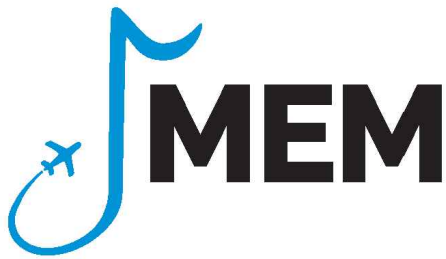


CAD FILE: C:\USERS\ADS\DOCS\FOTH\MEM\RUNWAY 18R PAPI\26M300.25\PROJECT FILES\CAD\PLANS\G1003 - ESTIMATE REFERENCE NOTES.DWG Layout: G1003 By: SNYDER, ANDREW D

ESTIMATE REFERENCE NOTES		
ITEM NO.	ITEM CODE	DESCRIPTION
1	C-105-1	EROSION CONTROL A. THIS ITEM IS FOR THE INSTALLATION OF THE TWO (2) TDOT FILTER SOCKS SHOWN ON SHEET CG301, AS NEEDED. DETAIL IS SHOWN ON SHEET CG501.
2	C-105-1	MOBILIZATION A. MOBILIZATION FEE SHALL NOT EXCEED 10 PERCENT OF THE TOTAL PROJECT COST. PAYMENT WILL BE INCREMENTAL AS OUTLINED IN THE C-105 SPECIFICATION.
3	A-102-1	CONSTRUCTION ACCESS, PROJECT SAFETY AND SECURITY, AND STAGING AREA A. ITEM INCLUDES PREPARTION OF THE STAGING AREA LOCATED SOUTH OF THE GLIDE SLOPE SHETER, INSTALLATION OF ANY TEMPORARY HAUL ROADS AT THE PROJECT SITE, ESCORTING VEHICLES ONTO THE SITE, BADGING AND MANAGEMENT OF THE BADGING PROCESS, VEHICLE, INSPECTION, DECALS AND STICKERS B. THIS ITEM ALSO INCLUDES INSTALLATION OF ORANGE SAFETY FENCE AS SHOWN ON SHEETS SP101 AND SP102. REMOVAL OF SAFETY FENCE AT THE END OF THE PROJECT IS ALSO INCLUDED IN THIS ITEM. C. UPON COMPLETION OF THE PROJECT THE STAGING AREA SOUTH OF THE GLIDE SLOPE SHELTER SHALL BE RETURNED TO THE CONDITION BEFORE OCCUPANCY.
4	A-102-2	MAINTENANCE OF TRAFFIC A. ITEM INCLUDES INSTALLATION OF MSCAA-PROVDDED LIGHTED 'X'S. 'X'S SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF PHASE 2 WHEN RUNWAY 18R-36L IS CLOSED DURING THE ALLOWED RUNWAY CLOSURES. THIS INCLUDES ADDING DIESEL FUEL AS NECESSARY. CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE LIGHTED 'X'S AT EACH END OF RUNWAY 18R-36L AT THE START OF EACH RUNWAY CLOSURE, AND REMOVING THE LIGHTED 'X' JUST PRIOR TO RE-OPENING THE RUNWAY AT THE END OF EACH RUNWAY CLOSURE. THE LIGHTED 'X'S SHALL BE STAGED AT THE STAGING AREA SE OF RUNWAY 36L. B. ITEM ALSO INCLUDES INSTALLATION AND REMOVAL OF TRAFFIC CONES AT THE HOLD LINE OF THE TAXIWAY M CONNECTING TAXIWAYS BETWEEN TAXIWAY M AND RUNWAY 18R-36L FOR THE RUNWAY 18R-36L CLOSURES DURING PHASE 2. CONES MUST BE INSTALLED AT THE START OF EACH RUNWAY 18R-36L CLOSURE, AND REMOVED JUST PRIOR TO RE-OPENING THE RUNWAY AT THE END OF EACH RUNWAY CLOSURE. 5 TOTAL CONES ARE REQUIRED AT EACH PERPENDICULAR TAXIWAY (NON-HIGH SPEED TAXIWAYS), AND 10 TOTAL CONES ARE REQUIRED AT EACH HIGH-SPEED TAXIWAY. CONES SHALL BE EQUALLY SPACED AT ALL LOCATIONS. NIGHTTIME (SUNSET TO SUNRISE) CLOSURES WILL REQUIRE ADDITIONAL CONES. CONES WILL BE SPACED NO MORE THAN 10' APART, WITH FLASHING OR STEADY BURNING RED LIGHTS ON ALL CONES. C. SEE SHEETS SP100 - SP102 FOR ADDITIONAL INFORMATION.
5	P-610	6" PCC PAD AROUND PAPI FOUNDATIONS AND PCA RACK FOUNDATION A. THIS ITEM IS FOR THE INSTALLATION OF A 6" PCC PAVEMENT AROUND THE PAPI FOUNDATIONS, AND AROUND THE PCA FOUNDATION. B. THIS ITEM ALSO INCLUDES EXCAVATION REQUIRED FOR THE 6" PAD AT BOTH LOCATIONS, AND THE 6" P-208 AGGREGATE BASE COURSE UNDER THE PAD AROUND THE PAPI FOUNDATIONS. THIS ITEM ALSO INLCUDES ALL THE JOINTS AN JOINT FILLER ON THE PCC PADS. C. CONCRETE SHALL CONFORM TO SPECIFICATION P-610. AGGREGATE SHALL CONFIRM TO SPECIFICATION P-208. D. SEE SHEETS CP101 FOR LAYOUT AND ANTICIPATED EXCAVATION FOR PCC PAD AND FOUNDATIONS. SEE SHEETS CP501 EP202 FOR DETAILS.
6	P-610	4' x 6' PCC PAPI FOUNDATION A. THIS ITEM IS FOR THE INSTALLATION OF THE 4' WIDE X 6' LONG X 3.5' DEEP FOUNDATION AT EACH OF THE 4 PAPI LIGHT HOUSE ASSEMBLIES (LHAs). B. THIS ITEMS ALSO INCLUDES EXCAVATION REQUIRED FOR THE FOUNDATIONS, AND THE 6" P-208 AGGREGATE BASE COURSE UNDER THE FOUNDATIONS. THE 15" DIAMETER, L-868C BASE CAN AT EACH FOUNDATION WILL BE SUPPLIED BY THE MSCAAA. THE INSTALLATION OF THE L-868C BASE CAN AT EACH FOUNDATION SHALL INLCUDED IN THE PRICE OF THE PAPI FOUNDATION. C. CONCRETE SHALL CONFORM TO SPECIFICATION P-610. AGGREGATE SHALL CONFIRM TO SPECIFICATION P-208. BASE CAN REQUIRED SHALL CONFORM TO SPECIFICATION L-115. D. SEE SHEETS CP101 FOR LAYOUT AND ANTICIPATED EXCAVATION FOR PCC PAD AND FOUNDATIONS. SEE SHEET CP501 FOR DETAILS.
7	T-904	SODDING A. THIS ITEM IS FOR THE INSTALLATION OF SODDING AT THE LOCATION OF ALL DISTURED AREAS. INCLUDES AREA NEXT TO THE NEW PAPI PCC PAD AND NEXT TO THE PAPI PCA RACK. ALSO INCLUDES SODDING INSTALLATION OVER THE DURECT BURIED CONDUIT DUCT BANKS. B. STRIPPING THE EXISTING TOPSOIL, STOCKPILING THE EXISTING TOPSOIL OUTSIDE THE RUNWAY OBJECT FREE AREA, AND REINSTALLING THE TOPSOIL WHEN THE SOD IS PLACED IS INCIDENTAL TO THIS ITEM. C. SEE SHEET CG301 FOR LAYOUT OF SODDING.
8	L-108-1	FURNISH AND INSTALL PAPI POWER, CONTROL, AND GROUND CONDUCTORS FROM GLIDE SLOPE SHELTER TO PCA RACK A. THIS ITEM IS FOR FURNISHING AND INSTALLING (3) 1/C #1 AWG CU XHHW-2 POWER CONDUCTORS AND (1) 1/C #1 AWG CU XHHW-2 GREEN EQUIPMENT GROUNDING CONDUCTOR IN ONE OF THE 2" CONDUITS BETWEEN THE GLIDE SLOPE SHELTER AND THE PAPI PCA RACK. THE SECOND 2" CONDUIT IS SPARE. B. ITEM INCLUDES PULLING THE CABLE, IDENTIFICATION OF THE CABLE, TERMINATIONS, CONNECTORS, GROUNDING CONDUCTORS INCLUDED WITH THE CIRCUIT, TESTING, REQUIRED SLACK, AND INCIDENTALS. C. SEE SHEETS EP101 AND EP102 FOR LAYOUT.

