Kimley»Horn

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

MEMPHIS INTERNATIONAL AIRPORT

MSCAA Project No.: 18-1415-00

MEM – AIRFIELD SIGNAGE REPLACEMENT

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AIRSIDE SIGNAGE REPLACEMENT

A. PROJECT OVERVIEW

Aviation safety and airside security are the primary considerations at airports, especially during construction. The Memphis International Airport (MEM) Construction Safety and Phasing Plan (CSPP) and the Contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety and security compliance when coordinating construction activities with airport operations.

These documents help to identify various aspects of the construction project that pose a potential safety or security hazard to airport operations and outline respective mitigation procedures or a required Contractor response for each hazard.

The CSPP sets forth benchmarks and requirements for the project to help ensure the highest levels of safety, security and efficiency at the airport at the time of construction. Guideline requirements for the CSPP are developed from FAA Advisory Circular 150/5370-2G *Operational Safety on Airports During Construction*. See website:

http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1019533

The CSPP is a standalone document which has been specifically made a part of the design and construction documents for this project:

Memphis International Airport – MEM – Airside Signage Replacement

MSCAA Project No.: 18-1415-00

AIP No.: *XXXXXXXX*

The CSPP has been written to correspond with the safety and security requirements set forth in applicable FAA Advisory Circulars, specific MEM safety and security requirements, as well as local codes and requirements.

The CSPP is to be used by all personnel involved in the project. The CSPP covers the actions of not only the construction personnel and equipment, but also the actions of inspection personnel and airport staff.

This document has been developed in order to minimize interruptions to airport operations, reduce construction costs, and maximize the performance, security and safety of construction activity on active airfield surfaces. Strict adherence to the provisions of the CSPP by all personnel assigned to or visiting the construction site is mandatory for AIP funded construction projects.

The Contractor shall be required to submit a Safety Plan Compliance Document (SPCD) to the Airport describing how the Contractor will comply with the requirements set forth in this CSPP.

The SPCD shall be drafted as required in FAA Advisory Circular 150/5370-2G *Operational Safety on Airports During Construction*. The SPCD shall detail how the Contractor will comply with the CSPP by detailing those means, methods and/or programs that will be implemented during construction and could not otherwise be determined and/or detailed in this CSPP (i.e. specific hazard equipment and lighting, construction equipment heights, Contractor points of contact, HAZMAT response procedures, etc.).

The SPCD must be submitted to the Airport for approval prior to issuance of the Notice to Proceed. The SPCD must also include a ***Contractor's Certification Statement*** stating that it understands the operational safety and security requirements detailed in this CSPP as well as the submitted SPCD. The Contractor's Certification Statement will also assert that there will be no deviation from the approved construction practices contained within either of these documents.

In the event the Contractor's activities are found in non-compliance with the provisions of the CSPP or the approved SPCD, the Airport Program Manager or Airport's duly appointed representative will direct the Contractor, in writing, to immediately cease those operations observed to be in violation. In addition, a safety meeting will be conducted for the purposes of reviewing those provisions in the CSPP/SPCD which were violated. The Contractor will not be allowed to resume any construction operations until conclusion of the safety meeting and all corrective actions required to be performed by the Contractor have been implemented.

B. PROJECT SCOPE

AC 150/5340-18G has been updated to include FAA Engineering Brief No. 89. EB-89 redefined the alphanumeric designators for runways with parallel taxiways. The existing signs will be reviewed in accordance to this and other requirements of the AC to determine taxiways out of compliance. Sign conventions out of compliance will be presented to MSCAA for review and final determination. A preliminary exhibit of the proposed changes will be provided to MSCAA and under direction from MSCAA sign revisions will be incorporated into the final design.

Airfield Signage – The scope includes a design and layout resulting in the removal of existing airfield guidance signs and isolation transformers and upgrades to new L-858(L) airfield guidance signs. It is not permissible for sign power to enter the side of the sign enclosure and it is understood that several of the existing signs are constructed in this manner. Arora will provide a design solution to minimize project costs and full replacement of the existing concrete sign bases. Where practical the existing sign base and conduits shall be reused to provide a continuous raceway for the series circuit distribution. A new adequately sized transformer will be required to connect/power the new airfield guidance sign. The contract drawings shall include the obtaining the manufacturer of the existing signage to facilitate direct replacement and ensure the new LED signs fit on the existing sign base. Signs not located correctly or requiring base modifications will be removed and replaced with a new concrete base, interconnecting conduit, L-867D sign base and associated equipment in conformance to FAA AC 150/5340-18G. All non- standard signs will be corrected within this project. The best practical location for intercepting circuits or for creating dedicated sign circuits will be evaluated early in design. Sign panel inscriptions shall be coordinated with the airport signage plan and approved by the FAA prior to the 90% submission.

Airfield Lighting Vault and Control System Modifications – Load calculations will be confirmed to determine regulator capacity for modified series lighting and signage circuits considering that there will be a reduction of load with the implementation of the LED technology. The scope does not include the design for the replacement of constant current regulators.

Underground electrical and communications distribution systems – The airport does not desire for extensive design and layout of modified underground distribution for airfield lighting systems, including junction structures, conduit and associated cabling. The signs will be reconnected to existing cable and circuits with minor modifications based on the signs' power leg configuration.

Lightning protection (counterpoise) design for underground cables – Design and layout of lightning protection for airfield lighting and signage circuits in accordance with FAA AC 150/5340-30J for base cans, conduit and ductbank within the project design limits.

Airfield Pavement Markings – The scope of pavement markings includes new markings and reflective media on existing airfield pavements for select holding position markings. Existing Approach/Departure Holding Position markings currently marked as Pattern A style marking are to be removed and replaced with Pattern B style marking to meet standards of FAA AC 150/5340-1M, Standards for Airport Markings. Existing Approach/Departure Holding Position markings are to be removed where not required and new Approach/Departure Holding Position markings are added where required to meet current standards protecting runway approach/departure surfaces. Holding position requirements for runway

approach/departure areas and new departure surface criteria as defined in Engineering Briefs #99A and #100A were implemented in the pavement marking layout for this project. Markings were coordinated with the MSCAA staff to define the limits and scope of work of airfield pavement markings included in the project.

All marking color and dimensions are per the FAA AC 150/5340-1M, Standards for Airport Markings, and are detailed in the construction plan set. Existing pavement markings disturbed are to be replaced in kind. Black outline will be required on all proposed markings.

C. PLAN REQUIREMENTS

1. **Coordination.** Pre-design, pre-bid, and pre-construction conferences are used to introduce the subject of airport operational safety during construction. In addition, construction progress meetings, scope of schedule changes, and meetings with, tenants, stakeholders, and the FAA Air Traffic Organization (ATO) will be coordinated as required through the performance of the contract.

   Contact information for key construction personnel, engineering staff, program management staff and key airport personnel will be distributed between all relevant parties associated with the project prior to the start of construction.

   Updated and current contact lists shall be made available to Airport Operations at all times.

   Communication between the airport staff, airline tenants, airport operators, and the construction personnel will be conducted through the Airport appointed Program Manager.

   Notifications to the Airport and FAA ATO shall be coordinated through the Program Manager whenever possible.

   a. **Design and Construction Conferences.** Prebid and preconstruction conferences will be held to discuss project components and airport operational safety during construction. MEM Airport Operations will issue the proper NOTAMS to close specific areas of the airport to aircraft operations, as requested.

   b. **Contractor Progress Meetings.** Weekly construction progress meetings shall include a brief overview of work being performed by the Contractor. A two week look-ahead on upcoming work and changes to the master schedule by the Contractor shall be a standing agenda item. During this two weeks look ahead, discussions on the routing of aircraft during construction of the individual intersections will be required with MEM Airport Operations. Airfield Operational Safety & Security will also be a standing agenda item for weekly construction meetings.

   c. **Scope or Schedule Changes.** Changes in the scope and/or duration of the project may necessitate revisions to the CSPP and SPCD. The FAA Airports Southern Regional or Memphis District office shall be promptly notified of any proposed changes to this CSPP or the submitted and approved SPCD. Changes to these documents require review and approval by the Airport and the FAA prior to implementation.

   d. **Daily Coordination.** Daily notifications/communication of construction issues and progress will be held as necessary between the Airport staff, the Program Manager, the Engineer, and/or Contractor. The Airport will brief stakeholders, the FAA, and tenants as needed.

2. **Phasing.** Construction phasing for this project shall be coordinated with MEM - Airport Operations. All required NOTAM closures, routing of aircraft during construction, and notices shall be in-place and active prior to any proposed work operations. The typical intersection phasing plans established in this CSPP have been incorporated to reflect four of the typical intersection arrangements on the airfield and are reflected in the contract drawings and specifications. The project phasing for typical intersections and descriptions provided within Appendix A.

a. General Phase Elements. The sequence of construction for this project will be phased in order to maintain acceptable levels of operational safety and security at the airport for the performance of this contract.

General elements of this sequencing and phasing are as follows:

Contractor staging, Equipment Storage, Demolished disposal areas, and Soil Disposal areas – Staging, storage, and disposal location and requirements shall be coordinated in advance with the Program Manager and MEM -Airport Operations.

Construction access and haul routes –Applicable control along contractor haul routes for both safety and security must be maintained at all times. Contractor access to the work site will be as approved by the Program Manager and MEM Airport Operations.

All Contractor access gates into the AOA must be locked or have a gate guard present for all active operations through the gate. The Contractor shall maintain positive control of any and all AOA access gates assigned or designated for their use at all times.

Contractor access into active movement areas is strictly prohibited without ATC clearance and MEM Operations coordination. Reference Section C.5.b *Vehicle* and Pedestrian *Operations*, Section C.15 *Marking and Signs for Access Routes*, and Section C.17 *Protection of Runway and Taxiway Safety Areas* of this document for additional information.

ARFF access routes – Emergency ARFF access in and around the site will be maintained by the Contractor, as required, for the duration of this project.

Ground Service Equipment (GSE) vehicle routes – GSE vehicle access in and around the site will be maintained by the Contractor as required by the Program Manager and/or MEM Operations for the duration of this project. Access gates and routes for GSE vehicle routes shall be coordinated with the Program Manager and maintained and/or adjusted as necessary by the Contractor.

Required hazard marking and lighting – Low profile barricades, vehicle traffic control devices, closed runway and taxiway markings, construction signs, lighting and/or safety flag details and usage requirements are provided in the attached exhibits, reference Appendix A of this document. In addition, reference Section C.15 *Marking and Signs for Access Routes*, Section C.16 *Hazard Marking and Lighting*, and Section C.17 *Protection of Runway and Taxiway Safety Areas* of this document for additional information.

The Contractors must prominently mark open trenches and excavations within the construction site, prominently light them with red lights during hours of restricted visibility or darkness and obtain approval from the Program Manager.

Lead times for required notifications – The Contractor is required to coordinate with the Program Manager on all expected airfield closures, re-openings and available access routes for ground equipment and vehicles through closed construction areas. Lead times for required notifications shall be established at the pre-construction meeting.

b. Work Phases. All work for each phase shall be completed in accordance with the typical intersection project phasing plans, MEM-Airport Operations procedures and requirements, the project technical specifications, this CSPP, and the Contractor submitted SPCD.

The project phasing for typical intersections and descriptions provided within Appendix A are intended to help illustrate the available construction area, pavement closure items, and specific elements associated with each phase.

Aircraft access around phased areas of operations, contractor access to each phase, and emergency response access routes shall be coordinated with MEM Airport Operations in advance of construction.

Construction shall be completed in accordance Federal Aviation Administration Advisory Circular 150/5370-2G.

c. Construction Safety, Security and Phasing Drawings. Graphical exhibits indicating phase limits, barricades and safety fence are shown for four typical intersections at MEM. Contractor shall coordinate pavement closures and access to the area of construction with MEM-Airport Operations. See Appendix A of this document for typical intersection phasing plans.

3. AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY. Runways, taxiways and other airfield surfaces shall remain in use by aircraft to the maximum extent possible without compromising safety or security. The performance of this contract will require the closure or partial closure of several airfield surfaces on a scheduled and phased basis. Proposed order of intersections to be completed and phased will be proposed by the contractor and approved by the Program Manager and MEM -Airport Operations. Modifications to the phasing will be subject to approval from the Program Manager. The typical intersection phase areas are graphically illustrated in the attached exhibits, reference Appendix A.

a. Identification of Affected Areas. See Section C.3 *Areas and Operations Affected by the Construction Activity* above for graphical identification of areas affected by construction operations. Of particular concern are the following:

1. Closing, or partial closing, of runways, taxiways, taxilanes, and aprons:

The term 'partial closure' means a portion of the pavement is unavailable for any aircraft operation. The term 'temporary closure' means a portion of the pavement is unavailable for any aircraft operation for a predetermined length of time and shall be re-opened to aircraft traffic on a regular basis. Work areas for this project are anticipated within the Runway Safety Area (RSA), Runway Object Free Areas (ROFA), Taxiway/Taxilane Object Free Areas (TOFA/TLOFA) and/or within the Taxiway Safety Areas (TSA) of operating surfaces at the airport. This condition shall necessitate actions to be taken through the course of construction to maintain security, safety, and separation.

2. Closing of Aircraft Rescue and Fire Fighting (ARFF) access routes:

Access into, through, and/or around the project work area by ARFF vehicles may be reduced during construction. It shall be the Contractor's responsibility to maintain access for these emergency response vehicles for the duration of each phase of work and coordinate such routes with the Program Manager.

3. Closing of access routes used by airport and airline support (GSE) vehicles:

It shall be the contractor's responsibility to maintain access for GSE vehicles servicing aircraft around the operating portions of the airfield for the duration of the project, as required. Construction impacts to designated GSE or Airport Service Equipment vehicle routes is expected to be minimal.

4. Interruption of utilities:

Several utilities may be within, an element of, and/or directly adjacent to the project and project phased limits. These include, but may not be limited, to communication lines, airfield electrical lines, sanitary lines, gas lines, building electrical lines, water lines, and storm drain lines.

5. Approach/departure surfaces affected by heights of objects:

Contractor equipment conflicts or staging area heights of objects are not anticipated to impact approach/departure surfaces. Allowances for temporary crane heights have been made to facilitate the completion of the project.

6. Construction areas:

These areas include the project work area, storage/stockpile areas, staging areas, and contractor haul routes near or through active airfield surfaces. The staging areas and stockpile locations are not within active airfield surfaces. However, project work areas and contractor haul routes will occur within and/or cross active airfield surfaces. No work shall occur in active airfield surfaces without

approval from the Program Manager. Closures of these areas prior to occupancy by the Contractor shall be coordinated with the Program Manager and MEM Airport Operations. All crossings will be controlled and monitored by escort vehicles and/or dedicated traffic control flaggers familiar with airfield traffic control procedures on active airfield surfaces.

b. Mitigation of Effects. This CSPP has established specific requirements and operational procedures necessary to maintain the safety, security and efficiency of airport operations through construction of this project.

All coordination pertaining to airport operations during construction will go through the Program Manager and the Airport Operations Manager.

Any required NOTAM's to be issued will be sent through the Program Manager and issued by the Airport Operations Manager.

In the event of an emergency of any type on or affecting the airport, emergency vehicle access will be coordinated by MEM Operations. Contractor crews, when directed, will immediately cease operations and return all equipment to the Contractor staging area as necessary or as directed.

4. PROTECTION OF NAVIGATION AIDS (NAVAIDS). Before commencing any construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordination with the appropriate FAA ATO to evaluate the effects of construction activity and the required distances and direction from the NAVAID must be performed.

