ADDENDUM NO. 1
July 25, 2024

PROJECT:	Runway 12-30 Surface Treatment
BID DUE DATE:	Wednesday July 31, 2024 at 3:30 PM (unchanged)
FROM:	Ashley Helms, Deputy Director – Airports, Inyo County Public Works

Receipt of this addendum should be acknowledged by **inserting the number and the date of receipt on page BP-5** of the Bid Proposal Form. Failure to acknowledge receipt of this addendum on the Bid Proposal Form may be considered grounds for rejection of the bid.

If a bid is submitted, it should be with the understanding that the revisions contained herein are incorporated into the plans and specifications for the project and form a part of the contract to be executed for this work. It is requested that any contractors or subcontractors that may have been given plans or specifications for this project be advised of these contract revisions.

CHANGES TO CONTRACT DOCUMENTS:

1. General Changes
    - Bid Item 3: Crack fill and Seal has been removed.
    - Two (2) Appendices have been added.
        - Construction Safety and Phasing Plan.
        - FAA AC 150-5370-2G, Operational Safety on Airports During Construction.
    - Engineer/Resident Project Representative (RPR) field office is no longer required.

2. Technical Specifications/Project Manual
    - Bid Schedule Revisions
        - Bid Item 3: Crack Fill and Seal has been removed.
        - Bid Item 9: The quantity of Pavement Markings: Two Coat – Black was revised from 30,000.0 SF to now be **22,500.0 SF**. The black boarder on the outer edge of the runway edge stripe is removed from the scope of work. The inner edge will still get a black boarder.

      Bidder to remove and replace page BP-4 with the revised page included as an attachment to this addendum.
    - Award of Contract
        - Page TS-12, SECTION 30 AWARD AND EXECUTION OF CONTRACT
            - 30-02 Award of contract is revised: ~~**The award of a contract, if it is to be awarded, shall be made within 120 calendar days.**~~ **The award of a contract, if it is to be awarded, shall be made within 60 calendar days**.
        - Page TS-41, Technical Specification Item C-10T GENERAL REQUIREMENTS
            - 10T-2 Project Schedule, Work Schedule and Time Limitations.is revised: ~~**Within 120 days of bid opening.**~~ **Within 60 days of bid opening.**
    - Engineer/RPR field office
        - Page TS-22, SECTION 60 CONTROL OF MATERIALS
            - 60-05 Engineer/ Resident Project Representative (RPR) field office is revised: ~~**A field office is required for this project. Contractor to refer to Item C-105 MOBILIZATION for requirements.**~~ **Not required.**
        - Page TS-55, Technical Specification Item C-105 MOBILIZATION

- 105-4 Engineer/RPR field office is revised: ~~**The Contractor shall provide dedicated space for the use of the engineer… provide weekly cleaning including solid waste disposal.**~~ **Not required.**

- Badging and Airport Security
  - Page TS-54, Technical Specification – Add the following paragraph to Item C-104T AIRPORT SAFETY AND PHASING:
    - **104T-14 Badging and Airport Security:**
      - **A. Airport will issue badges to contractors. Each badge costs $60.00.**
      - **B. Badge requires application and background check.**
      - **C. There is a manual to read and a quiz to take.**
      - **D. There will be driver and radio procedure training and review.**
      - **E. Badged workers can be escorts.**
      - **F. Escort in vehicle is limited to 2 additional vehicles or equipment in train.**

3. Appendices
   - Construction Safety and Phasing Plan (33 pages) is included as an attachment to this Addendum. Bidder to insert the Construction Safety and Phasing Plan, in its entirety, into the specification book as Appendix A.
   - FAA AC 150-5370-2G, Operational Safety on Airports During Construction (96 pages) is included as an attachment to this Addendum. Bidder to insert the FAA AC 150-5370-2G, Operational Safety on Airports During Construction, in its entirety, into the specification book as Appendix B.

ANSWERS TO BIDDERS' QUESTIONS

1. There is a discrepancy between the notice inviting bids and the specifications on when the contract is to be awarded. When shall the contract be awarded?
   Response: Award of a contract, if it is to be awarded, shall be made within 60 calendar days of the date specified for publicly opening proposals.

2. Is there any lead anticipated to be within the pavement markings to be removed?
   Response: No lead anticipated within pavement markings. They were installed within the past 4 years.

3. Is there a DBE goal?
   Response: There is no stated DBE goal, but bidders are required to submit DBE participation and good faith effort forms.

4. Regarding construction water, could you provide contact information for the water department?
   Response: Contact the City of Bishop Public Works Department – (760) 873-8458.

5. Regarding waste and disposal, could you provide contact information for the solid waste department?
   Response: Contact Inyo County Waste Management Department – (760) 873-5577.

ATTACHMENTS:

- Revised page BP-4. Bidder to remove and replace this page in the contract book.
- Construction Safety and Phasing Plan (33 pages)
- FAA AC 150-5370-2G, Operational Safety on Airports During Construction (96 pages)

ADDENDUM 1

Runway 12-30 SURFACE TREATMENT PROJECT Bid Schedule

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS	UNIT PRICE	ITEM TOTAL
1	Mobilization (8% Max)	1.0	LS	$	$
2	Airport Safety and Security (5% Max)	1.0	LS	$	$
~~3~~	~~Crack Fill and Seal~~	~~22,500.0~~	~~LF~~	~~$~~	~~$~~
4	Remove Pavement Markings to 50%	11,600.0	SF	$	$
5	Sawcut Grooves	66,700.0	SY	$	$
6	Emulsified Asphalt Seal Coat	90,800.0	SY	$	$
7	Friction Test	1.0	LS	$	$
8	Pavement Markings: Two Coat – White and Yellow	88,800.0	SF	$	$
9	Pavement Markings: Two Coat – Black	22,500.0	SF	$	$
	TOTAL BID SCHEDULE				**$**

CONTRACTOR'S BID

TOTAL BID (IN NUMBERS) _____

TOTAL BID (IN WORDS) _____

REVIEWED AND CHECKED BY: _____

(For County Use)

TIME OF COMPLETION:

The undersigned further specifically agrees to complete all work for the Project within **55 working days** from the date of notice to proceed.

BID SECURITY:

The required ten percent (10%) Bid Security for this bid is attached in the form of:

(Note: Check and complete one of the following items)

( ) Bid bond issued by_____,

an admitted corporate surety on the form provided in the bid package.

( ) Certified/cashier's check No._____issued by_____

_____

ADDENDA:

The undersigned acknowledges receipt of the following addenda and has provided for all addenda changes in this bid.

_____

_____

APPENDIX A
CONSTRUCTION SAFETY AND PHASING PLAN

CONSTRUCTION SAFETY and PHASING PLAN (CSPP)

For

RUNWAY 12-30 SURFACE TREATMENT

AIP 3-06-0024-0xx-2024

Bishop Airport

County of Inyo
Bishop, CA

June 2024

Prepared by:

TARTAGLIA ENGINEERING

P.O. Box 476
Pismo Beach, CA 93448
805-466-5660

Contents

1. Introduction

Aviation safety is the primary consideration at airports, especially during construction. This Construction Safety and Phasing Plan (CSPP) serves as a companion document to the project plans and specifications for the Runway 12-30 Surface Treatment project, at Bishop Airport. The document has been prepared in compliance with FAA AC 150/5370-2G: Operational Safety on Airports During Construction, and with data and information taken from Bishop Airport's Airport Layout Plan.

Phasing developed for this project is intended to minimize the impact the project will have on airport operations while providing a logical sequence of construction activities. The emphasis is safety to airport users and the traveling public, but also to all contractor forces including material delivery personnel, as well as team support members including airport and FAA staff, the engineer, and all quality assurance technicians.

The goal is a high-quality construction improvement completed in a safe manner with minimal impacts to the traveling public. All team members share in responsibilities and obligations toward achieving this goal.

2. Baseline Airport Facility

A. Location

Bishop Airport is located in the unincorporated area of Inyo County, about a mile and half straight east of downtown Bishop, Inyo County, California. The airport occupies about 800 acres of real property, along the north side of East Line Road / Poleta Road east of US Highway 395, in the upper Owens River valley. Access to the airport is from Airport Road, off the north side of Poleta. The Sierra Nevada range is to the west and the White Mountains of the Inyo National Forest are to the east. At an elevation of 4,124 feet, the airport truly experiences all four seasons.

B. Airfield Facilities

Primary features of the airport include three runways, a network of parallel and connecting taxiways, a commercial terminal, on-airfield ARFF station with Index B response vehicles, several FBO's, aprons, and aircraft tie-down areas, aircraft storage hangars, self-serve and service aviation fuel, administration office and maintenance facility, and aviation-related business, all within a secured airport perimeter.

Runway 12-30 (7498' by 100') is the primary runway serving air carrier and large corporate jet operations. It includes non-precision markings and high intensity lighting. The runway is rated for 70,000-pound single-wheel, 110,000-pound double-wheel, and 200,000-pound double-tandem loading. Both ends of the runway are true, without any displacements and with declared distances.

Runway 17-35 (5600' by 100') is the secondary runway. Not available for air carrier operations, it includes non-precision markings and medium intensity edge lighting. The runway is rated at 100,000-pound, single-wheel, 140,000-pound double-wheel, and 240,000-pound double-tandem loading. There are no displaced thresholds on this runway.

Runway 8-26 (5,567' by 100') is the third runway, filling the gap for wind coverage in the 10.5 and 13 knot wind speed categories. It includes non-precision markings and medium intensity edge lighting. The runway is rated at 40,000-pound, single-wheel, 56,000-pound double-wheel, and 98,000-pound double-tandem loading. Similar to the other runways, this facility does not have any runway displacements.

C. Navigation Aids

The airport has a rotating beacon, primary wind cone with segmented circle, an Automated Surface Observing System (ASOS), pilot-controlled runway and taxiway edge lighting circuits, and Precision Approach Path Indicator's (PAPI's) serving all six (6) runway approaches. Runway End Identifier Lights (REIL's) are in service for Runways 12, 17, 30, and 35. A VOR/DME is situated center-field and the airport has an Automatic Dependent Surveillance – Broadcast (ADS-B) signal system. The airport has a localizer but does not have an Instrument Landing System (ILS) or any approach lighting systems.

D. Activity

The facility is open 24-hours a day with no operational restrictions. Within the last five years the airport has transitioned to a 49 CFR, Part 139 certificated facility. In addition to the commercial service, the airport draws a large general aviation group, with recreational flyers using Bishop as a hub for treks over the beautiful mountains surrounding the community. Corporate service includes the regional department of water and power, and several air-freight service providers.

3. Project Description

A. General Scope of the Work

a. In general, the project is focused on the existing surface conditions of Runway 12-30. Major elements of the work include:
    - Crack fill and seal.
    - Groove the new asphalt pavement surface.
    - Apply an emulsified asphalt seal coat.
    - Apply new pavement markings.
b. The scope of actual construction work includes:
    - Airfield safety and security.
    - Construction site environmental compliance.
    - Perform crack fill and seal, including routing of existing cracks and pavement cold joints.
    - Obliterate some pavement markings to 50% (runway centerline, taxiway lead-on lines).
    - Apply an emulsified asphalt seal coat to the runway, paved shoulder surfaces, and connecting taxiways up to the hold position markings, using a hand shield to prevent seal coat application on pavement markings intended to remain.
    - Apply new pavement markings, one-coat or two-coat as appropriate.
c. The work is presented in a single Bid Schedule format, with no additive or deductive alternates.
d. Plans included in the appendix detail the extent and location of all the work of this project.

