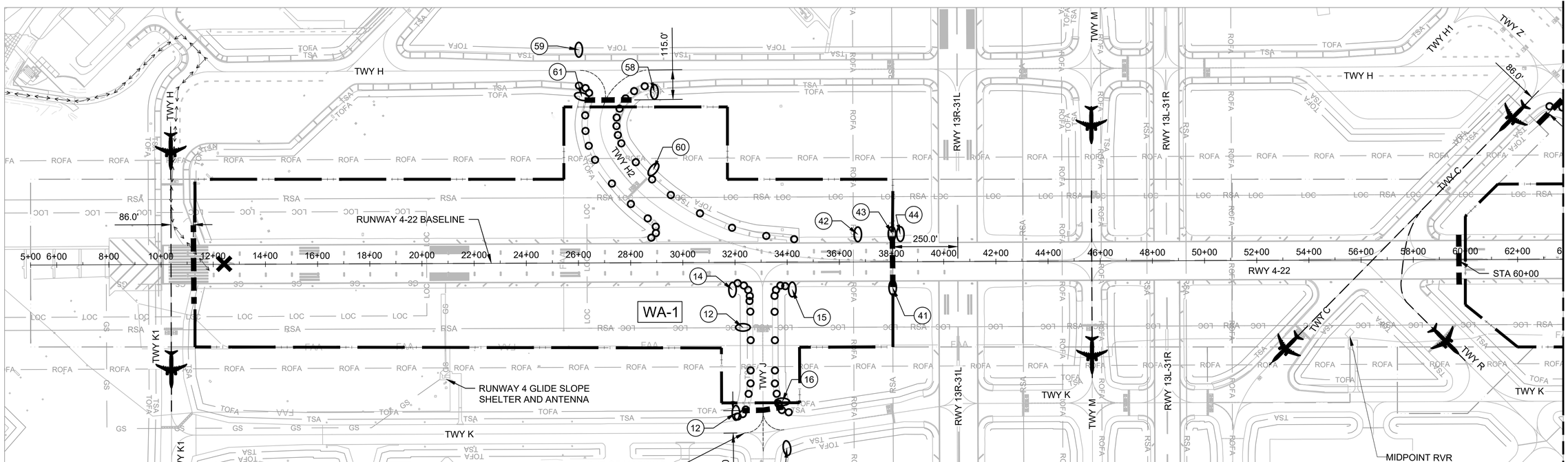
ISSUED FOR PERMIT

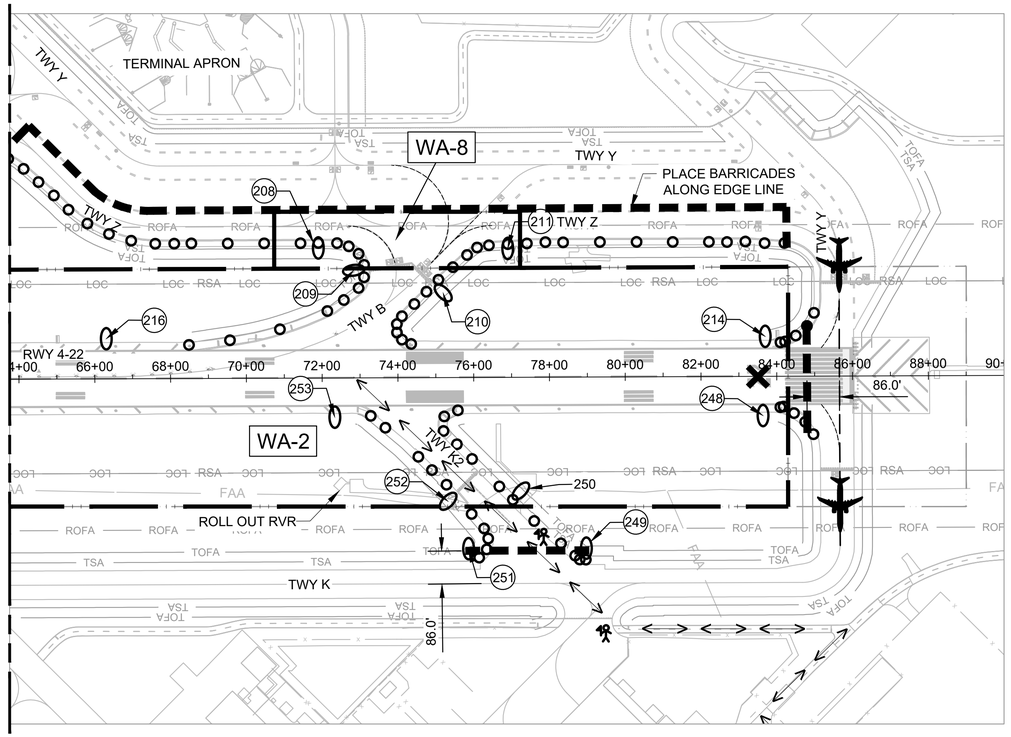
PROJECT MGR:	KRC
DESIGNER:	HML
DRAWN BY:	ACE
CHECKED BY:	KRC
SCALE:	AS SHOWN
DATE:	03/21/2025

03/21/2025
STATE OF TEXAS
KEVIN R. CONTI
127462
LICENSED PROFESSIONAL ENGINEER
F-2966

APPROVED BY: DATE:
DIRECTOR
HOUSTON AIRPORT SYSTEM

TIP NO: TIP-24-259-HOU
BSG NO: BSG- 2024-341-HOU
PROJECT NO: P1057
A.I.P. NO: 3-48-0110-060-2025
H.A.S. NO: 1057
SHEET NO: GC201





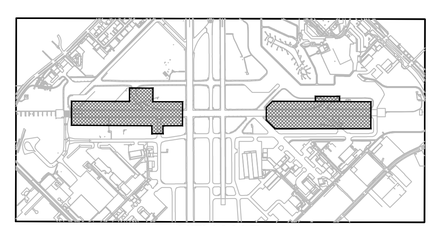
NOTES:

1. ALL RUNWAY 4-22 LIGHTING SHALL BE SHUT OFF AT THE VAULT PRIOR TO THE START OF ANY WORK. THIS INCLUDES, BUT IS NOT LIMITED TO: RUNWAY EDGE LIGHTS, CENTERLINE LIGHTS, TOUCHDOWN ZONE LIGHTS, APPROACH LIGHT SYSTEM (FAA OWNED).
2. ANY NAVAID FOR RUNWAY 4-22 SHALL BE SHUT OFF BY THE OWNER PRIOR TO WORK STARTING IN THE PROJECT, THIS INCLUDES THE RUNWAY 4 GLIDE SLOPE, RUNWAY 4 LOCALIZER, RUNWAY 22 LOCALIZER, RUNWAY 22 PAPI, RUNWAY 4 PAPI.
3. ONLY THE PORTION OF THE SIGN LEADING AIRCRAFT INTO THE CLOSED PAVEMENTS, OR THAT PROVIDES A TAXIWAY LOCATION WITHIN A CLOSED PAVEMENT AREA SHALL BE COVERED. ALL RED AND WHITE SIGNS SHALL REMAIN UNCOVERED.
4. PRIOR TO ANY MARKING REMOVAL THE CONTRACTOR SHALL SURVEY THE EXISTING MARKINGS WITH ADEQUATE DETAIL TO REPLACE THE MARKING IN-KIND. THE SURVEY SHALL BE PROVIDED TO THE RPR. THE MARKING SHALL BE REPLACED DURING THE LAST WORKING SHIFT AVAILABLE FOR THE WORK AREA

LEGEND:

WORK AREA NUMBER	WA-#
WORK AREA BOUNDARY	
4 GC501 — AIRFIELD SIGNAGE AND SIGN # TO BE COVERED (SEE NOTE 3)	#
3 GC501 — RUNWAY/TAXIWAY EDGE LIGHTS TO BE SHUT OFF OR COVERED	
1 GC501 — LOW PROFILE BARRICADE	
2 GC501 — LIGHTED RUNWAY CLOSURE MARKER	
AIRCRAFT TRAFFIC ROUTE	
LIMIT OF MARKING REMOVAL (SEE NOTE 4)	
HAUL ROUTE	
FLAGGER	