The Contractor shall be aware that there may be utility lines, electronics, and utility or transformer boxes in the vicinity of the proposed construction. Unplanned disturbance, damage, or interruption of these utilities must be avoided to the greatest extent possible during construction.

For emergency, short-notice notification about impacts to both airport owned and/or FAA owned NAVAIDs, contact: **1-866-432-2622**

5. CONTRACTOR ACCESS. Contractor access to the various areas on the airfield shall be limited to those areas to which access must be granted to complete that portion of the project. Access shall be discussed in advance with the Program Manager. All AOA access gate privileges shall be obtained by request and coordinated through the Program Manager.

a. Location of Stockpiled Construction Materials. Stockpiles within the construction area shall not be allowed. Stockpiles in the Contractor Staging Area shall be limited to a height of 25 feet above grade.

Open trenches exceeding 3 inches in depth and 5 inches in width are not permitted within the safety areas for operational runway surfaces. Stockpiled material shall not be permitted within the protected areas of any airfield surface or allowed to penetrate into any of the protected airspace.

Reference Section C.7 *Foreign Object Debris (FOD) management* and Section C.17 *Protection of Runway and Taxiway Safety Areas* for additional information regarding stockpile management.

b. Vehicle and Pedestrian Operations. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. The Airport will coordinate requirements for vehicle operations with the affected airport tenants, the Contractor, and the FAA air traffic manager.

Contractor access to the work area will be established through existing airfield gates as approved by the Program Manager and MEM -Airport Operations. The Contractor must keep gates locked, when not in use, or staffed with a gate guard when in use to prevent unauthorized access to the AOA by vehicles, animals or people. Procedures conforming to MEM security protocols will be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking"

behind another person or vehicle accessing the AOA through the gate. Maintaining security of the airfield is critical throughout construction.

Security badging is required for construction personnel working within the AOA. ***The Contractor will develop, maintain and provide to MEM Operations a current list of all badged employees, badged/escorting employees, and all escorted individuals accessing the AOA on a daily basis.***

All construction vehicles and personnel shall be restricted to the immediate work areas specified by the contract for this project. These areas include the haul routes into the work areas, the designated Contractor staging and equipment storage areas, the material disposal areas, and the runway/taxiway areas under construction. Use of alternate haul routes or staging areas by the Contractor shall not be permitted without prior notification and approval by MEM Operations and the Program Manager.

Access or haul routes used by Contractor vehicles must be clearly marked to prevent inadvertent entry into prohibited areas. Construction traffic must remain on the haul road, never straying from the approved paths.

Haul routes crossing active airfield surfaces must have in place, prior to the start of hauling operations, badged haul route monitors, flaggers, or escort vehicles equipped with Air Traffic Control (ATC) radios and a means to contact individual truck drivers utilizing the haul route.

Haul route monitors and escort vehicle operators shall be trained and well versed in the procedures for communicating with ATC. They shall be capable of receiving and relaying all directions issued by ATC to vehicles accessing the haul route. At no time shall a Contractor vehicle access, cross or otherwise penetrate the RSA, TSA, ROFA, or TOFA of active runways and taxiways without prior clearance from ATC.

Truck drivers shall obey all commands issued by the haul route monitors and/or escort vehicle operators at all times. The Contractor shall yield to all aircraft, emergency vehicles and airport operations vehicles at all times.

Maintenance and upkeep of the haul roads are the responsibility of the Contractor. The Contractor is responsible for any damage caused by construction traffic on the haul roads, regardless of whether such traffic is in an approved or un-approved traffic area.

No privately owned vehicles shall be allowed onto the AOA. Contractors shall park privately owned vehicles in the Contractor staging area.

The Contractor must service all construction vehicles within the limits of the Contractor staging area. Parked construction vehicles must be outside the OFZ and never in the safety area of active airfield surfaces.

In some cases, a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on closed taxiways or runways. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees shall not park construction vehicles on the airfield when not in use by construction personnel (for example, on weekends or during other periods when construction is not active).

The Contractor is required to sign and mark all equipment in conformance with MEM Safety and Security protocols. At a minimum, the company name, beacons or orange and white checkerboard flags are required on all Contractor vehicles accessing the Airport AOA. Beacons are mandatory for each vehicle operating on the airfield during night-time hours. Checkerboard flags will not be permitted as a substitute for beacons on vehicles operating at night.

Beacons and flags must be maintained to standards and in good working and operational condition. Beacons must be located on the uppermost part of the vehicle structure, visible from any direction, and flash 75 +/- 15 flashes per minute. Flags shall be 3’ by 3’ with alternating 1’ by 1’ international orange and white squares, and shall be replaced by the Contractor if they become faded, discolored, or ragged as determined by MEM Operations or the project Program Manager.

Excavators, a crane, and other tall equipment may be expected within the construction and staging areas. Anticipated height is less than 50 feet.

A FAA 7460-1 will be submitted by MEM for temporary construction impacts and the completed improvements prior to the start of construction.

6. **WILDLIFE MANAGEMENT.** The Contractor must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on the airport.

   a. **Trash.** Food scraps from construction personnel activity must be collected. The Contractor shall provide covered trash receptacles for food and waste and shall police trash and food products that can potentially attract wildlife or result in the development of FOD.

   b. **Standing Water.** Water shall not be allowed to collect and pool for more than any single 24-hour period.

   c. **Tall Grass and Seed.** Seed mixes to be used on the airport have been selected and specified in the contract Specifications to prevent attracting wildlife to the airport. The use of millet seed in turfing and seeding operations shall not be permitted.

   d. **Poorly Maintained Fencing and Gates.** The Contractor must maintain temporary fence lines, avoid negatively impacting existing fence lines, and keep gates locked or staffed with a gate guard to prevent entry by wildlife.

   e. **Disruption of Existing Wildlife Habitat.** The Contractor shall limit clearing, grubbing and tree removal operations to the areas designated on the plan set.

7. **FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT.** The airport will remain active to airport operations for the duration of construction. The Contractor shall take those steps necessary to mitigate the development of Foreign Object Debris (FOD) throughout the performance of the project.

   The Contractor shall include FOD mitigation as a specific element of the SPCD and shall make FOD management a standing item for all Safety and Security Meetings.

   Areas previously closed shall be thoroughly inspected and cleaned prior to opening to aircraft traffic. FOD removal will occur periodically through construction, as deemed necessary by MEM Airport Operations and the Program Manager.

   Waste containers with attached lids shall be required and provided by the Contractor for their personnel on the construction site.

   Dust control will be the responsibility of the contractor and will be accomplished utilizing an approved method.

   All areas impacted by construction will be cleared and checked prior to reopening to air traffic.

8. **HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT.** Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel, hydraulic fluid, or other chemical fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. ***The Contractor is required to develop and implement spill prevention and response procedures for vehicle operations. The contractor shall incorporate these procedures into the SPCD.*** This includes maintenance of appropriate MSDS data and appropriate prevention and response equipment or measures on-site. The Contractor shall coordinate all HAZMAT material storage through the Program Manager and Airport Operations staff. Key HAZMAT potential materials include fuel and oil for generators and equipment, solvents, and greases. Storage of material is limited to the contractor's staging area.

9. NOTIFICATION OF CONSTRUCTION ACTIVITIES. Following is information and procedures for immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport.

a. Points of Contact / List of Responsible Representatives.

Emergency Telephone Number (Police/Fire/Rescue):	
Emergency Number	901-922-8333
Airport Police	(O) 901-922-8298
Airport Operations	901-922-8117
Aircraft Rescue Fire Fighting (ARFF)	(O) 901-922-2200
NAVAID (short-notice) Emergency Contact	1-866-432-2622
AOA Coordination and NOTAM Issuance	
Program Manager – Parsons	(O) 901-344-1651
Additional Information, Contacts:	
MEM - Manager of Engineering & Construction – Brian Tenkhoff	(O) 901-922-2297
MEM - Project Manager / Engineer – Zach Shaw	(O) 901-922-8035
Utilities:	
Memphis Light Gas and Water	901-528-4465

b. Notices to Airmen (NOTAM). Phases of construction will be coordinated with MEM who will issue, maintain, and cancel NOTAM's as required. Only airport MEM Operations may initiate or cancel NOTAM's on airport conditions, and is the only entity that can close or open a runway or taxiway. The airport must coordinate the issuance, maintenance, and cancellation of NOTAM's about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower), and must provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The airport must file and maintain a list of irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify Airport Operations immediately.

Any NOTAM's for planned airfield closures under this project must be coordinated through the Program Manager. Reference Section 2 *Phasing* for planned closures under this project which require the issuance of a NOTAM.

c. Emergency Notification Procedures. In the event of an emergency of any type on the airport or affecting the airport and airport operations, the Airport Operations Supervisor will coordinate shutdown of operations with the Program Manager. Contractor crews, when directed, will cease operations and return all equipment to the Contractor staging area. Any conditions which arise during construction and

which are suspected of potentially adversely affecting the operational safety of the airport shall be immediately brought to the attention of the engineer and the Airport Operations Supervisor.

In the event of a fire, police, or medical emergency, emergency services on the airfield can be obtained by contacting the Airport Police by calling **901-922-8333**. Airport Police may be contacted at **901-922-8298** for non-emergency situations.

Points of contact for the various parties involved with the project shall be identified and shared at the pre-construction meeting among the various parties, reference Section 1 *Coordination*. ***Specific emergency notification procedures shall be incorporated into the contractor's SPCD.***

For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, call **1-866-432-2622.**

d. Coordination with ARFF Personnel. The contractor shall coordinate, through the Program Manager, with ARFF personnel, mutual aid providers, and other emergency services if construction requires the following:

- The deactivation and subsequent reactivation of water lines or fire hydrants, or
- The re-routing, blocking and restoration of emergency access routes, or
- The use of hazardous materials on the airfield.

Procedures and methods for addressing any planned or emergency response actions on the airfield concerning this project shall be established and implemented prior to the start of construction and incorporated in the Contractor's SPCD.

e. Notification to the FAA. Notification to the FAA under 14 CFR part 77 will be addressed through the Engineer to the regional ADO. The Contractor is responsible for ensuring that the heights of equipment and materials do not exceed heights specified in this CSPP, the project specifications and the project plan set. Reference Appendix A of this document.

10. INSPECTION REQUIREMENTS.

a. Daily (or more frequent) Inspections. Inspections shall be conducted by the Contractor at least daily, but more frequently if necessary, to ensure conformance with the CSPP and SPCD. A sample checklist is provided in Appendix B of this document. In addition to the Contractor's required inspections, Airport Operations or Program Manager will inspect the construction site to ensure compliance with the CSPP and the SPCD.

As noted in the project documents, plan set and exhibits provided in Appendix A, specific airfield surfaces of the airport will be closed to aircraft operations on an intersection based approach. The Contractor shall provide, place and maintain low profile barricades to delineate the construction areas for each project area. The Contractor shall inspect the barricades on a daily basis and shall be available on a 24-hour basis to repair and/or maintain the barricades.

b. Final Inspections. Prior to re-opening areas to aircraft traffic an inspection of the construction work will be performed by Airport Operations staff and the Program Manager. All pavements must be thoroughly cleaned of all Foreign Object Debris (FOD) prior to opening. The Contractor shall arrange to have Airport Operations staff and the Program Manager inspect the site to confirm that the pavement is being left in a satisfactory and clean condition. The Contractor shall allow sufficient time to make any corrections and correct any deficiency before opening to aircraft traffic. Any surface that does not pass the required inspection shall remain closed until corrective measures are completed by the Contractor and approved by MEM Operations and Program Manager. The Contractor shall be subject to any liquidated damages per the specifications for delayed re-opening of pavement surfaces to aircraft traffic.

11. UNDERGROUND UTILITIES. Special attention shall be given to preventing unscheduled interruption of utility services and facilities. It is the Contractor's responsibility to locate all existing utilities and underground airport facilities that may be affected by this project and to verify their exact location and elevation prior to commencing work. The Contractor shall notify utility companies prior to starting work and shall coordinate his/her work with representatives from the various utility companies or entities.

Existing utility information shown on the plans was compiled based on the best record data available to the Engineer. A reasonable attempt has been made to show the locations of underground utilities and facilities in the work areas. The utilities and facilities shown are not to be interpreted as the exact location, or as the only underground utilities, airport facilities, or obstacles that may be encountered on the site.

The Owner and Engineer bear no responsibility for utilities not shown or shown in an incorrect location or elevation on the plans. Any damage to existing utilities shall be repaired at the Contractor's expense. All excavations immediately adjacent to utilities shall be done with extreme care. Utilities interfering with construction shall be reset or relocated by the Contractor or utility company concerned unless noted otherwise.

The Contractor shall give proper notice to all utility companies and facility owners regarding removal/relocation, or when working in the vicinity of utility lines and airport facilities.

The Contractor shall be responsible for any damage to existing utility lines or airport facilities encountered during construction. Any damage to utilities must be repaired immediately by the contractor to the satisfaction of the engineer and at no cost to the airport.

Any damage to the existing airport lighting system or navigational aids caused by construction operations shall be reported to the Airport immediately and repaired at the Contractor's expense.

12. PENALTIES. Failure on the part of the Contractor to adhere to prescribed requirements may have consequences that jeopardize the health, safety or lives of their personnel, using customers, and employees at the airport. Non-compliance with airport rules, regulations, CSPP, or SPCD can result in permanent ejection from the airport property and/or an assessment of fines in accordance with Airport Security policies.

Individuals involved in non-compliance violations may be prohibited from working at the airport, pending an investigation of the matter.

13. SPECIAL CONDITIONS. Unforeseen special conditions may arise unexpectedly through the course of construction. These situations may include poor visibility, aircraft in distress, security breaches, or any other situation deemed critical by the Airport Authority or the Program Manager. During these circumstances the Contractor may be required to cease operations and clear the work area of equipment and personnel. The Contractor shall immediately follow instructions from Airport personnel and/or the Program Manager in the interest of safety and security.

14. RUNWAY AND TAXIWAY VISUAL AIDS. All runway and taxiway edge lights, centerline lights, and lighted signs associated with the phased construction closures will be either de-energized or blacked out and removed from service for the duration of each phase of work or work shift. All de-energized lights, signs, or miscellaneous visual aids shall be re-energized and/or brought back in service prior to re-opening to aircraft traffic.

a. **Temporary Orange Construction Signs.** Orange construction signs may be utilized to increase pilot situational awareness and convey information to pilots on certain changed conditions related to the proposed construction activity. Orange construction signs are comprised of a message in black on an orange background. The orange background must be fluorescent orange, meeting the requirements of

ASTM D4956 for Type III or Type IV sheeting. Temporary orange construction signs located within the TSA or RSA of active surfaces must be mounted on frangible supports that will yield or break in the case of an accidental impact by aircraft as well as address wind or jet blast loads. Permissible sign legends are as follows:

i. CONSTRUCTION AHEAD
ii. CONSTRUCTION ON RUNWAY, TAXIWAY, OR RAMP
iii. RWY *XX* TAKEOFF RUN AVAILABLE *XXX* FT.

15. MARKING AND SIGNS FOR ACCESS ROUTES. Pavement markings and signs intended for construction personnel shall, to the extent practicable, conform to and meet those standards provided for in the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications.

16. HAZARD MARKING AND LIGHTING. Specific airfield surfaces at the airport will be closed to aircraft traffic based on which intersection is under construction. MEM-Airport Operations will coordinate the open and closed pavement surfaces based on the contractor's schedule. Low profile barricades are required to be provided and placed by the Contractor as indicated in the project plan set and/or as directed by MEM – Airport Operations and Program Manager.

