DATE: JANUARY 22, 2020

BOWLING GREEN MUNICIPAL AIRPORT

CRAWFORD, MURPHY, TILLY, INC.
ONE MEMORIAL DRIVE, SUITE 500
SAINT LOUIS, MISSOURI 63102

TO: ALL PLANHOLDERS AND POTENTIAL BIDDERS

SUBJECT: ADDENDUM NUMBER ONE TO THE BIDDING DOCUMENTS FOR:
RECONSTRUCT AND WIDEN RUNWAY 13-31;
RECONSTRUCT CONNECTING TAXIWAY

This addendum forms a part of the bidding and contract documents, and modifies the original bidding documents dated December 16, 2019. This addendum must be signed on the last page and included with the submitted Bid Package. An acknowledgement sheet is also attached. This must be signed and returned to Crawford, Murphy, & Tilly, Inc via fax or e-mail by January 24, 2020. FAILURE TO NOT RECOGNIZE THE ADDENDUM ON THE BID FORM MAY SUBJECT THE BIDDER TO DISQUALIFICATION.

The Contract Documents are revised as follows:

**CONTRACT PROPOSAL**

Page 160
ADD to the end of section 101-4.1 the following:

For the runway and taxiway pavement, this item includes removal of both the bituminous pavement and underlying aggregate. For the apron removal, this item includes removal of both the bituminous pavement and underlying aggregate as well as all excavation necessary to construct the new pavement to the thickness and grades shown.

Page 185
ADD to the end of section 155-8.1 the following:

Areas receiving lime treatment outside of the areas shown on the cross sections will be measured for payment if processed in accordance with section 155-6.3. Areas receiving lime treatment outside of the areas shown on the cross sections that are processed not using a mixing machine or without monitoring the moisture content, will not be measured for treated subgrade payment but the tonnage of lime used will still be measured for payment subject to the maximum application rate specified in 155-3.1.

Page 198
REVISE the last sentence on Page 198 to read as follows:

Concrete shall be proportioned to achieve a 28-day compressive strength that meets or exceeds the acceptance criteria contained in paragraph 501-6.6 for a compressive strength of 4,400 psi per ASTM C39.

Page 199
REVISE the first sentence of the second paragraph to read as follows:
Compressive strength test specimens shall be prepared in accordance with ASTM C192 and tested in accordance with ASTM C39.

Page 199
REPLACE in section 501-3.4 the first reference to “flexural” with the word “compressive”.

Page 204
REVISE the first full sentence on Page 204 to read as follows:

Hauling equipment or other mechanical equipment can be permitted on adjoining previously constructed pavement when the concrete strength reaches a compressive strength of 3,100 psi (21.4 MPa), based on the average of four field cured specimens per 2,000 cubic yards (1,530 cubic meters) of concrete placed.

Page 207
REVISE the second sentence of section 501-4.10.d.(3)(c) to read as follows:

The concrete shall have cured for seven (7) days or reached a minimum compressive strength of 3,100 psi (21.4 MPa) before drilling begins.

Page 211
REPLACE in the third paragraph of section 501-4.17 the words “flexural strength of 450 psi (3100 kPa)” with the words “compressive strength of 3,100 psi (21.4 MPa)”.

Page 211
REVISE the first sentence of section 501-4.18 to read as follows:

The pavement shall not be opened to traffic until test specimens molded and cured in accordance with ASTM C31 have attained a compressive strength of 3,100 psi (21.4 MPa) when tested in accordance with ASTM C39.

Page 218
REPLACE in section 501-6.5.a.(2) the words “ASTM C78” with “ASTM C39”.

Page 278
ADD after the first sentence of section 905-3.4 the following:

If there is not a sufficient amount of topsoil onsite to spread over the entire disturbed area to be restored, the 6H:1V slopes shall be covered first and then the areas next to pavements until all stockpiled topsoil has been placed. No offsite topsoil shall be required.

Page 302
ADD after section 108-2.12, the following:

108-2.13 UNIT DUCT. Unit duct shall be schedule 40 HDPE and shall comply with UL 651 B, NEMA TC-7, ASTM D 3485, ASTM F 2160 and ASTM D 3035. The duct shall be annealed during the extrusion process. The duct shall be manufactured from black, virgin, high density polyethylene resin designated as Type III, Grade 3, Class C, Category 5 material in accordance with ASTM D 1248. The resin used in extruding the duct shall conform, as a minimum, to the ASTM Standards (latest edition) specified below, certified by the resin supplier on each lot of resin:
Standard sizes of smooth wall polyethylene duct shall conform to the dimensional requirements specified below:

<table>
<thead>
<tr>
<th>Duct Size</th>
<th>Nominal Inside Diameter</th>
<th>Nominal Wall thickness</th>
<th>Nominal Outside Diameter</th>
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<tr>
<td>1”</td>
<td>1.049”</td>
<td>0.133”</td>
<td>1.315</td>
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<tr>
<td>1-1/4”</td>
<td>1.380”</td>
<td>0.140”</td>
<td>1.660</td>
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<td>1-1/2”</td>
<td>1.610”</td>
<td>0.145”</td>
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<td>2”</td>
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<td>0.154”</td>
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<td>2-1/2”</td>
<td>2.469”</td>
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<td>3”</td>
<td>3.040”</td>
<td>0.216”</td>
<td>3.500</td>
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Dimensional measurements shall be performed on samples removed from each length of finished duct. The manufacturer shall have the capability to manufacture a composite wire/cable-in-duct system wherein the wire and cables are placed in polyethylene duct without sticking during the extrusion process. The open ends of each length of reeled flexible duct shall be sealed by plastic caps to prevent the entrance of dirt and water. The duct shall have a durable identification, which shows the manufacturer’s name and/or trademark, all at intervals not to exceed ten (10) feet.

The manufacturer shall furnish copies of certified test reports on unit duct. The “unit duct” shall be as manufactured by Carlon Corporation or approved equivalent.

**Page 310**
ADD the following section:

**108-4.4** Unit duct shall not be measured separately for payment but shall be considered incidental to the respective cable pay item.

**Page 310**
REPLACE the pay item descriptions in section 108-5.1 with the following:

- **Item L-108-5.1** 1/C #8, L-824, Type C, 5KV Cable - Per Linear Foot
- **Item L-108-5.2** PAPI 31 Circuit, 3#8 Type Use, 1-#8 Gnd., In 1” Unit Duct - Per Linear Foot
- **Item L-108-5.3** PAPI 13 Circuit, 3#6 Type Use, 1-#8 Gnd., In 1-1/2” Unit Duct - Per Linear Foot
- **Item L-108-5.4** 1/C #6 Bare Copper Counterpoise Cable - Per Linear Foot
- **Item L-108-5.5** Wind Cone Circuit, 2#8 Type Use, 1#8 Gnd., In 1” Unit Duct - Per Linear Foot
Item L-108-5.6 Beacon Circuit, 2-#10 Type Use, 1-#10 Gnd., In 1” Unit Duct - Per Linear Foot

Page 318
REPLACE in the first sentence of section 109-3.20 the words “Type L-829” with “Type L-828”.

Page 335
ADD to the end of section 125-1.1 the following:

This item also includes attending a flight check of the PAPI and REIL installations to be conducted by the FAA and any costs charged by the FAA if a second or more flight check(s) is needed due to improper installation. The flight check for the PAPI and the flight check for the REIL may be conducted at the same time or on different days, as determined by the FAA.

Page 336
REPLACE in the first sentence of section 125-2.10 the words “Type L-881 Style A, Class I” with “Type L-881 or Type L-881(L), Style A, Class I”. Both L-881 and L-881(L) are acceptable provided they are listed in FAA AC 150/5345-53D, current addendum.

Page 337
ADD to the end of section 125-3.5 the following:

The exception to this is the edge light fixtures and the beacon light. The edge light fixtures less the angle iron stake and the beacon light less the tower get turned over to the City of Bowling Green.

Page 339
REVISE L-125-5.1 under Basis of Payment to read “PAPI, 2 Box System - per each”.

Page 343
ADD to the end of section 2-2.1 the following:


Page 344
ADD after page 344 pages 344A - 344B. A traffic control pay item has been added.

Page 367-378
REPLACE these pages with revised pages 367A-378A and 378B. A new bid form is being issued.

PLANS
Sheet 2 of 99
REPLACE Sheet 2 of 99 with REVISION 1.

Sheet 6 of 99
REPLACE Sheet 6 of 99 with REVISION 1.

Sheet 8 of 99
REPLACE Sheet 8 of 99 with REVISION 1.

Sheet 9 of 99
REPLACE Sheet 9 of 99 with REVISION 1.

Sheet 10 of 99
REPLACE Sheet 10 of 99 with REVISION 1.
Sheet 47 of 99
REPLACE Sheet 47 of 99 with REVISION 1.

Sheet 49 of 99
REPLACE Sheet 49 of 99 with REVISION 1.

Sheet 53 of 99
REPLACE Sheet 53 of 99 with REVISION 1.

Sheet 56 of 99
REPLACE Sheet 56 of 99 with REVISION 1.