GRAPHIC SCALE
100' 0 100' 200'
SCALE: 1" = 100'



KEY MAP
NTS

HOUSTON AIRPORT SYSTEM
WILLIAM P. HOBBY AIRPORT
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VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	REVISION 1	3-31-25	KRC
2	ADDENDUM 3	5-30-25	KRC

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

PHASING PLAN
WORK AREAS 1, 2, AND 8
AIRFIELD CLOSURE PLAN

ISSUED FOR PERMIT

PROJECT MGR:	KRC
DESIGNER:	HML
DRAWN BY:	ACE
CHECKED BY:	KRC
SCALE:	AS SHOWN
DATE:	03/21/2025

03/21/2025
STATE OF TEXAS
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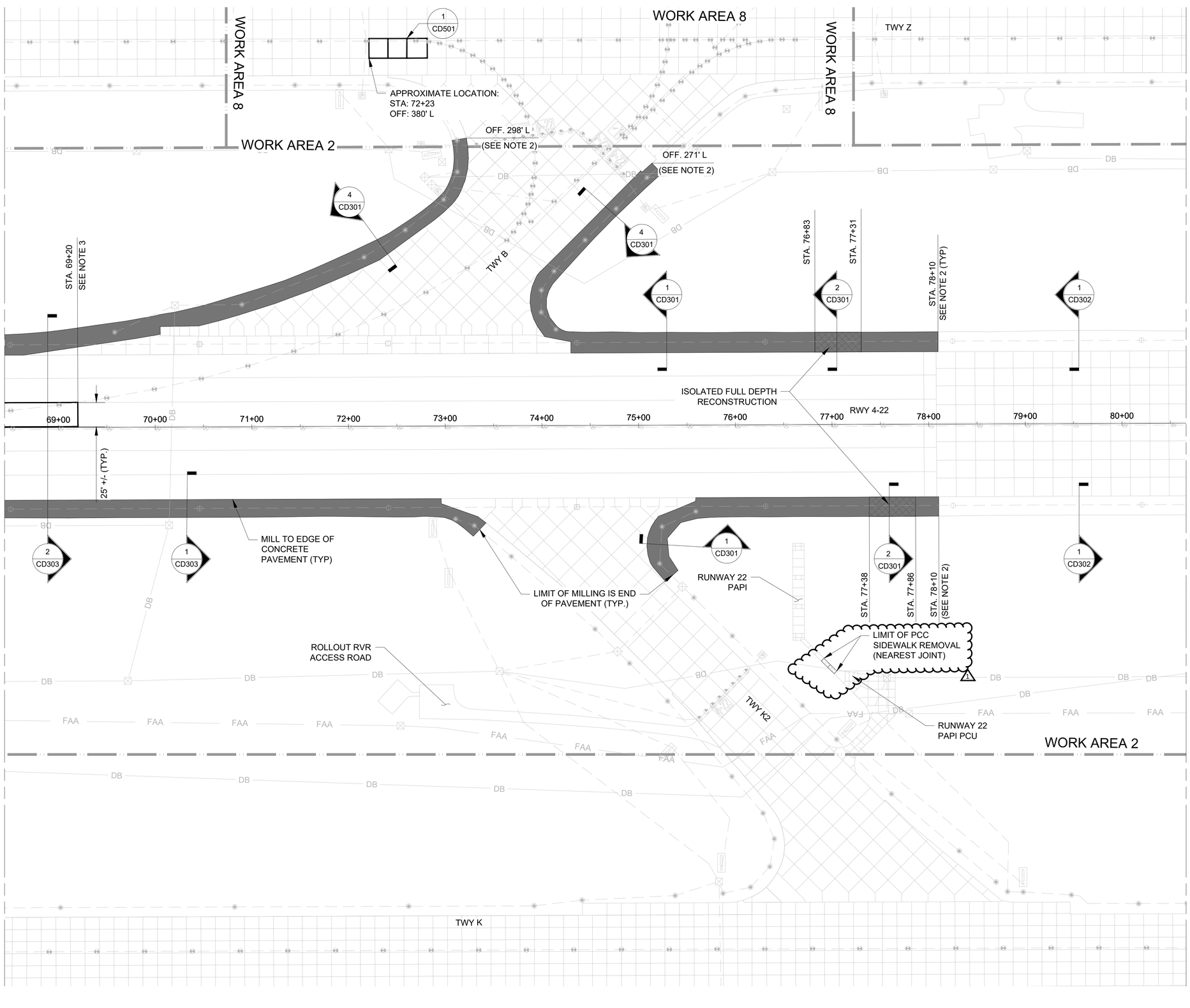
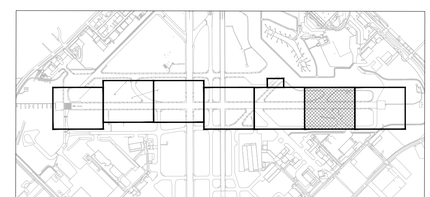
127462
LICENSED PROFESSIONAL ENGINEER
F-2966

APPROVED BY:	DATE:
DIRECTOR HOUSTON AIRPORT SYSTEM	
TIP NO:	TIP-24-259-HOU
BSG NO:	BSG- 2024-341-HOU
PROJECT NO:	P1057
A.I.P. NO:	3-48-0110-060-2025
H.A.S. NO:	1057
SHEET NO:	GC307





KEY MAP
NTS

NOTES:

1. PRIOR TO THE BITUMINOUS MILLING OR CONCRETE/CRCP PAVEMENT REMOVAL, ALL ELECTRICAL FIXTURES, CABLES, AND OTHER APPURTENANCES SHALL BE REMOVED AS SHOWN ON THE ELECTRICAL DEMOLITION PLANS.
2. PRIOR TO MILLING OF BITUMINOUS PAVEMENT, THE PAVEMENT SHALL BE SAW CUT TO THE DEPTH OF THE MILLING. THE SAW CUT SHALL BE PERPENDICULAR TO BOTH THE SURFACE AND EDGE OF THE PAVEMENT AND STRAIGHT. WHERE THE LIMIT OF REMOVAL IS WITHIN 10 FEET OF AN EXISTING PAVING JOINT, THE LIMIT OF MILLING SHALL BE EXTENDED AT LEAST 2 FEET BEYOND THE EXISTING JOINT.
3. PRIOR TO THE REMOVAL OF THE CRCP PAVEMENT, THE CONTRACTOR SHALL SAW CUT THE PAVEMENT AT A LOCATION AT LEAST 24 INCHES FROM ANY AIRFIELD LIGHTING BASE CAN AND 18 INCHES FROM ANY EXISTING TRANSVERSE CRACKS PRESENT IN THE PAVEMENT PER DETAIL 2 ON CD501.
4. THE REMOVAL OF ANY ISOLATED SLAB SHOULD ENCOMPASS THE ENTIRETY OF THE SLAB BOTH DEPTH AND SIZE. THE UNDERLYING PAVEMENT LAYER SHALL BE PROTECTED FROM DAMAGE AT ALL TIMES. ANY DAMAGE SHALL BE REPAIRED AS DIRECTED BY THE RPR TO THE SATISFACTION OF THE RPR.
5. ANY DAMAGE TO THE CONCRETE/CRCP PAVEMENT RESULTING FROM THE BITUMINOUS MILLING OPERATIONS OR CONCRETE/CRCP REMOVAL OPERATIONS SHALL BE RESTORED TO THE EXISTING CONDITIONS OR BETTER AT THE DIRECTION AND SATISFACTION OF THE RPR.
6. WHERE EXISTING FOUNDATIONS, HANDHOLES, MANHOLES, ETC ARE PRESENT IN THE PAVEMENT REHABILITATION AREAS AND NOT SHOWN TO BE REMOVED, THE CONTRACTOR SHALL PROTECT THESE STRUCTURES IN PLACE.
7. MARKING REMOVAL SHOWN IS IN ADDITION TO THE SURFACE PREPARATION REQUIRED PRIOR TO THE APPLICATION OF SEAL COAT OR REMOVAL PRIOR TO THE APPLICATION OF NEW MARKINGS.
8. THE DEPTH AND LOCATION OF THIS FAA DUCTBANK IS SHOWN FROM RECORD DRAWINGS AND SHALL NOT BE IMPACTED BY THE CONTRACTOR.
9. FOR PHASING LIMITS AND BARRICADES, SEE SHEETS GC SERIES OF DRAWINGS.