The Contractor shall have a representative on call and available 24 hours a day for emergency maintenance of airport hazard lighting and barricades.

17. PROTECTION OF RUNWAY AND TAXIWAY SAFETY AREAS. Safety area encroachments, improper ground vehicle operations and unmarked or uncovered holes and trenches in the vicinity of aircraft operational surfaces and construction areas are three of the most recurring threats to safety during construction. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces shall be a standing requirement for the duration of the project.

Reference Section 9 *Notification of construction activities* and Section 14 *Runway and taxiway visual aids* for airfield closure requirements. Reference Section 16 *Hazard marking and lighting* for hazard marking. Reference Section 18 *Other limitations on construction* for height restrictions (as required).

a. **Runway Safety Area (RSA).** A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway by aircraft.

Runway	RSA Distance from Centerline (ft)	RSA Width (ft)	RSA Length from End of Runway (ft)
RW 18R-36L	250	500	1000/865*
RW 18C-36C	250	500	1000
RW 18L-36R	250	500	1000
RW 9-27	250	500	1000

*The southern end of the Runway has an EMAS that reduces the safety area to 865 feet from the threshold to the back of the EMAS.

No construction may occur within the existing RSA while the runway is open and active. Any construction between the RSA and Holdline must be approved with Airport Operations prior to starting work.

The Airport must coordinate any adjustment of RSA dimensions, to meet the above requirement, with the appropriate FAA Airports Southern Regional or Memphis District Office and the local FAA air traffic manager and issue a NOTAM.

Open trenches or excavations are not permitted within the RSA while the runway is open. The Contractor must backfill trenches before the runway is opened. Coverings are not allowed in runway safety areas.

After the Runway has been closed, the Contractor must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the Airport, and light them with red lights during hours of restricted visibility or darkness.

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft. Work with in any RSA is anticipated under this project.

b. **Runway Object Free Area (ROFA).** Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material shall not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 Form and justification provided to the appropriate FAA Airports Southern Regional or Memphis District Office for approval. Work with in any ROFA is anticipated under this project.

c. **Taxiway/Taxilane Safety Area (TSA/TLSA).** The taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. No construction may occur within the TSA while the taxiway is open for aircraft operations.

Taxiway/Taxilane	TSA/TLSA Distance from Centerline (ft)	TSA/TLSA Width (ft)
Taxiways TDG 6 (ADG V)	107’	214’
Taxiways TDG 7 (ADG VI)	131’	262’

Open trenches or excavations are not permitted within the TSA while the taxiway is open, unless those excavations meet the given criteria:

- Backfilling the excavation prior to re-opening the taxiway is deemed impractical;
- The excavation is covered and that the covering will allow for the safe operation of the heaviest aircraft and ARFF equipment;
- Taxiing speed for aircraft is limited to 10 mph;
- Appropriate NOTAMs are issued;
- Marking and lighting meeting the provisions of sections 14 *Runway and Taxiway Visual Aids* and 16 *Hazard Marking, Lighting, and Signing* of this document are met;

- Low mass, low-profile lighted barricades are installed;
- Appropriate temporary orange construction signs are installed.

After the taxiway has been closed, the Contractor must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the Airport, and light them with red lights during hours of restricted visibility or darkness.

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and be capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

d. **Taxiway/Taxilane Object Free Area (TOFA/TLOFA).** Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway and taxilane object free areas during normal operations. Thus the restrictions are more stringent. No construction may occur within the TOFA while the taxiway is open for aircraft operations.

Taxiway/Taxilane	TOFA/TLOFA Distance from Centerline (ft)	TOFA/TLOFA Width (ft)
Taxiway TDG 6 (ADG V)	160’ / 138’	320’ / 276’
Taxiway TDG 7 (ADG VI)	193’ / 167’	386’ / 334’

Reference Section C.2 *Phasing*, for details on typical intersection phasing diagrams for Runway/Taxiway closures associated with this project.

e. **Obstacle Free Zone (OFZ).** Construction personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. The OFZ is a defined volume of airspace centered about and above the runway centerline.

f. **Runway Approach/Departure Surfaces.** All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordination with the FAA through the appropriate FAA Airports Southern Regional or Memphis District Office shall be required for this project.

Construction activities associated with this project shall occur within the runway approach/departure areas and require the need to temporarily close and reopen the runways. Temporary runway closures, or the closure of other portions of the movement area require coordination with the appropriate FAA air traffic manager, ATO/Technical Operations (for affected NAVAIDS) and airport users through the Airport Operations staff.

18. OTHER LIMITATIONS ON CONSTRUCTION.

a. Prohibitions. The following prohibitions are in effect for the duration of this project:

i. No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.

ii. No uses of open flame welding or torches unless fire safety precautions are provided and the Airport has approved their use by issuance of a hot work permit issued through Airport Building Maintenance.

iii. No use of electrical blasting caps or explosives of any kind on or within 1,000 ft. (300 m) of the airport property.

iv. No use of flare pots within the AOA.

b. Restrictions. The following restrictions are in effect for the duration of this project.

i. Construction suspension required for specific airport operations or functions –Suspension of construction may be required for certain circumstances as directed by MEM -Airport Operations.

ii. Areas that cannot be worked simultaneously – Based on aircraft operations, MEM - Airport Operations may not allow certain intersection to be closed at the same time.

iii. Day or night construction restrictions – N.A.

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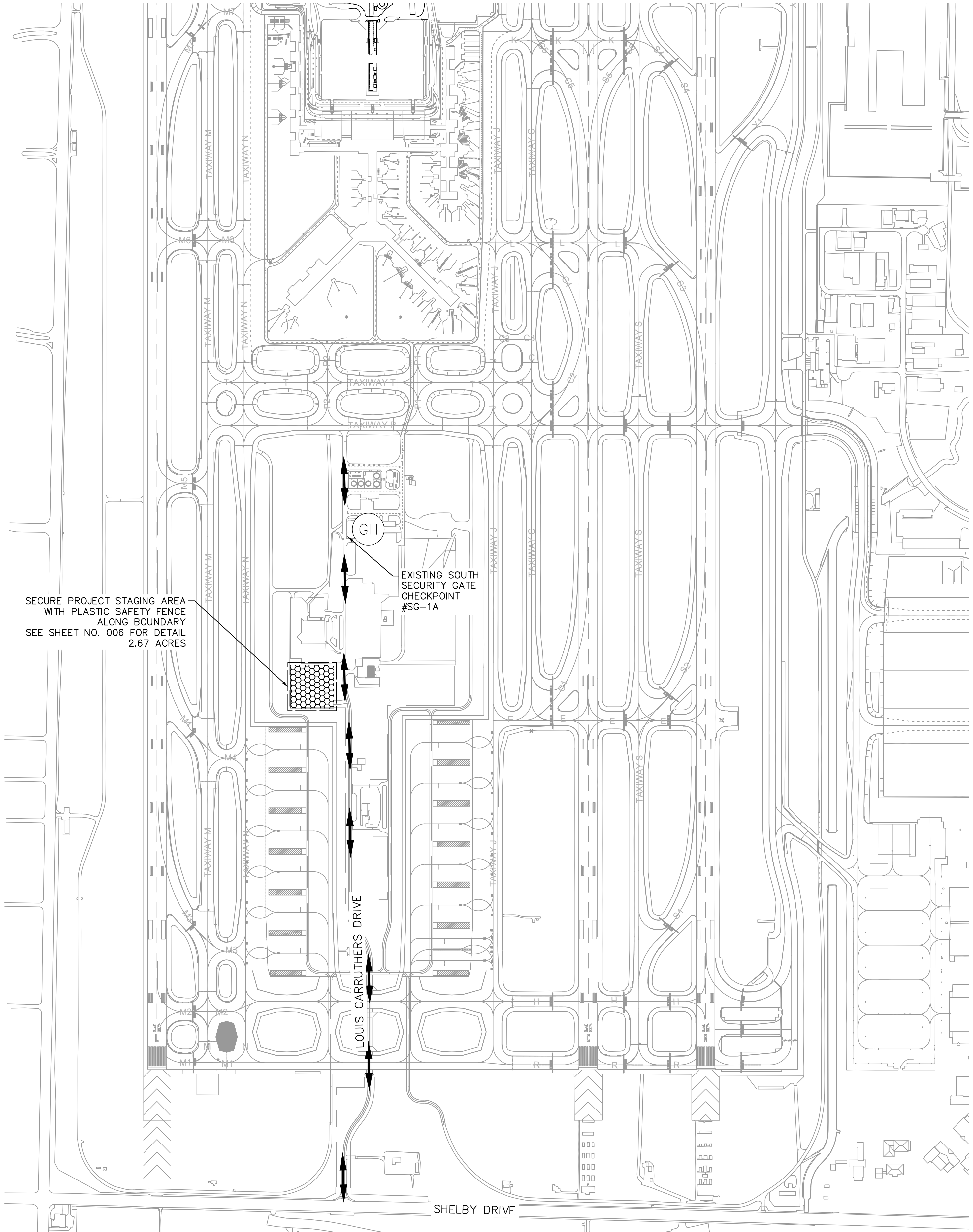
Appendix A

Typical Intersection
Construction Phasing Plans



OPERATIONAL NOTES:

1. ALL OF THE CONTRACTOR'S MOVEMENTS AND ACTIVITIES WITHIN THE AIRPORT PROPERTY SHALL BE CLOSELY COORDINATED WITH THE PROGRAM MANAGER AND SHALL BE IN COMPLIANCE WITH THE PROVISIONS OF THE CONTRACT DOCUMENTS AND FAA ADVISORY CIRCULAR 150/5370-2G OR LATEST EDITION, "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION". NO WORK WILL BE ALLOWED WITHIN TAXIWAY AND RUNWAY SAFETY AREAS, UNLESS FULLY COORDINATED WITH THE PROGRAM MANAGER AND/OR UNLESS THE AFFECTED FACILITY OR PAVEMENT HAS BEEN CLOSED TO AIRCRAFT. UNDER NO CIRCUMSTANCES WILL THE CONTRACTOR BE ALLOWED TO CROSS ANY ACTIVE RUNWAY OR TAXIWAY OR BE ALLOWED TO OPERATE WITHIN RUNWAY OR TAXIWAY SAFETY AREAS UNLESS THE PROGRAM MANAGER DETERMINES THAT THE WORK REQUIRES THE MOVEMENT. THIS WORK SHALL BE APPROVED THROUGH AIRPORT OPERATIONS PRIOR TO WORK BEGINNING. COORDINATION OF ANY REQUESTED CLOSURES WILL BE ACCOMPLISHED THROUGH WEEKLY CONSTRUCTION MEETINGS.

2. SPECIAL ACCESS REQUIREMENTS AND OPERATING LIMITATIONS ARE REQUIRED INSIDE THE SECURITY FENCE. THE CONTRACTOR SHALL DELINEATE WORK LIMITS WITHIN THESE AREAS AS PER PHASING PLAN. CONFINE MEN, EQUIPMENT AND MATERIALS OUTSIDE OF OBJECT FREE AREA (OFA) WHEN A TAXIWAY OR RUNWAY IS ACTIVE. SEE THE SPECIFICATIONS FOR SPECIAL CONDITIONS AND FOR OTHER CONDITIONS RELATING TO SAFETY.

3. THE CONTRACTOR SHALL HAVE ACCESS TO THE AIRPORT ONLY AT THE LOCATIONS DESIGNATED ON THE PLANS. ALL OTHER ACCESS SHALL BE BY SPECIAL REQUEST AND SUBJECT TO APPROVAL BY THE OWNER. CONTACT AIRPORT OPERATIONS DEPARTMENT PRIOR TO ACCESSING ANY QUESTIONABLE AREAS. GATE GUARDS WILL BE PROVIDED AND PAID FOR BY MSCAA.

4. RUNWAYS, TAXIWAYS, APRON PAVEMENTS, NAVAIDS AND UNDERGROUND FACILITIES (TO REMAIN) MUST BE PROTECTED FROM DAMAGE CAUSED BY THE CONTRACTOR'S EQUIPMENT. ANY DAMAGE CAUSED BY THE CONTRACTOR'S EQUIPMENT SHALL BE REPAIRED IN A MANNER APPROVED BY THE PROGRAM MANAGER BY THE CONTRACTOR AT NO COST TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND IDENTIFICATION OF ALL EXISTING UTILITIES AND UNDERGROUND PIPELINES IN THE CONSTRUCTION AREA. PRIOR TO EXCAVATION, HAVE UTILITIES LOCATED THROUGH TENNESSEE ONE CALL AND THROUGH MSCAA ON-AIRPORT UTILITY LOCATE PROCESS. ANY DAMAGES TO EXISTING UTILITIES OR UNDERGROUND PIPELINES ON OR OFF AIRPORT PROPERTY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL REPAIR WORK SHALL MEET THE APPROVAL OF THE OWNER OF THE DAMAGED UTILITY. NO REIMBURSEMENT WILL BE ALLOWED FOR UTILITY/PIPE REPAIR OR REPLACEMENT. REPAIRS ALSO INCLUDE WEAR AND TEAR ON PAINTED MARKINGS AND REFLECTIVE BEADING. ALL SIGNAGE TO BE REPLACEDAT THE END OF CONSTRUCTION TO ORIGINAL LOCATION UNLESS APPROVED BY MSCAA.

5. AIRCRAFT OPERATIONS AND EMERGENCY VEHICLES SHALL HAVE PRIORITY OVER ALL VEHICLES, EQUIPMENT AND PERSONNEL AT ALL TIMES. THE CONTRACTOR SHALL EMPLOY STRICT MEASURES TO PREVENT ANY CONFLICT BETWEEN ITS PERSONNEL AND AIRCRAFT AND EMERGENCY VEHICLES ON ANY ACTIVE AIRFIELD PAVEMENT. THE CONTRACTOR SHALL REMAIN CLEAR OF ACTIVE RUNWAYS AND TAXIWAYS.

6. IN ORDER FOR THE CONTRACTOR TO OPERATE WITHIN AIRPORT PROPERTY, APPROPRIATE NOTICES TO AIRMEN (NOTAMS) MUST BE ISSUED BY THE OWNER. THESE NOTICES PROVIDE INFORMATION ON CLOSED, LIMITED, OR HAZARDOUS CONDITIONS TO AIRMEN AND USERS OF THE AIRPORT. MOVEMENT AREA CLOSURES SHOULD BE COORDINATED WELL IN ADVANCE. OFFICIAL NOTAM REQUESTS TO MSCAA AIRPORT OPERATIONS SHOULD OFFICIALLY BE MADE WITHIN 72 HOURS, BUT NOT LESS THAN 24 HOURS PRIOR TO THE PLANNED ACTIVITY. ALL CONSTRUCTION OPERATIONS MUST BE CLOSELY COORDINATED WITH THE PROGRAM MANAGER FOR NOTAM ISSUANCE.

7. THE CONTRACTOR SHALL HAVE ANY PAVEMENT OR APRON THAT HAS BEEN CLOSED FOR WORK OR THAT HAS BEEN USED FOR A CROSSING POINT OR HAUL ROUTE BY THE CONTRACTOR READY FOR INSPECTION BY MSCAA AIRPORT OPERATIONS. NO BARRICADES SHALL BE REMOVED UNTIL THE INSPECTION BY MSCAA AIRPORT OPERATIONS IS COMPLETE. ADVANCE NOTICE OF ANTICIPATED OPENINGS IS PREFERRED. INSPECTIONS CAN BEGIN IN ADVANCE OF OPENING DATE.