B. Location

The work of this project occurs entirely within the paved surface of Runway 12-30, its paved shoulders, and short segments of the connecting taxiways:

a. Within the Runway Object Free Area (ROFA) of Runway 12-30.
b. Within the Runway Safety Area (RSA) of Runway 12-30.

C. Work to be Phased

The work of this project is to be competed in two distinct phases:

a. Phase 1 work:
- Crack fill and seal.
- Obliterate select markings.
- Runway grooving.
- Apply emulsified asphalt seal coat.
- Apply single coat of markings.

b. Phase 2 work:
- Apply second coat of markings.

D. Duration

The work is scheduled to extend for 55 working days, according to the following phase breakdown:

Phase	Day Shift	Night Shift	Total
Phase 1	37	12 (max)	49
Phase 2	3	3 max)	6
Total	40	15 (max)	55

The work of this project will be scheduled to take advantage of the September 2 – December 14 period when commercial service is absent from daily operations.

Phase 1 will be scheduled in the September – October, 2024 time period. Runway 12-30 will be closed, 24-hours a day, for the duration of the phase. Phase 1 will include day closure period for Runway 8-26 and night closure periods for Runway 17-35, to facilitate the work within these intersections.

Phase 2 will be scheduled 25-30 calendar-days after Phase 1. Runway closures during Phase 2 will be for each work shift only. Phase 2 day shift will include the closure of Runway 12-30 and Runway 8-26. Phase 2 night shift will include the closure of Runway 12-30 and Runway 17-35. Unlike Phase 1, all runways must be open for weekends and holidays.

Contractor is to understand that a “runway closure” also refers to the taxiways that are closed to facilitate the runway closure. An open runway also means all taxiways to that runway are open.

A Notice to Proceed will be issued after approval of all material submittals has occurred and any long-lead availability items have been ordered and received. Emulsified asphalt seal coat is sensitive to weather (precipitation and temperature), therefore the actual Notice to Proceed and scheduling each phase will occur with an eye on time of year. Contract time extensions will be granted for weather events.

4. Project Team

The professional effort is focused on the two general professional service divisions; design, and construction. For design, the team will serve the project in the Preliminary Engineering, Engineering Design, and Bidding Phases. For construction, the professional team will serve the Construction and Completion Phases.

A. Design Team Contacts

Table 1 identifies key team members that have been and continue to be instrumental in the successful progress of this project to-date. These individuals will remain in service to this project through the completion of the public bidding effort, at a minimum.

Design Team Contacts

Table 1

Organization	Point of Contact	Role	Contact Information
Bishop Airport	Ashley Helms	Deputy Public Works Director - Airports	(760) 878-0200
			ahelms@inyocounty.us
	Steve Loven	Airport Operations Supervisor	(760) 872-2971
FAA – Airports District Office	Saba Khan	Program Manager	(424) 405-7274
FAA – Facilities	Doug Podolsky	VOR/DME Specialist FAA Tech/Ops	(775) 423-2663
			Douglas.polosky@faa.gov
	L3Harris Network Ops.	ADS-B FAA Tech/Ops	(888) 461-7277
			e-mail
Tartaglia Engineering	John Smith	Project Manager	(805) 391-3665
			john@tartaglia-engineering.com
	Jason Hargreaves	Specifications	(805) 466-5660
			jason@tartaglia-engineering.com
	Scott Kope	Design Manager	(805) 466-5660
			scott@tartaglia-engineering.com

B. Construction Team Contacts

Table 2 identifies individuals that will join the team at the start of construction.

Construction Team

Table 2

Organization	Role	Point of Contact	Contact Information
General Contractor	Project Safety Manager		Phone
			e-mail
	Project Superintendent		Phone
			e-mail
	Project Manager		Phone
			e-mail
	Quality Control Manager		Phone
			e-mail
Subcontractor A	Project Manager		Phone
			e-mail
	Foreman		Phone
Subcontractor B	Project Manager		Phone
			e-mail
	Foreman		Phone
Professional Services *Construction Management* *Construction Inspection* *RPR*	Construction Manager / Administrator		Phone
			e-mail
	Field Engineering		Phone
			e-mail
	Inspector / RPR	Name	Phone
			e-mail

C. Project Safety Manager

The General Contractor shall designate a Project Safety Manager. The Safety Manager shall be the single point of contact and single point of responsibility for airfield safety.

a. Shall lead in preparation, submission, and implementation of the Contractor-prepared Safety Plan Compliance Document (SPCD). Implementation shall be by all general contractor representatives and also all sub-contractors and Third-Party Service Providers.
b. Project Safety Manager shall be trained in all aspects of airport safety and security, including but not necessarily limited to the following:
   - General airfield operations and aircraft movements.
   - Airfield facilities designations: runway, taxiway, taxilane, apron, ramp, etc.
   - Pavement markings.
   - Airfield signage.
   - Runway and taxiway safety areas.
   - Airfield access.
   - Manual and automatic gate access protocol.
   - Pavement markings
   - Airfield signage
   - Radio communications:
     - Direct to aircraft (non-towered airport, or tower closed)
     - Direct to tower (tower open)
c. Shall be available 24-hours a day to address airfield safety and security items and issues that may be attributed to the project and / or Contractor operations.
d. Background check / badge:
   - If the airport maintains an authority protocol for airfield access (Part 139 – commercial service), the Safety Manager shall proceed through the background check process and receive a badge.
   - As the Safety Manager, responsible for:
     - Establishing and maintaining a list of employees to receive badges.
     - Facilitate securing badges for all necessary individuals.
     - Monitoring all badge distribution.
     - Collecting and returning all issued badges to the Airport.
e. Responsible for securing all written correspondences back from Sub-Contractors and Third-Party Providers regarding CSPP and SPCD compliance obligations.
f. Shall participate in all Construction Progress Meetings.
   - Status of safety and security issues since the last meeting.
   - Provide updates and revisions to the CSPP and the SPCD.
g. Can serve as radio monitor during those work periods when activity is occurring within the active AOA and monitoring the radio is required.
h. Shall establish and train a back-up Safety Manager.

5. Emergency Response

Emergency Response			
Table 3			
Organization	Role	Contact	Contact Information
Emergency Response			
Northern Inyo Hospital, Bishop	Emergency Medical	N/A	911 or (760) 873-5811
Bishop Community Health Center	Urgent Care	N/A	(760) 784-7020
Bishop Fire Department	Fire Protection	N/A	911 or (760) 873-5485
Bishop Police Department	Public Safety	N/A	911 or (760) 873-5866
Inyo County Sheriff	Public Safety	N/A	911 or (760) 878-0383
Inyo County Environmental Health	CUPA – ENVE Services	N/A	(760) 878-0238
Inyo County Office of Emergency Services (OES)	Emergency Response	N/A	911 or (760) 878-0120
Utility			
No City of Bishop water or sewer at airport	Utilities	Ashly Helms	(760) 878-0200
Water and Sewer – Airport owned	Airport Manager	Ashly Helms	(760) 878-0200
Southern California Edison	Electrical Power	N/A	(800) 655-4555
Frontier Communications	Land-line, Fiber	N/A	(855) 552-9691
Hunt Propane	Propane	N/A	(760) 872-1433
No other utilities on airfield		N/A	TBD

6. Coordination

Coordination and communication are key to project success. Coordination between the airport and the design team has been instrumental in facilitating progress on the project to the point of public bidding and award of construction contract. The need for effective coordination and communication is heightened as the work moves out to the field, and the need for an emphasis on public safety becomes more acute.

A. Pre-Construction Contractor Submissions

Prior to the start of construction, the General Contractor's Project Safety Manager shall prepare and provide the following as submittals for review and approval by the RPR.

a. A Safety Plan Compliance Document (SPCD)
b. An Access Control Plan
c. A Work Zone Lighting Plan (projects that include night construction)
d. Third-Party Provider Letters

Documents can be submitted individually or all together as part of the SPCD.

B. Construction Progress Meetings

Periodic construction progress meetings will be scheduled to help facilitate communication between the Contractor, the RPR, and the Airport. These meetings will be essential for distribution of information regarding phasing and scheduling, issues related to airfield safety and improvement constructability, etc. Minutes taken at each meeting will serve as the agenda for each subsequent meeting.

C. Scope or Schedule Changes

Scope or schedule changes, should they occur, will be well-documented and agreed upon in advance of implementation. The FAA Program Manager will be kept informed as potential changes begin to materialize. All implemented changes will be proceeded with preparation, distribution, and approval of contract Change Orders.

D. FAA ATO / Facilities Coordination

At Bishop Airport, the FAA owns and maintains the VOR/DME and the ADS-B. Typical coordination with FAA during construction includes:

a. Remove and disposal, removal and replacement, or repair of FAA-facilities.
b. Installation of new FAA facilities as part of the project, or as a stand-alone effort scheduled to occur simultaneously with the project.
c. Controlling the operation of FAA facilities during facility shutdowns (turning off the navigation aids at the start of a runway closure shift and turning them back on at the end of the shift).

FAA Facilities will be kept informed as the project progresses into and through the Construction Phase. As the FAA-owned and maintained facilities at Bishop are independent of specific runway operations, there will be no direct coordination with FAA for their involvement in the actual progress of the work.

E. Lines of Communication

a. Airport staff will serve and provide the following:
   - The Public Information Officer, disseminating information to the public and receiving concerns and communication from the public.
   - Communication with FAA – Facilities, regarding construction progress and any potential issues through interaction with FAA facilities.
   - Communication with the engineer regarding concerns and issues, possible changes to the project; scheduling, construction, scope of work, etc.
   - Communication with the contractor when immediate direction is warranted.
b. Engineer serving as Construction Manager / RPR will serve and provide the following:
   - Communication with the airport regarding progress, issues, challenges, and opportunities, and input on schedule including certification flight tests.
   - Communication with the contractor regarding safety including any safety violations, quality assurance, work progress, periodic pay requests, field engineering including technical input and plan and specification interpretation, compliance with employee compensation, subcontractor issues, etc.
   - Communication with the FAA – Facilities regarding project schedule.
c. Contractor will serve and provide the following, through communication to the engineer:
   - Schedule updates and other impacts to planned work progress.
   - All material submittals and plan submittals.
   - Look-ahead logic, seeking issues and challenges before they occur, providing questions and asking for input in a timely manner to facilitate uninterrupted progress.
   - All required documentation for quality control, materials placed including weight tickets, certified payroll statements including compensation to DBE's, etc.

F. Project Meetings and Representation

Construction Team members are invited and expected to attend and provide active input at the following project meetings:

a. Pre-Construction Conference.
   - Identify / confirm the extent of award of contract.
   - Present detailed schedule.
   - Phasing and sequencing.