Sheet 57 of 99
REPLACE Sheet 57 of 99 with REVISION 1.

Sheet 59 of 99
REPLACE Sheet 59 of 99 with REVISION 1.

Sheet 60 of 99
REPLACE Sheet 60 of 99 with REVISION 1.

CLARIFICATION:
For Item L-107, the primary wind cone located near the proposed electrical vault is powered by its own circuit and is voltage powered. The supplemental wind cone located at 510’ from the proposed end of Runway 13 is powered from the runway edge light circuit and is current powered. The supplemental wind cone will require an L-830 isolation transformer which is incidental to the wind cone pay item.

CRAWFORD, MURPHY & TILLY, INC.
This Addendum consists of 5 pages plus 12 revised plan sheets, a revised Proposal Form, new specification SP-3 and a transmittal sheet.

________________________________________          __________________________________
(Contractor)                                      Date

Contractor to sign and date this Addendum #1 to acknowledge receipt. This signed Addendum must be included with the submitted Bid Package.
TRASMITTAL

To: Crawford, Murphy & Tilly, Inc
Attention: Brian Garkie
Re: Addendum #1
Fax 314.436.0723
E-mail: bgarkie@cmtengr.com

From: (name)
(company)

Date:

To verify that all contractors are in receipt of this addendum, Contractors are asked to sign and date this acknowledgement sheet. The Contractor should fax or e-mail to Crawford, Murphy, & Tilly, Inc. at the number listed below by January 24, 2020.

Fax: (314) 436-0723
Phone: (314) 436-5500
E-mail: bgarkie@cmtengr.com

BY: CRAWFORD, MURPHY, & TILLY, INC.
Item SP-3 Traffic Control

Description

SP-3-1 This item shall consist of furnishing, installing, maintenance, use of flaggers, use of lighted runway closure markers, and removal of barricades, traffic control signs, and other items as shown in the plans or as required during construction. The barricades, warning signs, etc. for any airfield portions of the project is incidental to the contract and will not be measured for payment.

Material

SP-3-2 Lighted runway closure markers shall be as detailed on the plans and in accordance with FAA AC 150/5345-55A.

Low profile barricades shall be as detailed on the plans.

Construction Requirements

SP-3-3 The Contractor shall install the signs, barricades, and other essentials as shown in the plans. The Contractor shall follow the requirements of Section 616, Traffic Control Plan in the latest version of the Missouri Standard Specifications for Highway Construction and follow the requirements of Section 40-05 of the General Provisions.

The Contractor shall provide and maintain the lighted runway closure markers when the runway is required to be closed and remove the lighted runway markers from the project site upon completion of the work requiring runway closures.

Method of Measurement

SP-3-4 The Traffic Control will be measured as a lump sum. This shall include all the furnishing, installing, maintenance, use of flaggers, and removal of barricades, traffic control signs, and other items as shown in the plans for roadway traffic control.

Basis of Payment

SP-3-5 Based on the contract lump sum price for “Traffic Control”, partial payments will be allowed on the next pay estimate as follows:

A. The total number of calendars used divided by the total number of calendars originally awarded less payments already made, subject to a 90% maximum payment.

B. After removal of all low profile barricades and lighted runway closure markers from the project site, 10 percent.

Payment will be made under:

Item SP-3-5.1 Traffic Control - per lump sum.

END OF ITEM SP-3
## BASE BID

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- **X**: Sample
- **1**: Contractor Quality Control Program (CQCP)
- **2**: Installation and Removal of Silt Fence
- **3**: Installation and Removal of Silt Dike Ditch Check
- **4**: Erosion Control Blanket
- **5**: Rip Rap

Proposal Form: 367A
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<td>Yellow Taxiway Markings, with Reflective Media</td>
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### Bowling Green Municipal Airport
#### State Project No. 19-051A-1

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### EARTHWORK SUMMARY

- **Total**: 2,248
- **Total Area**: 30,560 SY
- **Total Volume**: 33,247 CY

**Date**: December 16, 2019
LEGEND

- FULL DEPTH PAVEMENT REMOVAL
- 4" AGGREGATE BASE COURSE
- 5.5-6.5" HMA
- REMOVE EXISTING EDGE LIGHT
- REMOVE EXISTING REFLECTOR