ESTIMATE REFERENCE NOTES		
ITEM NO.	ITEM CODE	DESCRIPTION
9	L-110-1	2 WAY 2" SCHEDULE 80 PVC CONDUITS, DIRECT EARTH BURIED A. ITEM IS FOR 2 - 2" SCHEDULE 80 PVC CONDUITS TO BE INSTALLED IN TURF BETWEEN THE GLIDE SLOPE SHELTER AND THE PAPI PCA RACK. B. ITEM INCLUDES INSTALLATION OF BOTH CONDUITS AS ONE 2-WAY ASSEMBLY, TRENCHING, EXCAVATION, BEDDING, SPACERS, BENDS/FITTINGS, RGS TRANSITIONS WHERE REQUIRED, WARNING TAPE, TRACER WIRE, PULL ROPE, PLUGS, MANDRELLING/CLEANING, BACKFILL, COMPACTION, AND TESTING. SODDING OVER THE DUCT BANK WILL BE PAID UNDER THE SODDING BID ITEM. C. SEE SHEETS EP101 AND EP102 FOR LAYOUT
10	L-110-2	2 WAY 2" SCHEDULE 80 PVC CONDUITS, CONCRETE ENCASED A. ITEM IS FOR 2 - 2" SCHEDULE 80 PVC CONCRETE ENCASED CONDUITS TO BE INSTALLED IN UNDER THE GRAVEL PAPI ACCESS DRIVE, AND UNDER THE GRAVELPARKING AREA ADJACENT TO THE GLIDE SLOPE SHELTER B. ITEM INCLUDES REMOVAL OF THE GRAVEL OVER THE CONDUIT INSTALLATION, EXCAVATION, INSTALLATION OF THE TWO CONDUITS, SPACERS, REINFORCING/SUPPORTS WHERE REQUIRED, CONCRETE ENCASEMENT, BENDS/FITTINGS, TRANSITIONS, WARNING TAPE AND TRACER WIRE WHERE APPLICABLE, PULL ROPE, PLUGS, MANDRELLING/CLEANING, BACKFILL, COMPACTION, GRAVEL ACCESS-DRIVE RESTORATION, TESTING, AND INCIDENTALS. C. SEE SHEETS EP101 AND EP102 FOR LAYOUT
11	L-115-1	NON-AIRCRAFT-RATED ELECTRICAL AND COMMUNICATION HANDHOLE A. ITEM IS FOR THE INSTALLTION OF NEW CONTRACTOR-PROVIDED ELECTRIC AND COMMUNICATIONS HANDHOLES AT THE LOCATIONS SHOWN ON SHEETS EP101, EP102, AND EP201. B. SEE SHEET EP209 FOR DETAILS.
12	L-125-1	INSTALLATION OF OWNER-FURNISHED FAA 4-BOX PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEM A. THIS ITEM IS FOR INSTALLATION OF THE FOUR (4) OWNER-FURNISHED FAA LED PAPI LAMP HOUSING ASSEMBLIES (LHAs) AT THE LOCATIONS SHOWN ON THE CONTRACT DRAWINGS. B. ITEM INCLUDES INSTALLATION OF THE LHA UNITS, FRANGIBLE COUPLINGS, MOUNTING HARDWARE, FINAL CONNECTIONS AT EACH PAPI, GROUNDING/BONDING ASSOCIATED WITH THE EQUIPMENT, PRELIMINARY ALIGNMENT, TESTING, FAA COMMISSIONING ASSISTANCE, FLIGHT INSPECTION ASSISTANCE, AND FINAL AIMING ADJUSTMENTS. C. SEE SHEET EP202 FOR CONNECTION DETAILS.
13	L-125-2	RUNWAY 18R GLIDE SLOPE SHELTER MODIFICATIONS / PAPI POWER CONNECTION A. ITEM IS FOR ALL MODIFICATIONS REQUIRED INSIDE THE GLIDE SLOPE SHELTER, AND IMMEDIATELY ASSOCIATED WITH THE EXISTING GLIDE SLOPE SHELTER TO ESTABLISH THE SOURCE CONNECTION TO THE PCA FOR THE NEW PAPI SYSTEM. B. ITEM INCLUDES REQUIRED SHUTDOWN/COORDINATION, EXISTING EQUIPMENT MODIFICATIONS, BREAKERS/DISCONNECTS OR OTHER POWER DISTRIBUTION MODIFICATIONS SHOWN ON THE PLANS, CONDUIT PENETRATIONS, SEALING/FIRESTOPPING/WEATHERPROOFING, TERMINATIONS WITHIN THE SHELTER, GROUNDING/BONDING, TESTING, LABELING, AND RESTORATION. C. SEE SHEET EP102 FOR LOCATION OF PENETRATION INTO GLIDE SLOPE SHELTER, EP205 AND EP206 FOR DETAILS, AND EP207 FOR ONE-LINE DIAGRAM.
14	L-125-3	PAPI PCA RACK AND PAPI SUPPORT SYSTEM A. THIS BID ITEM INCLUDES ALL THE ITEMS NOTED BELOW: - PCA RACK STRUCTURE. SEE SHEET EP204 FOR PAPI PCA RACK DETAILS. - PCA RACK PCC FOUNDATION AND AGGREGATE BELOW FOUNDATION. SEE SHEET CP502 FOR PCA RACK FOUNDATION DETAILS. PCC SHALL CONFORM TO THE P-610 SPECIFICATION. - MOUNTING HARDWARE AND SUPPORTS FOR THE PCA RACK. - GROUNDING AND BONDING. - CONNECTIONS AND TERMINATIONS AT THE OWNER-FURNISHED PCA. - ALL FITTINGS, CONNECTORS, SUPPORTS, TESTING, AND INCIDENTALS REQUIRED FOR A COMPLETE INSTALLATION OF THE PCA RACK. - 4 - 2" SCHEDULE 80 PVC POWER CONDUITS AND 4 - 2" SCHEDULE 80 PVC COMM CONDUITS BETWEEN THE PCA RACK AND THE PAPI LHA UNITS - CONDUIT INSTALLATION INCLUDES TRENCHING, EXCAVATION, BEDDING, SPACERS, BENDS/FITTINGS, RGS TRANSITIONS WHERE REQUIRED, WARNING TAPE AND TRACER WIRE WHERE APPLICABLE, PULL ROPE, PLUGS, MANDRELLING/CLEANING, BACKFILL, COMPACTION, AND TESTING. - POWER/CONTROL/GROUND WIRING FROM PCA RACK TO PAPI UNITS. 3-1/C #1 AWG, AND 1 - 1/C #1 AWG GREEN GROUND IN EACH POWER CONDUIT. 2PR 18AWG CONTROL CABLES IN EACH COMM CONDUIT. - RECEIVING, INSPECTION, UNLOADING, STORAGE, PROTECTION, ASSEMBLY AND INSTALLATION OF THE OWNER-FURNISHED PAPI POWER AND CONTROL ASSEMBLY (PCA). B. SEE SHEET EP101 AND EP201 FOR CONDUIT AND CABLE ROUTING BETWEEN THE PCA RACK AND THE PAPI UNITS. C. SODDING OVER THE CONDUIT DUCT BANKS WILL BE PAID UNDER THE SODDING BID ITEM.

PREPARED FOR:



PREPARED BY:

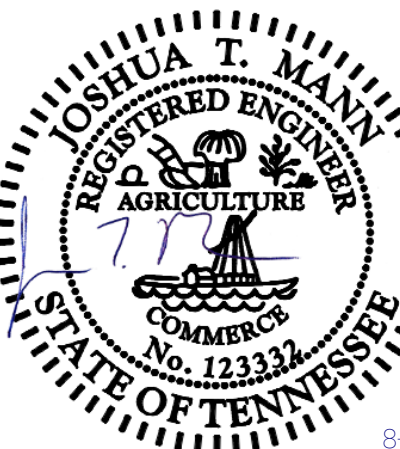


KEY MAP:

NO	DATE	BY	REVISION DESCRIPTION	ADDENDUM #1	ADS														
1	09/09/26																		

RUNWAY 18R PAPI INSTALLATION
FREDRICK W. SMITH INTERNATIONAL AIRPORT
MEMPHIS, TN

ESTIMATE REFERENCE NOTES

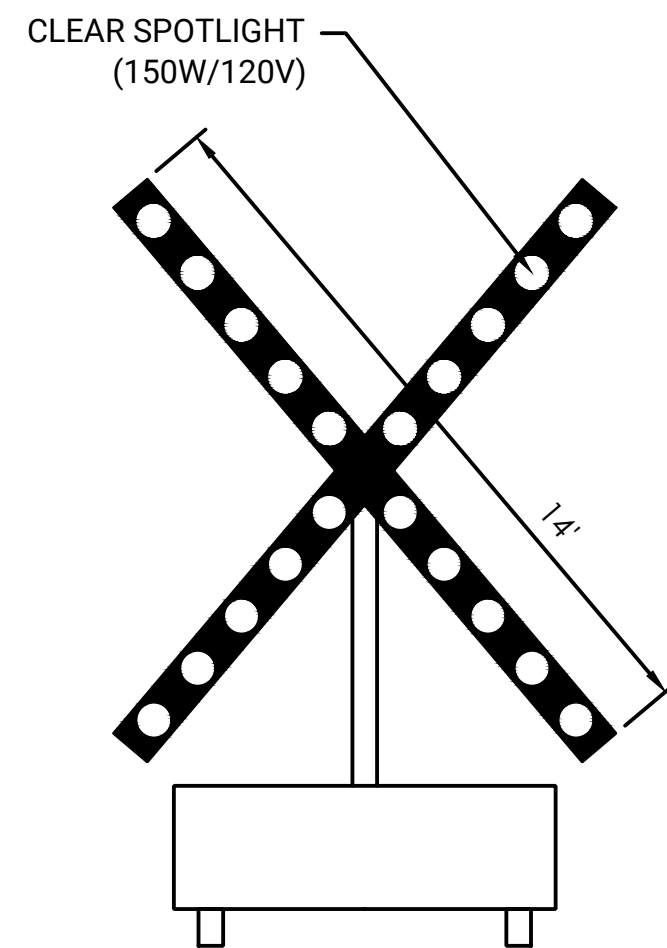


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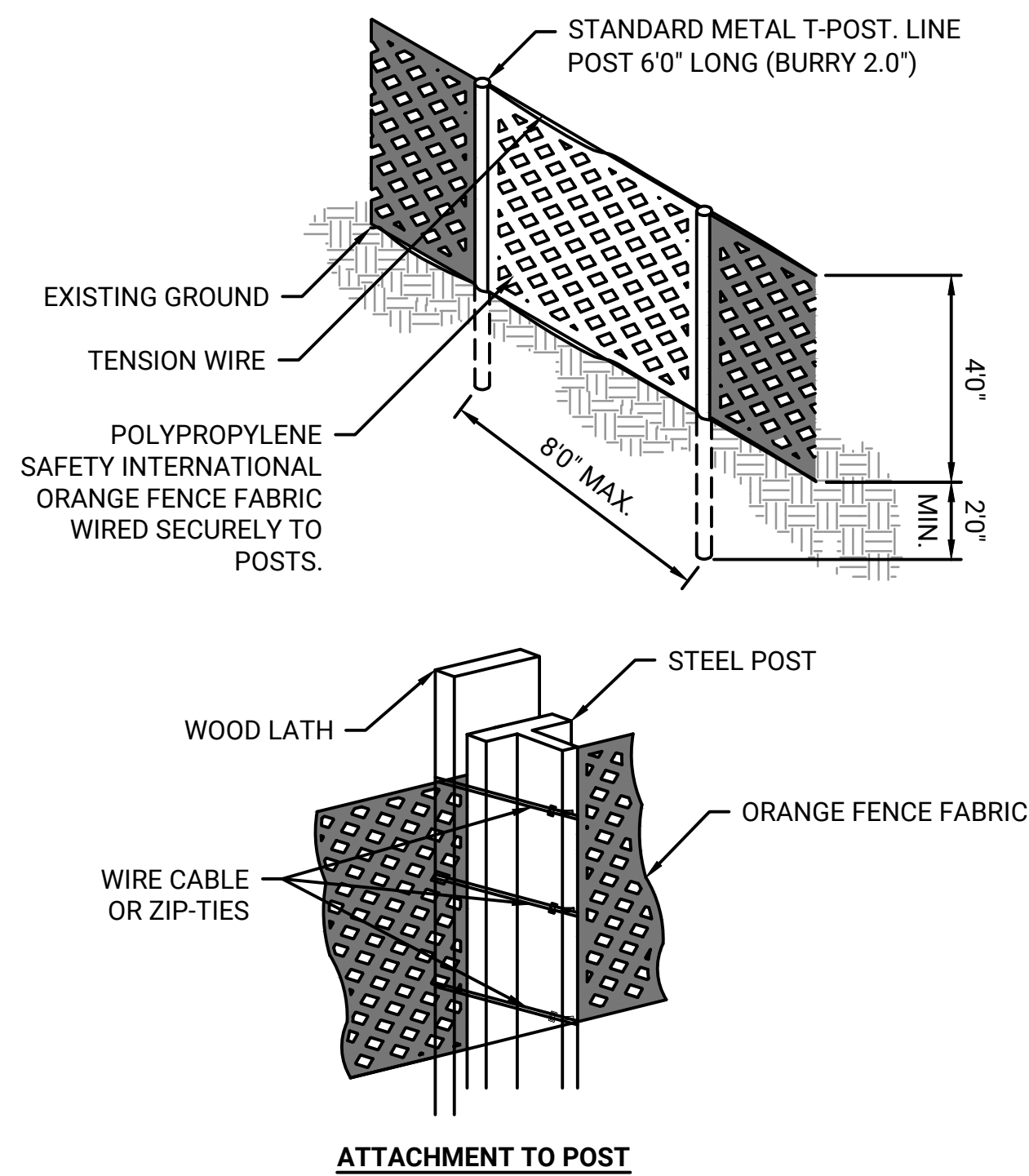
DESIGNED: ADS	DRAWN: AJI	CHECKED: WUH
PROJECT NO: 0026M300.25		
PRINT DATE: 8/18/2026		
SHEET NO.		

G1003

1. LIGHTED X'S SHALL BE PROVIDED BY MSCAA AND MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF PHASE 2 OF THE PROJECT WHEN RUNWAY 18R-36L IS CLOSED DURING THE ALLOWED RUNWAY CLOSURES. CONTRACTOR IS RESPONSIBLE FOR INSTALLING THE LIGHTED 'X'S AT THE START OF EACH RUNWAY CLOSURE, AND REMOVING THE LIGHTED 'X'S JUST PRIOR TO RE-OPENING THE RUNWAY AT THE END OF EACH RUNWAY CLOSURE.
2. MSCAA PROVIDED LIGHTED 'X'S RIDE ON TOP OF AND ARE POWERED BY A TOW BEHIND DIESEL FUELED GENERATOR. CONTRACTOR RESPONSIBLE FOR MAINTAINING THE LIGHTED 'X' THROUGHOUT THE DURATION OF THE PROJECT, WHICH INCLUDES ADDING DIESEL FUEL AS NECESSARY.
3. ALL COSTS FOR LIGHTED X PLACEMENT, MAINTENANCE, RELOCATION, AND REMOVAL SHALL BE INCLUDED IN THE MAINTENANCE OF TRAFFIC BID ITEM.