LEGEND:

- COLD MILLING, 2" NOMINAL DEPTH
- ISOLATED PCC SLAB REMOVAL/ CRCP PAVEMENT REMOVAL
- FULL DEPTH ASPHALT REMOVAL
- R — REMOVE PREVIOUSLY ABANDONED SIGN FOUNDATION
- WORK AREAS
- DIAMOND GRINDING ON EXISTING JOINT REFLECTIVE CRACKING

GRAPHIC SCALE
50' 0 50' 150'
SCALE: 1" = 50'

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0 1"

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM 3	5-30-25	KRC

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

CIVIL DEMOLITION PLAN

ISSUED FOR PERMIT

PROJECT MGR:	KRC
DESIGNER:	HML
DRAWN BY:	ACE
CHECKED BY:	KRC
SCALE:	AS SHOWN
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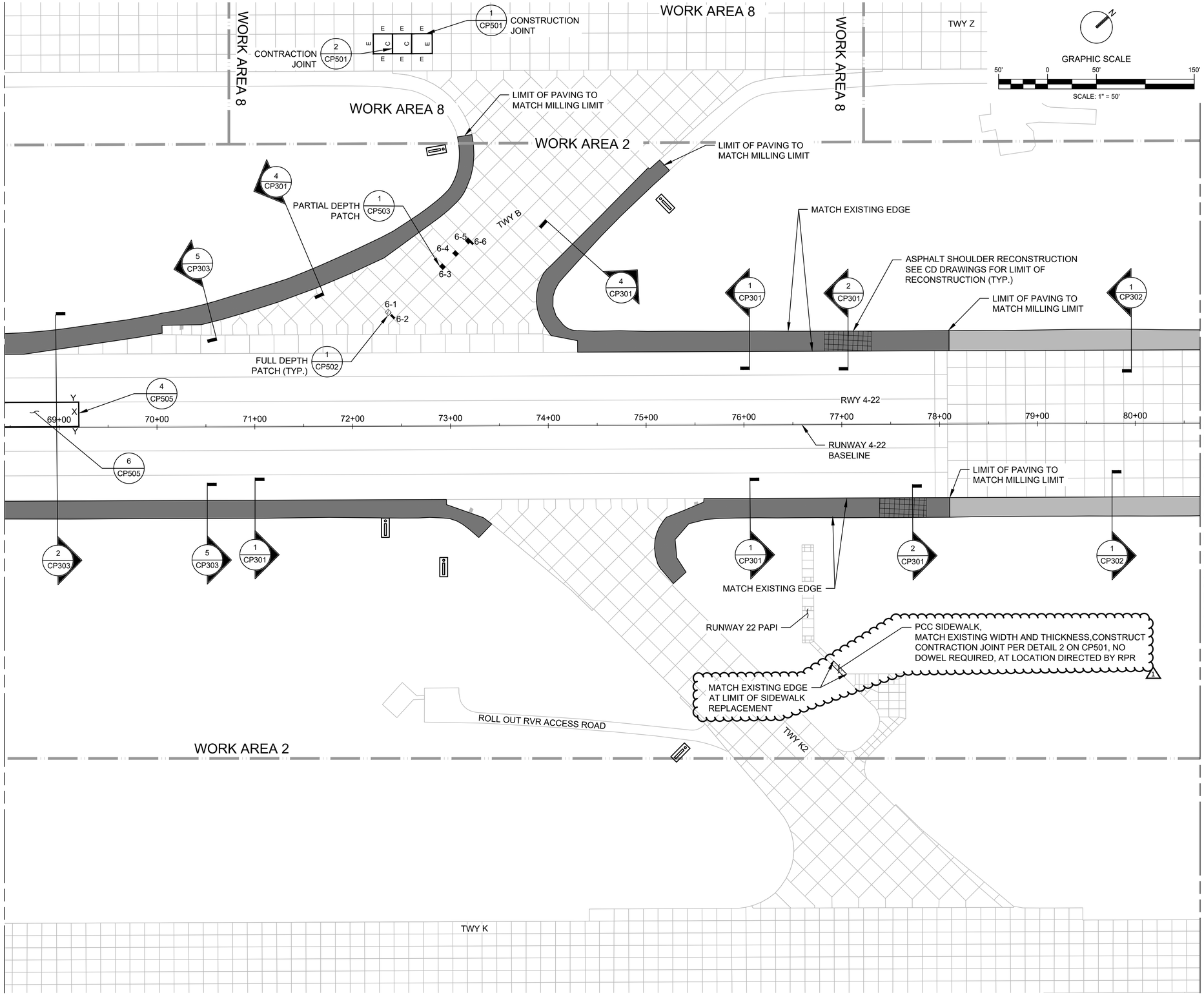
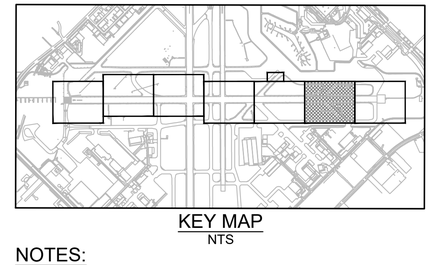
03/21/2025
STATE OF TEXAS
KEVIN R. CONTI
127462
LICENSED PROFESSIONAL ENGINEER
F-2966

APPROVED BY:	DATE:
DIRECTOR HOUSTON AIRPORT SYSTEM	
TIP NO:	TIP-24-259-HOU
BSG NO:	BSG- 2024-341-HOU
PROJECT NO:	P1057
C.I.P. NO:	3-48-0110-060-2025
H.A.S. NO:	N/A
SHEET NO:	CD106





KEY MAP
NTS

NOTES:

1. PRIOR TO THE APPLICATION OF THE SEAL COAT, CRACKS 1/4" OR GREATER SHALL BE REPAIRED TO THE SATISFACTION OF THE RPR. THE CONTRACTOR AND RPR SHALL VERIFY THE LIMITS OF EACH CRACK TO BE SEALED PRIOR TO SEALING.
2. PRIOR TO THE APPLICATION OF THE SEAL COAT THE ISOLATED RAISED AREAS NEAR THE JOINT REFLECTIVE CRACKS ON TAXIWAY R SHALL BE DIAMOND GROUND TO PROVIDE A SMOOTH SURFACE AND THE CRACKS SHALL BE SEALED AS DIRECTED BY THE RPR.
3. LOCATION AND SIZE OF PAVEMENT REPAIRS SHALL BE CONFIRMED WITH THE RPR PRIOR TO START OF REPAIR.
4. CRACK SEAL SHALL BE AT THE DISCRETION OF THE RPR THROUGHOUT THE ENTIRE RUNWAY PAVEMENT AREA.
5. NEW CRCP PAVEMENT PLACED ON RUNWAY 4-22 SHALL BE GROOVED.