- Review airport safety including the CSPP. Emphasis on:
  - Runway closed not airport.
  - Runway and taxiway safety areas (imaginary areas centered on features).
  - Work window limitations.
  - Closing and re-opening procedures.
- Confirm all points of contact for various team members including back-ups (update Table 2).
- Project submittals.
- Airport tenant and user concerns and issues, FBO's, etc.
- Neighbor / community concerns.
- Construction activities and materials.
- Quality control / quality assurance.
- Project milestones.
- Labor requirements, civil rights requirements, DBE goals and documentation.
- Payroll records.
- Pay requests; periodic and final.
- Issuance of Notice to Proceed – Day 1.
- Time for performance based on extent of contract award.

b. Construction Progress Meetings.
   - Meetings will be weekly until otherwise informed.
   - The primary venue for open discussion regarding all issues.
   - Team member to provide representation capable of providing active input.
   - Subjects at Pre-Construction Conference serve as the basis.
   - Discuss and review Requests for Information (RFI's), RFI Responses, Requests for Proposals (RFP's), Proposal Responses, Change Orders,
   - Meetings to be evening before shift or early morning immediately after shift.
   - Engineer-prepared minutes become living document, serving as agenda for next meeting.

c. Preliminary Final and Final Inspections.
   - Review progress to-date, including completed work and schedule.
   - Establish final pay quantities, substantiated by field measurement, material weight ticket, or other.
   - Status of all Contractor-provided closeout paperwork:
     - Marked up, as-built plans.
     - O&M Manuals.
     - Final certifications.
     - Permit closeout paperwork and confirmation.
     - All final certified payrolls, benefit statements, etc.
     - Documentation for final compensation to all DBE's including statement regarding compliance / achieving the goal.
   - Identify all compensation deductions:
     - Based on contractor performance, in accordance with technical specifications.
     - Deductions due to waste material.
     - Financial penalties for CSPP violations.
   - Receipt of all spare parts and elements and components to be salvaged to the Airport.

- Documentation of outstanding items and issues through generation of a Preliminary Punch List.
- Schedule for timely completion of all outstanding items, and for Final Inspection.

G. Coordination Procedures for Work Shift: Facility Closure and Re-Opening

a. Closure Sequence - Start of Shift:
   - RPR will confirm NOTAM for closure has been issued.
   - After the time for published closure has passed, RPR will announce the runway closure (and taxiway closure if not already closed) and turn off airfield lighting circuits: runway and taxiway.
   - Contractor to install closure crosses and taxiway closure delineation (if not already in-place), and go to work.

b. Re-Open Sequence - End of Shift:
   - Prior to the identified end of shift, contractor to vacate airfield pavements (men, equipment, materials, work area lights), clean airfield pavements including haul routes, and seek inspection of same.
   - RPR perform FOD inspection.
   - Contractor re-clean if necessary and assist in re-inspection.
   - RPR turn on airfield lighting circuits: runway and taxiway.
   - RPR perform one final inspection with lighting powered up and functioning.
   - Contractor remove runway closure crosses and taxiway closure delineation.
   - RPR announce runway (and taxiway if appropriate) open.

c. The following is essential for successful Closure and Re-Opening Sequencing:
   - Contractor forces to remain on-site until FOD check and electrical inspection is complete.
   - Contractor limiting areas of disturbance and haul routes will help minimize end of shift inspections.
   - Scheduled or anticipated short-shifts need to be communicated to the team.

d. Portions of the work area may be experiencing extended closures – beyond the work period. This procedure to be modified accordingly. Re-opening a facility that has experienced an extended closure requires additional cleaning and inspection efforts.

7. Phasing and Sequencing, Accomplishment

A. Phasing and Sequencing

The project is to be phased in a total of two (2) phases with each phase including both Day Shift and Night Shift Operations. The work area of each phase is identical. Phasing for this project focuses more on “when” and not “where”.

- Runway 12-30 can be closed 24 hours a day for an extended period of time, to support day and night work.
- Runway 8-26 can be closed for day shift work only. During these closure periods, the contractor will focus his work on the intersection of Runways 12-30 and 8-26, along with the Runway 30 threshold area: total maximum closure periods in Phase 1 and 2 – 10 shifts.
- Runway 17-35 can be closed for night shift work only. During these closure periods, the contractor will focus his work on the intersection of Runways 12-30 and 17-35, along with the Runway 12 threshold area: total maximum closure periods in Phase 1 and 2 – 10 shifts.

The general scope of work, and airfield impacts beyond each work shift for each phase are identified in Table 4 below.

Work Phase Summary

Table 4

Phase	Work Areas	Items of Work	Impacts Beyond Work Shift
1 (DAY)	• Rwy 12-30, including intersection with Rwy 8-26, remaining clear of intersection with Rwy 17-35. • Connecting taxiways to Rwy 12-30 & Rwy 8-26.	• Crackfill & seal. • Obliterate some markings 50%. • Groove surface. • Apply seal coat. • Apply first coat markings.	Rwy 12-30 closed and connecting taxiways to this runway.
1 (NIGHT)	• Rwy 12-30 including intersection with Rwy 17-35, remaining clear of intersection with Rwy 8-26. • Connecting taxiways to Rwy 12-30 & Rwy 17-35. • **Rwy 17-35 & Rwy 8-26 cannot be closed concurrently. Open one before closing other.**		
25-30 calendar-day break for cure. All facilities open.			
2 (DAY)	• Rwy 12-30, including intersection with Rwy 8-26, remaining clear of intersection with Rwy 17-35. • Connecting taxiways to Rwy 12-30 & Rwy 8-26.	• Second coat of markings.	None. All runways & taxiways to be open after each shift.
2 (NIGHT)	• Rwy 12-30 including intersection with Rwy 17-35, remaining clear of intersection with Rwy 8-26. • Connecting taxiways to Rwy 12-30 & Rwy 17-35. • **Rwy 17-35 & Rwy 8-26 cannot be closed concurrently. Open one before closing other.**		

B. Accomplishment

a. Airport to remain open for the duration of the project. **Closing the Runway during the construction work window does not mean the Airport if closed.**

b. At all times throughout the duration of this project, Runway 17-35 or Runway 8-26 will be open.

c. All the work of this project falls within a Runway Object-Free Area (ROFA) of Runway 12-30, and the majority of this work falls within the Runway Safety Area (RSA) of this same runway. **For this project, all work within the RSA requires runway closure.**

d. For Phase 1 DAY and NIGHT, Runway 12-30 will be closed 24 hours a day, seven days a week, from start to finish of the phase. In addition, Runway 8-26 will be periodically closed during the day to allow work within the Runway 12-30, Runway 8-26 intersection. Runway 17-35 will be periodically closed during the night to allow work within the Runway 12-30, Runway 17-35 intersection. Runway 17-35 to remain open during all day shift operations and Runway 8-26 to remain open during all night shift operations.

e. For Phase 2 DAY and NIGHT, runways will be closed for each shift and re-opened at the end of each shift. During day shift, Runway 12-30 will be closed. In addition, Runway 8-26 will be periodically closed to facilitate the work within the intersection of these two runways. During night shift work, Runway 12-30 will be closed. In addition, Runway 17-35 will be periodically closed to facilitate the work within the intersection of these two runways.

f. Individual night closure periods: Sunday night through Friday morning, 2100 – 0600, local time. Time constraint also applies to closed taxiways outside the work area limits.

g. No weekend or holiday construction allowed.

h. Runway 17-35 and Runway 8-26 are to be re-opened at the end of each closure shift, day or night as appropriate, in a safe, compliant condition, in addition to the taxiways that were closed in support of runway closure.

i. Closure delineation falls within two categories:
   - Delineation installed at the start of Phase 1, maintained in-place 24 hours a day, 7 days a week, for the duration of the phase, removed when the work of the phase is complete.
   - Delineation installed at the start of the work shift (DAY or NIGHT), maintained for the duration of the work shift, and removed before the end of the work shift.

j. Runway closure includes the installation, maintenance, and removal of runway closure crosses, lighted or non-lighted, along with taxiway closure delineation at all connecting taxiways.

k. Airport Staff to issue Notice to Airman (NOTAM) in advance of each phase or each change in work period / closure, detailing the status of airfield facilities and duration of each runway closure period.

l. Contractor to freshen up diesel-powered closure crosses and runway and taxiway closed delineation every week, with battery replacement at intervals not to exceed 2-weeks.

m. At the end of each shift, pavements shall be cleaned and accepted by the RPR before opening.

n. No impacts to airport perimeter security / fencing.

C. Construction Safety Drawings

The Project Layout Plans / Phasing Plans of the construction plan set provide clear indication of the individual work areas of each phase including:

- Extent of areas of work.
- Contractor point of access to the airfield.
- Contractor yards.
- Haul routes / paths of travel for materials and equipment.
- Borrow / disposal area (N/A).
- Airfield closure delineation (low-profile lighted delineators).
- Runway closure delineation (lighted runway closure crosses).

They are included as an appendix to this CSPP.

8. Areas and Operations Affected by the Construction Activity

A. Areas Affected by Construction Activity

Work areas and corresponding active / open airfield features are depicted on three individual Closure Plans, included in the Appendix of this CSPP.

Closure Plan 1: Intended to facilitate contractor efforts on the majority of Runway 12-30 with minimal impact airfield operations. This closure configuration can extend for a prolonged period of time, 24 hours a day, including weekends and holidays.

Closure Plan 2: Expands the work area of Runway 12-30 to include the intersection with Runway 8-26, along with work on Runway 12-30 at the threshold end of Runway 30. Runway 8-26 is closed.

Closure Plan 3: Expands the work area of Runway 12-30 to include the intersection with Runway 17-35, along with the work on Runway 12-30 at the threshold end of Runway 12. Runway 17-35 is closed.

Table 4.1 and Table 4.2 summarizes the anticipated areas affected during the course of the project, either during work window, or during the duration of the Phase:

Areas Affected During Shift

Table 4.1

	Closure Plan 1	**Closure Plan 2**	**Closure Plan 3**
Runways Closed	Runway 12-30	Runway's 12-30 & 8-26	Runway's 12-30 & 17-35
Runways Open	Runway's 17-35 & 8-26	Runway 17-35	Runway 8-26
Shift	Day or Night	Day Shift Only	Night Shift Only
Airfield Entity	Status		
Runway 12-30	Closed	Closed	Closed
Runway 17-35**	Open	Open	Closed
Runway 8-26**	Open	Closed	Open
Taxiway A (parallel):	Open	Open to serve Rwy 17-35 & apron	Open to serve Rwy 8-26 & apron
Taxiway A2, F, A3	Closed	Closed	Closed
Taxiway A1	Open	Closed	Open
Taxiway A4	Open	Open	Closed
Taxiway B:	Open	Open	Open
Taxiway C:	Closed between Rwy 8-26 and Twy A	Closed	Closed between Rwy 8-26 and Twy A
Taxiway D:	Open	Open	Closed
Taxiway E:	Open	Closed	Open
Taxiway H (north):	Closed at Rwy 12	Closed at Rwy 12	Closed at Rwy 12
Taxiway H (south):	Open	Open	Closed
Taxiway J:	Open	Open	Closed
Terminal, Hangar, Fuel Access	Open	Open	Open