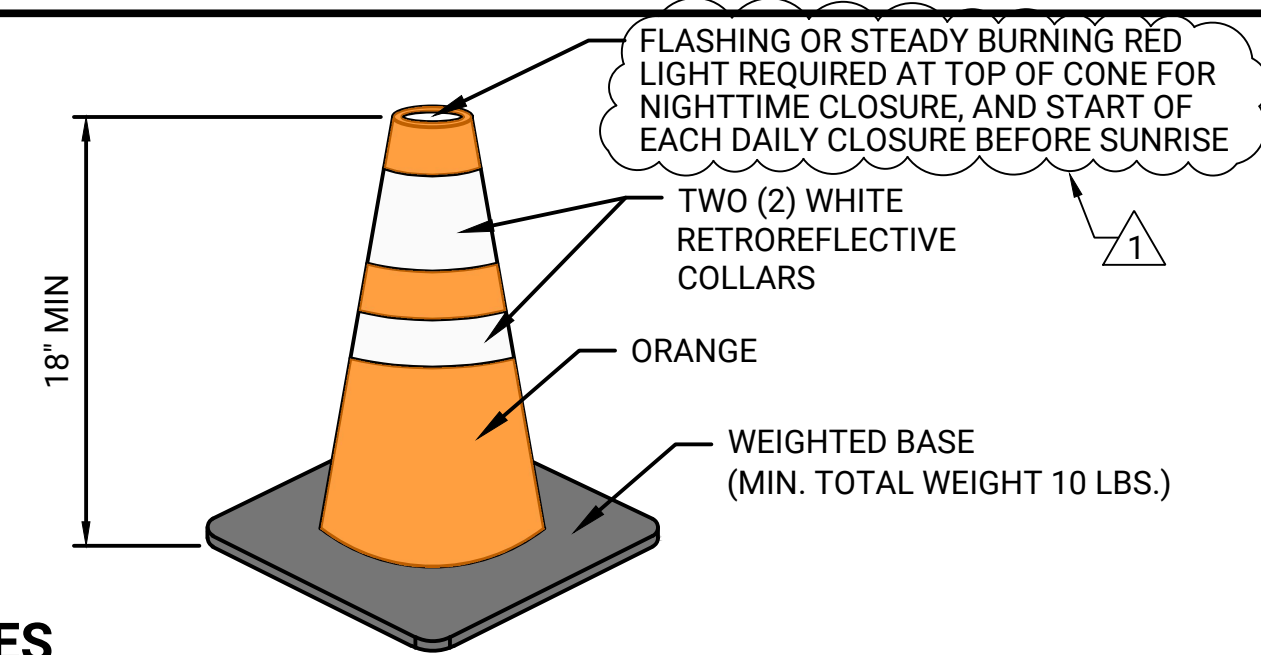


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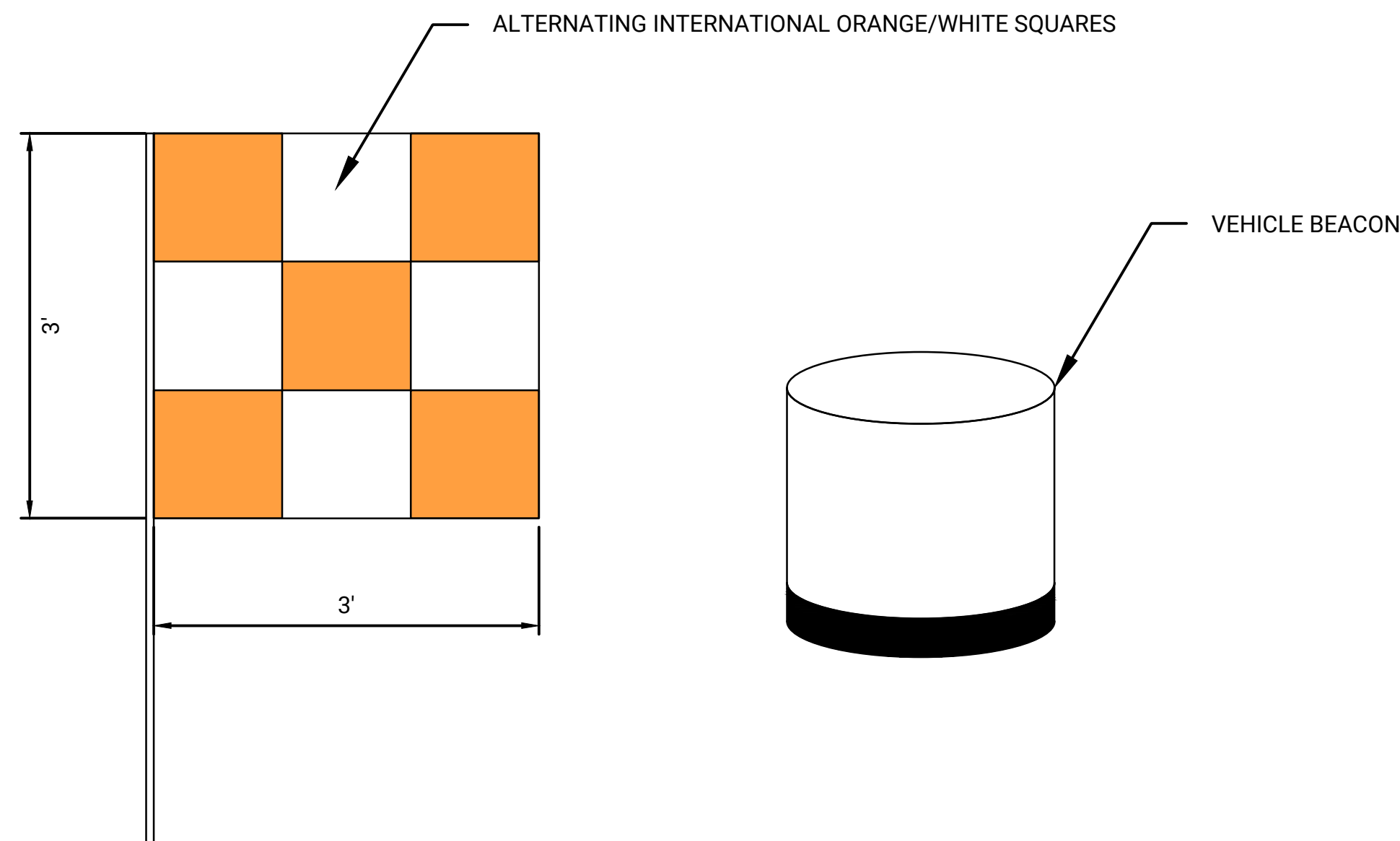
■ **SCALE:** NONE

1. ORANGE CONSTRUCTION SAFETY FENCE AND STAKES ARE TO BE PROVIDED AND INSTALLED BY THE CONTRACTOR AT ALL LOCATIONS AS SHOWN ON SHEETS SP101 AND SP102.
2. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. IF THE CONTRACTOR DEVIATES FROM THE SAFETY AND PHASING PLAN, ADDITIONAL FENCE MAY BE NEEDED. THE CONTRACTOR SHALL GAIN APPROVAL FROM THE PROJECT ENGINEER ON ANY NEW FENCE LOCATIONS.
3. FENCE SHALL BE INSTALLED WITH THE FABRIC ON THE CONTRACTOR'S WORK AREA SIDE OF THE POST.
4. AT PROJECT COMPLETION, ALL FENCE POSTS AND FABRIC SHALL BE REMOVED FROM AIRPORT PROPERTY AND SHALL REMAIN THE PROPERTY OF CONTRACTOR.
5. THE CONTRACTOR IS REQUIRED TO ENSURE THAT CONSTRUCTION SAFETY FENCE IS ADEQUATELY SECURED AND STABLE ENOUGH TO WITHSTAND THE ENVIRONMENT WITHOUT BEING DISLODGED.
6. THE CONTRACTOR SHALL INSTALL, REMOVE AND/OR RELOCATE CONSTRUCTION FENCE, AS NECESSARY, FOR ALL PROJECT AREA BOUNDARIES BY PHASE. ALL COSTS FOR FENCE INSTALLATION, RELOCATION, AND REMOVAL SHALL BE INCLUDED IN THE MAINTENANCE OF TRAFFIC BID ITEM.
7. TURF THAT IS DISTURBED DUE TO THE INSTALLATION, RELOCATION, OR REMOVAL OF THE CONSTRUCTION FENCE SHALL BE RESTORED TO ITS ORIGINAL CONDITION UPON REMOVAL. TURF RESTORATION RELATED TO THE FENCE INSTALLATION IS INCLUDED IN THE MAINTENANCE OF TRAFFIC BID ITEM.



1. TRAFFIC CONES SHALL BE INSTALLED AT HOLD LINE OF THE TAXIWAY M CONNECTING TAXIWAYS BETWEEN TAXIWAY M AND RUNWAY 18R-36L FOR THE RUNWAY 18R-36L CLOSURES DURING PHASE 2.
2. 5 TOTAL CONES ARE REQUIRED AT EACH PERPENDICULAR TAXIWAY (NON-HIGH SPEED TAXIWAYS), AND 10 TOTAL CONES ARE REQUIRED AT EACH HIGH-SPEED TAXIWAY.
3. IF THE CONTRACTOR DEVIATES FROM THE SAFETY AND PHASING PLAN, ADDITIONAL TRAFFIC CONES MAY BE NEEDED. NO ADDITIONAL COSTS SHALL BE MADE FOR ADDITIONAL TRAFFIC CONES.
4. CONES MUST BE INSTALLED AT THE START OF EACH RUNWAY 18R-36L CLOSURE, AND REMOVED JUST PRIOR TO RE-OPENING THE RUNWAY AT THE END OF EACH RUNWAY CLOSURE.
5. NIGHTTIME (SUNSET TO SUNRISE) CLOSURES WILL REQUIRE ADDITIONAL CONES. CONES WILL BE SPACED NO MORE THAN 10' APART, WITH FLASHING OR STEADY BURNING RED LIGHTS ON ALL CONES. THIS INCLUDES THE EXTENDED CLOSURES SUNDAY THROUGH MONDAY, AND THE START OF EACH DAILY CLOSURES UNTIL SUNRISE (APPROXIMATELY 7:15 AM LATE OCTOBER).

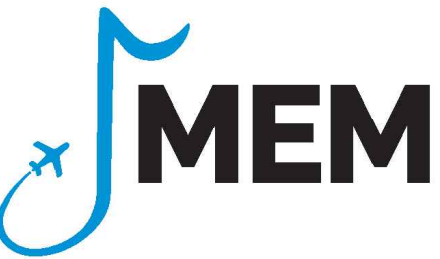
SCALE: NONE



1. EACH CONTRACTOR LICENSED VEHICLE MUST HAVE A YELLOW/AMBER ROTATING BEACON AFFIXED TO THE UPPERMOST PART OF THE VEHICLE. LIGHT MUST BE VISIBLE FROM ANY DIRECTION, INCLUDING THE AIR.
2. CONSTRUCTION EQUIPMENT DOES NOT REQUIRE ROTATING BEACON LIGHTS UNLESS WORKING DURING HOURS OF DARKNESS AND/OR LOW VISIBILITY. IF A ROTATING BEACON IS NOT PROVIDED OR FEASIBLE, CONSTRUCTION EQUIPMENT MUST DISPLAY CONSTRUCTION VEHICLE WARNING FLAG AFFIXED TO THE UPPERMOST PART OF THE VEHICLE DURING ALL PHASES. CONSTRUCTION VEHICLE FLAGS SHALL BE ACCEPTABLE DURING DAYTIME OPERATIONS ONLY.

SCALE: NONE

PREPARED FOR:



PREPARED BY:



KEY MAP:

[illegible]

**RUNWAY 18R PAPI INSTALLATION
FREDRICK W. SMITH INTERNATIONAL AIRPORT
MEMPHIS, TN**

SAFETY AND PHASING DETAILS

**SUBJECT TO CHANGE
NOT FOR CONSTRUCTION**

DESIGNED: ADS	DRAWN: AJI	CHECKED: WUH
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PROJECT NO: 0026M300.25

SHEET NO.