8. CONTRACTOR SHALL KEEP CONSTRUCTION EQUIPMENT BELOW ALL APPROACH SURFACES AT ALL TIMES. IF THE PROJECT REQUIRES THE CONTRACTOR TO PENETRATE THE APPROACH SURFACE WITH CONSTRUCTION EQUIPMENT DURING CONSTRUCTION THE CONTRACTOR MUST NOTIFY THE PROGRAM MANAGER AND THE OWNER. APPROPRIATE NOTAMS MUST BE ISSUED BEFORE ANY PENETRATION OCCURS. CRANES OR OTHER TALL EQUIPMENT MUST BE SUBMITTED AND APPROVED BY THE PROGRAM MANAGER 60 DAYS PRIOR TO USE.

9. THE ALIGNMENT OF LOUIS CARRUTHERS ROAD SHOWN IS SUBJECT TO CHANGE DURING THE GLYCOL CONSTRUCTION PROJECT.

10. CONTRACTOR SHALL PREPARE AND SUBMIT A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) PER AC 150/5370-2 (LATEST EDITION) REQUIREMENTS TO MSCAA PRIOR TO CONSTRUCTION.

11. THE CONTRACTOR SHALL NOTIFY AIRPORT OPERATIONS, PROGRAM MANAGER, AND ARFF FACILITIES WHEN RESPONSE ROUTES AND ROADS ARE BLOCKED.

12. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL FOREIGN OBJECT DEBRIS (F.O.D.) LOCATED ON OR AROUND AIRPORT PROPERTY. THE OWNER MAY CONDUCT INSPECTIONS FOR F.O.D. AND OTHER CONSTRUCTION DEBRIS WITHIN THE PROJECT VICINITY.

13. CONTRACTOR SHALL COORDINATE THE EXACT LOCATION AND LIMITS OF THE STAGING AREA WITH THE PROGRAM MANAGER AND OWNER.

LEGEND

(hatched)	CONTRACTOR STAGING AREA (SEE NOTE 13)
◄──►	CONTRACTOR ACCESS ROUTE
GH	GUARD HOUSE
— — — —	PLASTIC SAFETY FENCE

REOPENING OF A CLOSED SURFACE

1. PRIOR TO THE COMPLETION OF ANY PHASE, ALL TAXIWAY, RUNWAY AND APRON SURFACES TO BE REOPENED AT THE COMPLETION OF THE PHASE SHALL BE SWEPT AND VACUUMED CLEAN. ALL WORK SHALL BE COMPLETE AND ACCEPTED BY THE PROGRAM MANAGER.

2. PRIOR TO THE REMOVAL OF ANY BARRICADES OR LIGHTED CONES, THE CONTRACTOR SHALL REQUEST, THROUGH THE PROGRAM MANAGER, AN INSPECTION BY AIRPORT OPERATIONS. A MINIMUM FOUR HOUR NOTICE MUST BE GIVEN FOR THE INSPECTION. NO TAXIWAY OR RUNWAY MAY BE REOPENED UNTIL AIRPORT OPERATIONS HAS PERFORMED THE INSPECTION AND APPROVED THE REOPENING. SURFACES BELOW AND AROUND THE BARRICADES AND CONES MUST BE CLEANED PRIOR TO REQUESTING THE INSPECTION. ADVANCE NOTICE OF ANTICIPATED OPENINGS IS PREFERRED. INSPECTIONS CAN BEGIN IN ADVANCE OF OPENING DATE.

N

0 500 1000

SCALE: 1:500

TAKE OFF WITH US
Memphis
INTERNATIONAL AIRPORT

PROGRAM MANAGER

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CHECKED BY: JMG
APPROVED BY: DLS

DAVID L. SPARKS
REGISTERED ENGINEER
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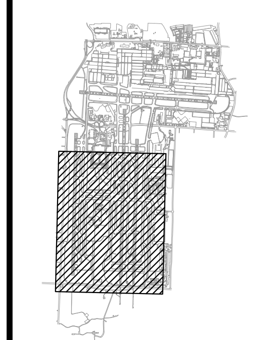
COMMERCE
STATE OF TENNESSEE

KEY MAP:



REVISIONS

MARK	DATE	DESCRIPTION

MSCAA PROJ. NO. 18-1415-00

PROJECT:

MEM AIRFIELD SIGNAGE REPLACEMENT

SHEET TITLE:

OVERALL OPERATIONAL, SAFETY, ACCESS, AND STAGING PLAN

DWG. FILE NAME 18-1415-00-004.dwg

DATE 03/26/2021

SCALE 1:500

SHEET NO. 004

HAUL ROAD NOTES

1. HAUL ROADS TO BE USED UNDER THIS PROJECT SHALL BE THOSE INDICATED ON THE DRAWINGS OR OTHERWISE SPECIFICALLY AUTHORIZED BY THE PROGRAM MANAGER. IN GENERAL, THE CONTRACTOR SHALL CONFINE EQUIPMENT AND HAULING TO THE AREAS UNDER CONSTRUCTION, STAGING AREAS, AND HAUL ROUTES.
2. THE ACCESS POINTS TO THE PROJECT SITE ARE SHOWN ON THE PLANS. THE SPECIFIED GATES SHALL BE MONITORED BY A MSCAA GUARD DURING ALL CONTRACTOR OPERATIONS WHILE THE GATE IS OPEN OR UNLOCKED. GATE GUARDS ARE PROVIDED AT NO COST TO THE CONTRACTOR.
3. HAULING OPERATIONS FOR THIS PROJECT WILL OCCUR ACROSS ACTIVE TAXIWAYS. AIRPORT OPERATIONS AND SAFETY WILL TAKE PRECEDENCE OVER HAULING OPERATIONS AT ALL TIMES AND THEREFORE SOME HAULING OPERATIONS MAY BE DELAYED. SAID DELAYS WILL NOT BE THE BASIS OF CLAIMS FOR ADDITIONAL COSTS OR CONTRACT TIME.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR CONSTRUCTION OF HAUL ROADS AS REQUIRED FOR CONSTRUCTION OPERATIONS. ALL COSTS ASSOCIATED WITH HAUL ROAD CONSTRUCTION SHALL BE INCIDENTAL TO THE PROJECT AND WILL NOT BE MEASURED AND PAID FOR DIRECTLY. ALL HAUL ROAD MAINTENANCE ACTIVITIES MUST BE APPROVED BY THE PROGRAM MANAGER.
5. THE CONTRACTOR, AT THEIR EXPENSE, SHALL BE RESPONSIBLE FOR RESTORING ALL AIRPORT SERVICE ROADS TO THEIR PRE–CONSTRUCTION CONDITION WHERE SUCH ROADS ARE USED BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL RESTORE ALL AREAS USED FOR HAUL ROADS TO THEIR ORIGINAL CONDITION, INCLUDING THE ESTABLISHMENT OF TURF IN ACCORDANCE WITH THE SPECIFICATIONS. ALL HAULING ALONG OR CROSSING THE AIRPORT AND PUBLIC ROADS SHALL BE ACCOMPLISHED BY THE CONTRACTOR. ALL COSTS FOR CONSTRUCTING, REMOVING AND RESTORING OF HAUL ROADS REQUIRED FOR THE COMPLETION OF THE WORK SHALL BE INCIDENTAL TO THE PROJECT. CONTRACTOR TO PROVIDE MEASURES TO MAINTAIN EXISTING DRAINAGE PATTERNS ASSOCIATED WITH HAUL ROADS AND SHALL BE INCIDENTAL TO THE PROJECT UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. WILDLIFE HAZARD MITIGATION WILL BE CONSIDERED FOR ALL RESTORATION AS SPECIFIED IN WILDLIFE MANAGEMENT PLANS.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE OFF–SITE ROUTES (STATE HIGHWAYS, COUNTY ROADS OR CITY STREETS) WITH THE APPROPRIATE OWNER WHO HAS JURISDICTION OVER THE AFFECTED ROUTE. OFF–SITE HAUL ROUTES SHALL BE MAINTAINED BY THE CONTRACTOR AND SHALL BE RESTORED TO THEIR ORIGINAL CONDITION UPON COMPLETION OF BEING USED AS A HAUL ROUTE.
8. WHILE ON THE AIRPORT, ALL CONTRACTOR VEHICLES AND TRAFFIC SHALL REMAIN WITHIN THE DESIGNATED CONSTRUCTION AREAS, STAGING AREAS OR HAUL ROUTES. FAILURE TO COMPLY MAY RESULT IN LOSS OF AIRPORT ACCESS.
9. THE CONTRACTOR'S ACCESS ROUTE TO THE PROJECT SITE SHALL BE AS SHOWN ON THE PLANS AND APPROVED BY MSCAA AIRPORT OPERATIONS. VISITORS OR ANY INDIVIDUALS WHO ARE NOT BADGED SHALL BE ESCORTED IN ACCORDANCE WITH AIRPORT SECURITY REQUIREMENTS AT ALL TIMES WHILE IN THE SECURITY IDENTIFICATION DISPLAY AREA (SIDA).
10. THE CONTRACTOR SHALL NOT PERMIT ANY UNAUTHORIZED CONSTRUCTION PERSONNEL OR TRAFFIC ON THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL TO AND FROM THE VARIOUS CONSTRUCTION AREAS ON THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR THE IMMEDIATE CLEANUP OF ANY DEBRIS DEPOSITED AT THE PROJECT SITE AND ALONG ANY ROAD AS A RESULT OF HIS/HER CONSTRUCTION TRAFFIC. DIRECTIONAL SIGNAGE AT THE ACCESS GATE AND ALONG THE DELIVERY ROUTE TO THE STORAGE AREA OR WORK SITE SHALL BE APPROVED BY THE PROGRAM MANAGER.
11. THE CONTRACTOR SHALL DESIGNATE PERSONNEL TITLED CONSTRUCTION SECURITY OFFICER AND CONSTRUCTION SAFETY OFFICER. THE CONTRACTOR SHALL ESTABLISH AND MAINTAIN A LIST OF CONTRACTOR AND SUB–CONTRACTOR VEHICLES AUTHORIZED TO OPERATE ON THE PROJECT SITE. VEHICLE USE PERMITS SHALL BE ASSIGNED IN ACCORDANCE WITH AIRPORT SECURITY AND SAFETY PROCEDURES. THE CONTRACTOR SHALL PROVIDE AN EMERGENCY CONTACT LIST TO THE AIRPORT.
12. ALL VEHICLES USING HAUL ROUTES INCLUDING OFF–SITE ROUTES, SHALL BE COVERED TO PREVENT BLOWING AWAY OR SPILLAGE OF LOOSE MATERIAL. ALL SPILLAGES ON PUBLIC ROADWAYS AND ON–SITE ROADS SHALL BE PROMPTLY CLEANED UP AND LEGALLY DISPOSED OF AT NO ADDITIONAL COST TO THE OWNER.
13. CONSTRUCTION TRAFFIC SHALL BE CONFINED TO TAXIWAY P2 CROSSING FOR ACCESS TO THE SITE. NO CONTRACTOR VEHICLES ARE TO CROSS ACTIVE RUNWAYS, TAXIWAYS, OR NAVAID CRITICAL AREAS UNLESS ACCOMPANIED BY AN ESCORT UNDER THE DIRECT CONTROL OF THE AIRPORT GROUND CONTROLLER. IT SHALL BE UNDERSTOOD BY THE CONTRACTOR THAT AIRPORT TRAFFIC ON RUNWAYS, TAXIWAYS, AND APRONS SHALL HAVE PRIORITY OVER ALL CONSTRUCTION TRAFFIC.
14. THE CONTRACTOR IS ADVISED THAT OTHER CONTRACTORS AND MSCAA STAFF MAY BE UTILIZING THE SAME HAUL ROAD AND PERFORMING WORK IN THE VICINITY OF THIS PROJECT.
15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGNATE EMPLOYEES WITH A PHOTO AIRPORT ID TO BE RESPONSIBLE FOR THE ESCORTING OF ALL VENDOR/SUPPLIERS REQUIRING ACCESS TO THE CONSTRUCTION SITE. THESE INDIVIDUALS WILL BE KNOWLEDGEABLE IN ALL APPLICABLE AIRPORT SECURITY, SAFETY, AOA DRIVING RULES AND REGULATIONS.
16. ALL CONTRACTOR VEHICLES SHALL DISPLAY IN FULL VIEW, COMPANY LOGOS OR TEXT, AFFIXED TO EACH SIDE OF THE VEHICLE. COMPANY LOGOS SHALL BE NO LESS THAN 12" X 12" AND CAN BE MAGNETIC, PRINTED OR PAINTED ON, BUT MUST BE COMMERCIALLY MADE. COMPANY TEXT SHALL CONTAIN TEXT NO LESS THAN 4" TALL AND CAN BE MAGNETIC, PRINTED OR PAINTED ON, BUT MUST BE COMMERCIALLY MADE.
17. MARKING AND LIGHTING OF ALL CONTRACTOR VEHICLES OPERATING WITHIN THE ACTIVE AOA, RELATED SAFETY AREAS, AND CONSTRUCTION LIMITS SHALL CONFORM WITH AC 150/5210–5 PAINTING, MARKING, AND LIGHTING OF VEHICLES ON AN AIRPORT. CONTRACTOR VEHICLES SHALL BE EQUIPPED WITH ELECTRONICALLY POWERED, AMBER COLOR, 360–DEGREE OMNI–DIRECTION LIGHT, MOUNTED ON THE UPPERMOST PART OF THE VEHICLE SUCH THAT IT IS CONSPICUOUS FROM ANY DIRECTION, INCLUDING FROM THE AIR.
18. ALL ACTIVE TAXIWAY CROSSINGS WILL BE APPROXIMATELY PERPENDICULAR TO THE TAXIWAY, AND WILL BE APPROVED IN ADVANCE BY THE PROGRAM MANAGER AND MSCAA OPERATIONS. ESTABLISH ALL ACTIVE AND INACTIVE TAXIWAY CROSSINGS TO AVOID EXISTING EDGE LIGHTS AND MARKINGS.
19. ALL ACTIVE AND IN–ACTIVE TAXIWAY CROSSINGS AND WORK AREAS ADJACENT TO TAXIWAYS WILL BE KEPT BROOM CLEAN. ALL ACTIVE TAXIWAY CROSSINGS WILL HAVE A DEDICATED VACUUM SWEEPER AND OPERATOR ON DUTY AT ALL TIMES DURING ANY CONSTRUCTION ACTIVITY. A MINIMUM OF TWO (2) VACUUM SWEEPERS DEDICATED EXCLUSIVELY TO THIS PROJECT, WILL BE MAINTAINED CONTINUOUSLY AT THE PROJECT SITE DURING ANY TYPE OR FORM OF HAULING OR CONSTRUCTION OPERATIONS.
20. MSCAA RETAINS THE RIGHT TO PERFORM SELF–CLEANUP AT THE CONTRACTOR'S EXPENSE AT A RATE OF $250/HR.