** At all times, either Runway 17-35 or Runway 8-26 must be opened to air traffic.

Areas Affected Beyond Shift

Table 4.2

	Closure Plan 1	**Closure Plan 2**	**Closure Plan 3**
Runways Closed	Runway 12-30	Runway's 12-30 & 8-26	Runway's 12-30 & 17-35
Runways Open	Runway's 17-35 & 8-26	Runway 17-35	Runway 8-26
Shift	Day or Night	Day Shift Only	Night Shift Only
Airfield Entity	Status		
Runway 12-30	Closed	Closed	Closed
Runway 17-35**	Open	Open	Open
Runway 8-26**	Open	Open	Open
Taxiway A (parallel):	Open	Open	Open
Taxiway A2, F, A3	Closed	Closed	Closed
Taxiway A1	Open	Open	Open
Taxiway A4	Open	Open	Open
Taxiway B:	Open	Open	Open
Taxiway C:	Closed between Rwy 8-26 and Twy A	Closed between Rwy 8-26 and Twy A	Closed between Rwy 8-26 and Twy A
Taxiway D:	Open	Open	Open
Taxiway E:	Open	Open	Open
Taxiway H (north):	Closed at Rwy 12	Closed at Rwy 12	Closed at Rwy 12
Taxiway H (south):	Open	Open	Open
Taxiway J:	Open	Open	Open
Terminal, Hangar, Fuel Access	Open	Open	Open

Airfield Safety Areas			
Table 5			
Design Standards – General	Entity	Parameter	Dimension
Design Aircraft: B-II Example Aircraft: Lockheed P-3 Orion Bishop ALP: 12/1/2020	Runway 12-30	Runway Object Free Area (ROFA)	800 feet – centered
		Runway Safety Area (RSA)	500 feet – centered
	Runway 17-35	Runway Object Free Area (ROFA)	500 feet – centered
		Runway Safety Area (RSA)	150 feet – centered
	Runway 8-26	Runway Object Free Area (ROFA)	500 feet – centered
		Runway Safety Area (RSA)	150 feet – centered
	Taxiways	Taxiway Object Free Area (TOFA)	186 feet – centered
		Taxiway Safety Area (TSA)	118 feet – centered

B. Operations Affected by Construction Activity

The airport will remain open at all times. The Contractor will shift closure configurations based on his schedule and operations. Runway and taxiway closed or opened status will be presented weekly on the project bulletin board and will be documented through NOTAM.

Runway 12-30 will experience a sustained closure, extending beyond individual work shifts. Runways 8-26 and 17-35 will experience periodic closures, day or night periods respectively.

Numerous taxiways will be closed in support of runway closures. Aircraft circulation around the airport will be restricted due to contractor construction operations and contractor haul / access routes.

All facilities will be open for full use during a 25-30 calendar-day contract suspension period between Phases 1 and 2.

9. Protection of Navigation Aids (NAVAIDs)

The Contractors attention is directed to the project plans that identify the following Navigation Aids:

- Standard elevated runway and taxiway edge lights and guidance signs throughout the work area.
- Precision Approach Path Indicators (PAPI's).
- Runway End Identifier Lights (REIL's).
- Wind cone(s).
- Automated Surface Observation System (ASOS).

Protection of all NAVAID's, that are not intended to be removed, is essential to the success of the project. The Contractor shall notify the RPR immediately should facilities be impacted or damaged during the course of the work. **There are no NAVAID's designated for removal on this project.**

10. Contractor Access

Contractor access to and from the airport shall in accordance with the provisions cited in this Construction Safety and Phasing Plan (CSPP), the project plans and specifications, and the contents of FAA Circular AC150/5370-2G, included in its entirety within the construction contract specification book. In the field, contractor access shall be through one automatic and one manual gate, designated on the Project Layout Plan.

A. Airport Security Requirements
   a. All contractor forces shall wear / employ OSHA-standard Personal Protective Equipment (PPE), appropriate for their individual tasks and for the environmental condition anticipated for this project (dark), including safety wear and high-visibility outerwear.
   b. All gates shall be unlocked and locked with each passage. No piggy-backing allowed, unless by escort.
   c. All vehicles inside the fence shall be equipped with flashing beacons and/or orange checked flags at all times.
   d. Personal vehicles not allowed within the AOA.
   e. In the event of material delivery inside the fence, Contractor shall designate an escort to accompany delivery vehicles to / from the gate and work site at all times.

B. Vehicle Safety Requirements
   a. All vehicles will be equipped with either standard FAA orange and white checkered flags (day only) or amber rotating beacons (day or night), to be installed at the highest point on the equipment.
   b. The company name or logo shall be displayed on both sides of the vehicles. Vehicle marking requirements are shown in the project specifications.
   c. Employee parking shall be as designated by the Project Manager, outside the AOA. All private vehicles shall be parked outside the AOA.
   d. Access to the job site shall be via specified Haul Routes as shown on the plans designated by the engineer and approved by the Project Engineer.

C. Access and Driving on the Airport
   a. Contractor shall attend and participate in safety training / workshops organized and presented by the Airport in advance of driving within the AOA. Material delivery or occasional drivers need not receive training provided they have a trained escort while on airport property.
   b. All vehicles and persons shall enter and exit the AOA (Airport Operations Area) through designated gates only.
   c. Maximum vehicle speed shall be 15 MPH while on airport property.
   d. No deviation from designated vehicle haul routes shall be allowed, unless previously approved by the Airport Project Manager. While in the AOA, all vehicles and persons shall remain within designated areas.
   e. No vehicle shall be parked on or operated across any aircraft apron or transient aircraft tie-down row, whether they are vacant or occupied.

D. Airfield Incursions
   a. An airfield incursion is an unauthorized entry into controlled space within the AOA. An incursion can be on foot or in a vehicle.

b. Unauthorized movement or entry into any Runway Object Free Area or Taxiway Object Free Area of a runway or taxiway that is open without adequate and proper announcement of your intent and confirmation of a safe condition, is considered an incursion.
c. There are four (4) categories of incursion, based on the level of risk or exposure, from most to least significant:
    - Category A: A serious incident in which a collision was narrowly avoided.
    - Category B: An incident in which separation decreases and there is a significant potential for collision, which may result in a time critical corrective / evasive response to avoid a collision.
    - Category C: An incident characterized by ample time and/or distance to avoid a collision.
    - Category D: An incident that meets the definition of airfield incursion such as incorrect presence of a single vehicle / person / aircraft on the protected area of a surface designated for the landing, take off, or taxiing of aircraft but with no immediate safety consequences.

E. Fencing and Gates
a. Throughout the duration of the project, security of the airport provided by the perimeter fence and access gates shall remain equal to or greater than pre-project condition. The integrity of the perimeter fence shall remain intact during construction. The work of this project does not modify the perimeter fence in any way.
b. Manual access gates normally closed will remain closed. After entering or exiting the airport through an automatic gate, the Contractor shall remain in proximity until the gate is fully closed, prohibiting airport access to any other individual.
c. After entering the airport through a manual gate, the Contractor must lock himself in. All manual gates shall be locked after leaving the airport as well. The gate shall be locked during all sentry breaks such as lunch.
d. Gate sentries are required at both manual and automatic gates during material import / export operations. Gate sentries shall be prepared to deny access to any unauthorized individuals. Sentries shall be on a rotational / break schedule, to allow for personal relief. Manual gates to be closed and locked and automatic gates to be placed back into automatic mode, when sentries are on break, lunch, or during any other sentry service interruption.

F. Contractor Access and Haul Route Provisions
a. The Contractor shall control his/her operations and the operations of his/her subcontractors and all suppliers while on airport property.
b. The Contractor's men and equipment shall be limited to the Construction areas shown on the project plans and in the specifications. Contractor agrees to implement such security measures as are necessary to assure compliance with Federal Aviation Administration, State and local airport regulations. The Contractor shall be responsible for clearly delineating the limits of his operation. Delineation shall be installed in accordance with the typical delineation details shown on the plans. Delineation left overnight, if allowed, shall be clearly and adequately lighted. Batteries shall be replaced every two weeks at a minimum or more frequently as needed.
c. Haul routes shown shall be used to bring in material or remove material at the worksite. Absolutely no deviations from designated routes will be allowed without prior written authorization of Airport Staff or the Project Engineer.

d. The Contractor's attention is directed to the plans, which show the fence, access gate, haul routes and areas available for the storage of materials and equipment as required. The restriction and control of persons and vehicles allowed on the Airport is of prime importance. Therefore, the Contractor will be responsible for the persons and vehicles coming through the access gates during the time that he/she has it in his/her control. When the gates are unlocked, he/she shall have them in the "closed" position and guarded by a person on his/her staff who will allow only those persons known to him to be a part of the construction team. Additionally, only vehicles properly flagged or equipped with a rotating beacon will be allowed. At all times when the gates are not guarded by a person, they will be kept closed and locked.
e. It shall be the Contractor's responsibility to inform any and all delivery personnel of these requirements.
f. To avoid confusion with aircraft during the construction and to avoid damage to the existing pavement and to the adjacent property, the Contractor's equipment shall be restricted to haul routes shown on the plans and in this document. The routes will be open to the Contractor depending on work area actively under construction. A portion of the proposed routes are coincident with or across existing ramps or taxiways. It shall be the responsibility of the Contractor to provide adequate safeguards, including flagmen, so that the operation of the Airport will not be hindered.
g. All equipment storage areas shall be delineated as called out in the project specifications.
h. At the end of each work day, the active haul route shall be swept and cleared of any debris.
i. At the completion of work, all haul routes in paved or unpaved areas shall be restored to the conditions existing prior to the start of the work.

G. Radio Communications
a. Radio communications described in this section pertain to communication on radio frequencies employed by / at the airport for the purposes of informing and controlling the flying public regarding aircraft operations and airfield activities that could include maintenance and construction activities.
b. Air-band radio communication is not for contractor-contractor communication, or contractor-engineer communication.
c. There is no Air Traffic Control Tower (ATCT) at Bishop Airport.
d. All air-band radio communication shall be between the contractor and individual aircraft pilots, on radio frequency 123.0. (Bishop)
e. Radio communications are required:
- To broadcast contractor intent for the movement of men and equipment into or through active airport operations areas.
- To hear, learn, comprehend, and disseminate to others on the crew, information regarding active or near-term aircraft movements that can adversely impact contractor operations or pending contractor operations.
- To identify airfield conditions to pilots that will impact identified pilot intent.

f. Airband radio frequencies can be busy. Respectful radio protocol is essential. Prior to initiating radio communications, the Contractors Radio Monitor shall listen for active communication, and delay initiating communication until confident all previous communications are complete.
g. The Contractor shall have a designated, authorized, radio monitor on site the entire time work crews are present within the AOA. The monitor shall have in his possession a working air-band

radio tuned to the appropriate frequency, shall be in a physical position capable of hearing radio broadcasts (away from background noise), and shall be capable of initiating or responding to radio communications that are essential to the safety of the flying public and contractor forces.

h. Radio communication is essential for entering or crossing active airfield operations areas. The Contractor's radio monitor shall be capable of providing clear and concise direction regarding intent, and / or shall be capable of complete understanding of the location and intent of aircraft maneuvering on the airport.
i. Radio Monitor shall use cell phone, CB-radio, or other means to communicate by and between contractor forces including material delivery trucks, and not the airband radio.

H. Aircraft and Pedestrian Operations

Throughout the construction project, the following safety and operational practices shall be observed:

a. Airport runways and taxiways should remain in use by aircraft to the maximum extent possible.
b. Aircraft shall *always* have the right of way.
c. Aircraft use of areas near the contractor's work shall be controlled to minimize disturbance to the contractor's operation.
d. Contractor, subcontractor, and supplier employees are restricted from entering the airport area inside the fence except through the designated gates and along the routes shown on the Project Layout Plan.
e. Construction within the safety area of an active runway, taxiway, or apron and performed under normal operational conditions must be accomplished when the runway, taxiway, or apron is closed or use-restricted and initiated only with prior permission from the Airport Project Manager or Inspector.
f. Airport Project Manager, Engineer, RPR (Inspector), or other designated airport representative may order the contractor to suspend operations; move personnel, equipment, and materials to a safe location at any time the situation requires it.