NOTES:
1. REMOVAL OF PAVEMENTs TO BE COMPLETED IN ACCORDANCE WITH THE CONSTRUCTION METHODS AS DESIGNED, INCLUDING THE REMOVAL OF ELECTRICAL SYSTEM FIXTURES AND FOUNDATIONS FOR EXISTING LIGHTS.
2. ISOLATED TREE REMOVAL IS CONSIDERED INCIDENTAL TO THE PROJECT.
3. COSTS ASSOCIATED WITH REMOVAL OF EXISTING STUMPS SHALL BE DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE CONTRACTOR.
4. STORM SEWER ROUTING OF EXISTING STEPS TO BE REMOVED.
5. 185' OF EXISTING STORM SEWER TO BE REMOVED.
6. 155' OF EXISTING STORM SEWER TO BE REMOVED.
7. REMOVE 4" AGGREGATE BASE COURSE AT FULL DEPTH.
8. EXISTING WINDCONE TO BE REMOVED.
9. 4" AGGREGATE BASE COURSE AT FULL DEPTH.
10. 5.5-6.5" HMA AT FULL DEPTH.
11. EXISTING WINDCONE TO BE REMOVED.
12. REMOVE EXISTING EDGE LIGHT.
13. REMOVE EXISTING REFLECTOR.
14. 4" AGGREGATE BASE COURSE AT FULL DEPTH.
15. 5.5-6.5" HMA AT FULL DEPTH.
16. SCALE THIS SHEET AT FULL SCALE (34X22).

SCALE: 1" = 20' 0" = 10' 0" = 5' 0" = 2' 0" = 1' 0" = 1/2' 0" = 1/4' 0" = 1/8' 0" = 1/16' 0" = 1/32' 0" = 1/64' 0" = 1/128' 0" = 1/256' 0"

REM. PAVEMENTS SHALL BE DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE CONTRACT.

ISOLATED TREE REMOVAL IS CONSIDERED INCIDENTAL TO THE PROJECT.

COSTS ASSOCIATED WITH REMOVAL OF EXISTING STUMPS SHALL BE DISPOSED OF OFFSITE AT NO ADDITIONAL COST TO THE CONTRACTOR.

STORM SEWER ROUTING OF EXISTING STEPS TO BE REMOVED.

185' OF EXISTING STORM SEWER TO BE REMOVED.

155' OF EXISTING STORM SEWER TO BE REMOVED.

REMOVE 4" AGGREGATE BASE COURSE AT FULL DEPTH.

EXISTING WINDCONE TO BE REMOVED.

4" AGGREGATE BASE COURSE AT FULL DEPTH.

5.5-6.5" HMA AT FULL DEPTH.

REMOVE EXISTING EDGE LIGHT.

REMOVE EXISTING REFLECTOR.

4" AGGREGATE BASE COURSE AT FULL DEPTH.

5.5-6.5" HMA AT FULL DEPTH.

EXISTING WINDCONE TO BE REMOVED.

4" AGGREGATE BASE COURSE AT FULL DEPTH.

5.5-6.5" HMA AT FULL DEPTH.
NOTES:
1. Full depth pavement removal shall be considered according to the amount electrical, fiber optic, or other utilities that may be found in the area.
2. Storm sewer connections are available upon request.
3. Corings are available in the geotechnical report in the project.
4. Full depth pavement removal shall be considered incidental to the project.
5. The depths of the pavements provided are advisory only. The contractor is responsible for removing the existing pavements regardless of actual depths in the field. No additional payments will be made for a variation in the depths shown on the plans.
6. The contractor is responsible for removing the existing pavements regardless of actual depths in the field. No additional payments will be made for a variation in the depths shown on the plans.
7. Geotechnical borings are available in the geotechnical report in the project.
8. Costs associated with removing or abandoning existing cable shall be considered incidental to the project.
9. Removed sign, 1/C #8 L-823 5KV Cable in unit duct or conduit, with L-824 5KV Cable in unit duct or conduit. Contractor shall install a "Jumper" cable between edge lights on either side of the removed sign. 1/C #8 L-823 5KV Cable in unit duct or conduit, with L-824 5KV Cable in unit duct or conduit. The removed sign, 1/C #8 L-823 5KV Cable in unit duct or conduit, with L-824 5KV Cable in unit duct or conduit. The removed sign, 1/C #8 L-823 5KV Cable in unit duct or conduit, with L-824 5KV Cable in unit duct or conduit.
10. Connectors on each end. Installation of this cable shall be incidental to the project.
11. The contractor shall turn over to the city all removed base cans and signs.
12. Foundations for existing lights to be removed shall be considered incidental to the project.
13. Costs associated with removing or abandoning existing cable shall be considered incidental to the light removal or relocation pay item.
14. Removed pavements shall be disposed of off-site.
15. The contract removed pavements shall be disposed of offsite at no additional cost to the contractor.
16. Removed pavements shall be disposed of offsite at no additional cost to the contractor.
17. The contractor removed pavements shall be disposed of offsite at no additional cost to the contractor.
18. Removed pavements shall be disposed of offsite at no additional cost to the contractor.
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25. Removed pavements shall be disposed of offsite at no additional cost to the contractor.
26. Removed pavements shall be disposed of offsite at no additional cost to the contractor.
27. Removed pavements shall be disposed of offsite at no additional cost to the contractor.
28. Removed pavements shall be disposed of offsite at no additional cost to the contractor.
29. Removed pavements shall be disposed of offsite at no additional cost to the contractor.
30. Removed pavements shall be disposed of offsite at no additional cost to the contractor.
14 PANELS @ 11.5' = 161.00'
10.00'
7 PANELS @ 11.25' = 78.75'
10.25'
2 ' = 36.00'
3 PANELS @ 12.50' = 37.50'
4 PANELS @ 11.50' = 46.00'
RAB
ADDITIONAL ALTERNATE
AIRPORT ROAD