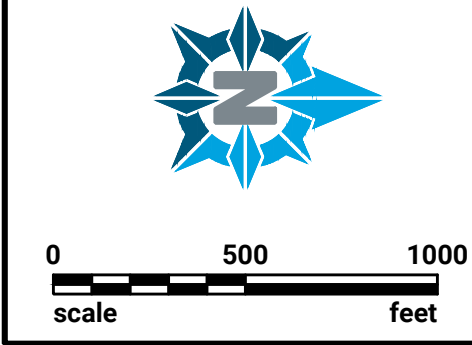
SP002

AIRFIELD PHASING CLOSURE

PHASE	DURATION	CLOSURES
1	34 CALENDAR DAYS - ANTICIPATED START DATE SUNDAY, OCTOBER 11	NONE
2	20 CALENDAR DAYS - ANTICIPATED START DATE SUNDAY, OCTOBER 11	RUNWAY 18R/36L TAXIWAY M CONNECTING TAXIWAYS BETWEEN RUNWAY 18R/36L AND TAXIWAY M
TOTAL	34 CALENDAR DAYS	

CONDITIONS REQUIRED TO START:

1. NOTICE-TO-PROCEED ISSUED FROM THE MSCAA PROJECT ENGINEER.
2. APPROVED SUBMITTALS AND SHOP DRAWINGS.
3. APPROVED CONSTRUCTION SCHEDULE
4. TWO WEEK NOTICE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.



LEGEND

- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- ✱ EXISTING AOA FENCE
- ■ — CONSTRUCTION SAFETY FENCE
- PHASE 1 WORK AREA
- PHASE 2 WORK AREA
- ▨ STAGING AREA
- ↔↔ HAUL ROUTE
- ▼ ESCORT RALLY POINT
- TRAFFIC CONE
- ✱ LIGHTED RUNWAY CLOSURE 'X'
- ✱ EXISTING AOA FENCE

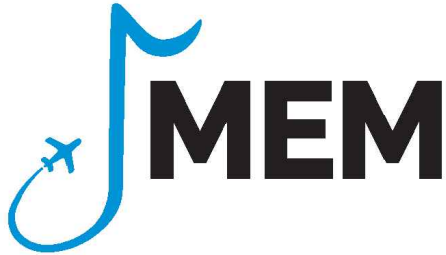
NOTES

1. THE CONTRACTOR MUST COMPLETE THE PROJECT WITHIN 34 CALENDAR DAYS.
2. A CALENDAR DAY IS DEFINED AS ANY DAY ON THE CALENDAR. IT INCLUDES SATURDAYS, SUNDAYS, HOLIDAYS, AND NON-WORK DAYS. CONTRACT TIME BASED ON CALENDAR DAYS WILL BEGIN ON THE EFFECTIVE DATE IN THE NOTICE TO PROCEED.
3. RUNWAY 18R/36L CLOSURES DURING PHASE 2 ARE LIMITED TO THE FOLLOWING TIMES: 6:00 PM SUNDAY - 9:00 PM MONDAY (27-HOUR CLOSURE) AND TUESDAY - FRIDAY: 6:00 AM - 3:30 PM (9.5-HOUR CLOSURE EACH DAY). CONSTRUCTION INSIDE THE RUNWAY SAFETY AREA DURING PHASE 2 MAY NOT OCCUR OUTSIDE THESE TIMES.
4. LIQUIDATED DAMAGES WILL BE ASSESSED FOR THE REQUIREMENTS DESCRIBED IN THE SPECIFICATIONS. CONTRACT TIME FOR THE INDIVIDUAL PHASES WILL BE SUBJECT TO LIQUIDATED DAMAGES.
5. PHASING LIMITS SHOWN ARE APPROXIMATE. ANY PROPOSED CHANGES OR DEVIATIONS TO THE PHASE WORK AREAS OR DURATIONS MUST HAVE PRIOR COORDINATION AND APPROVAL FROM THE MSCAA PROJECT ENGINEER.
6. THE CONTRACTOR MUST COORDINATE ALL OPERATIONS WITH THE MSCAA PROJECT ENGINEER AND MUST SUBMIT A PROPOSED SCHEDULE AT LEAST FIVE (5) CALENDAR DAYS PRIOR TO THE PRECONSTRUCTION MEETING. THE SCHEDULE MUST BE UPDATED ON A BIWEEKLY BASIS PRIOR TO SCHEDULING PROGRESS MEETINGS.
7. THE MSCAA PROJECT ENGINEER MUST BE PROVIDED A MINIMUM OF 48 HOURS NOTICE TO ANY WORK DAY TO ALLOW FOR SCHEDULING OF PERSONNEL FOR OBSERVATION AND TESTING.
8. STAGING AREAS SHOWN ON THE PLANS ARE APPROXIMATE. THE MSCAA PROJECT ENGINEER WILL DETERMINE THE FINAL LOCATION AND SIZE IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR STORAGE AND SECURITY OF THEIR MATERIALS. STAGING AREA AT THE PROJECT SITE MUST BE OUTSIDE THE RUNWAY OBJECT FREE AREA.
9. CONTRACTOR'S STORED MATERIALS MUST MAINTAIN A MINIMUM OF 5' DISTANCE FROM THE RUNWAY OBJECT FREE AREA.
10. FOR PHASE 2, APPROXIMATELY 5 CONES ARE NEEDED FOR EACH CONNECTING TAXIWAY CLOSURE, AND 10 FOR EACH HIGH-SPEED CLOSURES. AT THE DIRECTION OF THE PROJECT ENGINEER, MORE CONES MAY BE REQUIRED.
11. PHASE 1 DOES NOT REQUIRE RUNWAY 18R/36L TO BE CLOSED. THEREFORE, PHASE 1 CONSTRUCTION CAN OCCUR CONCURRENTLY WITH PHASE 2.
12. PHASE 2 CONSTRUCTION INSIDE THE RUNWAY SAFETY AREA WILL REQUIRE RUNWAY 18R/36L CLOSURES. PHASE 2 HAS A DURATION OF 20 CALENDAR DAYS. RUNWAY CLOSURES ARE LIMITED TO THE DAYS AND TIMES SHOWN IN NOTE 2.
13. AIRPORT-PROVIDED LIGHTED X's MUST BE PLACED AT BOTH ENDS OF RUNWAY 18R/36L AT THE BEGINNING OF EACH RUNWAY CLOSURE. CONTRACTOR-PROVIDED TRAFFIC CONES MUST ALSO BE PLACED ON THE TAXIWAY M CONNECTING TAXIWAYS AT THE RUNWAY HOLD LINE AT THE START OF THE RUNWAY CLOSURE. BOTH LIGHTED X's AND THE CONES MUST BE REMOVED PRIOR TO REOPENING THE RUNWAY. CONES AND LIGHTED 'X' MAY BE STORED AT EITHER THE STAGING AREA AT THE PROJECT SITE, OR THE STAGING AREA SE OF RUNWAY 36L.
14. SEE SHEET G1100 - OVERALL PAPI LAYOUT, FOR CONTROL POINT DESCRIPTIONS, ELEVATIONS, NORTHINGS, AND EASTINGS.
15. CONTRACTOR IS NOT ALLOWED IN THE GLIDE SLOPE SHELTER WITHOUT FAA PRESENT AT ALL TIMES. WORK SHOULD BE PLANNED AND COMMUNICATED SO FAA IS PRESENT.
16. RPR AND MSCAA SECURITY WILL PROVIDE AOA ACCESS THROUGH GATE CD-9. CONTRACTOR SHALL COORDINATE WORK/SHIFT SCHEDULE IN 72-HRS IN ADVANCE OF STARTING THE WORK. EACH DAY, CONTRACTOR SHALL CALL MSCAA COMMUNICATIONS DESK AT 901-922-8298 ABOUT 30 MINUTES PRIOR DESIRED ACCESS TO AOA AT GATE CD-9. MSCAA SECURITY WILL THEN DRIVE TO THE GATE TO LET CONTRACTOR INTO GATE CD-9. CONTRACTOR TO CALL SAME NUMBER TO BE LET OUT OF GATE CD-9 AT THE END OF THE WORK DAY. ACCESS REQUESTS OUTSIDE OF THE SCHEDULE WILL BE ACCOMMODATED, BUT CANNOT GUARANTEE RESPONSE TIME.

NOTES (CONTINUED)

17. APPROXIMATELY 5 EQUALLY-SPACED CONES ARE NEEDED FOR EACH 90 DEGREE CONNECTING TAXIWAY CLOSURE, AND 10 EQUALLY-SPACED CONES FOR EACH HIGH-SPEED TAXIWAY CLOSURES. AT THE DIRECTION OF THE PROJECT ENGINEER, MORE CONES MAY BE REQUIRED. NIGHTTIME (SUNSET TO SUNRISE) CLOSURES WILL REQUIRE ADDITIONAL CONES. CONES WILL BE SPACED NO MORE THAN 10' APART, WITH FLASHING OR STEADY BURNING RED LIGHTS ON ALL CONES. THIS INCLUDES THE EXTENDED CLOSURES SUNDAY THROUGH MONDAY, AND THE START OF EACH DAILY CLOSURES UNTIL SUNRISE (APPROXIMATELY 7:15 AM LATE OCTOBER).