I. Specific Safety Requirements

a. Aircraft, emergency vehicles, maintenance vehicles, operational vehicles and enplaning and deplaning passengers have right of way over all traffic. This includes passengers for general aviation aircraft as well as fire-fighting and emergency response aircraft.
b. No vehicles shall be left unattended within the AOA.
c. No spilling or littering of any substance onto any paved surface. Vehicle operators shall make sure that no loose object falls onto a paved surface or is allowed to become dispersed or scattered by either the wind or propeller or jet blast.
d. All hazardous conditions necessitated by construction or maintenance activities (trenches, excavations, stockpiles) shall be marked so as to render them readily visible, day and night.
e. Pollution by any substance, under any form, shall be properly controlled by means and methods acceptable to Airport Project Manager or RPR (Inspector).
f. No metal track vehicle shall be operated on any paved surface, unless prior approval has been secured from the Airport Project Manager or RPR (Inspector).
g. All accidents, incidents involving bodily injury or property damages, regardless of severity or property ownership, which occur on the airport, shall be immediately reported to the Airport Project Manager or RPR (Inspector).

11. Wildlife Management

Throughout the duration of the project, Contractor and all subcontractors shall concern themselves with activities and site conditions that could, inadvertently, attract wildlife. To avoid such conditions, team members shall:

- Monitor construction water applications such that free water cannot stand for more than 30 hours.
- Monitor storm water such that free water cannot stand for more than 48 hours after the conclusion of a rain event.
- Implement pumps and other de-watering devices and techniques as necessary to eliminate standing water and the sheen associated with a wet surface.
- Maintain an effective solid waste program that keeps site trash including food waste to a minimum. Containers shall be conveniently placed, shall be securely closed or otherwise inaccessible to wildlife, and shall be serviced at a frequency that preserves their functionality.
- All airport access points shall be kept securely closed when not in use to prevent wildlife access to the airport through an open gate.
- Contractor shall maintain vegetation including grass to an acceptable level / condition within all contractor yards and material storage areas, to reduce wildlife attraction. Projects of long duration may demand a shift or temporary relocation of material stockpiles to facilitate vegetation control.
- Gates shall be kept shut when not in use to prevent domestic and wildlife access to the airport.
- Contractor wildlife management responsibilities including monitoring and addressing standing water extend over weekends, holidays, and extended non-work periods.
- The Contractor shall contact Airport Operations immediately in the event of a wildlife encounter, or at the time of recognition or identification of a condition that could be deemed an attraction to wildlife.

12. Foreign Object Debris (FOD) Management

It is the responsibility of the Contractor to maintain a clean project site free from FOD or the threat of FOD. The project site includes actual work areas, but also includes all haul routes, staging areas, all locations where delineation is placed, and any other airfield area occupied or affected by contractor operations.

FOD management also includes inspection of all vehicles before entering the AOA, looking for and addressing rock, loose construction materials, hand tools, hardware, etc., not stored securely within holding compartments (tool boxes, truck beds, etc.). In addition, vehicles shall be re-inspected when leaving the work area, heading out of the airport.

The Contractor and its employees will be held responsible for maintaining the project area and keeping it free from FOD whether it is generated from the project site or other airfield areas. This obligation also applies to all material suppliers, equipment delivery and equipment servicing staff, quality control and quality assurance staff, etc. Everyone inside the AOA is responsible for the removal of FOD regardless of its origin. All parties associated and affiliated with this project are included in this obligation.

The Contractor is encouraged to limit his path of travel to narrow lanes, following the routes identified on the plans. in so doing, he narrows his area of focus when performing all cleaning and inspecting activities as the work shift comes to a close.

The Contractor shall use water, brooms, blowers, sweepers (no metal bristles), vacuum trucks, or any other industry-standard, effective means to clean airfield pavements within the project site prior to opening closed areas to air traffic. Airport Staff will have the final word on the acceptance of cleaned project areas for aircraft operations. The Contractor shall allow ample time for inspection of cleaned areas and re-cleaning if necessary, in advance of the end of any closure period.

13. Hazardous Materials (HAZMAT) Management

Hazardous Material Management applies to any material that is considered hazardous by the USEPA, either in character, quantity, condition, or any combination thereof. Hazardous materials can include construction materials, fuels, lubricants, coolants, binders, and coatings, but also can include waste products and blended products. The Contractor shall:

- Prepare, submit, and gain approval of a Hazardous Materials Management Plan (HMMP). The plan shall outline all anticipated hazardous materials to be used, employed, encountered, or generated by and at the necessity of this project, and shall include a complete library of Material Safety Data Sheets (MSDS). The document shall identify the Contractors Hazardous Materials Manager with 24-hour contact information. In addition, the plan shall address fuel and other material deliveries, material storage, and use. Lastly, the plan shall address spill prevention and control for all anticipated activities.
- Perform all maintenance, serving, and refueling of vehicles and equipment within the designated contractor yard(s).
- Keep all materials in original containers, labeled, to the extent possible, until use.
- Provide adequate and appropriate labeling of all waste product containers.
- Report any hazardous materials spills or related hazardous materials incidences to the following:
    - Call 911 immediately, for local emergency response.
    - Call Airport Operations.
    - Call 1-800-424-8802, the Environmental Protection Agency's (EPA), National Response Center.
    - Identify the caller, location, nearest point of access into airport (gate number), nature of the spill, current site condition, and specific hazardous substance and quantity if known, and how the spill or incident occurred.
    - For spills and incidences of potential significant impacts to the environment, identify date and time of spill, location of threatened waterway.
- Contractor's employees shall not attempt to clean the spill until it has been evaluated by the local emergency response agency. Only those employees with a Hazardous Material Certification shall be involved in the cleanup and then only under the direction of the local emergency response agency.

14. Notification of Construction Activity

A. The project contact list (Construction Team) will be made current at the conclusion of the Pre-Construction Conference when all key team players have been identified. The contact list will be

reviewed periodically at weekly construction progress meetings and updated as necessary throughout the duration of the project.

B. The Notice to Airman (NOTAM) system will be employed to provide project information including closure periods, out of service items, and scheduling updates, etc. The Airport Project Manager will provide active NOTAM management, uploading, and distribution of these to team members. NOTAM's must be issued and in-place before any airfield closures (and work) can occur. The Airport requires a minimum of 72 hours advance notice to publish a NOTAM. In the event a work period is canceled, the Airport can cancel a NOTAM immediately.

C. Local emergency responders including fire protection and law enforcement will be invited to attend the Pre-Construction Conference, to gain full knowledge of the extent and duration of the project. The Project Engineer will reach back out to these entities quarterly to remind them of the ongoing project, and to update any key members on the Construction team contact list.

D. Emergency Landing Procedures
The most frequent event that can challenge airport work sites when runways are closed is the unplanned need for landing an aircraft. In the event the contractor's radio monitor is contacted by an aircraft requesting to land during construction hours, the contractor's radio monitor must engage the identifying aircraft and describe conditions on the ground at the airport (i.e. Runway 12-30 closed for construction). He/she shall first confirm if an alternate runway is available and acceptable. If no, then encourage the pilot to go elsewhere stating that "requested runway is closed" and identifying the closest airports:

- **KMMH – Mammoth Yosemite Airport (27 nm NW)**
- **O32 – Reedley Municipal Airport (67 nm SW)**
- **KHTH – Hawthorne Industrial Airport (71 nm N)**
- **KTPH – Tonopah Airport (73 nm NE)**
- **KFAT – Fresno Yosemite International Airport (74 nm SW)**

Should the pilot insist on landing, the radio monitor shall ask the following questions:

- "Are you declaring an emergency?"
- "What is the nature of your emergency?"
- "How much runway do you need?"
- Followed by, "We will attempt to accommodate" and advising the pilot of any drop offs, loose debris, open trenches or other possible hazards.

The contractor shall temporarily cease construction activities and clear the runway as quickly as possible. Time permitting, he shall turn on runway lights, following up to the aircraft specific characteristics about conditions on the ground and instructions for a preferred operation (ie: "first 2500 feet clear", "land early", "last 3,000 feet occupied with equipment", "equipment off right shoulder", etc. In all cases, radio monitor to conclude each radio transmission to the pilot with **"Pilot Discretion"**.

15. Inspection Requirements

The project RPR (Inspector) will be on-site full time, during all construction activities. Airport personnel will make periodic site visits to the project during construction to provide oversight and ensure the CSPP is being followed. The Project Engineer is responsible for ensuring the project is constructed in

conformance with the contract, plans, and specifications. Should any deviations from the plans and specifications be observed, the Contractor will be required to immediately correct the deviations as instructed by the Engineer and/or Airport. Final acceptance of constructed improvements will be determined in accordance with the contract documents.

The Contractor shall identify a Construction Safety Officer in its Safety Plan Compliance Document (SPCD) as well as a single point of contact for each subcontractor involved on the project. These contacts will be incorporated into Table 2, Construction Team, in order to provide a comprehensive list of project contacts. The Contractor shall also outline in the SPCD its safety policy and internal inspection requirements to ensure airfield safety compliance.

During the re-opening of temporarily closed airfield pavements and facilities, Airport Personnel will have the final word on the acceptance of cleaned construction areas for aircraft operations. Refer to Section 7 for additional guidance on cleaning procedures prior to opening pavement.

Airport Personnel, Project Engineer, and Project RPR (Inspector) are not responsible for any escort, gate guard, placement of runway closure crosses and delineation, or other Contractor-required safety and security measures, duties, and responsibilities.

16. Underground Utilities

The design team performed research into available records and as-built plans. All known underground utilities within the project footprint have been included / identified on the project plans and are shown to the best of our knowledge and ability. Facilities within the area of work are limited to Airport-Owned electrical infrastructure (conduits, conductors, junction boxes, edge lights, and guidance signs). FAA-Owned infrastructure are beyond the scope and physical limits of the work.

The contractor is required to investigate the site and become familiar with existing facilities. Such investigation includes pot-holing as necessary to confirm horizontal and vertical locations, especially at locations of potential conflict with designed underground facilities (electrical or storm drain).

17. Penalties

Table 6 identifies various CSPP and contract violations and associated consequences. Penalties apply to all team members on the field; Engineer, Inspector and Quality Assurance technicians included.