PATCHING TABLE			
NUMBER	TYPE	SIZE (SEE NOTE 3)	STA. / OFF.
6-1	FULL	80" X 80"	72+33 / 117' LT
6-2	PARTIAL	12" X 12"	72+39 / 114' LT
6-3	PARTIAL	15" X 15"	72+89 / 164' LT
6-4	PARTIAL	15" X 15"	73+2 / 177' LT
6-5	PARTIAL	6" X 6"	73+16 / 189' LT
6-6	PARTIAL	15" X 15"	73+21 / 188' LT
WIDTH OF FULL DEPTH PATCHES SHALL BE THE FULL WIDTH OF THE SLAB			

LEGEND:

- CRACK SEAL AND SEAL COAT (SEE NOTE 1)
- ASPHALT PAVING 2" DEPTH (SEE CD SERIES OF DRAWINGS FOR LIMIT)
- PCC PAVING/ISOLATED SLAB REPLACEMENT (SEE NOTE 4)
- #-PATCH # — PARTIAL DEPTH PATCH
- #-PATCH # — FULL DEPTH PATCH
- RESEAL JOINT
- WORK AREA
- AIRFIELD GUIDANCE SIGN

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REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM 3	5-30-25	KRC

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

CIVIL PAVING PLAN

ISSUED FOR PERMIT

PROJECT MGR:	KRC
DESIGNER:	HML
DRAWN BY:	ACE
CHECKED BY:	KRC
SCALE:	AS SHOWN
DATE:	03/21/2025

03/21/2025
STATE OF TEXAS
KEVIN R. CONTI
127462
REGISTERED PROFESSIONAL ENGINEER
F-2966

APPROVED BY: DATE:
DIRECTOR
HOUSTON AIRPORT SYSTEM

TIP NO: TIP-24-259-HOU
BSG NO: BSG- 2024-341-HOU
PROJECT NO: P1057
C.I.P. NO: 3-48-0110-060-2025
H.A.S. NO: N/A
SHEET NO: CP106

SIGN SCHEDULE

SIGN NUMBER	SHEET NUMBER	SIDE 1	SIDE 2	SIZE	NUMBER OF MODULES	STATION	OFFSET	NOTES
13	CM103	J 4-22 (L R)	J (BLANK) (L X)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
14	CM103	(BLANK) (X)	J→ (Y)	2	1	31+90	SEE DETAIL 4 ON CM504	-
15	CM103	← J (Y)	(BLANK) (X)	2	1	34+19	SEE DETAIL 4 ON CM504	-
41	CM103	(BLANK) (X)	13R-31L (R)	2	3	38+02	SEE DETAIL 4 ON CM504	-
42	CM103	13R-31L (R)	(BLANK) (X)	2	3	38+02	SEE DETAIL 4 ON CM504	-
43	CM103	(BLANK) (X)	H2↗ (Y)	2	2	36+71	SEE DETAIL 4 ON CM504	-
60	CM102	H2 22-4 (L R)	H2 (BLANK) (L X)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
130	CM103	(BLANK) (X)	31L-13R (R)	2	3	43+06	SEE DETAIL 4 ON CM504	-
131	CM104	← M (Y)	(BLANK) (X)	2	1	44+68	SEE DETAIL 4 ON CM504	-
132	CM104	(BLANK) (X)	M→ (Y)	2	1	44+68	SEE DETAIL 4 ON CM504	-
133	CM103	31L-13R (R)	(BLANK) (X)	2	3	43+06	SEE DETAIL 4 ON CM504	-
134	CM104	M 4-22 (L R)	(BLANK) (X)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
174	CM104	4-22 (R)	(BLANK) (X)	2	2	SEE DETAIL 4 ON CM504	252.00' RT	-
175	CM104	(BLANK) (X)	13L-31R (R)	2	3	47+04	SEE DETAIL 4 ON CM504	-
176	CM104	← M (Y)	(BLANK) (X)	2	1	46+68	SEE DETAIL 4 ON CM504	-
177	CM104	(BLANK) (X)	M→ (Y)	2	1	46+68	SEE DETAIL 4 ON CM504	-
178	CM104	13L-31R (R)	(BLANK) (X)	2	3	47+04	SEE DETAIL 4 ON CM504	-
179	CM104	M 22-4 (L R)	M (BLANK) (L X)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-

1 (revision cloud)

1 (revision cloud)

NOTES:

1. SIDE ONE OF THE SIGN IS THE SIDE ON THE LEFT WHEN APPROACHED FROM THE PAVEMENT THAT THE SIGN IS INTENDED TO BE VIEWED FROM.
2. SIGNS SHALL BE STYLE 5 OR BE ABLE TO ACCOMMODATE BEING INSTALLED ON A SINGLE STEP REGULATOR CIRCUIT (STYLE 2/3/5).
3. ACTUAL NUMBER OF MODULES ON SIGN MAY VARY DEPENDING ON MANUFACTURER

LEGEND:

Y	INFORMATION SIGN - BLACK CHARACTERS ON A YELLOW BACKGROUND	W	DISTANCE REMAINING SIGN - WHITE CHARACTERS ON A BLACK BACKGROUND
R	MANDATORY SIGN - WHITE CHARACTERS WITH BLACK BORDER ON A RED BACKGROUND	X	SOLID BLACK PANEL
L	LOCATION SIGN - YELLOW CHARACTERS ON A BLACK BACKGROUND		

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VERIFY SCALE
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0 1"

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM 3	5-30-25	KRC

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

AIRFIELD SIGNAGE SCHEDULE

ISSUED FOR PERMIT

PROJECT MGR:	KRC
DESIGNER:	HML
DRAWN BY:	ACE
CHECKED BY:	KRC
SCALE:	AS SHOWN
DATE:	03/21/2025

03/21/2025
STATE OF TEXAS
KEVIN R. CONTI
127462
LICENSED PROFESSIONAL ENGINEER
F-2966

APPROVED BY: DATE:
DIRECTOR
HOUSTON AIRPORT SYSTEM

TIP NO: TIP-24-259-HOU
BSG NO: BSG- 2024-341-HOU
PROJECT NO: P1057
A.I.P. NO: 3-48-0110-060-2025
H.A.S. NO: 1057
SHEET NO:

CM601

SIGN SCHEDULE

SIGN NUMBER	SHEET NUMBER	SIDE 1	SIDE 2	SIZE	NUMBER OF MODULES	STATION	OFFSET	NOTES
209	CM106	↙Z B Z↗ (Y L Y)	(BLANK) 22-4 B (X R L)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
210	CM106	B 22-4 (L R)	B (BLANK) (L X)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
212	CM107	(BLANK) ← Z Y (X Y L)	22-4 Y (R L)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
213	CM107	Y 22-4 (L R)	▬▬ Y (Y L)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
214	CM107	← Y (Y)	(BLANK) (X)	2	1	83+69	SEE DETAIL 4 ON CM504	-
216	CM105	↖B (Y)	(BLANK) (X)	2	1	66+30	SEE DETAIL 4 ON CM504	-
217	CM105	(BLANK) (X)	C ↘ (Y)	2	1	59+25	SEE DETAIL 4 ON CM504	-
218	CM105	C 22-4 (L R)	C (BLANK) (L X)	2	3	SEE DETAIL 5 ON CM504	SEE DETAIL 4 ON CM504	-
219	CM104	↖C (Y)	(BLANK) (X)	2	1	55+55	SEE DETAIL 4 ON CM504	-
220	CM104	(BLANK) (X)	31R-13L (R)	2	3	50+05	SEE DETAIL 4 ON CM504	-
221	CM104	22-4 (R)	(BLANK) (X)	2	2	SEE DETAIL 4 ON CM504	252.00' LT	-
222	CM104	31R-13L (R)	(BLANK) (X)	2	3	50+05	SEE DETAIL 4 ON CM504	-
247	CM107	K 4-22 (L R)	▬▬ K (Y L)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
248	CM107	(BLANK) (X)	K→ (Y)	2	1	83+63	SEE DETAIL 4 ON CM504	-
252	CM106	K2 4-22 (L R)	K2 (BLANK) (L X)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
253	CM106	(BLANK) (X)	K2↗ (Y)	2	2	72+33	SEE DETAIL 4 ON CM504	-
255	CM105	(BLANK) R (X L)	4-22 R (R L)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
256	CM105	↙R ↖C (Y Y)	(BLANK) (X)	2	2	58+71	SEE DETAIL 4 ON CM504	-

NOTES:

1. SIDE ONE OF THE SIGN IS THE SIDE ON THE LEFT WHEN APPROACHED FROM THE PAVEMENT THAT THE SIGN IS INTENDED TO BE VIEWED FROM.
2. SIGNS SHALL BE STYLE 5 OR BE ABLE TO ACCOMMODATE BEING INSTALLED ON A SINGLE STEP REGULATOR CIRCUIT (STYLE 2/3/5).
3. ACTUAL NUMBER OF MODULES ON SIGN MAY VARY DEPENDING ON MANUFACTURER

LEGEND:

Y	INFORMATION SIGN - BLACK CHARACTERS ON A YELLOW BACKGROUND	W	DISTANCE REMAINING SIGN - WHITE CHARACTERS ON A BLACK BACKGROUND
R	MANDATORY SIGN - WHITE CHARACTERS WITH BLACK BORDER ON A RED BACKGROUND	X	SOLID BLACK PANEL
L	LOCATION SIGN - YELLOW CHARACTERS ON A BLACK BACKGROUND		

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REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM 3	5-30-25	KRC

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

AIRFIELD SIGNAGE SCHEDULE

ISSUED FOR PERMIT

PROJECT MGR:	KRC
DESIGNER:	HML
DRAWN BY:	ACE
CHECKED BY:	KRC
SCALE:	AS SHOWN
DATE:	03/21/2025

03/21/2025
STATE OF TEXAS
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LICENSED PROFESSIONAL ENGINEER
F-2966

APPROVED BY: DATE:
DIRECTOR
HOUSTON AIRPORT SYSTEM

TIP NO: TIP-24-259-HOU
BSG NO: BSG- 2024-341-HOU
PROJECT NO: P1057
A.I.P. NO: 3-48-0110-060-2025
H.A.S. NO: 1057
SHEET NO:

CM602

SIGN SCHEDULE

SIGN NUMBER	SHEET NUMBER	SIDE 1	SIDE 2	SIZE	NUMBER OF MODULES	STATION	OFFSET	NOTES
258	CM105	R 4-22 (L R)	(BLANK) (X)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
260	CM104	C 4-22 (L R)	C (BLANK) (L X)	2	3	SEE DETAIL 3 ON CM504	SEE DETAIL 3 ON CM504	-
261	CM104	(BLANK) 22 (X L)	R↗ C↘ (Y Y)	2	2 (1)	53+90	SEE DETAIL 4 ON CM504	-
563	CM103	3 (W)	4 (W)	4	1	-	-	SURVEY AND REPLACE IN SAME LOCATION
570	CM102	1 (W)	6 (W)	4	1	-	-	SURVEY AND REPLACE IN SAME LOCATION
574	CM105	5 (W)	2 (W)	4	1	-	-	SURVEY AND REPLACE IN SAME LOCATION
575	CM104	4 (W)	3 (W)	4	1	-	-	SURVEY AND REPLACE IN SAME LOCATION
576	CM106	6 (W)	1 (W)	4	1	72+93	140.00' RT	INSTALL PER STATION AND OFFSET PROVIDED, IN LINE WITH OTHER RUNWAY DISTANCE REMAINING SIGNAGE

NOTES:

1. SIDE ONE OF THE SIGN IS THE SIDE ON THE LEFT WHEN APPROACHED FROM THE PAVEMENT THAT THE SIGN IS INTENDED TO BE VIEWED FROM.
2. SIGNS SHALL BE STYLE 5 OR BE ABLE TO ACCOMMODATE BEING INSTALLED ON A SINGLE STEP REGULATOR CIRCUIT (STYLE 2/3/5).
3. ACTUAL NUMBER OF MODULES ON SIGN MAY VARY DEPENDING ON MANUFACTURER

LEGEND:

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1	ADDENDUM 3	5-30-25	KRC

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

AIRFIELD SIGNAGE SCHEDULE

ISSUED FOR PERMIT

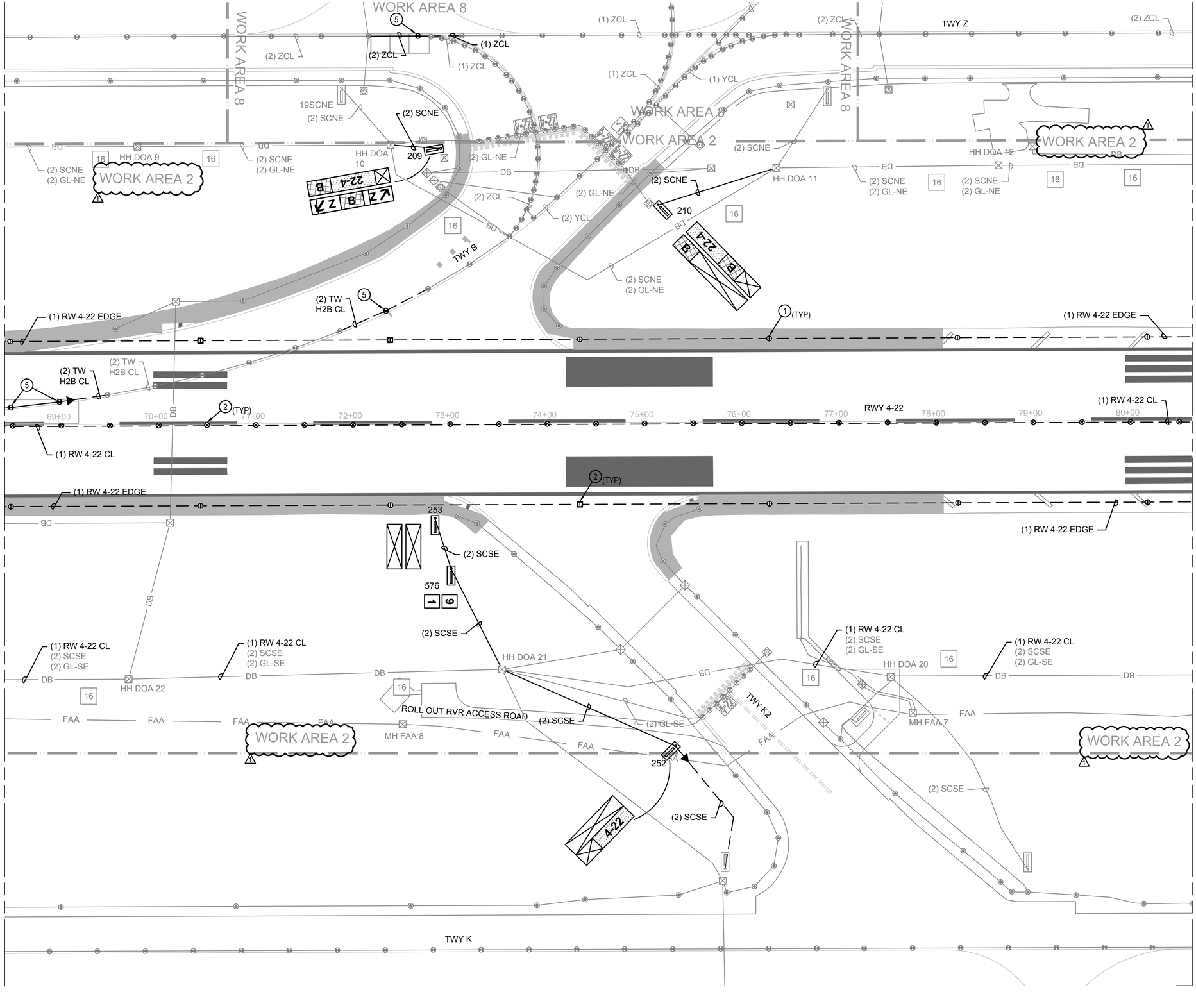
PROJECT MGR:	KRC
DESIGNER:	HML
DRAWN BY:	ACE
CHECKED BY:	KRC
SCALE:	AS SHOWN
DATE:	03/21/2025

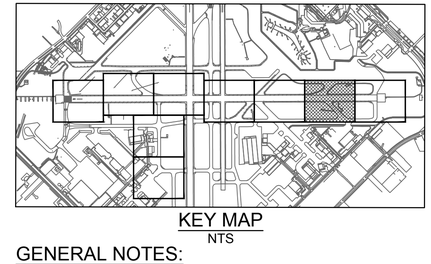
03/21/2025
STATE OF TEXAS
KEVIN R. CONTI
127462
REGISTERED PROFESSIONAL ENGINEER
F-2966

APPROVED BY: DATE:
DIRECTOR
HOUSTON AIRPORT SYSTEM

TIP NO: TIP-24-259-HOU
BSG NO: BSG- 2024-341-HOU
PROJECT NO: P1057
A.I.P. NO: 3-48-0110-060-2025
H.A.S. NO: 1057
SHEET NO:

CM603





KEY MAP
NTS

GENERAL NOTES:

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2. THE CONTRACTOR SHALL PROVIDE LOCK-OUT PROCEDURES PER NEC TO INSURE SAFETY OF PERSONNEL. REFER TO SECTION L-104.
3. REFER TO EP SERIES FOR PROPOSED AIRFIELD ELECTRICAL PLANS.
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5. KEYED NOTES ARE TYPICAL FOR ALL SHEETS OF THIS SERIES. ALL LISTED KEYED NOTES FOR A PARTICULAR SHEET MAY NOT APPLY AND THEREFORE THE KEYED NOTE IDENTIFIER WILL NOT BE SHOWN ON THE PLAN PORTION OF THE SHEET.
6. FOR ALL EXISTING LIGHT FIXTURES AND SIGNS TO BE REMOVED, COORDINATE WITH RESIDENT PROJECT REPRESENTATIVE (RPR) TO EITHER TURN OVER TO HAS OR DISPOSE OF.