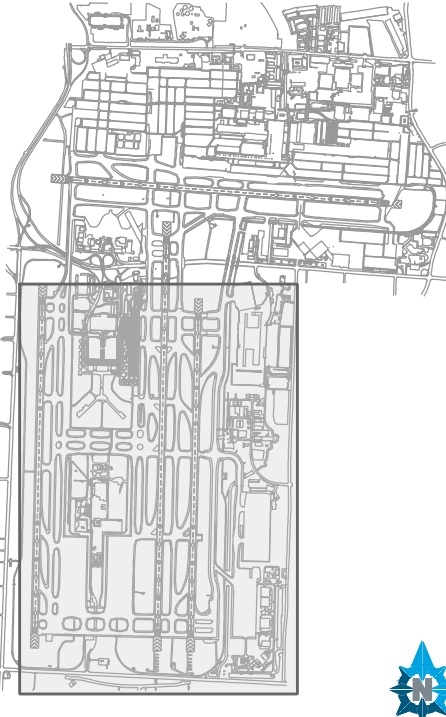
PREPARED FOR:



PREPARED BY:



KEY MAP:



NO	DATE	BY	REVISION DESCRIPTION
1	09/09/26	ADS	ADDENDUM #1

RUNWAY 18R PAPI INSTALLATION
FREDRICK W. SMITH INTERNATIONAL AIRPORT
MEMPHIS, TN

CONSTRUCTION SAFETY AND PHASING PLAN
- OVERVIEW

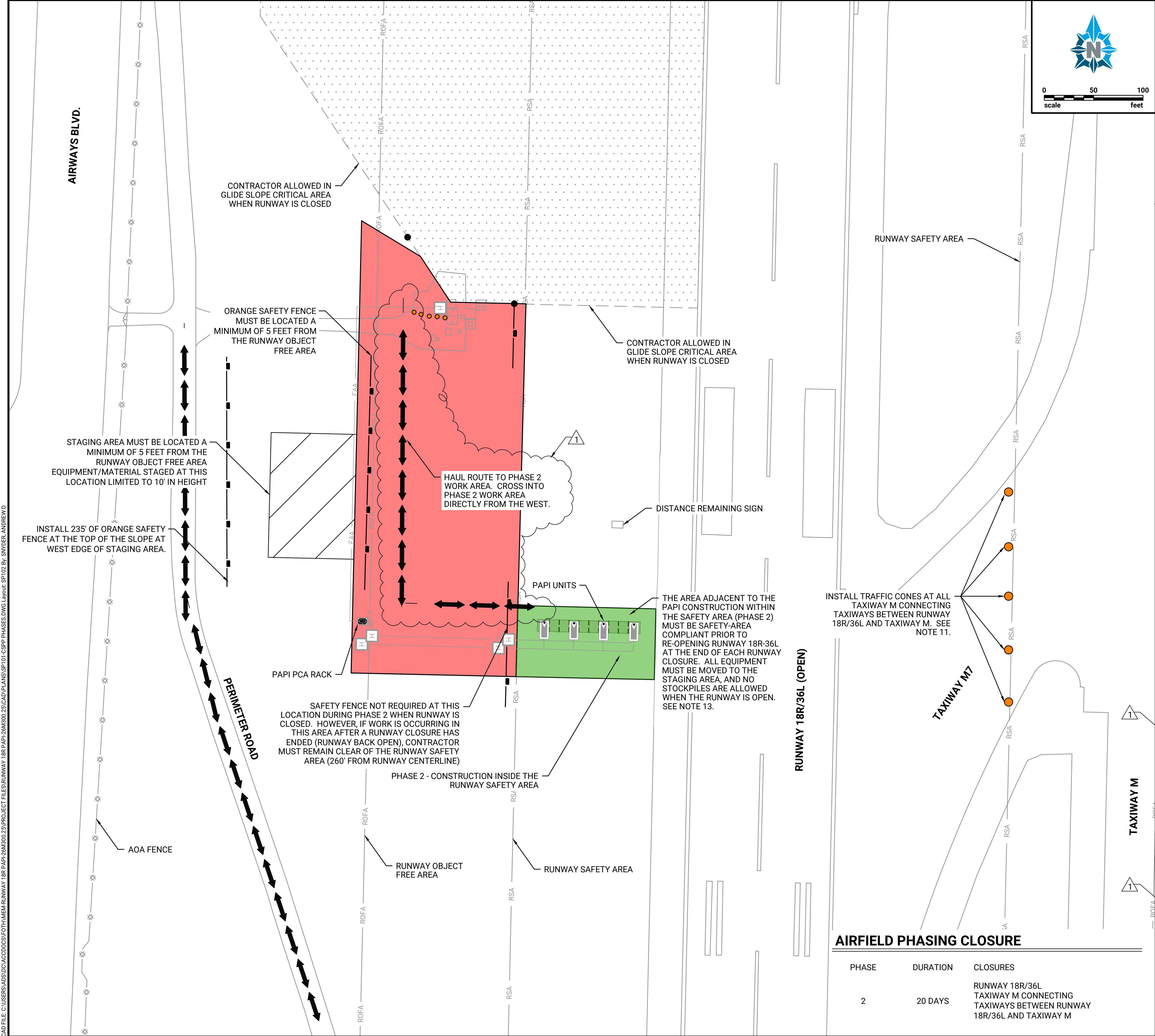
SUBJECT TO CHANGE
NOT FOR CONSTRUCTION

DESIGNED: ADS	DRAWN: AJI	CHECKED: WUH
PROJECT NO: 0026M300.25		
PRINT DATE: 9/9/2026		
SHEET NO.		

SP100

CAD FILE C:\USERS\ADS\DOCS\SP100\HAWKEN RUNWAY 18R PAPI 26M300.25\PROJECT FILES\RUNWAY 18R PAPI 26M300.25\CAD\PLANS\SP100\CSPP OVERVIEW.DWG Layout SP100 By: SNYDER, ANDREW D

CAD FILE C:\USERS\ADSD\ACCD005\FOTH\MEM-RUNWAY 18R PAPI\26M300.25\PROJECT FILES\RUNWAY 18R PAPI\26M300.25\CAD\PLANS\SP101 CSPP PHASES.DWG Layout SP102 BY: SNYDER, ANDREW D



LEGEND

- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- ■ — CONSTRUCTION SAFETY FENCE
- PHASE 1 WORK AREA
- PHASE 2 WORK AREA
- ▨ STAGING AREA
- ▨ 18R GLIDE SLOPE CRITICAL AREA
- ↔ HAUL ROUTE
- TRAFFIC CONE
- ✱ EXISTING AOA FENCE