Penalties for Noncompliance

Table 6

Violation	Consequence
Exceed work-day allocation for construction: Overall contract	$1,000.00 per calendar day
Exceed work-day allocation for construction: Individual phases	None
Failure to facilitate and accomplish runway opening at end of shift (and associated taxiways):	$500.00 per 10-minute period or portion thereof, continuing at this same level for each 10-minute period until successfully and acceptably re-opening the runway $3,000.00 / hour).
Access gate violation: Unattended gate, vehicle depart before fully closed, unauthorized third-party access. Manual gate left open, unlocked, or unattended	$2,000.00 per event
General airport perimeter security violation	$2,000.00 per event or per 24-hour period, as appropriate

Badge / escort violation: employees not under direct control of escort	1st occurrence: $500.00 fine & written warning
	2nd occurrence: $1,000.00 fine & permanent removal from project
Category A & B airfield incursion	**Construction Stand Down. All contractor (general and all sub's) activities stop immediately for the balance of the shift and the complete next shift. Time extension not granted for Stand Down. Mandatory Safety Meeting to review incident, CSPP and SPCD. Formulate plan to address issues. Revise SPCD.**
Category A & B airfield incursion	1st occurrence: $10,000.00 fine & permanent removal from project
	2nd occurrence: $20,000.00 fine, permanent removal from project of the offender and supervisor
Category C & D airfield incursion	1st occurrence: $2,000.00 fine & written warning
	2nd occurrence: $5,000.00 fine & permanent removal from project
Abnormal behavior deemed a risk to public safety	Permanent removal from project
General Safety Plan Violation	1st occurrence: $500.00 fine & written warning
	2nd occurrence: $1,000.00 fine & permanent removal from project

The determination of "General Safety Plan Violation" is 100% at the discretion of the RPR. Financial penalties or safety violation fees and assessments from third-party entities (TSA, etc.) to the airport that are directly related to contractor team action and/or performance will be passed dollar for dollar to the General Contractor. Financial penalties to be deducted from periodic pay requests when and if they occur, as appropriate.

18. Special Conditions

Airport operations take precedence over all work, especially if a question of safety is involved. Special conditions such as low visibility, aircraft in distress, aircraft accident, security breach, or work being completed by others may require the rescheduling of Project Work to accomplish and preserve air safety. Full compensation for all costs involved in rescheduling and moving from one work area to another, including work stoppage caused by airport operations shall be considered as included in the contract prices paid for contract items of work and not additional compensation.

19. Runway and Taxiway Visual Aids

- Contractor to employ temporary jumpers as necessary to preserve and restore airfield lighting circuits including runway and taxiway edge lighting at the end of each shift. If above ground, jumpers shall be in PVC conduit, secured to the ground.
- All runway edge lighting circuits to be functioning at the end of each shift. Within individual work areas where the scope of the effort requires temporary removal of runway edge light, Contractor to fabricate a temporary light base and anchorage, and reinstall each runway edge light in this temporary configuration at the end of each shift.
- All taxiway edge lighting circuits to be functioning at the end of each shift. Within individual work areas where the scope of the effort requires temporary removal of taxiway edge light, Contractor to fabricate a temporary light base and anchorage, and reinstall every other taxiway edge light, at a minimum, in this temporary configuration at the end of each shift.

20. Marking and Signs for Access Routes

Contractor forces to recognize and acknowledge the airport will remain open during construction. Where access routes are on airfield pavements (runways, taxiways, aprons), Contractor to install low-profile barricades and / or delineators at periodic intervals along both sides of haul routes, from and between

point of access (gate), yard, and work area. Emphasis shall be at all changes of direction where confusion regarding direction may exist. Delineators shall be installed at the start of each shift, maintained for the duration of each shift, and removed at the conclusion of each work period.

Delineators will be used as a means of traffic control, providing direction to contractor forces including material delivery vehicles, but also as an indication to pilots regarding active work areas and haul routes. At some closure locations, safety may be enhanced through the installation of two sets of closure delineators; one for aircraft that will help prevent aircraft from entering a taxiway that is closed at the other end, and one for contractor forces that will help prevent trucks and equipment from moving beyond the limits of the work or haul routes.

Delineators are not required along those portions of access routes that are on airport perimeter roads outside active airport pavement areas. Contractor shall, however, install delineation at locations where these routes enter airfield pavements and their respective object free areas. Signs shall also be installed and maintained at these locations stating “Entering Active Airfield Area”, providing emphasis of the change of environment. All access route delineation shall be removed from the site at the end of each shift unless placed outside object free areas or within object free areas of temporarily closed airfield facilities.

Contractor to prepare and submit an Access Control Plan with their SPCD, highlighting and identifying proposed control signage and delineation. This must be approved by the RPR before start of field work.

21. Hazard Marking and Lighting

Low profile barricades and Runway Closure Markers (lighted closure crosses) will be used as a method of traffic control. Barricades will be used to keep contractor forces including material delivery trucks within designated haul routes and within specific project work areas. In addition, these barricades will keep aircraft out of work zones. The lighted closure crosses are very effective hazard markers, providing visual indication to approaching aircraft that runways are closed.

Within the Safety Plan Compliance Document (SPCD), the Contractor shall identify additional means proposed to address those locations where haul / access routes cross open taxiways, including the establishment of contractor way points and radio-monitoring access / crossing guards.

22. Work Zone Lighting for Nighttime Construction

Contractor forces shall install and maintain night shift area lighting for each night work period. Lights activated prior to closure shall be kept pointed down, below the horizontal plane, until after the runway is closed. During night shift operations that do not include runway closure, all work area lights shall remain pointed down below the horizontal plane for the duration of the shift. Balloon style lighting is acceptable (paving) when the runway(s) is/are closed. All work area lighting shall remain in the yard or outside the fence until after closure, then mobilized into position. Area lights to be removed from the work site back to the yard before any runway is re-opened.

Contractor shall comply with levels of illumination identified in Table 7 for the specific type and areas of work. Levels are considered minimums. Specific task or work areas may dictate enhanced night lighting for effective construction activities or increased safety.

Minimum Levels of Illumination		
Table 7		
Work Location or Type of Work	Illumination Level	Average Minimum Maintained Illuminance
• Contractor yard. • Contractor employee parking area. • Contractor point of access to airport (gate). • Within airport, haul route change of direction.	Level 1	2 foot-candles
• Haul route point of entry into specific work area. • Earthwork, grading, aggregate base. • Paving, chip seal, and slurry seal operations. • Pavement marking.	Level 2	5 foot-candles
• Electrical. • Drainage excavations, pipe placement, backfill. • Drainage structure placement / construction.	Level 3	10 foot-candles

Contractor to submit a Work Zone Lighting Plan as a project submittal. The document shall identify how proposed minimum levels of illumination are to be met.

23. Protection of Specific and Individual Airport Safety Areas

A significant portion of the work of this project is within either the Runway Object Free Area (ROFA) or the Taxiway Object Free Area (TOFA). In addition, a significant portion of the work of this project is within the Runway Safety Area (RSA) or the Taxiway Safety Area (TSA). The contractor will be allowed to work within RSA's and TSA's during designated runway and taxiway closure periods.

24. Other Limitations on Construction

A. Prohibitions
   a. No person (other than personnel so authorized) shall approach the scene of any emergency unless requested to do so by Airport personnel or as immediate lifesaving requires.
   b. No torch-welding, open flame, material/equipment storage, or disposal of any waste material shall be authorized anywhere on the airport, except at designated locations and unless prior approval from Airport Staff/Engineer has been secured.

B. Restrictions
   a. Construction inspection shall be full time anytime construction is taking place. All inspection and materials testing requirements are identified in the specifications and FAA advisory circulars.
   b. All contractor forces shall comply with Cal-OSHA standards regarding protective headwear, footwear, and eyewear.
   c. Appropriate markers acceptable to the Engineer shall be used to define the work area and hazardous condition within the "safety areas" of the "aircraft maneuvering area."
   d. Trench and excavation cover requirements are included in the specifications for this project. All open trenches, excavations, and stockpiled materials shall be prominently marked and lighted during the hours of restricted visibility and darkness. (Due to the nature of this project and tight physical relationship between areas of work, the runway, and taxiways, no open trenches allowed beyond each work window.)
   e. All closed, deceptive and hazardous areas resulting from construction activities shall be marked and lighted as appropriate.

C. Equipment Height: Prior to the start of construction the Contractor shall provide a schedule of equipment anticipated to be serving this project to include specific heights. The Engineer shall review for confirmation that the equipment height identified in the Air-Space Analysis (FAA 7460-1) appropriately characterized the equipment to be used.

25. Third-Party Provider Obligations

In addition to general contractor forces, compliance with the requirements and obligations of the CSPP fall to all subcontractors, vendors, and service providers, collectively referred to as Third-Party Providers. Third Party Providers include, but are not necessarily limited to:

- Subcontractors
- Bulk material delivery entities (aggregate base, asphalt, concrete, pipe, pre-cast structures)
- Common carrier delivery entities (airfield electrical, signs, minor parts)
- Field mechanics
- Fuel delivery
- Equipment delivery
- Solid waste
- Sanitary service providers
- Field office housekeeping providers
- Field surveyors
- Quality Control and Quality Assurance materials testing entities
- Union representatives and sales forces

The general contractor is responsible for and shall manage 100% of all individuals and entities that enter the secured Airport Operations Area (AOA). This is an active management task, from initiation of project through final completion.

To facilitate and support general contractor management obligations, the contractor shall have on file and shall include in the Safety Plan Compliance Document (SPCD), the letter below, signed by at least two representatives of each Third-Party Provider, before each provider is allowed within the secured airport (electronic file to be provided for general contractor use). Additional, signed letters shall be forwarded to the RPR by third party providers as the need for them develops.

ABC General Contractor Date
Xxx Street
City, State, Zip

Project: Runway 12-30 Surface Treatment
Airport: Bishop Airport, County of Inyo
Subject: Construction Safety Phasing Plan Compliance

Dear Project Manager:

XYZ, a (subcontractor, vendor, service provider), will be working with and serving your firm on this project, to occur within the Airport Operations Area (AOA) of a general aviation airport. The airport will be open and active during our work. Preserving airport perimeter security and performing our tasks within the AOA in a safe manner is paramount to the overall success of the project with concurrent safe, ongoing airport operations.

A Construction Safety Phasing Plan (CSPP) has been prepared specifically for this project. We have reviewed and understand the CSPP, and fully intend to comply with its contents and requirements. We recognize the various financial penalties associated with failure to comply and acknowledge these obligations will be assessed to the general contractor, to be passed down to our firm in the event it is determined we were partially or fully responsible for an incident, accident, incursion, or breach of security.

Airfield Safety:

1. Private vehicles to remain outside the fence.
2. All vehicles to have a functioning amber beacon at night and a safety flag or beacon during the day.
3. Access on and around the airport is restricted. We are not to assume a clear, open path between our location and workers on the airfield.
4. We are to remain clear of all runway and taxiway object free areas unless they are closed or unless we are escorted by an individual maintaining radio contact with active aircraft.
5. Imaginary safety areas are larger than the pavements they serve and protect. Unauthorized access into a safety area is considered an incursion, subject to financial penalty.
6. We are to clean all active airfield pavements of dirt, dust, rock, or other debris after passing.
7. Aircraft have the right-of-way. Maximum vehicle speed on an airport is 15 miles per hour.

National Security:

1. Preserving the secured airport perimeter is a matter of national security.
2. Strict adherence to protocol is required when entering and exiting the airport.
3. Access to the airport and the work site is a privilege that can be revoked at any time.
4. When entering / exiting through an automatic / electric gate, we are required to remain in proximity until the gate comes to a complete close.
5. When entering / exiting through a manual gate, we are to close and fully lock the gate behind us.
6. At any time entering / exiting the airport, we are to be prepared and capable of denying access to anyone that is not in our charge.
7. Those with pre-existing authority to enter the airport will do-so on their own accord and will respect our insistence that they wait until we have completed our movement.