KEYED NOTES:

1. CORE A 36" DIAMETER BY 30" DEEP SECTION INTO EXISTING SHOULDER PAVEMENT TO REMOVE EXISTING BASE CAN AND ELEVATED RUNWAY EDGE LIGHT ALONG WITH ALL ASSOCIATED EQUIPMENT. CONTRACTOR TO SURVEY LIGHT LOCATION PRIOR TO REMOVAL.
2. EXISTING IN-PAVEMENT LIGHT FIXTURE AND ASSOCIATED ISOLATION TRANSFORMER TO BE REMOVED. BASE CAN REMAIN. EXISTING BASE CAN TO BE COVERED AND PROTECTED FROM DIRT AND DEBRIS.
3. EXISTING ELEVATED RUNWAY THRESHOLD END LIGHT AND ASSOCIATED ISOLATION TRANSFORMER TO BE REMOVED. BASE CAN TO BE DEMOLISHED. CONTRACTOR TO SURVEY LIGHT LOCATION PRIOR TO REMOVAL.
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5. EXISTING IN-PAVEMENT LIGHT FIXTURE TO BE REMOVED AND SALVAGED FOR REINSTALLATION. CONTRACTOR TO SURVEY LIGHT LOCATION PRIOR TO REMOVAL. BASE CAN AND ALL ASSOCIATED EQUIPMENT TO BE REMOVED AND DISPOSED OF.
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GRAPHIC SCALE
50' 0 50' 150'
SCALE: 1" = 50'

HOUSTON AIRPORT SYSTEM
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10200 Grogans Mill Rd. Ste. #420
The Woodlands, TX 77380
(281) 252-9232 Firm No. 6864

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ADDENDUM NO. 3	5/30/2025	RCF

RUNWAY 4-22 SHOULDER PAVEMENT REHABILITATION AND LIGHTING UPGRADE PROJECT

ELECTRICAL DEMOLITION PLAN

ISSUED FOR PERMIT

PROJECT MGR:	KRC
DESIGNER:	ALC
DRAWN BY:	ALC
CHECKED BY:	RCF
SCALE:	AS SHOWN
DATE:	03/21/2025

STATE OF TEXAS
C. LECETTE FERGUSON
81460
REGISTERED PROFESSIONAL ENGINEER
F-6864 05/30/25

APPROVED BY:	DATE:
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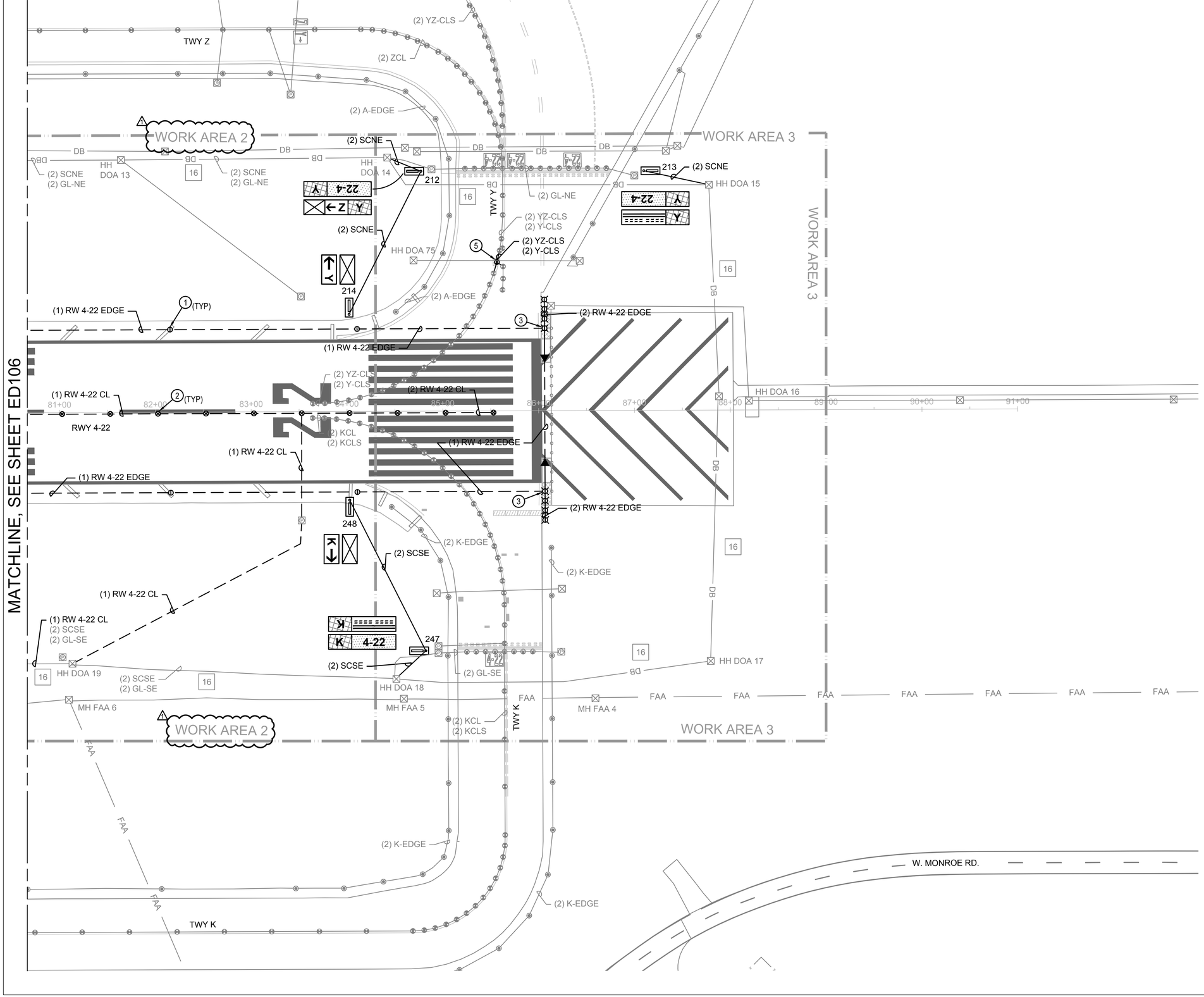
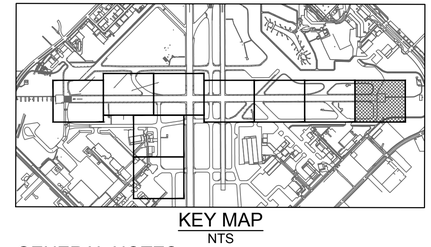
H.A.S. NO:	N/A
SHEET NO:	ED106