ODD-SHAPED PANEL WITH MESH REINFORCEMENT
PANEL WITH THICKENED EDGE
DUMMY CONTRACTION JOINT JOINT-TYPE D
DOWELED CONTRACTION JOINT-TYPE C
HINGED (TIED) CONTRACTION JOINT-TYPE B
DOWELED CONSTRUCTION JOINT-TYPE E
THICKENED EDGE ISOLATION JOINT-TYPE A

EXISTING FUEL TANK
EXISTING HANGAR

SCALE
EXISTING FUEL TANK
EXPANSION JOINT
EXPANSION JOINT

K:
BOWLING GREEN, MISSOURI

DECEMBER 16, 2019

ADDITIONAL ALTERNATE JOINTING PLAN
PROPOSED RUNWAY 13-31 CABLE 2/C #8, L-824, TYPE C, 5KV - IN 2" PVC CONDUIT

PROPOSED RUNWAY 13-31 CABLE 1/C #8, L-824, TYPE C, 5KV - IN 2" PVC CONDUIT

PROPOSED L-849I(L) REIL

PROPOSED L-881(L) 2-BOX PAPI

PROPOSED HOLD POSITION AIRFIELD SIGN

PROPOSED CONCRETE ENCASED DUCT BANK

PROPOSED BASE MOUNTED MEDIUM INTENSITY LED TAXIWAY EDGE LIGHT

PROPOSED BASE MOUNTED MEDIUM INTENSITY LED RUNWAY EDGE LIGHT (W=WHITE, Y=YELLOW)
VAULT ELEVATION LEGEND

1. MAIN POWER PANEL, 19" x 12" POLY. 3200 AMP. (PLUG SHIPS WITH 300 AMP. 3 POLE MAIN CIRCUIT BREAKER. 30 AMP. RECEPTACLE RATED: 150 AMP. ON 150 AMP. BUS). PROVIDE ENGRAVED NAMEPLATE READING "120/240V MAIN POWER PANEL, "PP-1", 42 POLE, 200A 120/240V, 1PHASE, 3WIRE WITH 200A, 2 POLE MAIN CIRCUIT BREAKER.

2. PROVIDE FUTURE VAULT REGULATOR.

3. "NEW" HINGED NEMA 1 ENCLOSURE SIZED AS REQUIRED TO HOUSE TAXIWAY LIGHT TRANSFORMER AND 1-63 CONNECTORS. PROVIDE ENGRAVED NAMEPLATE READING "FUTURE TAXIWAY TRANSFORMER".

4. "NEW" HINGED NEMA 1 ENCLOSURE SIZED AS REQUIRED TO HOUSE SPARE REGULATORS LIGHT TRANSFORMER AND 1-63 CONNECTORS. PROVIDE ENGRAVED NAMEPLATE READING "SPARE TRANSFORMER".


6. ENGRAVED NAME PLATE READING "RUNWAY 13/31 PLUG-CUTOUT".

7. "SPACE" FOR FUTURE REGULATOR.

8. "NEW" HINGED NEMA 1 ENCLOSURE SIZED AS REQUIRED TO HOUSE TAXIWAY LIGHT TRANSFORMER AND 1-63 CONNECTORS. PROVIDE ENGRAVED NAMEPLATE READING "FUTURE TAXIWAY TRANSFORMER".

9. "NEW" HINGED NEMA 1 ENCLOSURE SIZED AS REQUIRED TO HOUSE SPARE REGULATORS LIGHT TRANSFORMER AND 1-63 CONNECTORS. PROVIDE ENGRAVED NAMEPLATE READING "SPARE TRANSFORMER".