These summary requirements, along with the overall safety and security requirements of this project, as detailed in the CSPP, are understood and acknowledged.

Manager	Staff
Cell Phone	Cell Phone

No third-party provider shall be allowed within the secured airport area without first providing the signed letter to the general contractor. The general contractor shall create and maintain a list of Third-Party Providers that are current and authorized to access the airport.

26. Appendix

The appendix includes four (4) Figures, depicting existing airport conditions including all safety areas, the extend of construction activity, and the location of all support facilities including haul routes, points of access, contractor yards, material borrow / disposal areas, and sources of construction water.

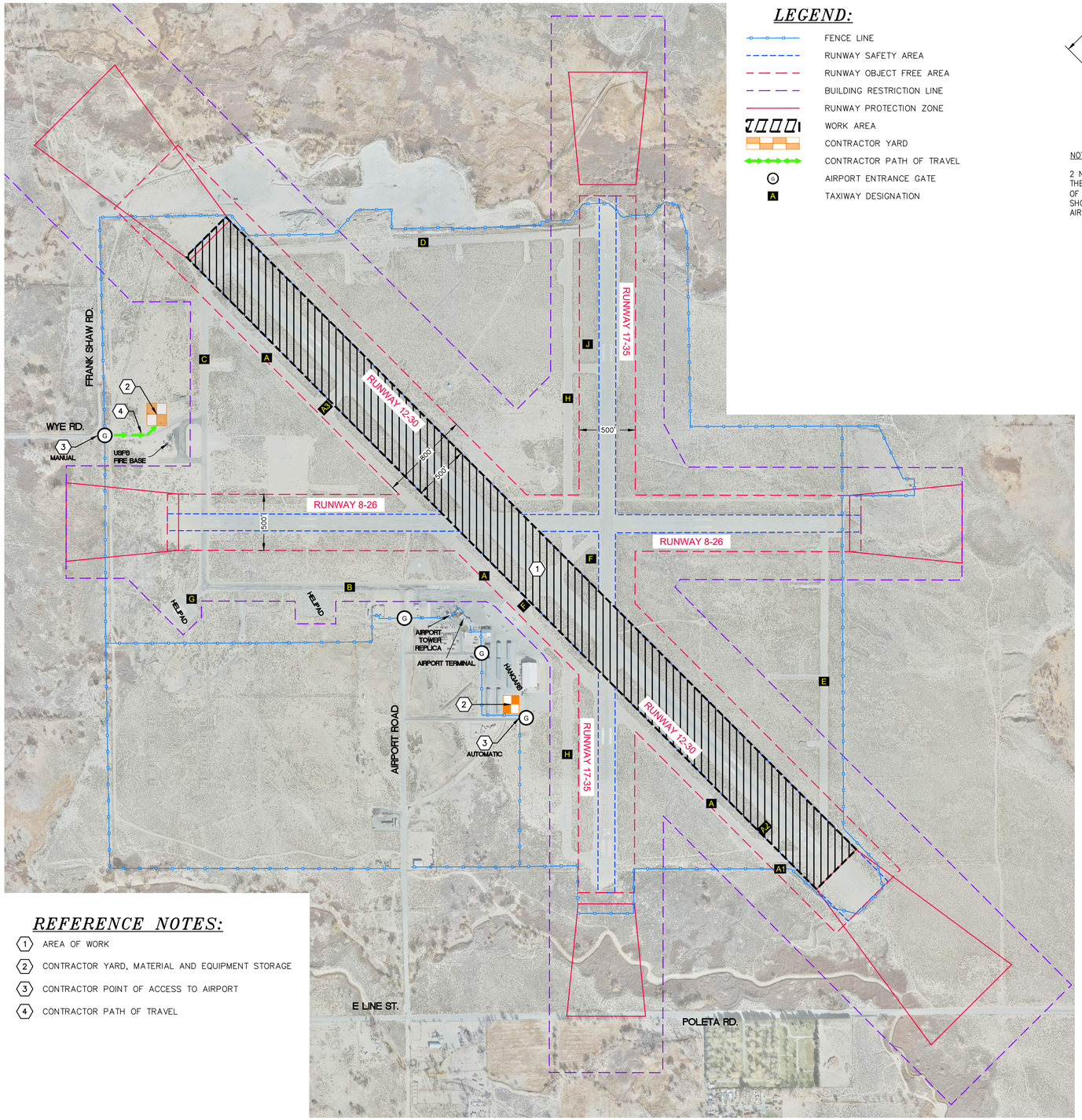
Figure 1: Project Layout Plan

Figure 2: Closure Plan 1: Runway 12-30 Closed

Figure 3: Closure Plan 2: Runway's 12-30 and 8-26 Closed

Figure 4: Closure Plan 3: Runway's 12-30 and 17-35 Closed

End of Text.

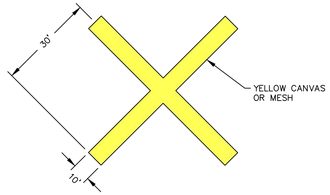


LEGEND:

- FENCE LINE
- RUNWAY SAFETY AREA
- RUNWAY OBJECT FREE AREA
- BUILDING RESTRICTION LINE
- RUNWAY PROTECTION ZONE
- WORK AREA
- CONTRACTOR YARD
- CONTRACTOR PATH OF TRAVEL
- (G) AIRPORT ENTRANCE GATE
- [A] TAXIWAY DESIGNATION

REFERENCE NOTES:

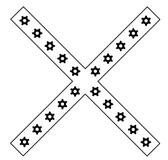
1. AREA OF WORK
2. CONTRACTOR YARD, MATERIAL AND EQUIPMENT STORAGE
3. CONTRACTOR POINT OF ACCESS TO AIRPORT
4. CONTRACTOR PATH OF TRAVEL

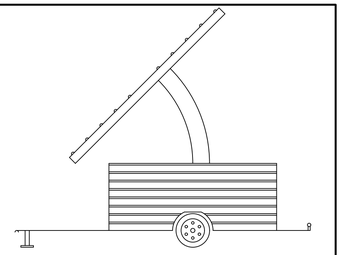


NOTE:

2 NON-LIGHTED, YELLOW MESH CANVAS RUNWAY CLOSURE MARKERS PROVIDED BY THE AIRPORT. PLACE CLOSURE CROSSES IN THE CONFIGURATION SHOWN OVERTOP OF RUNWAY DESIGNATION MARKINGS (NUMERALS) OR IN THE ALTERNATE LOCATION SHOWN ON THE PLANS. CLOSED RUNWAY MARKERS SHALL BE RETURNED TO THE AIRPORT IN GOOD CONDITION AT THE END OF THE PROJECT.

NON-LIGHTED





1. AT THE BEGINING OF THE PROJECT, CONTRACTOR WILL BE PROVIDED WITH TWO (2) TRAILER MOUNTED, LIGHTED RUNWAY CLOSURE MARKERS.
2. CONTRACTOR IS RESPONSIBLE FOR FUELING AND TRANSPORTING THE RUNWAY CLOSURE CROSSES FOR THE DURATION OF THE PROJECT.
3. AT THE END OF THE PROJECT, CONTRACTOR SHALL RETURN THE CLOSURE CROSSES TO THE AIRPORT IN GOOD WORKING CONDITION.

LIGHTED TRAILER MOUNTED

TYPICAL RUNWAY CLOSURE MARKERS

NO SCALE

A 02

GENERAL NOTES:

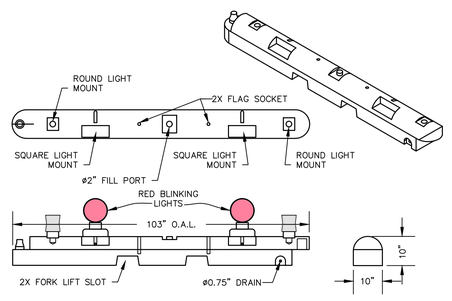
1. UNLESS STATED ELSEWHERE, BISHOP AIRPORT WILL REMAIN OPEN AT ALL TIMES DURING CONSTRUCTION.
2. RUNWAY CLOSED DOES NOT MEAN AIRPORT CLOSED.
3. THE BISHOP AIRPORT AIRBAND FREQUENCY IS 123.0 MHZ. WHILE ON THE AIRFIELD, THE CONTRACTOR SHALL APPOINT A RADIO MONITOR TASKED WITH MONITORING AND LISTENING TO THE RADIO AT ALL TIMES, WITH THE ABILITY TO GUIDE AND DIRECT CONTRACTOR FORCES IF NECESSARY. THE MONITOR SHALL REMAIN CLEAR OF ALL LOUD NOISE (MACHINE, EQUIPMENT) THAT COULD IMPEDE HIS ABILITY TO HEAR AND RESPOND TO RADIO COMMUNICATIONS.
4. BISHOP AIRPORT HAS THREE RUNWAYS: RUNWAY 12-30, RUNWAY 8-26, AND RUNWAY 17-35.
5. EACH RUNWAY INCLUDES ITS OWN RUNWAY SAFETY AREA (RSA).
6. CONTRACTOR FORCES TO REMAIN CLEAR OF THE RSA FOR EVERY RUNWAY UNLESS THAT SPECIFIC RUNWAY IS CLOSED.
7. PRIOR TO BEGINNING WORK ON THIS PROJECT, CONTRACTOR TO RECEIVE AIRPORT-OWNED LIGHTED RUNWAY CLOSURE CROSSES AND NON-LIGHTED RUNWAY CLOSURE CROSS PANELS. THE CONTRACTOR SHALL KEEP AND MAINTAIN ALL CROSSES FOR THE DURATION OF THE PROJECT. AT THE CONCLUSION OF THE WORK THE CONTRACTOR SHALL CLEAN, SERVICE (CHANGE OIL & FILTER - FUEL), NEATLY ROLL NON-LIGHTED PANELS, AND RETURN ALL TO THE AIRPORT.
8. NO EQUIPMENT OR MATERIALS PARKED OR STORED OUTSIDE THE DEFINED LIMITS OF THE CONTRACTOR YARD.
9. WATER FOR CONSTRUCTION IS NOT AVAILABLE AT BISHOP AIRPORT. CONTRACTOR TO SECURE THEIR OWN SOURCE OF WATER, OFF THE AIRPORT.
10. AIRPORT SECURITY PROGRAM:
    - A. CONTRACTOR FORCES TO PROCEED THROUGH BACKGROUND CHECK AND RECEIVE A SECURITY BADGE.
    - B. THE BADGE IS YOUR AUTHORITY TO ACCESS THE AIRPORT.
    - C. BADGED INDIVIDUALS CAN SERVE AS ESCORTS TO NON-BADGED INDIVIDUALS.
    - D. NON-BADGED INDIVIDUALS MUST REMAIN IN CLOSE RANGE (EAR-SHOT) OF THE BADGED ESCORT, AT ALL TIMES.
    - E. ALLOW 2-WEEKS MINIMUM TO SECURE A BADGE.