CONTRACTOR STAGING AREA NOTES

1. THE APPROXIMATE AREA FOR STAGING/LAYDOWN/STORAGE REQUIRED FOR THE CONTRACTOR'S EXCLUSIVE USE DURING CONSTRUCTION ARE SHOWN ON THE PLANS. THE EXACT LIMITS WILL BE ESTABLISHED BY THE PROGRAM MANAGER. THIS AREA SHALL INCLUDE JOB TRAILERS AND OFFICES, PROJECT RELATED STORAGE, STOCKPILES, AND EMPLOYEE AND EQUIPMENT PARKING.
2. ALL STAGING/LAYDOWN/STORAGE AREA ARRANGEMENTS, DESIGNS, AND FEATURES WILL BE COORDINATED WITH AND APPROVED BY THE PROGRAM MANAGER. THE CONTRACTOR IS RESPONSIBLE FOR ALL FEES, ARRANGEMENTS, APPROVALS, AND PERMITS FOR THE STAGING/LAYDOWN/STORAGE AREAS.
3. THE CONTRACTOR SHALL PROVIDE A STONE STABILIZED BASE UNDER MATERIAL STOCKPILE LOCATIONS AND REMOVE THE STONE STABILIZED BASE AFTER CONSTRUCTION IS COMPLETED. NO DIRECT PAY.
4. THE CONTRACTOR SHALL NOT PARK EQUIPMENT OR STORE MATERIALS WITHIN 10' FEET OF AOA FENCE.
5. THE CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE PATTERNS AT THE STAGING AND STOCKPILE AREAS AND PROVIDE TEMPORARY ROUTING OF STORMWATER AROUND THE AREAS.
6. IN ORDER TO PREVENT SEDIMENT FROM LEAVING THE CONTRACTOR STAGING AREA, THE CONTRACTOR SHALL INSTALL TEMPORARY SILT FENCE AROUND THE STAGING AREA PER EROSION AND SEDIMENT CONTROL DRAWINGS.
7. THE CONTRACTOR SHALL PROVIDE TEMPORARY UTILITIES TO THE SITE IN ACCORDANCE TO SPECIAL PROVISION SC–180. ALL COSTS ASSOCIATED WITH TEMPORARY UTILITIES SHALL BE INCIDENTAL TO THE PROJECT.
8. THE CONTRACTOR SHALL SUPPLY COVERED TRASH AND RUBBISH DUMPSTERS AND ALL OTHER CONTAINERS FOR REMOVAL OF TRASH, RUBBISH, AND DEBRIS RESULTING FROM THE WORK OF THE CONTRACT. DUMPSTERS SHALL BE EMPTIED AT LEAST ONCE A WEEK OR MORE FREQUENTLY IF NECESSARY. THE CONTRACTOR AT ANY TIME SHALL NOT ALLOW DUMPSTERS TO OVERFLOW. DUMPSTERS AND OTHER TRASH RECEPTACLES SHALL BE COVERED.
9. ANY EXISTING FENCE DEMOLITION, ADJUSTMENT OR RELOCATION, OR NEW FENCING REQUIRED FOR THE STAGING/LAYDOWN/STORAGE AREA WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
10. ANY REQUIRED GRADING, SURFACING, AND LIGHTING OF THE STAGING/LAYDOWN/STORAGE AREA WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. DUE TO NIGHTTIME AIRFIELD OPERATIONS, NIGHT LIGHTING MAY BE SUBJECT TO CERTAIN RESTRICTIONS. ALL COSTS ASSOCIATED WITH CLEARING, GRADING, SURFACING, AND LIGHTING OF THE LAYDOWN/STAGING AREA WILL BE INCLUDED IN THE COST OF OTHER ITEMS AND WILL NOT BE MEASURED AND PAID FOR SEPARATELY.
11. POWER IS AVAILABLE ON–SITE FOR THE CONTRACTOR TO USE. CONTACT MLGW FOR CONNECTION AND BILLING ARRANGEMENTS. ALL COSTS ASSOCIATED WITH UTILITY CONNECTIONS, EXTENSIONS, PERMITS, AND MONTHLY BILLING WILL BE CONSIDERED INCIDENTAL TO THE PROJECT AND WILL NOT BE MEASURED AND PAID FOR SEPARATELY. AT THE END OF THE PROJECT, ALL OVERHEAD POWER LINES WITHIN THE CONTRACTOR STAGING AREA SHALL BE REMOVED AS PART OF THE DEMOBILIZATION.
12. TELEPHONE AND GAS ARE AVAILABLE NEARBY AT LOUIS CARRUTHERS DRIVE. CONTACT MLGW AND/OR AT&T FOR CONNECTION AND BILLING ARRANGEMENTS. ALL COSTS ASSOCIATED WITH UTILITY CONNECTIONS, EXTENSIONS, PERMITS, AND MONTHLY BILLING WILL NOT BE MEASURED AND PAID FOR SEPARATELY.
13. THE STAGING/LAYDOWN/STORAGE AREA WILL BE MAINTAINED IN A NEAT AND ORDERLY CONDITION THROUGHOUT THE LIFE OF THE PROJECT. THE GRASS SHALL BE CUT BI–WEEKLY, INCLUDING UNDER ANY SURROUNDING FENCES. ALL COSTS ASSOCIATED WITH MAINTENANCE AND STORAGE OF THE AREA WILL BE INCIDENTAL TO THE PROJECT.
14. ON–SITE CONCRETE CRUSHING PLANT AND CONCRETE BATCH PLANT, DEVOTED EXCLUSIVELY TO THIS PROJECT, IS NOT REQUIRED. CRUSHED AND STOCKPILED CONCRETE NOT USED FOR THIS PROJECT WILL NOT REMAIN MSCAA PROPERTY. ALL COSTS ASSOCIATED WITH ESTABLISHMENT, PERMITS, UTILITIES, MAINTENANCE, AND DEMOLITION OF THESE PLANTS WILL BE INCLUDED IN THE COST OF OTHER ITEMS AND WILL NOT BE MEASURED AND PAID FOR SEPARATELY.
15. MSCAA WILL REMAIN THE OWNER OF ALL MATERIALS STOCKPILED ON SITE. THE OWNER RESERVES THE RIGHT TO REMOVE MATERIALS FROM SAID STOCKPILES FOR USE ON OTHER PROJECTS.
16. WITHIN 60 DAYS OF FINAL ACCEPTANCE OF THE PROJECT, THE STAGING AND STORAGE AREAS WILL BE DEMOLISHED, GRADED TO DRAIN, SODDED, AND COMPLETELY CLEANED UP AS APPROVED BY THE PROGRAM MANAGER. ALL UNUSED MATERIALS SHALL BE REMOVED FROM THE PROJECT SITE AT THE CONTRACTORS EXPENSE, UNLESS PRIOR APPROVAL HAS BEEN GIVEN FROM PROGRAM MANAGER. ALL COSTS ASSOCIATED WITH DEMOLITION OF THE AREA WILL BE INCIDENTAL TO THE PROJECT.

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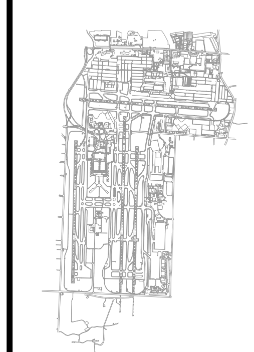
STATE OF TENNESSEE

KEY MAP:



REVISIONS

MARK	DATE	DESCRIPTION

MSCAA PROJ. NO. **18-1415-00**

PROJECT: **MEM AIRFIELD SIGNAGE REPLACEMENT**

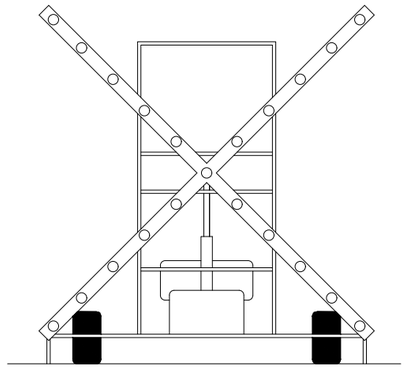
SHEET TITLE: CONTRACTOR HAUL ROAD AND STAGING NOTES

DWG. FILE NAME: 18-1415-00-005.dwg

DATE: 03/26/2021

SHEET NO.: 005

SCALE: NOT TO SCALE



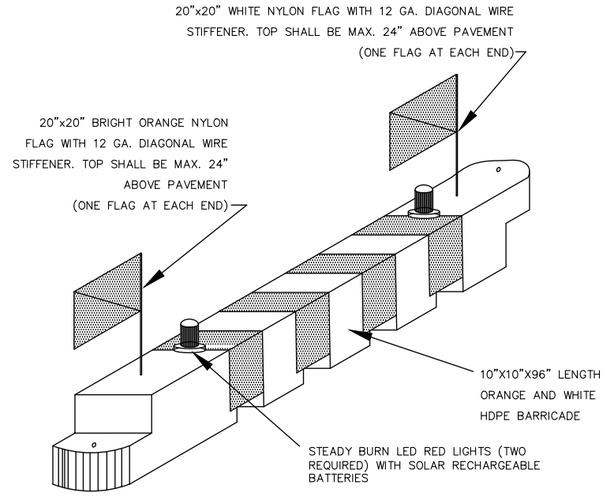
1 RUNWAY CLOSURE MARKER (LIGHTED X)

N.T.S.

PORTABLE LIGHTED RUNWAY CLOSURE MARKER NOTES:

THE RUNWAY CLOSURE MARKER LIGHTED X SHALL:

1. BE A PORTABLE, TOWABLE UNIT THAT CAN BE QUICKLY REMOVED FROM THE RUNWAY. INCLUDE A TWO INCH BALL HITCH ON THE TRAILER TONGUE AND SECOND HITCH MOUNTED ON THE REAR OF THE TRAILER.
2. CONSIST OF CLEAR INCANDESCENT LAMPS OR TRANSMIT A WHITE COLOR, ARRANGED IN THE SHAPE OF A LETTER "X" WITH ARMS CROSSED AT AN APPROPRIATE ANGLE TO MAKE THE "X" DISCERNIBLE. THE ARMS SHALL BE PAINTED AVIATION YELLOW ON ALL SIDES SO THAT THE UNIT WILL BE CLEARLY VISIBLE WHEN IT IS IN POSITION.
3. BE ENERGIZED BY A PORTABLE POWER SUPPLY, WATER-COOLED DIESEL ENGINE.
4. BE CONTROLLED SO THAT THE LIGHTED SIGNAL WILL FLASH ALL LIGHTS SIMULTANEOUSLY AT AN APPROXIMATE RATE OF 2.5 SECONDS "ON" (+/- 20%) AND 2.5 SECONDS "OFF" (+/- 20%).
5. PROVIDE THE FOLLOWING DAYTIME AND NIGHTTIME VISUAL REFERENCE DURING VISUAL FLIGHT RULE (VFR) CONDITIONS WHEN PLACED ON CENTERLINE AND WITHIN 250 FEET OF THE RUNWAY END:
   (1) VISIBLE TO THE PILOT AT A RANGE OF AT LEAST 5 NAUTICAL MILES.
   (2) RECOGNIZABLE AS A LETTER "X" FROM A RANGE OF AT LEAST 1-1/2 NAUTICAL MILES.
6. PROVIDE LAMP DIMMING CAPABILITY FOR NIGHTTIME OPERATIONS.
7. PRODUCE A SIGNAL THAT PROVIDES A HORIZONTAL COVERAGE TO AT LEAST 15 DEGREES ON EACH SIDE OF THE RUNWAY CENTERLINE, AND A VERTICAL COVERAGE FROM 0 DEGREES TO 10 DEGREES ABOVE HORIZONTAL, BOTH DAY AND NIGHT, AT A RANGE OF 1-1/2 NAUTICAL MILES.
8. ADJUSTABLE AIMING AND LEVELING TO ALLOW TILTING TO AN OPTIMUM ANGLE OF THREE DEGREES FROM VERTICAL.
9. WITHSTAND A MINIMUM WIND SPEED OF AT LEAST 40 MPH WITHOUT AFFECTING AIMING OR OPERATION.
10. INCLUDE AN ILLUMINATED FAILURE INDICATOR THAT IS VISIBLE FROM THE BACK (RUNWAY SIDE) OF THE UNIT.
11. INCLUDE AN OPERATIONS PLACARD IN A CONSPICUOUS LOCATION THAT INSTRUCTS OPERATORS TO VISUALLY CHECK THE OPERATION OF THE DEVICE EVERY TWO HOURS.
12. ONE PERSON SET UP IN LESS THAN 5 MINUTES.
13. DIESEL PORTABLE POWER WITH ADAPTER TO RUN DIRECTLY FROM ELECTRICAL OUTLETS.
14. TRAILER HITCH OPTIONS INCLUDING TANDEM TOWING FOR ON-AIRPORT OPERATIONS.
15. ABILITY TO PROVIDE UP TO 120 HOURS OF CONTINUOUS OPERATION.
16. FAIL SAFE PROTECTION TO ENSURE THAT THE UNIT STAYS ON AS CONTINUOUS LIGHT IF THE FLASHER UNIT SHOULD FAIL.
17. DIMENSIONING AND LIGHTS ARRANGEMENT SHALL FOLLOW FAA RECOMMENDATIONS ON AC 150/5345-55, LATEST EDITION.

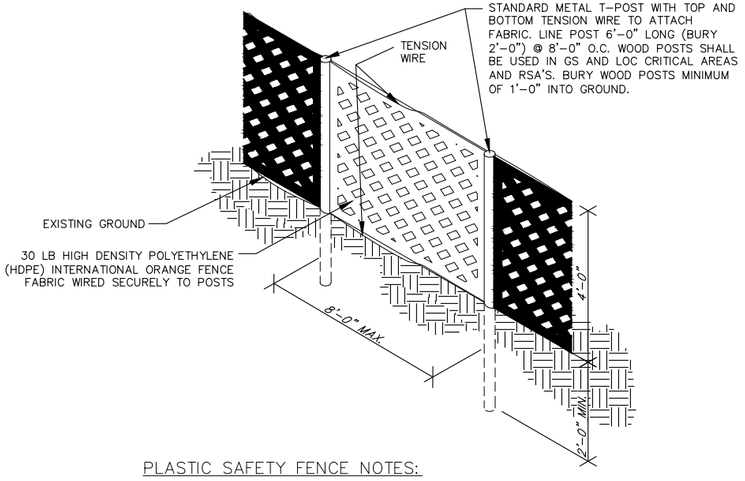


2 LOW PROFILE BARRICADE (TYPE 1)

N.T.S.

BARRICADE NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PROPER POSITIONING OF ALL BARRICADES.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND SECURELY FASTENING FLAGS TO ALL BARRICADES.
3. SANDBAGS, ANCHORS, AND/OR WATER MAY BE REQUIRED TO HOLD THE BARRICADES IN PLACE WHERE EXPOSED TO JET BLAST. SANDBAGS AND ANCHORS ARE INCIDENTAL TO THE ITEM.
4. CONTRACTOR SHALL HAVE REPLACEMENT LIGHTS ON-SITE AND SHALL REPLACE LIGHTS WITHIN ONE HOUR OF NOTIFICATION BY THE PROGRAM MANAGER OR AIRPORT PERSONNEL. CONTRACTOR SHALL HAVE AN ON-SITE REPRESENTATIVE WHO IS AVAILABLE 24 HOURS PER DAY, SEVEN DAYS PER WEEK AND CAN REPLACE INOPERATIVE LIGHTS.
5. BARRICADE LOCATIONS SHALL BE COORDINATED WITH THE PROGRAM MANAGER.
6. TYPICAL BARRICADE TO BE PLACED ALONG THE LIMITS OF THE PHASES OF WORK, AS SHOWN IN THESE PLANS, TO DELINEATE THE CONTRACTOR'S WORK AREAS.
7. BARRIER SECTIONS SHALL BE ORANGE WITH WHITE STRIPES.
8. ALL BARRIERS SHALL BE CHECKED VISUALLY FOR SIGNS OF WEAR AND TEAR ON A WEEKLY BASIS AND REPLACED OR CLEANED AS NEEDED.
9. BARRIERS SHALL BE PLACED ON 10' CENTERS, EXCEPT WHERE TWO-WAY TRAFFIC SHALL BE PERMITTED.
10. NO PART OF THE BARRIER SHALL EXCEED 24" IN HEIGHT FROM THE PAVEMENT.
11. MULTIPLE INSTALLATIONS AND REMOVALS MAY BE REQUIRED. CONTRACTOR WILL BE PAID FOR ONLY THE INITIAL INSTALLATION.