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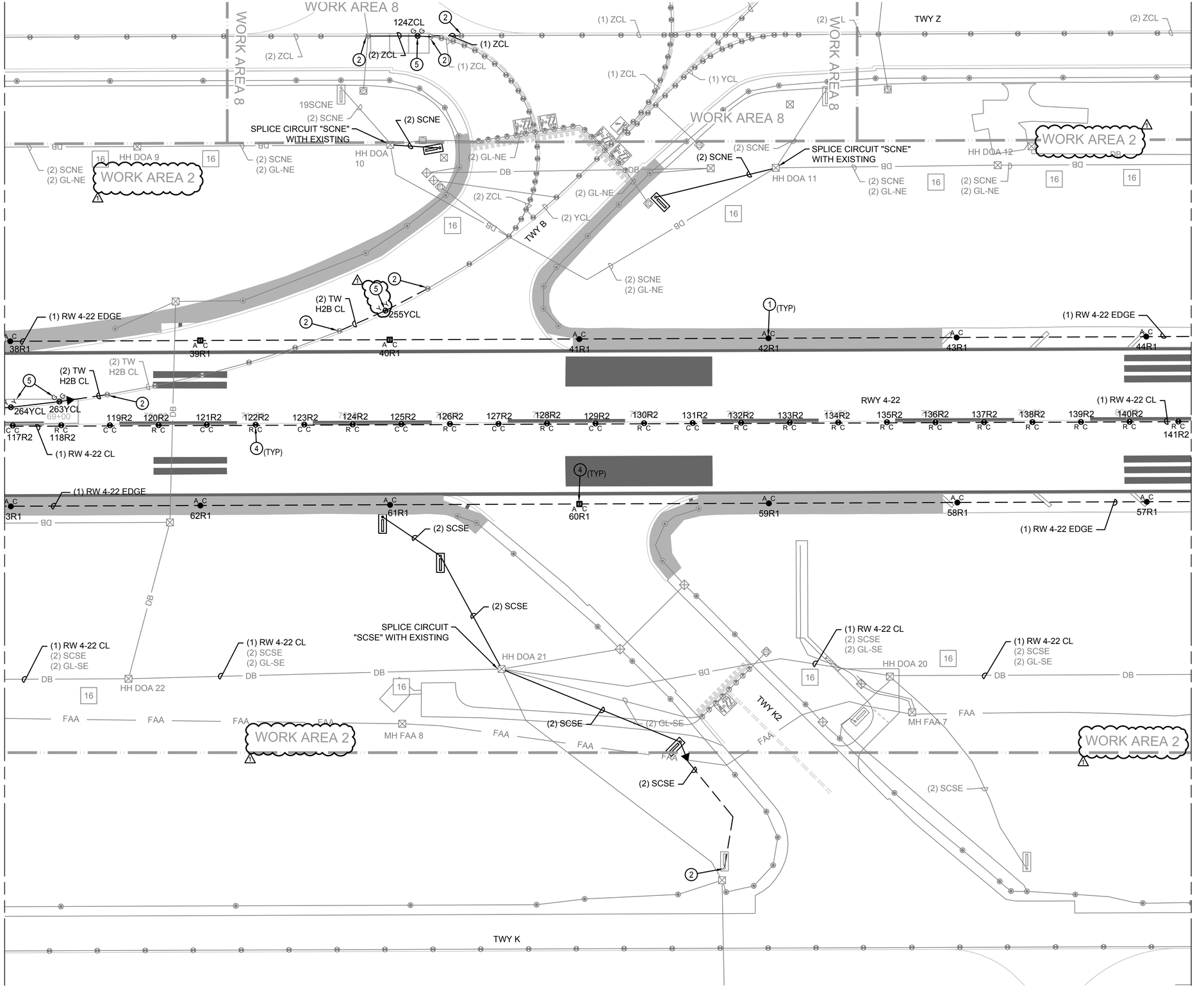

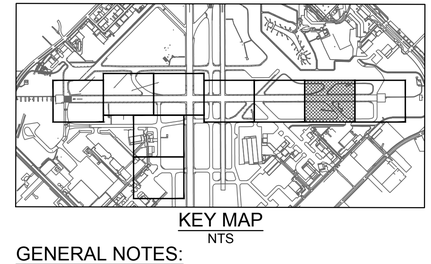

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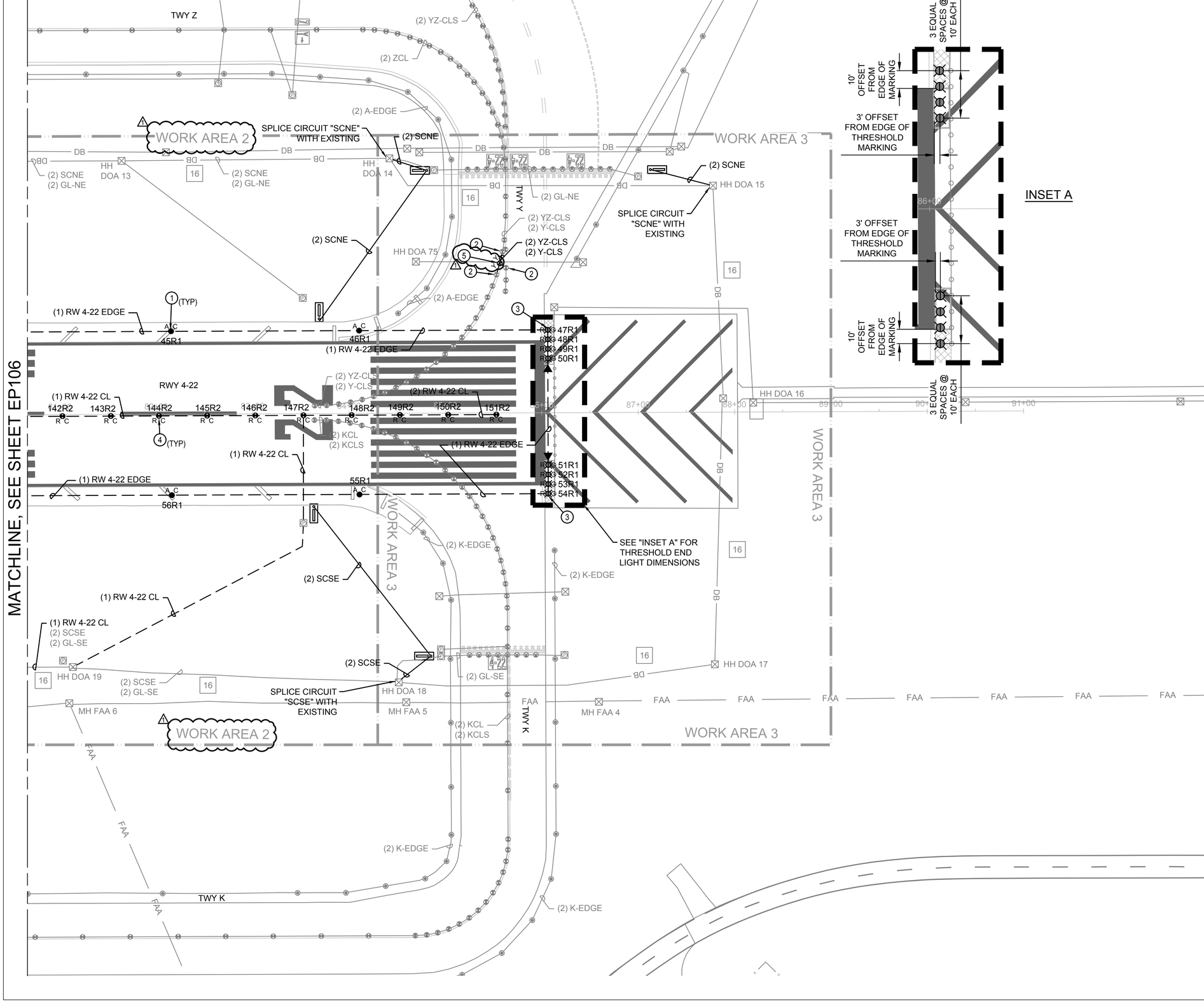
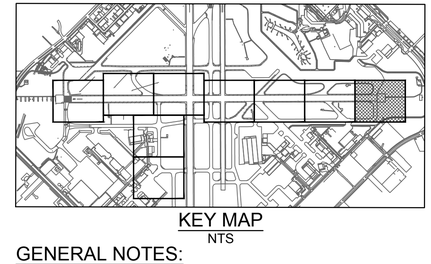


INSET A



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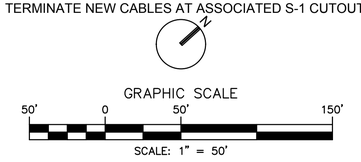