PHASE 2 NOTES

1. THE CONTRACTOR MUST COMPLETE THE PROJECT (PHASE 1 AND PHASE 2) WITHIN 34 CALENDAR DAYS.
2. PHASE 2 HAS AN ANTICIPATED START DATE OF SUNDAY OCTOBER 11, 2026 (PENDING ISSUANCE OF NOTICE TO PROCEED). THIS IS THE SAME START DATE AS PHASE 1. PHASE 2 HAS A DURATION OF 20 CALENDAR DAYS, WHICH CORRESPONDS TO A COMPLETION DATE OF OCTOBER 30, 2026.
3. A CALENDAR DAY IS DEFINED AS ANY DAY ON THE CALENDAR. IT INCLUDES SATURDAYS, SUNDAYS, HOLIDAYS, AND NON-WORK DAYS. CONTRACT TIME BASED ON CALENDAR DAYS WILL BEGIN ON THE EFFECTIVE DATE IN THE NOTICE TO PROCEED.
4. RUNWAY 18R/36L CLOSURES ARE LIMITED TO THE FOLLOWING TIMES: 6:00 PM SUNDAY - 9:00 PM MONDAY (27-HOUR CLOSURE) & TUESDAY - FRIDAY: 6:00 AM - 3:30 PM (9.5-HOUR CLOSURE EACH DAY). 3 TOTAL 27-HOUR CLOSURES ARE AVAILABLE WITHIN THE PHASE 2, 20 CALENDAR DAY DURATION
5. LIQUIDATED DAMAGES WILL BE ASSESSED FOR THE REQUIREMENTS DESCRIBED IN THE SPECIFICATIONS. CONTRACT TIME FOR THE INDIVIDUAL PHASES WILL BE SUBJECT TO LIQUIDATED DAMAGES.
6. PHASING LIMITS SHOWN ARE APPROXIMATE. ANY PROPOSED CHANGES OR DEVIATIONS TO THE PHASE WORK AREAS OR DURATIONS MUST HAVE PRIOR COORDINATION AND APPROVAL FROM THE MSCAA PROJECT ENGINEER.
7. THE CONTRACTOR MUST COORDINATE ALL OPERATIONS WITH THE MSCAA PROJECT ENGINEER AND MUST SUBMIT A PROPOSED SCHEDULE AT LEAST FIVE (5) CALENDAR DAYS PRIOR TO THE PRECONSTRUCTION MEETING. THE SCHEDULE MUST BE UPDATED ON A BI-WEEKLY BASIS PRIOR TO SCHEDULING PROGRESS MEETINGS.
8. THE MSCAA PROJECT ENGINEER MUST BE PROVIDED A MINIMUM OF 48 HOURS NOTICE TO ANY WORK DAY TO ALLOW FOR SCHEDULING OF PERSONNEL FOR OBSERVATION AND TESTING.
9. STAGING AREAS SHOWN ON THE PLANS ARE APPROXIMATE. THE MSCAA PROJECT ENGINEER WILL DETERMINE THE FINAL LOCATION AND SIZE IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR STORAGE AND SECURITY OF THEIR MATERIALS.
10. CONTRACTOR'S STORED MATERIALS MUST MAINTAIN A MINIMUM OF 5' DISTANCE FROM THE RUNWAY OBJECT FREE AREA.
11. APPROXIMATELY 5 EQUALLY-SPACED CONES ARE NEEDED FOR EACH 90 DEGREE CONNECTING TAXIWAY CLOSURE, AND 10 EQUALLY-SPACED CONES FOR EACH HIGH-SPEED TAXIWAY CLOSURES. AT THE DIRECTION OF THE PROJECT ENGINEER, MORE CONES MAY BE REQUIRED. (NIGHTTIME (SUNSET TO SUNRISE) CLOSURES WILL REQUIRE ADDITIONAL CONES. CONES WILL BE SPACED NO MORE THAN 10' APART, WITH FLASHING OR STEADY BURNING RED LIGHTS ON ALL CONES. THIS INCLUDES THE EXTENDED CLOSURES SUNDAY THROUGH MONDAY, AND THE START OF EACH DAILY CLOSURES UNTIL SUNRISE (APPROXIMATELY 7:15 AM LATE OCTOBER).
12. PHASE 1 DOES NOT REQUIRE RUNWAY 18R/36L TO BE CLOSED. THEREFORE, PHASE 1 CONSTRUCTION CAN OCCUR CONCURRENTLY WITH PHASE 2. HOWEVER, PHASE 2 CONSTRUCTION CANNOT OCCUR LONGER THAN 21 DAYS, AND REQUIRES RUNWAY 18R/36L TO BE CLOSED.
13. ALL TRENCHES AND EXCAVATIONS WITHIN THE RUNWAY SAFETY AREA (RSA) MUST NOT BE LEFT OPEN ONCE THE RUNWAY REOPENS. TRENCHES MUST BE BACKFILLED AND COMPACTED TO MATCH THE EXISTING GRADE BEFORE LEAVING THE SITE. STEEL PLATES MAY BE USED AS AN ALTERNATIVE PROVIDED THE LIP BETWEEN THE STEEL PLATE AND ADJACENT GROUND IS 3" OR LESS. IT IS RECOMMENDED THAT THE CONTRACTOR MUST NOT EXCAVATE MORE THAN CAN BE BACKFILLED AND COMPACTED DURING ONE WORK DAY. THIS INCLUDES FOUNDATIONS FOR THE PAPI UNITS.
14. CONTRACTOR SHALL ALLOW SUFFICIENT TIME FOR MSCAA OPS TO INSPECT THE PHASE 2 WORK AREA LOCATED WITHIN THE RUNWAY SAFETY AREA PRIOR TO REOPENING THE AREA TO AIRCRAFT OPERATIONS. THE WORK AREA MUST BE RESTORED TO A CONDITION THAT COMPLIES WITH ALL RSA REQUIREMENTS. IF MSCAA OPERATIONS DETERMINES THAT ADDITIONAL CORRECTIVE WORK IS REQUIRED TO ACHIEVE RSA COMPLIANCE, AND THE CONTRACTOR FAILS TO COMPLETE SUCH WORK TO THE SATISFACTION OF MSCAA OPERATIONS PRIOR TO THE SCHEDULED REOPENING, LIQUIDATED DAMAGES WILL BE ASSESSED AT A RATE OF \$1,000 PER HOUR.
15. CONTRACTOR IS NOT ALLOWED IN THE GLIDE SLOPE SHELTER WITHOUT FAA PRESENT AT ALL TIMES. WORK SHOULD BE PLANNED AND COMMUNICATED SO FAA IS PRESENT.

AIRFIELD PHASING CLOSURE

PHASE	DURATION	CLOSURES
2	20 DAYS	RUNWAY 18R/36L TAXIWAY M CONNECTING TAXIWAYS BETWEEN RUNWAY 18R/36L AND TAXIWAY M

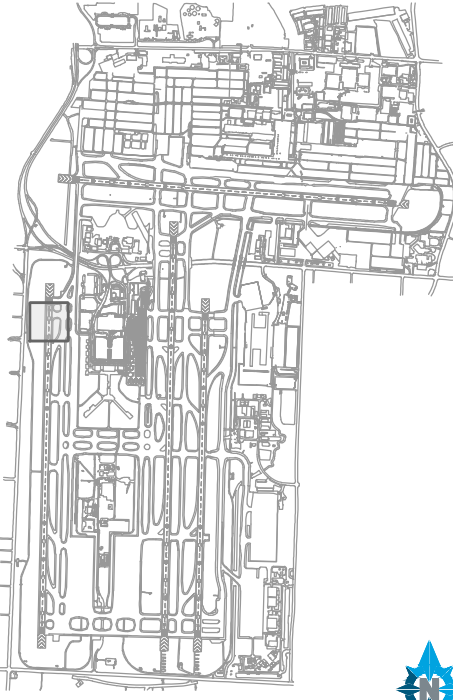
PREPARED FOR:



PREPARED BY:



KEY MAP:



NO	DATE	BY	REVISION DESCRIPTION
1	09/09/26	ADS	ADDENDUM #1

RUNWAY 18R PAPI INSTALLATION
FREDRICK W. SMITH INTERNATIONAL AIRPORT
MEMPHIS, TN

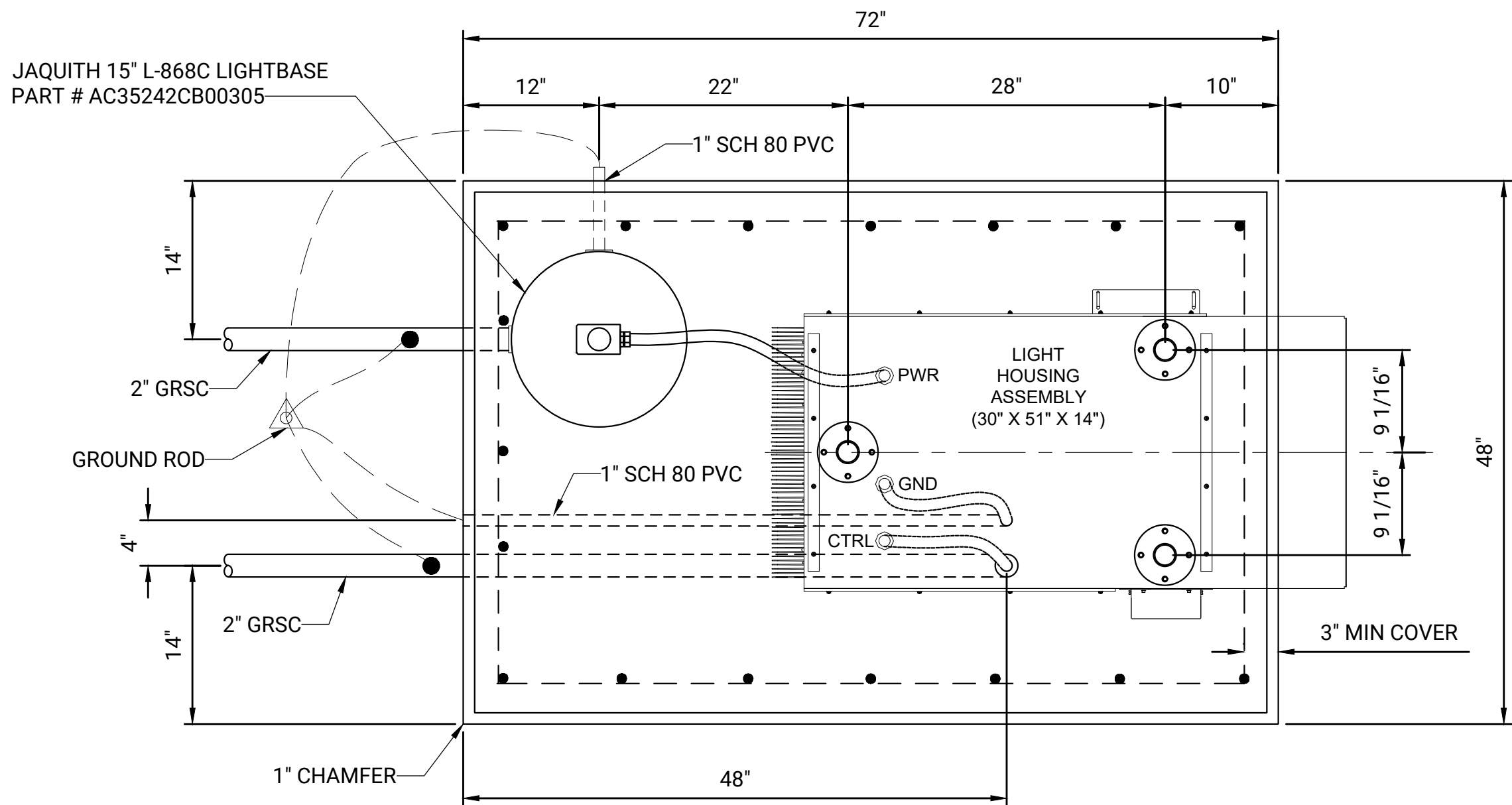
CONSTRUCTION SAFETY AND PHASING
PLAN - PHASE 2

SUBJECT TO CHANGE
NOT FOR CONSTRUCTION

DESIGNED: ADS	DRAWN: AJI	CHECKED: WUH
PROJECT NO: 0026M300.25		
PRINT DATE: 9/9/2026		
SHEET NO.		