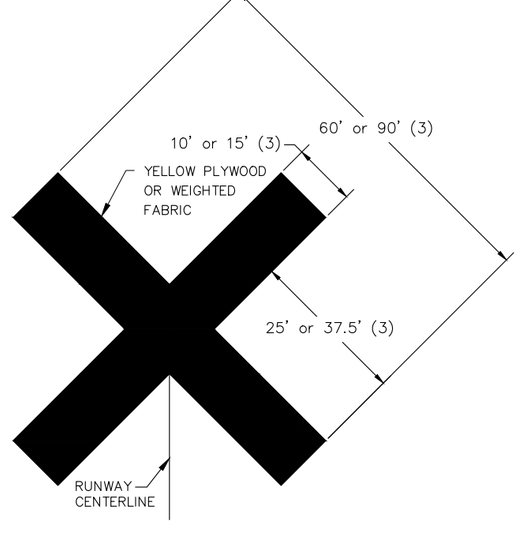


PLASTIC SAFETY FENCE NOTES:

1. THE PROGRAM MANAGER MAY REQUIRE A STRONGER FENCE FABRIC, CLOSER SPACED POSTS, AND/OR BRACES IN AREAS SUBJECT TO JET BLAST.
2. FENCE SHALL BE INSTALLED WITH THE FABRIC ON THE CONTRACTOR'S WORK AREA SIDE OF THE POST, AND NOT ON THE AOA SIDE.
3. AT PROJECT COMPLETION, ALL FENCE POSTS AND FABRIC SHALL BE REMOVED FROM AIRPORT PROPERTY AND SHALL REMAIN THE PROPERTY OF CONTRACTOR.
4. CONTRACTOR SHALL INSPECT AND MAINTAIN THE FENCE DAILY, OR MORE OFTEN, IF WEATHER OR OTHER CONDITIONS DICTATE.
5. CONTRACTOR SHALL CUT OR MAINTAIN VEGETATIVE GROWTH ON BOTH SIDES OF THE FENCE TO THE SATISFACTION OF THE PROGRAM MANAGER.

3 PLASTIC SAFETY FENCE

N.T.S.



CLOSED RUNWAY MARKING NOTES:

1. VISIBILITY OF TEMPORARY CLOSED RUNWAY MARKINGS SHALL BE ENHANCED FOR DAYTIME WITH A 6-INCH BLACK BORDER ON THE FABRIC OR WOOD.
2. SEE SPECIFICATIONS FOR INFORMATION REGARDING TEMPORARY CLOSED RUNWAY MARKINGS.
3. LARGER DIMENSIONS TO BE USED FOR TEMPORARY CLOSED MARKINGS PLACED OVER BLAST PADS.

4 TEMPORARY CLOSED RUNWAY MARKINGS

N.T.S.

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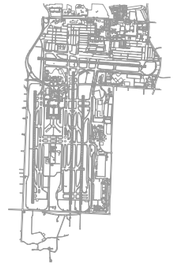
KEY MAP:



REVISIONS

MARK	DATE	DESCRIPTION

MSCAA PROJ. NO.
18-1415-00

PROJECT:
MEM AIRFIELD SIGNAGE REPLACEMENT

SHEET TITLE:
PHASING DETAILS

DWG. FILE NAME
18-1415-00-006.dwg

DATE
03/26/2021

SHEET NO.
006

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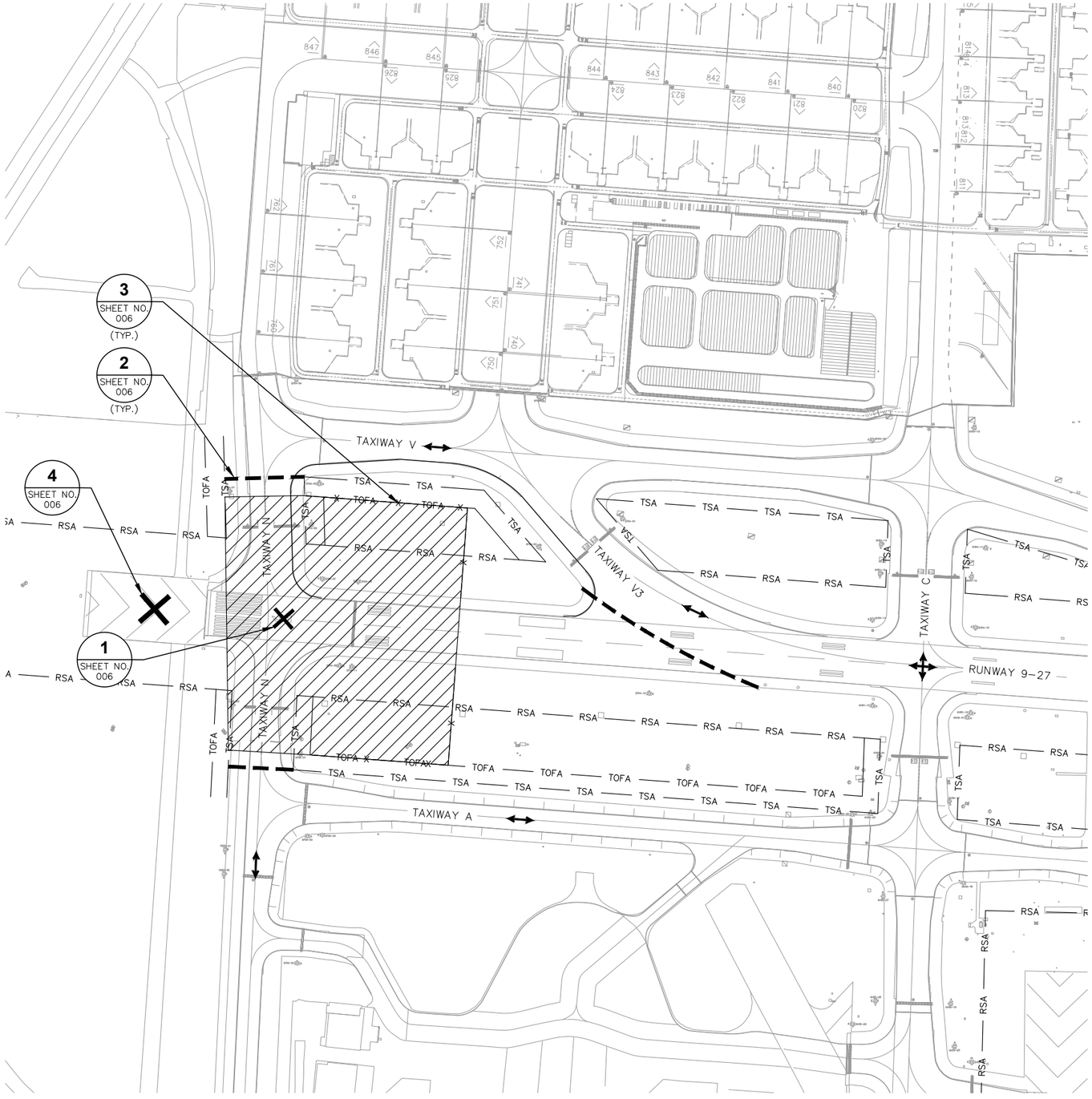

LEGEND

- CONSTRUCTION AREA
- TYPE I BARRICADES
- PLASTIC SAFETY FENCE
- CONSTRUCTION ACCESS ROUTE
- PAVEMENT OPEN TO AIRCRAFT
- RUNWAY SAFETY AREA — RSA
- TAXIWAY SAFETY AREA — TSA
- TAXIWAY OBJECT FREE AREA — TOFA

GENERAL NOTES:

1. PHASE SHOWN GENERALLY DEPICTS COMPONENTS FOR A TYPICAL 3-WAY RUNWAY/TAXIWAY INTERSECTION. PHASING FOR INDIVIDUAL INTERSECTION AREAS SHALL BE COORDINATED WITH PROGRAM MANAGER AND MEM OPERATIONS FOR EACH WORK AREA.
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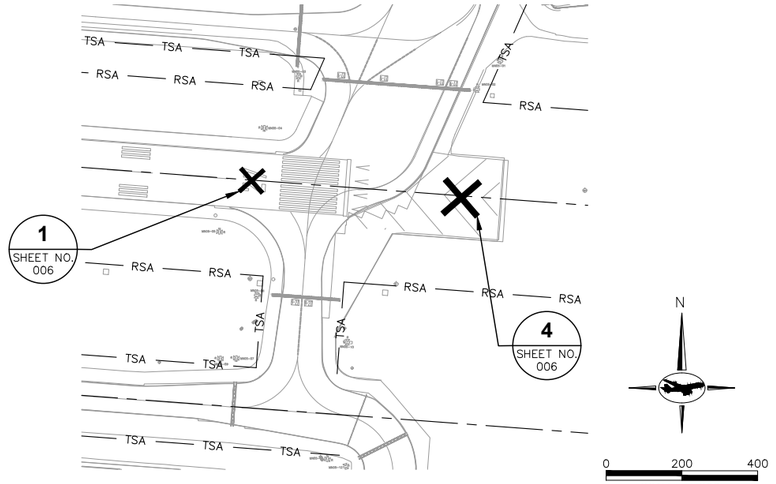
4. GATES MUST BE LOCKED OR HAVE A GATE GUARD. POSITIVE ACCESS CONTROL INTO THE AOA MUST BE MAINTAINED AT ALL TIMES.
5. CONTRACTOR TO PLACE, REMOVE, AND RELOCATE BARRICADES TO CLOSE OR OPEN ACCESS TO THE WORK AREA WITH THE ISSUANCE OF PROPER NOTAMS.
6. CONTRACTOR SHALL ATTEND THE WEEKLY AIRFIELD COORDINATION MEETINGS AT 1 PM ON WEDNESDAYS TO COORDINATE CLOSURES FOR THE FOLLOWING WEEK.
7. CONTRACTOR SHALL OBTAIN A CLASS 3 LICENSE TO ACCESS THE MOVEMENT AREA WITHIN THE AOA.
8. CONTRACTOR SHALL PRESERVE ROUTES FOR EMERGENCY ARFF ACCESS.
9. HAUL ROUTES FROM THE CONTRACTOR STAGING AREA TO THE CONSTRUCTION AREA WILL BE VIA EXISTING AOA GATES, LOUIS CARRUTHERS DRIVE, AND AIRPORT SERVICE ROADS.
10. REFER TO THE CONTRACT DOCUMENTS FOR APPLICABLE LIQUIDATED DAMAGES.
11. CONTRACTOR SHALL PROTECT ALL ITEMS NOT DESIGNATED FOR REMOVAL.
12. CONTRACTOR MAY PROPOSE ALTERNATIVE LIMITS OF PHASING TO EASE CONSTRUCTION SCHEDULING AND OPERATIONS.



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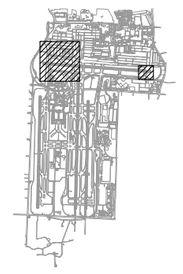
DAVID L. SPARKS — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 19117 — STATE OF TENNESSEE

KEY MAP:



REVISIONS

MARK	DATE	DESCRIPTION

MSCAA PROJ. NO.
18-1415-00

PROJECT:
MEM AIRFIELD SIGNAGE REPLACEMENT

SHEET TITLE:
PHASING PLAN - 3-WAY RWY-TWY INTERSECTION

DWG. FILE NAME
18-1415-00-007.dwg

DATE
03/26/2021

SHEET NO.
007

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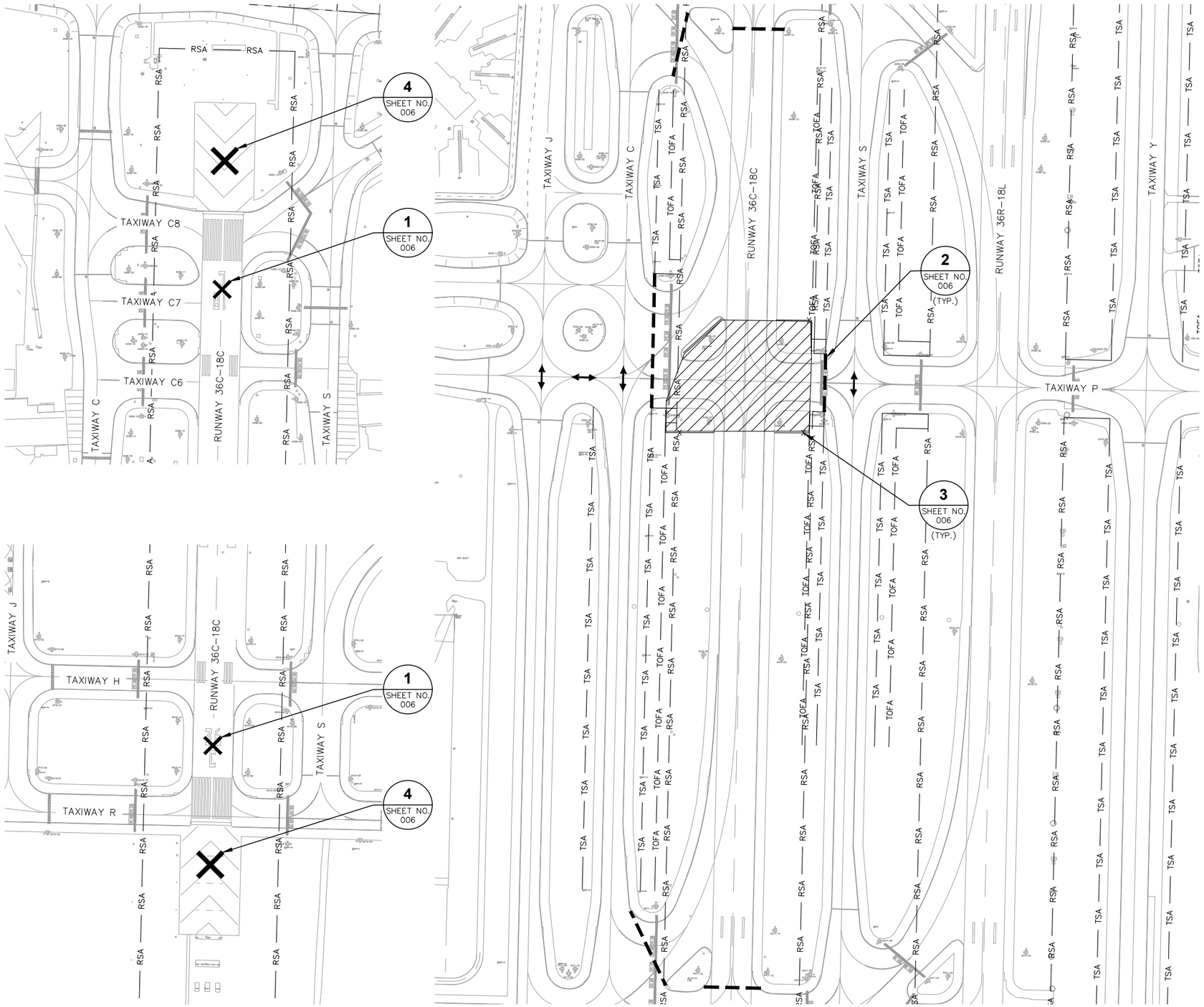

LEGEND

- CONSTRUCTION AREA
- TYPE I BARRICADES
- PLASTIC SAFETY FENCE
- CONSTRUCTION ACCESS ROUTE
- PAVEMENT OPEN TO AIRCRAFT
- RUNWAY SAFETY AREA — RSA
- TAXIWAY SAFETY AREA — TSA
- TAXIWAY OBJECT FREE AREA — TOFA

GENERAL NOTES:

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12. CONTRACTOR MAY PROPOSE ALTERNATIVE LIMITS OF PHASING TO EASE CONSTRUCTION SCHEDULING AND OPERATIONS.