11. "NEW" ADB ISO SERIES CUTOUT, CAT #47-686-893 OR GROUND-HEADS, FOR SPARE TRANSFORMER.

12. 1-1/2" ID, 1/4" BAR, TYPE C, 5 KV 6" IN. N-1" LEADOUT TO FLEXIBLE CONDUIT.

13. 1-1/2" ID, 1/4" BAR, TYPE C, 5 KV GROUND BUS, ROUTE SEEDING BOTH WIREWAYS AND CLAMP TO VAULT GROUND BUS.

14. "NEW" EXHAUST FAN, 120V, 1/4HP, 1,017CFM.

15. "NEW" 6" REINFORCED WITH #4 REBARS 12" CENTER EACH WAY CONCRETE PAD ON A 6" CRUSHED AGG. BASE PAD.

16. "NEW" PRE-FABRICATED STEEL FRAME EQUIPMENT SHELTER, 14'Wx12'Dx9'H. SEE SPECIFICATIONS.

17. "NEW" #2 INSULATED COPPER GROUND WIRE IN 1/2" PVC CONDUIT TO EXTERIOR VAULT GROUND RING. CLAMP GROUND WIRE TO INTERIOR VAULT GROUND BUS.

18. "NEW" #2 INSULATED COPPER GROUND WIRE IN 1/2" PVC CONDUIT TO VAULT GROUND BUS. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

19. "NEW" #2/0 BARE COPPER GROUND WIRE.

20. 3/4" DIAMETER x 10' LONG COPPERCLAD GROUND ROD. BOND GROUND WIRES TO GROUND ROD USING EXOTHERMIC BONDER. CONNECTORS. PROVIDE ENGRAVED NAMEPLATE READING "RUNWAY 13/31 TRANSFORMER".

21. "NEW" HINGED NEMA 1 ENCLOSURE SIZED AS REQUIRED TO HOUSE TAXIWAY LIGHT TRANSFORMER AND 1-63 CONNECTORS. PROVIDE ENGRAVED NAMEPLATE READING "FUTURE TAXIWAY TRANSFORMER".

22. "NEW" HINGED NEMA 1 ENCLOSURE SIZED AS REQUIRED TO HOUSE REGULAR TRANSFORMER AND 1-63 CONNECTORS. PROVIDE ENGRAVED NAMEPLATE READING "REGULAR TRANSFORMER".


24. "NEW" ADB ISO SERIES CUTOUT, CAT #47-686-893 OR GROUND-HEADS, FOR SPARE TRANSFORMER.

25. "NEW" 4" x 4" NEMA 3R HIGH VOLTAGE WIREWAY. INSTALL AN ADHESIVE WARNING LABEL ON HINGED DOOR READING: "NEW" 4" x 4" NEMA 1 LOW VOLTAGE WIREWAY.

26. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 1/4" FROM WALL.

27. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 1/4" FROM WALL.

28. "NEW" 4" x 4" NEMA 1 LOW VOLTAGE WIREWAY.

29. "NEW" 4" x 4" NEMA 3R HIGH VOLTAGE WIREWAY.

30. "NEW" #2 INSULATED COPPER GROUND WIRE IN 1/2" PVC CONDUIT TO EXTERIOR VAULT GROUND RING. CLAMP GROUND WIRE TO INTERIOR VAULT GROUND BUS.

31. "NEW" #2 INSULATED COPPER GROUND WIRE IN 1/2" PVC CONDUIT TO EXTERIOR VAULT GROUND RING. CLAMP GROUND WIRE TO INTERIOR VAULT GROUND BUS.

32. "NEW" PREFabricated STEEL FRAME EQUIPMENT SHELTER, 14'Wx12'Dx9'H. SEE SPECIFICATIONS.

33. "NEW" PRE-FABRICATED STEEL FRAME EQUIPMENT SHELTER, 14'Wx12'Dx9'H. SEE SPECIFICATIONS.

34. "NEW" 6" REINFORCED WITH #4 REBARS 12" CENTER EACH WAY CONCRETE PAD ON A 6" CRUSHED AGG. BASE PAD.

35. "NEW" PRE-FABRICATED EQUIPMENT SHELTER, 14'Wx12'Dx9'H. SEE SPECIFICATIONS.

36. "NEW" PRE-FABRICATED EQUIPMENT SHELTER, 14'Wx12'Dx9'H. SEE SPECIFICATIONS.

37. "NEW" PHOTOCELL.

38. "NEW" TWO #18 Titan PHOTOCELL CONTROLS. ONE #18 GROUND IN 1/4" GR 95 CONDUIT.