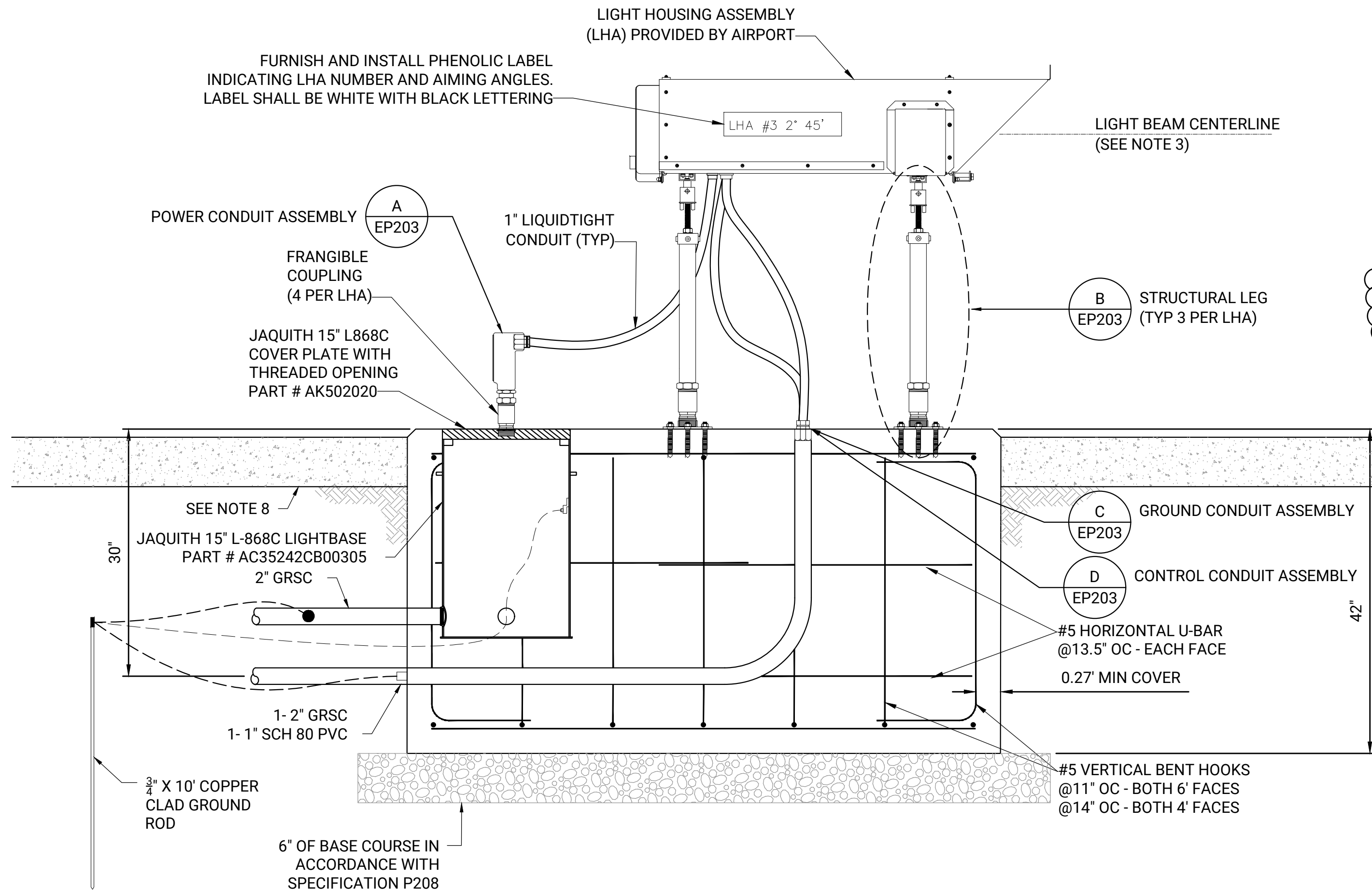
SP102

CAD FILE: J:\ACTIVE\180026.001 - MEM - 18R PAPI (COTH)\3.DESIGN\5.BIM\CAD\CAD\1.EP2005 - DETAILS.DWG Layout: EP202 By: EARL M. CARTER



1 LIGHT HOUSING ASSEMBLY (LHA) - PLAN

0 1'-0" 2'-0"



2 LIGHT HOUSING ASSEMBLY (LHA) - PROFILE

0 1'-0" 2'-0"

GENERAL NOTES

- REFER TO SHEET EP003 FOR ELECTRICAL LEGEND.
- REFER TO SHEETS EP001 THROUGH EP002 FOR GENERAL ELECTRICAL NOTES.
- REFER TO SHEET EP001 FOR ABBREVIATIONS.

DETAIL NOTES:

- ALL RIGID CONDUIT FITTING, NUTS BOLTS, AND STEEL WORK MUST BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. ALL FITTINGS USED WITH RIGID CONDUIT MUST BE THREADED TYPE.
- THE FRONT FACE OF EACH LAMP HOUSING ASSEMBLY (LHA) MUST BE LOCATED +/- 3' OF A LINE EXTENDING PERPENDICULAR TO THE RUNWAY CENTERLINE AT RUNWAY THRESHOLD.
- EACH LHA MUST BE MOUNTED AT A HEIGHT ALIGNING ITS BEAM CENTER AT ELEVATION 291.97'. TOP OF CONCRETE FOR LHA FOUNDATIONS WILL VARY.
- ANTI-SEIZE COMPOUND MUST BE APPLIED TO ALL THREADED CONNECTIONS.
- UNUSED SHIELDED PAIRS OF CONTROL WIRE IN THE LHA MUST BE FOLDED BACK AND TAPED TO PROTECT FROM WATER INFILTRATION.
- CONDUIT ENTRANCES TO THE LHA'S MUST INCLUDE INSULATED GROUND BUSHINGS AND MUST BE SEALED WITH DUCT SEAL TO PREVENT INSECT INCURSION. CONNECT GROUND BUSHINGS TO LHA GROUND LUG WITH #6 GREEN INSULATED GROUND WIRE.
- THE FLANGE SURFACE RESTING ON THE CONCRETE MUST BE COATED WITH AN ASPHALTIC COMPOUND FOR METAL PROTECTION.
- CONCRETE MAINTENANCE PAD. REFER TO CIVIL SHEET CP501.
- RECOMMENDED PAPI INSTALLATION SEQUENCE:
 - STAKE FOUNDATIONS.
 - VERIFY UTILITIES.
 - INSTALL CONDUIT.
 - INSTALL FOUNDATIONS.
 - INSTALL PCA.
 - PULL CABLES.
 - MEGGER TEST.
 - INSTALL LHAS.
 - SET PRELIMINARY AIMING ANGLES.
 - COORDINATE FINAL ALIGNMENT WITH FAA.
 - FLIGHT CHECK.
 - FINAL ACCEPTANCE.

10. THE L-868C JAQUITH BASE CANS, AND THE JAQUITH COVER PLATE WILL BE PROVIDED BY THE MSCAA. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF THE BASE CAN AND COVER PLATE AT EACH LHA FOUNDATION AS SHOWN.

1

PREPARED FOR:



PREPARED BY:



KEY MAP:

NO	DATE	BY	REVISION DESCRIPTION
1	09/09/26	ADS	ADDENDUM #1

RUNWAY 18R PAPI INSTALLATION
FREDRICK W. SMITH INTERNATIONAL AIRPORT
MEMPHIS, TN

LAMP HOUSING ASSEMBLY
EQUIPMENT INSTALLATION
DETAILS - 1



DESIGNED: COO
DRAWN: COO
CHECKED: VER
PROJECT NO: 0026M300.25
PRINT DATE: 8/17/2026
SHEET NO.

EP202