N

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SCALE: 1:200

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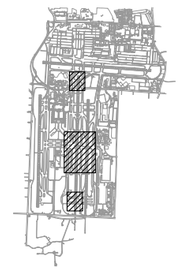
KEY MAP:



REVISIONS

MARK	DATE	DESCRIPTION

MSCAA PROJ. NO.
18-1415-00

PROJECT:
MEM AIRFIELD SIGNAGE REPLACEMENT

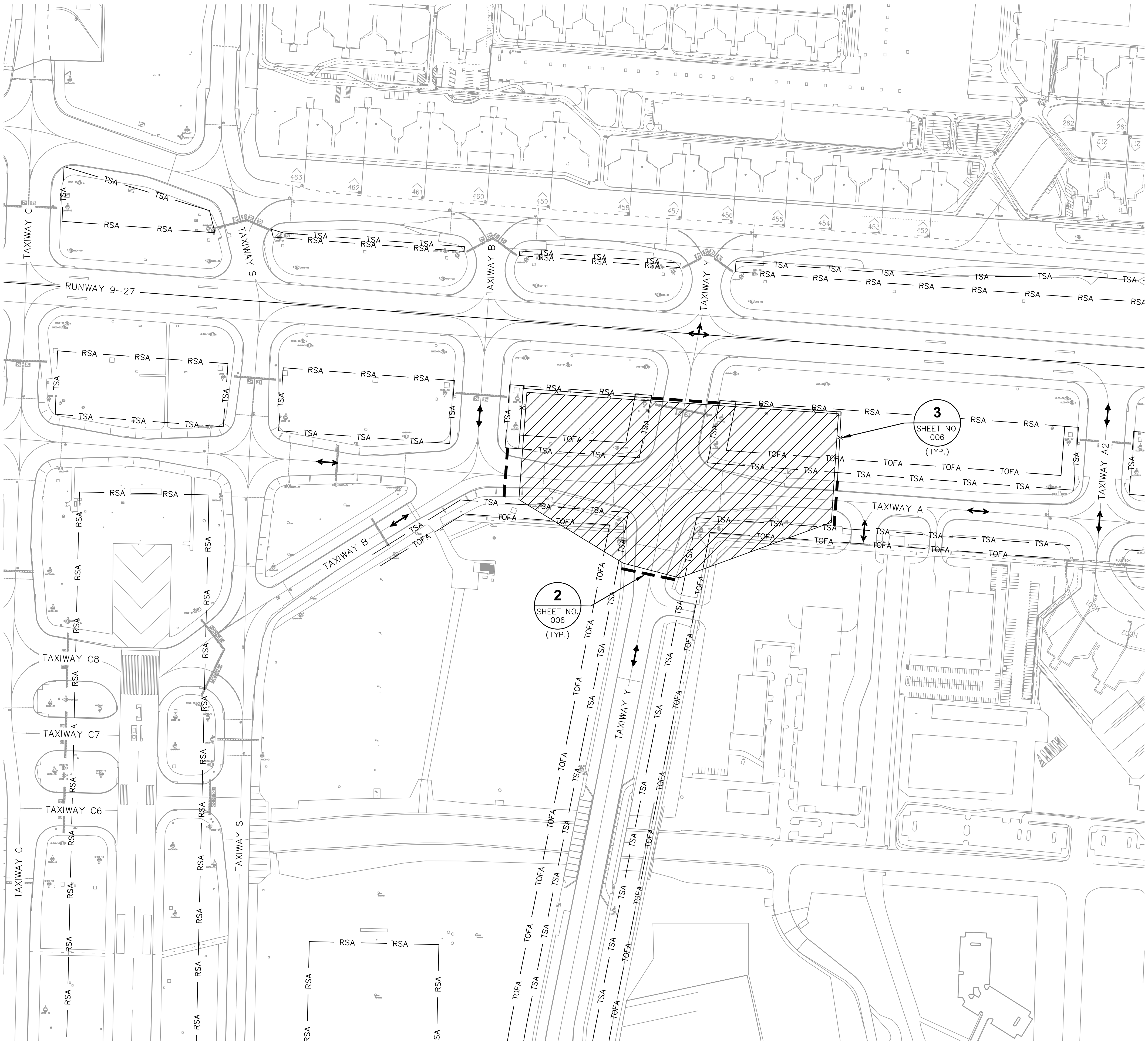
SHEET TITLE:
PHASING PLAN - 4-WAY RWY-TWY INTERSECTION

DWG. FILE NAME
18-1415-00-008.dwg

DATE
03/26/2021

SCALE
1:200

SHEET NO.
008



LEGEND

CONSTRUCTION AREA	(hatched area)
TYPE I BARRICADES	(heavy dashed line)
PLASTIC SAFETY FENCE	—x—
CONSTRUCTION ACCESS ROUTE	(double arrow)
PAVEMENT OPEN TO AIRCRAFT	(double arrow)
RUNWAY SAFETY AREA	— RSA —
TAXIWAY SAFETY AREA	— TSA —
TAXIWAY OBJECT FREE AREA	— TOFA —

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SCALE: 1:200

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JOB NO. 115325000

DRAWN BY: JMG
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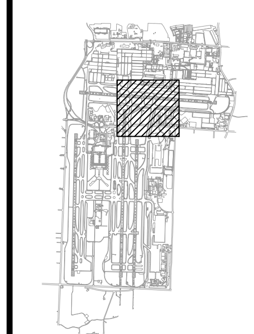


REVISIONS

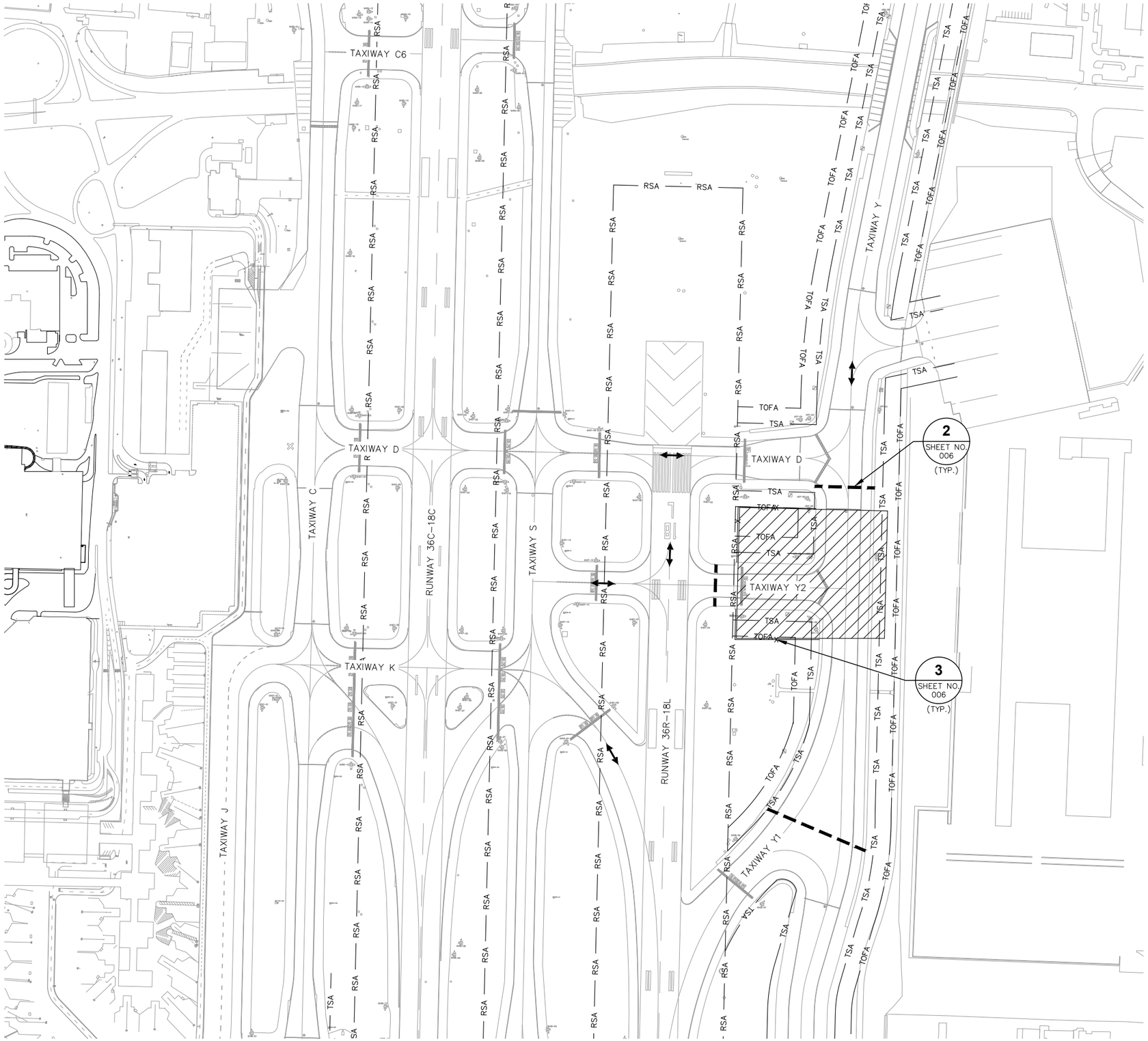
MARK	DATE	DESCRIPTION

MSCAA PROJ. NO. 18-1415-00

PROJECT:
MEM AIRFIELD SIGNAGE REPLACEMENT

SHEET TITLE:
PHASING PLAN - 4-WAY TWY-TWY INTERSECTION

DWG. FILE NAME 18-1415-00-009.dwg
DATE 03/26/2021
SCALE 1:200
SHEET NO. 009



LEGEND

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GENERAL NOTES:

1. PHASE SHOWN GENERALLY DEPICTS COMPONENTS FOR A TYPICAL 3–WAY TAXIWAY/TAXIWAY INTERSECTION. PHASING FOR INDIVIDUAL INTERSECTION AREAS SHALL BE COORDINATED WITH PROGRAM MANAGER AND MEM OPERATIONS FOR EACH WORK AREA.
2. CONTRACTOR WORK IN RUNWAY AND TAXIWAY OBJECT FREE AND SAFETY AREAS ARE TO BE ALLOWED ONLY AFTER APPROVAL BY THE PROGRAM MANAGER.
3. CONSTRUCTION OPERATIONS, EQUIPMENT AND PERSONNEL SHALL NOT BE ALLOWED IN THE TAXIWAY OBJECT FREE AREA DURING AIRCRAFT OPERATIONS. TOFAS ONLY SHOWN FOR DEPICTED INTERSECTIONS FOR CLARITY.
4. GATES MUST BE LOCKED OR HAVE A GATE GUARD. POSITIVE ACCESS CONTROL INTO THE AOA MUST BE MAINTAINED AT ALL TIMES.
5. CONTRACTOR TO PLACE, REMOVE, AND RELOCATE BARRICADES TO CLOSE OR OPEN ACCESS TO THE WORK AREA WITH THE ISSUANCE OF PROPER NOTAMS.
6. CONTRACTOR SHALL ATTEND THE WEEKLY AIRFIELD COORDINATION MEETINGS AT 1 PM ON WEDNESDAYS TO COORDINATE CLOSURES FOR THE FOLLOWING WEEK.
7. CONTRACTOR SHALL OBTAIN A CLASS 3 LICENSE TO ACCESS THE MOVEMENT AREA WITHIN THE AOA.
8. CONTRACTOR SHALL PRESERVE ROUTES FOR EMERGENCY ARFF ACCESS.
9. HAUL ROUTES FROM THE CONTRACTOR STAGING AREA TO THE CONSTRUCTION AREA WILL BE VIA EXISTING AOA GATES, LOUIS CARRUTHERS DRIVE, AND AIRPORT SERVICE ROADS.
10. REFER TO THE CONTRACT DOCUMENTS FOR APPLICABLE LIQUIDATED DAMAGES.
11. CONTRACTOR SHALL PROTECT ALL ITEMS NOT DESIGNATED FOR REMOVAL.
12. CONTRACTOR MAY PROPOSE ALTERNATIVE LIMITS OF PHASING TO EASE CONSTRUCTION SCHEDULING AND OPERATIONS.

N

0 200 400

SCALE: 1:200

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APPROVED BY: DLS

DAVID L. SPARKS — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 130117 — STATE OF TENNESSEE

KEY MAP:

REVISIONS

MARK	DATE	DESCRIPTION

MSCAA PROJ. NO. 18-1415-00

PROJECT:
MEM AIRFIELD SIGNAGE REPLACEMENT

SHEET TITLE:
PHASING PLAN - 3-WAY TWY-TWY INTERSECTION

DWG. FILE NAME: 18-1415-00-010.dwg
DATE: 03/26/2021
SCALE: 1:200
SHEET NO.: 010

AIRFIELD SIGN REPLACEMENT INTERSECTION SCHEDULE

AIRFIELD LOCATION	THREE-WAY RUNWAY/TAXIWAY	FOUR-WAY RUNWAY/TAXIWAY	THREE-WAY TAXIWAY/TAXIWAY	FOUR-WAY TAXIWAY/TAXIWAY
18R-36L RUNWAY COMPLEX	18R-36L / M1		M/M1	M/M2
	18R-36L / M2		M/M5	M/M3
	18R-36L / M3		M/T	M/M4
	18R-36L / M4		M/P	M/M6
	18R-36L / M5		N/M9	M/M7
	18R-36L / M6		N/M8	M/M8
	18R-36L / M7		N/M7	M/M9
	18R-36L / M8		N/M6	N/T
	18R-36L / M9		N/M1	N/P
			N/M	N/M4
				N/M3
				N/M2
MIDFIELD (SOUTH OF TERMINAL)			P/P2	T/P2
			P/P1	T/P1
				T/J
				P/J
18C-36C,18L-36R RUNWAY COMPLEX	18C-36C/R	18C-36C/H	J/R	S/E/S2
	18L-36R/R	18L-36R/H	J/H	C/E/C1
	18L-36R/Q	18C-36C/E	J/E	C/P/C2
	18L-36R/S2	18L-36R/P	J/C3	S/P
	18L-36R/E	18C-36C/P	J/K	Y/P
	18L-36R/S4	18C-36C/C5/S5	J/L	C/L/C4
	18L-36R/Y1	18C-36C/C6/S7	S/R	S/S3/L
	18L-36R/Y2/S6	18C-36C/C8/B	Y/R	C/K/C5
	18L-36R/D	18C-36C/K	Y/Q	S/K/S4/S5
	18C-36C/D		Y/H	S/D
	18C-36C/C6		S/S1	C/D
	18C-36C/C7		Y/ANG	B/S
			C/T	
			C/C3	
			Y/Y1	
			Y/Y2	
			Y/D	
			Y/EAST FBO	
			S/S6	
			C/C6	
			C/C7	
			C/C8	
			C/FBO	
9-27 RUNWAY COMPLEX	9-27/N	9-27/Y	N/A	V/V3
	9-27/A1/V2V1	9-27/B	N/WEST FBO	C/V
	9-27/A2	9-27/S	N/V	V/S
	9-27/V3	9-27/C	A/WEST FBO	A/C
			V/B	A/S
			V/Y	A/B
			V/V2V1	A/Y
			A/EAST FBO	A/A2
			A/EAST FBO HANGAR	
			A/A1	