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ELECTRICAL LAYOUT PLAN

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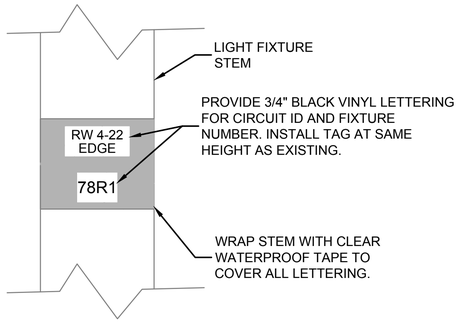
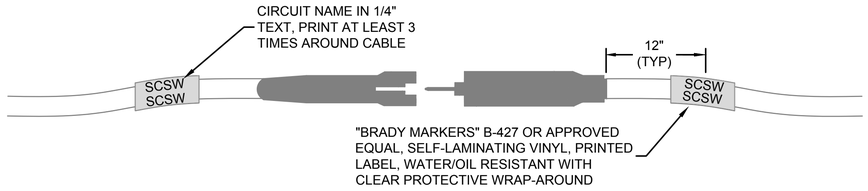


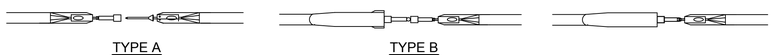
1 EP503 **ELEVATED FIXTURE ID DETAIL**
NTS



2 EP503 **CIRCUIT IDENTIFICATION LABEL DETAIL**
NTS

NOTES

PROVIDE WATERPROOF VINYL CIRCUIT IDENTIFICATION LABELS FOR ALL CIRCUITS AFFECTED BY THE PROJECT. INSTALL CIRCUIT IDENTIFICATION LABELS ON BOTH SIDES OF ALL SPLICE LOCATIONS, AT THE END OF ALL "BLACK" JACKETED CONDUCTORS, AND ON ALL AIRFIELD LIGHTING CABLES ENTERING OR EXITING HANDHOLES, MANHOLES, JUNCTION CAN PLAZAS, LIGHT BASES AND PULL BOXES. PROVIDE SEPARATE LABEL WITH UNIQUE IDENTIFICATION FOR EACH ADDITIONAL SPLICE LOCATION.

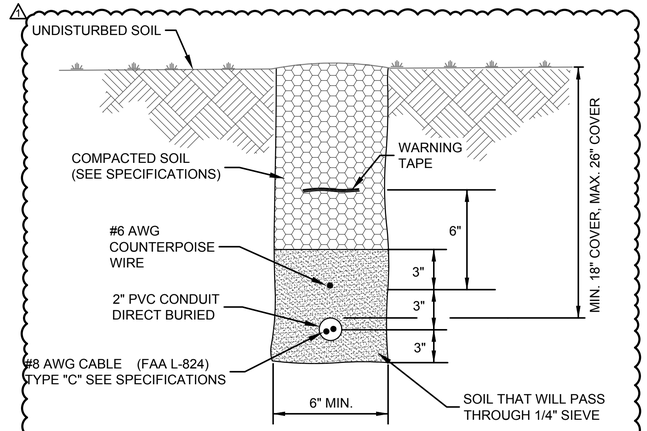


TYPE A
FOR SPLICES FOR USE AT JUNCTION OF HOMERUN WITH LOOP CIRCUIT

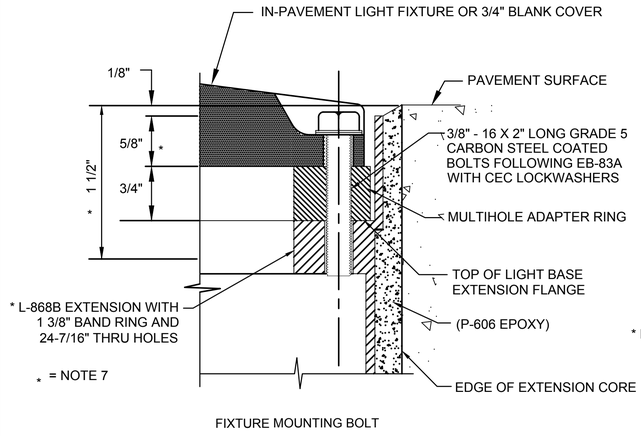
TYPE B
FOR SPLICES AT LIGHTS OR SIGNS

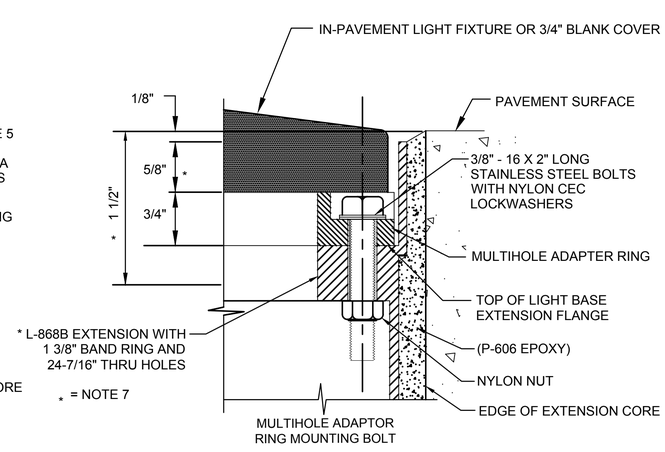
CONTRACTOR SHALL USE FAA APPROVED L-823 PRIMARY CONNECTOR KITS. CONNECTOR KITS SHALL BE MOLDED IN THERMOPLASTIC RUBBER. CONNECTION MUST BE WATER-TIGHT. CONNECTOR KITS SHALL HAVE EXTENDED STRAIN/BEND RELIEF, INTEGRALLY MOLDED O-RINGS AND ROLL OVER FLAPS

3 EP503 **CABLE SPLICE DETAIL**
NTS



5 EP503 **TYPICAL CONDUIT TRENCH DETAIL 1-WAY, 2"C DIRECT BURIED**
NTS





4 EP503 **DETAILS FOR IN-PAVEMENT FIXTURE MOUNTING BOLT AND MULTIHOLE ADAPTOR RING IN FULL STRENGTH PAVEMENT**
NTS

1. BOLTS SHALL BE LENGTH SPECIFIED ABOVE UNLESS OTHERWISE APPROVED BY ENGINEER.
2. STANDARD BAND RING EXTENDS 1-3/8" ABOVE TOP OF UPPER BASE SECTION TO ALLOW 3/4" FIXTURE RECESS AND 3/4" MULTIHOLE ADAPTER RING. TOP OF FLANGE RING BAND IS 1/8" BELOW PAVEMENT SURFACE. SEE NOTE 7.
3. TORQUE BOLTS HOLDING FIXTURE TO 330 INCH-POUNDS. TORQUE REMAINING BOLTS TO MANUFACTURERS RECOMMENDATIONS.
4. BLANK LIDS FOR L-868 BASES IN RIGID PAVEMENT SHALL BE 3/4" THICK.
5. ALL LIGHT BASE BOLTS SHALL BE PROVIDED WITH TWO-PIECE CEC LOCK WASHERS.
6. FOR L-850 HIRL FIXTURES, THE BAND RING EXTENDS 1-7/8" FOR A TOTAL RECESS OF 2" FROM THE PAVEMENT SURFACE TO THE TOP OF THE LIGHT BASE EXTENSION FLANGE.
7. BOLTS FOR L-850 HIRL FIXTURES SHALL BE APPROPRIATELY SIZED TO EXTEND APPROX 3/4" BELOW MULTIHOLE ADAPTER RING AS SHOWN.

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PROJECT MGR:	KRC
DESIGNER:	ALC
DRAWN BY:	ALC
CHECKED BY:	RCF
SCALE:	AS SHOWN
DATE:	03/21/2025

STATE OF TEXAS
C. LECETTE FERGUSON
81460
REGISTERED PROFESSIONAL ENGINEER
F-6864
05/30/25

APPROVED BY: DATE:
DIRECTOR
HOUSTON AIRPORT SYSTEM

TIP NO: TIP-24-259-HOU
BSG NO: BSG- 2024-341-HOU
PROJECT NO: P1057
C.I.P. NO: X-XX-XXXX-XXX
H.A.S. NO: N/A
SHEET NO: EP503