39. "NEW" RADIO INTERFACE UNIT (RIU) FOR SPARE REGULATOR.

40. "NEW" RADIO INTERFACE UNIT (RIU) FOR RUNWAY REGULATOR.

41. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

42. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

43. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

44. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

45. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

46. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

47. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

48. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

49. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

50. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

51. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

52. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

53. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

54. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

55. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

56. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.

57. "NEW" 1/8" x 3/4" COPPER GROUND BUS, ALL AROUND INSIDE OF VAULT. STAND-OFF MOUNT, 6" MINIMUM ABOVE VAULT FLOOR ON ALL SIDES.
NOTES:

1. L-807 PRIMARY (12-FOOT) WIND CONE.
2. PRIMARY WIND CONE: 12-FOOT DIAMETER 6" AGGREGATE BASE ON SOIL STABILIZATION FABRIC.
3. PRIMARY WIND CONE: TWO #8 USE, ONE #10 GND IN UNIT DUCT TO NEW VAULT.
4. PRIMARY WIND CONE: 30A, 240V UNFUSED DISCONNECT AND PHOTOCELL. SEE DETAIL, THIS SHEET.
5. PRIMARY WIND CONE: ONE #12 THWN, ONE #10 GND IN 3/4" GRS CONDUIT TO WIND CONE.

L-807 LED PRIMARY WIND CONE - INTERNALLY LIGHTED

NOTES:

1. 2" FRANGIBLE COUPLING. PROVIDE CAP.
2. 30A, 240V UNFUSED DISCONNECT IN NEMA 3R ENCLOSURE, SQUARE D OR EQUIVALENT.
3. WIND CONE PHOTOCELL, TYPE MODEL #2101, OR EQUIVALENT.
4. 12" DIAMETER x 6' DEEP (MINIMUM) CONCRETE FOUNDATION.
5. TWO #8 USE, ONE #10 GROUND IN UNIT DUCT. SEAL CONDUIT END TO MAKE WATER TIGHT.
6. TWO #12 THWN (WIND CONE LIGHTS POWER), ONE #12 GROUND IN 3/4" GRS CONDUIT TO WIND CONE.
7. FRANGIBLE COUPLING.

L-807 PRIMARY WIND CONE POWER DETAIL
The beacon tower shall be painted in 7 equal alternating band of aviation orange and white with the bands at the bottom and top ends painted orange. All exposed parts of the beacon tower shall be painted.

Beacon pole foundation notes:
1. Foundation for beacon shall be bored/drilled. Construction of drilled shafts may require the use of shotcrete or casing that shall be removed during the concrete pouring process.
2. Concrete shaft shall have a minimum compressive strength of 4,000 PSI at 28 days.
3. All reinforcing steel shall conform to ASTM A-615, Grade 60.
4. The contractor shall assume and warranty in operation pumping equipment for the concreting of foundation. No structure shall be permitted to be constructed in which any amount of water flows or is pooled. The cost of dewatering shall be bid as an integral part of the project.
5. The beacon foundation shall be monolithic. No construction joints will be permitted.

Beacon pole foundation design:
Design data:
- Wind speed: 100 M.P.H.
- Earthquake, 0.40 G

Beacon Platform Detail:
- Protective wire support
- Lowering cable guide with brake rolls
- Hand winch with automatic brake
- Removable handcrank

Concrete Foundation:
- Bored/drilled shaft
- Steel reinforcing bars
- Concreting:
  - Minimum concrete cover: 4"
  - Minimum reinforcement: 1/2" x 6' copper clad lightning rod.
  - 2'-0" COPPER CLAD LIGHTNING ROD.
  - 3'-0" DIA.
  - 1/2" x 6' COPPER CLAD LIGHTNING ROD.
  - 3'-0" DIA.

Hinge Detail:
- Hinge detail
- Base detail

Lays LED dual unit obstruction light

Section A.A

#4 SPIRAL AT 6" PITCH
BY 2" GRS CONDUIT WITH PAPI LIGHT HOUSING

INSTALLATION

HEAVY DUTY FUSIBLE DISCONNECT, 600VAC, 30A,
2 4" 120/240V PAPI POWER & CONTROL UNIT, WITH
* 50' 2" GALVANIZED EMT LEGS WITH TOPS CAPPED.
CONDUIT AND WIRING TO VAULT AS

EQUIVALENT WELD, CADWELD, OR VIA EXOTHERMIC
GROUND WIRES CONNECT TO
GROUND ROD (TYP).
COPPERCLAD 3/4" DIA. X 10'L

PAPI POWER WIRING TO ELECTRICAL VAULT.
L-867 CAN WITH SOLID LID.
L-881 OR L-881(L) PAPI LIGHT BOX.