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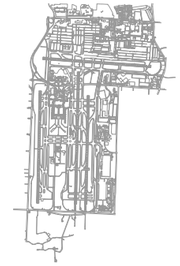
KEY MAP:



REVISIONS

MARK	DATE	DESCRIPTION

MSCAA PROJ. NO.
18-1415-00

PROJECT:
MEM AIRFIELD SIGNAGE REPLACEMENT

SHEET TITLE:
PHASING INTERSECTIONS SCHEDULE

DWG. FILE NAME
18-1415-00-011.dwg

DATE
03/26/2021

SCALE
NOT TO SCALE

SHEET NO.
011

Appendix B

FAA Advisory Circular 150/5370-2G, *Operational Safety on Airports During Construction (Excerpts)*

APPENDIX B. TERMS AND ACRONYMS

Table B-1. Terms and Acronyms

Term	Definition
Form 7460-1	Notice of Proposed Construction or Alteration. For on-airport projects, the form submitted to the FAA regional or airports division office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. (See guidance available on the FAA web site at https://oeaaa.faa.gov.) The form may be downloaded at http://www.faa.gov/airports/resources/forms/, or filed electronically at: https://oeaaa.faa.gov.
Form 7480-1	Notice of Landing Area Proposal. Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport The form may be downloaded at http://www.faa.gov/airports/resources/forms/.
Form 6000-26	Airport Sponsor Strategic Event Submission Form
AC	Advisory Circular
ACSI	Airport Certification Safety Inspector
ADG	Airplane Design Group
AIP	Airport Improvement Program
ALECP	Airport Lighting Equipment Certification Program
ANG	Air National Guard
AOA	Air Operations Area, as defined in 14 CFR Part 107. Means a portion of an airport, specified in the airport security program, in which security measures are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures. This area does not include the secured area of the airport terminal building.
ARFF	Aircraft Rescue and Fire Fighting
ARP	FAA Office of Airports
ASDA	Accelerate-Stop Distance Available
AT	Air Traffic
ATCT	Airport Traffic Control Tower
ATIS	Automatic Terminal Information Service
ATO	Air Traffic Organization
Certificated Airport	An airport that has been issued an Airport Operating Certificate by the FAA under

Term	Definition
	the authority of 14 CFR Part 139, *Certification of Airports*.
CFR	Code of Federal Regulations
Construction	The presence of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.
CSPP	Construction Safety and Phasing Plan. The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
CTAF	Common Traffic Advisory Frequency
Displaced Threshold	A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold is available for takeoffs in either direction or landing from the opposite direction.
DOT	Department of Transportation
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FOD	Foreign Object Debris/Damage
FSS	Flight Service Station
GA	General Aviation
HAZMAT	Hazardous Materials
HMA	Hot Mix Asphalt
IAP	Instrument Approach Procedures
IFR	Instrument Flight Rules
ILS	Instrument Landing System
LDA	Landing Distance Available
LOC	Localizer antenna array
Movement Area	The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading aprons and aircraft parking areas (reference 14 CFR Part 139).
MSDS	Material Safety Data Sheet
MUTCD	Manual on Uniform Traffic Control Devices
NAVAID	Navigation Aid
NAVAID Critical Area	An area of defined shape and size associated with a NAVAID that must remain clear and graded to avoid interference with the electronic signal.
Non-Movement Area	The area inside the airport security fence exclusive of the Movement Area. It is important to note that the non-movement area includes pavement traversed by aircraft.

Term	Definition
NOTAM	Notices to Airmen
Obstruction	Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, subpart C.
OCC	Operations Control Center
OE / AAA	Obstruction Evaluation / Airport Airspace Analysis
OFA	Object Free Area. An area on the ground centered on the runway, taxiway, or taxi lane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (See AC 150/5300-13 for additional guidance on OFA standards and wingtip clearance criteria.)
OFZ	Obstacle Free Zone. The airspace below 150 ft (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches. The OFZ is subdivided as follows: Runway OFZ, Inner Approach OFZ, Inner Transitional OFZ, and Precision OFZ. Refer to AC 150/5300-13 for guidance on OFZ.
OSHA	Occupational Safety and Health Administration
OTS	Out of Service
P&R	Planning and Requirements Group
NPI	NAS Planning & Integration
PAPI	Precision Approach Path Indicator
PFC	Passenger Facility Charge
PLASI	Pulse Light Approach Slope Indicator
Project Proposal Summary	A clear and concise description of the proposed project or change that is the object of Safety Risk Management.
RA	Reimbursable Agreement
RE	Resident Engineer
REIL	Runway End Identifier Lights
RNAV	Area Navigation
ROFA	Runway Object Free Area
RSA	Runway Safety Area. A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with AC 150/5300-13.
SDS	Safety Data Sheet
SIDA	Security Identification Display Area
SMS	Safety Management System

Term	Definition
SPCD	Safety Plan Compliance Document. Details developed and submitted by a contractor to the airport operator for approval providing details on how the performance of a construction project will comply with the CSPP.
SRM	Safety Risk Management
SSC	System Support Center
Taxiway Safety Area	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with AC 150/5300-13.
TDG	Taxiway Design Group
Temporary	Any condition that is not intended to be permanent.
Temporary Runway End	The beginning of that portion of the runway available for landing and taking off in one direction, and for landing in the other direction. Note the difference from a displaced threshold.
Threshold	The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.
TODA	Takeoff Distance Available
TOFA	Taxiway Object Free Area
TORA	Takeoff Run Available. The length of the runway less any length of runway unavailable and/or unsuitable for takeoff run computations. See AC 150/5300-13 for guidance on declared distances.
TSA	Taxiway Safety Area, or Transportation Security Administration
UNICOM	A radio communications system of a type used at small airports.
VASI	Visual Approach Slope Indicator
VGSI	Visual Glide Slope Indicator. A device that provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicator (PAPI), visual approach slope indicator (VASI), and pulse light approach slope indicator (PLASI).
VFR	Visual Flight Rules
VOR	Very High Frequency Omnidirectional Radio Range
VPD	Vehicle / Pedestrian Deviation

APPENDIX D. CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project including information such as the date, time and name of the person conducting the inspection.

Table D-1. Potentially Hazardous Conditions

Item	Action Required (Describe)	No Action Required (Check)
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.		
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.		
Runway resurfacing projects resulting in lips exceeding 3 inch (7.6 cm) from pavement edges and ends.		
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.		
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.		
Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and		

Item	Action Required (Describe)	No Action Required (Check)
approach zones.		
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.		
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.		
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.		
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.		
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.		
Obliterated or faded temporary markings on active operational areas.		
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.		

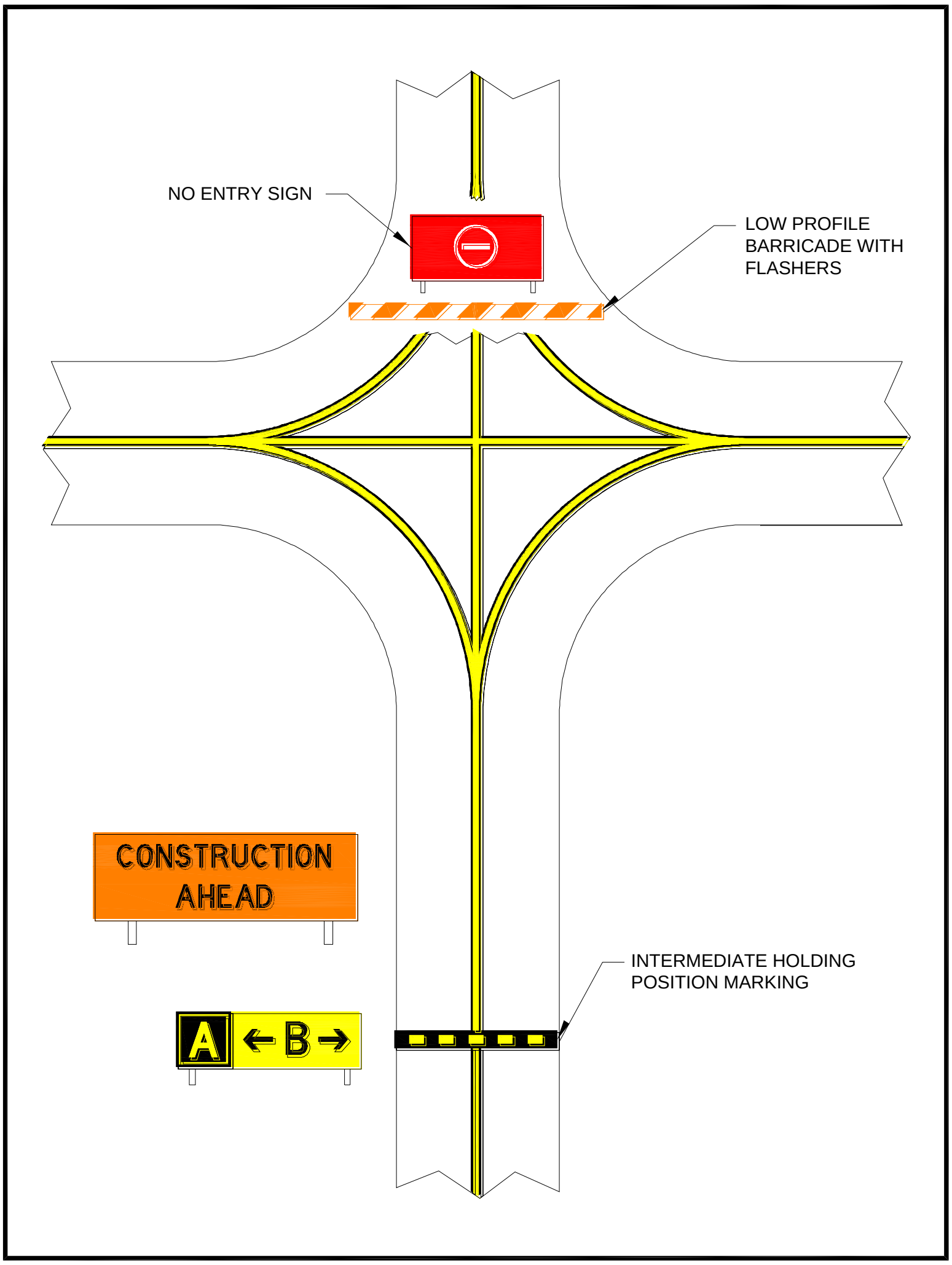
Item	Action Required (Describe)	No Action Required (Check)
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.		
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.		
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.		
Lack of radio communications with construction vehicles in airport movement areas.		
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.		
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.		
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.		
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).		

Item	Action Required (Describe)	No Action Required (Check)
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.		
Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.		
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.		
Site burning, which can cause possible obscuration.		
Construction work taking place outside of designated work areas and out of phase.		

APPENDIX F. ORANGE CONSTRUCTION SIGNS

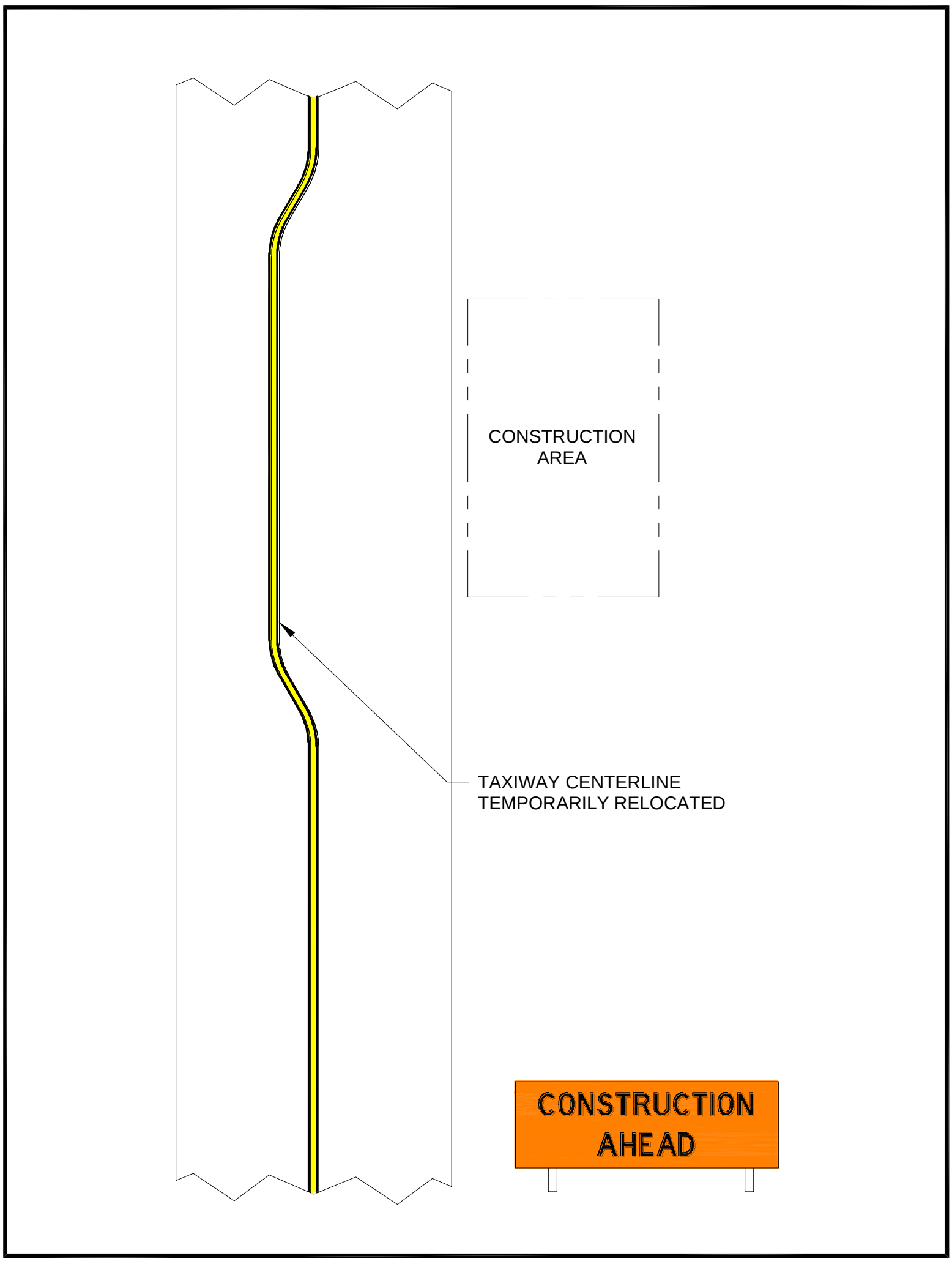
Figure F-1. Approved Sign Legends

Figure F-2. Orange Construction Sign Example 1



Note: For proper placement of signs, refer to EB 93.

Figure F-3. Orange Construction Sign Example 2



Note: For proper placement of signs, refer to EB 93.