PATH (RWY. 31 MIRROR IMAGE)

SAFETY AREA
SIGNAL

N.T.S.
T C H
LIGHT BOX
COPPER GROUND
DISTANCE FROM THRESHOLD TO PAPI
RUNWAY
E.O.P.

3°15'

CONCRETE PAD
6" THICK
FOLLOWS:
POWER & PAPI TILT CONTROL CABLES, PER PAPI
PHOTOCELL.
1" UNIT DUCT (120/240V POWER)
1-1/2" UNIT DUCT (120/240V POWER)
PAPI 13: THREE #6 TYPE USE, ONE #8 GND IN
GND IN 3/4" CONDUIT, TO PAPI POWER &
TWO #12 THWN, ONE #12
1-5/8" X 1-5/8" GALVANIZED STRUT.

GLIDE PATH ANGLE
THRESHOLD CROSSING HEIGHT
THRESHOLD STATIONING
REFERENCE POINT ELEVATION
ELEVATION OF CENTER OF PAPI LIGHTS
THE VISUAL GLIDE PATH ANGLE IS THE CENTER OF THE
RELATIVE TO PRESLECTED GLIDE PATH (3°00')
NEXT ADJACENT UNIT
RELATIVE TO PREVIOUS GLIDE PATH (3°00')
GROUND LUG IN DISCONNECT. (NOT SHOWN IN
WELDING. OTHER END OF CABLE TERMINATES ON
WIRE MESH INFO.
CONCRETE FOOTING, 36" DIAMETER X 48" DEEP
GND IN 3/4" CONDUIT, TO PAPI POWER &
TWO #12 THWN, ONE #12
1-5/8" X 1-5/8" GALVANIZED STRUT.

LONG COPPER
FLOOR FLANGE
#6 GROUND TO
GROUND LUG
#6 BARE COPPER
ENVELOPE
4" WIDE CONCRETE
(TYP.)
SONOTUBE FORMED TO OBTAIN
P-610 CONCRETE
SMOOTH SIDES (TYP.)
MINIMUM OF 8" IN CONCRETE
W/NUTS (TYP.) EMBEDDED
STAINLESS STEEL HOOK BOLT
FABRIC
4" CONCRETE ON
GRADE
FINISHED

foundations for mounting light boxes shall be made of item 610 concrete.

AZIMUTHAL AIMING:
EACH LIGHT UNIT SHALL BE AIMED OUTWARD INTO THE APPROACH ZONE ON A LINE
PERPENDICULAR TO THE RUNWAY CENTERLINE WITHIN ±6 INCHES.

ELEVATION OF LIGHT UNITS SHALL NOT EXCEED 1'-0".
THE DIFFERENCE IN LATERAL SPACING BETWEEN LIGHT UNITS SHALL NOT EXCEED 1'-0".
MOUNTING HEIGHT TOLERANCES:
THE FRONT FACE OF EACH LIGHT UNIT IN A BAR SHALL BE LOCATED ON A LINE
TOLERANCE ALONG LINE PERPENDICULAR TO RUNWAY:
THE BEAM CENTERS OF ALL LIGHT UNITS SHALL BE WITHIN ±1 INCH OF A
REFERENCE LINE.

THIS BAR IS EQUAL TO 2" AT FULL SCALE (34X22).
NOTES:
1. ALL LEGEND SHALL BE AS SHOWN IN THE PLANS.
2. FIGURE 1

GROUND TEST-FALL OF POTENTIAL METHOD

1. ALL LEGEND SHALL BE AS SHOWN IN THE PLANS.
2. FIGURE 1

D10213 02 4 0 1/21/2020
RAB 40
DATE
23 7 5
1/2 1/2 0 2 0
K: B o w l i n g G r e e n M O A p 1 9 0 0 5 0 1 -0 0 _ Runway Draw Sheets 60 _ Electrical Details_07.dgn

GROUND TEST-FALL OF POTENTIAL METHOD

NOTES:
1. ALL LEGEND SHALL BE AS SHOWN IN THE PLANS.
2. FIGURE 1

PROPOSED REIL DETAILS

NOTES:
1. ALL LEGEND SHALL BE AS SHOWN IN THE PLANS.
2. FIGURE 1

TYPICAL LED INSTALLATION TYPE 3

RECONSTRUCT AND Widen TAxWay 13-31;
RECONSTRUCT CONNECTING TAxWay

BOWLING GREEN MUNICIPAL AIRPORT
Bowling Green, Missouri