AIRPORT ACCESS CONTROL PROGRAM:

1. THROUGHOUT THE DURATION OF THIS PROJECT, THE INTEGRITY OF THE AIRPORT PERIMETER SECURITY ELEMENT SHALL REMAIN EQUAL TO OR GREATER THAN PRE-PROJECT CONDITIONS.
2. CONTRACTOR TO BE PREPARED TO DENY ACCESS TO THE AIRPORT TO ANYONE NOT UNDER THEIR CONTROL.
3. ALL VEHICLES AND EQUIPMENT ENTERING AND OPERATING ON THE AIRPORT SHALL HAVE EITHER AN ORANGE AND WHITE CHECKERED FLAG (DAYTIME ONLY) OR A FUNCTIONING AMBER ROTATING BEACON (DAY OR NIGHT) ON THE TOP OF THE VEHICLE, AT OR NEAR THE HIGHEST POINT.
4. MANUAL GATE ACCESS:
    - A. GATE TO BE CLOSED AND LOCKED AT ALL TIMES UNLESS WORKING IN PROXIMITY TO OR ON THE GATE.
    - B. LOCK YOURSELF IN, LOCK YOURSELF OUT.
    - C. NO DUMMY LOCKING THE GATE.
    - D. PROVIDE A SENTRY WHEN MOVING MULTIPLE LOADS, VEHICLES, EQUIPMENT, ETC., INTO OR OUT OF THE AIRPORT.
5. ANYONE WHO IS BADGED WILL RECEIVE A GATE CARD FOR GATE NO. 3.
6. AUTOMATIC GATE ACCESS:
    - A. USE YOUR GIVEN AUTHORITY TO ENTER AND EXIT THE AIRPORT.
    - B. CLEAR THE GATE WHEN MOVING IN EITHER DIRECTION AND REMAIN IN PROXIMITY UNTIL THE GATE COMES TO A COMPLETE CLOSE.
    - C. USE YOUR VEHICLE IF NECESSARY TO PROHIBIT UNAUTHORIZED AIRPORT ENTRY.
    - D. CONTRACTOR IS FULLY RESPONSIBLE FOR INDIVIDUALS, VEHICLES, AND EQUIPMENT THAT ENTER THE GATE BEHIND HIM.
    - E. ON MATERIAL IMPORT DAYS THE GATE WILL BE PARKED IN THE OPEN POSITION. PROVIDE A CONTINUOUSLY PRESENT SENTRY TO MONITOR AND CONTROL ACCESS.
    - F. DO NOT ATTEMPT TO ACCOMMODATE ACCESS OF VEHICLES OR INDIVIDUALS NOT IN YOUR CHARGE. ALL AUTHORIZED INDIVIDUALS WILL RESPECT YOUR EFFORTS TO PRESERVE AIRPORT PERIMETER SECURITY.
    - G. REPORT GATE ISSUES TO THE AIRPORT IMMEDIATELY.

RUNWAY CLOSURE NOTES:

1. CONTRACTOR FORCES TO REMAIN CLEAR (OUTSIDE) OF THE RUNWAY SAFETY AREA (RSA) UNLESS THE RUNWAY IS CLOSED.
2. AT LEAST ONE RUNWAY AT BISHOP AIRPORT WILL REMAIN OPEN AT ALL TIMES.
3. AUTHORIZED RUNWAY CLOSURE PERIODS:
    - A. RUNWAY 12-30: 24-HOURS A DAY, 7 DAYS A WEEK
    - B. RUNWAY 8-26: 0700 - 1600, LOCAL TIME, MONDAY - FRIDAY.
    - C. RUNWAY 17-35: 2100 - 0600, LOCAL TIME, SUNDAY NIGHT - FRIDAY MORNING.
    - D. NO HOLIDAY CLOSURES OF RUNWAY 8-26 AND RUNWAY 17-35.
4. CONTRACTOR TO SCHEDULE RUNWAY CLOSURES A MINIMUM OF SEVEN (7) DAYS IN ADVANCE AND CONFIRM A NOTAM HAS BEEN ISSUED BEFORE PROCEEDING.
5. CONTRACTOR TO INSTALL AND MAINTAIN RUNWAY CLOSURE CROSSES (LIGHTED AND / OR NON-LIGHTED, AS SHOWN) FOR THE DURATION OF EACH CLOSURE.
6. FOR NON-LIGHTED CLOSURE CROSS PANELS, CONTRACTOR SHALL PROVIDE ADEQUATE WEIGHTS (DELINEATOR BASES) TO HOLD PANELS TO THE GROUND IN THE CROSS CONFIGURATION.
7. CONTRACTOR TO INSTALL AND MAINTAIN TAXIWAY CLOSURE DELINEATION AT LOCATIONS SHOWN, TO PREVENT AIRCRAFT FROM ACCESSING CLOSED RUNWAYS. DELINEATION TO BE PRESERVED AND MAINTAINED FOR THE DURATION OF EACH CLOSURE.
8. RUNWAYS AND ASSOCIATED CLOSED TAXIWAYS SHALL BE INSPECTED AND RE-OPENED BEFORE THE END OF EACH AUTHORIZED CLOSURE PERIOD. ALLOW AMPLE TIME FOR RE-SWEEPING AIRFIELD PAVEMENTS BEFORE RE-OPENING.

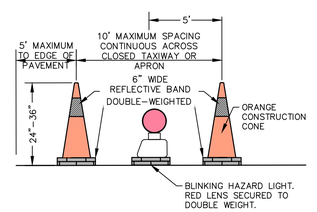


1. CONTRACTOR CAN ELECT EITHER 3 LED/SOLAR OR TWO BATTERY POWER LIGHTS PER DELINEATOR.
2. DELINEATORS TO BE PLACED EITHER INTERLOCKED OR SPACED WITH A 10' MAXIMUM GAP.
3. DELINEATORS TO BE WEIGHTED WITH SAND BAGS OR WATER.

LOW PROFILE LIGHTED DELINEATOR DETAIL

NO SCALE

B 02



CONE DELINEATION DETAIL

NO SCALE

C 02

SCALE BAR

0 250 500 1000

1 inch = 500 ft.

UNDERGROUND SERVICE ALERT

811

DIAL 811

TWO WORKING DAYS BEFORE YOU DIG

PROJECT LAYOUT PLAN

OVERALL VIEW

REV.	DESCRIPTION	DATE	APP.
A	-	-	-

TARTAGLIA ENGINEERING

BISHOP AIRPORT

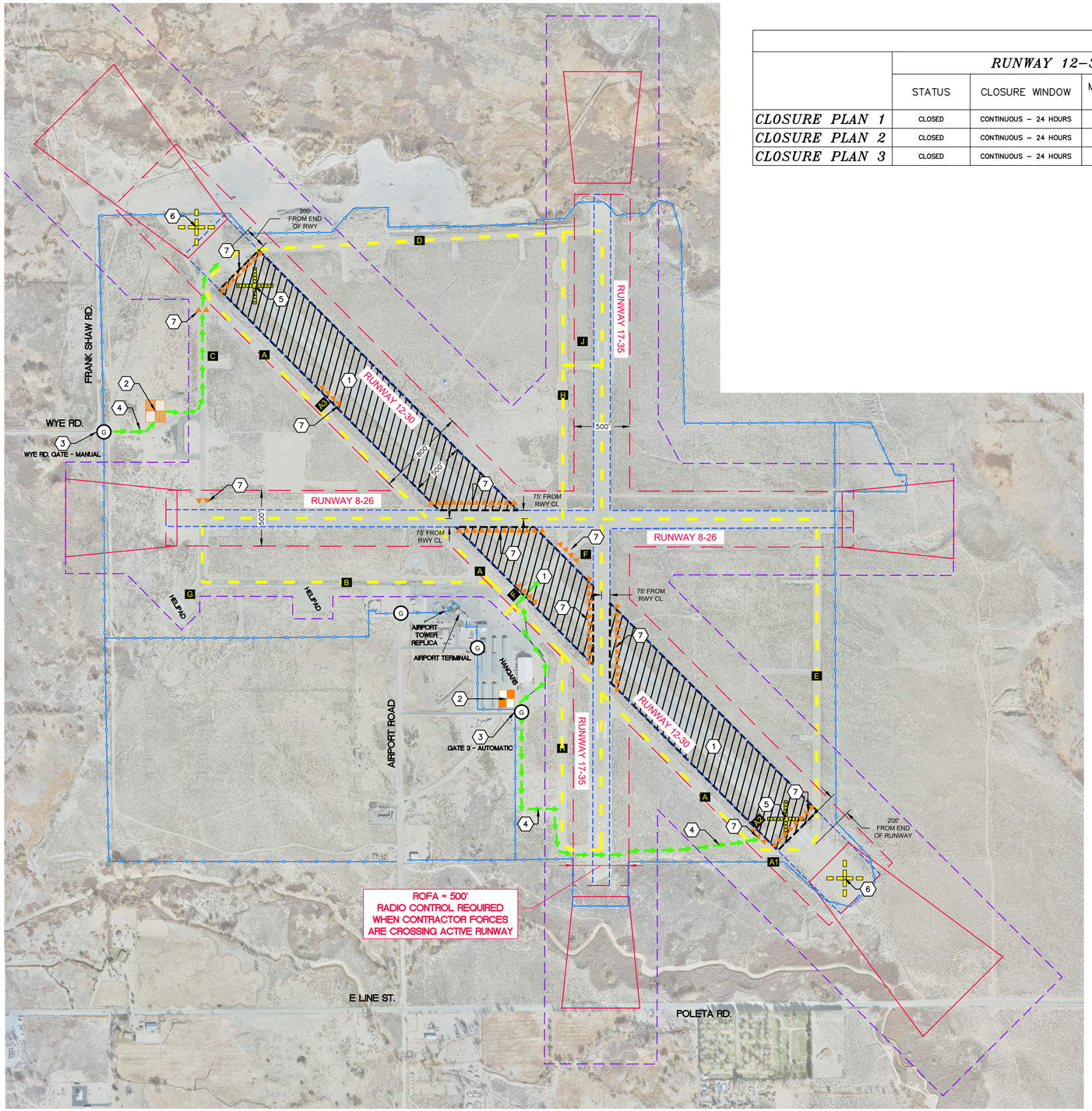
A County of Inyo Aviation Facility

RUNWAY 12-30 SURFACE TREATMENT

REGISTERED PROFESSIONAL ENGINEER JOHN A. SMITH No. 46852 EXP. 6-30-25 CIVIL STATE OF CALIFORNIA

DESIGN	JTH
DRAWN	NJG
CHECKED	JAS
DWG.NO.	24-31
DATE	05/13/2024
SHEET	02 of 12

PLOT DATE:6/17/2024



RUNWAY CLOSURE PLAN OVERVIEW

	RUNWAY 12–30			RUNWAY 8–26			RUNWAY 17–35		
	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES
CLOSURE PLAN 1	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	OPEN	N/A	N/A	OPEN	N/A	N/A
CLOSURE PLAN 2	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	CLOSED	DAY SHIFT	10 SHIFTS	OPEN	N/A	N/A
CLOSURE PLAN 3	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	OPEN	N/A	N/A	CLOSED	NIGHT SHIFT	10 SHIFTS

WITH ADVANCE NOTICE TO THE AIRPORT, THE CONTRACTOR IS TO IMPLEMENT CLOSURE PLAN 1, 2, OR 3 AT HIS DISCRETION, WITHIN THE CONSTRAINED NUMBER OF SHIFTS ALLOCATED FOR EACH CLOSURE PLAN, AS NECESSARY TO COMPLETE THE WORK.

REFERENCE NOTES (SHEETS 3–5):

1. AREA OF WORK
2. CONTRACTOR YARD, MATERIAL AND EQUIPMENT STORAGE
3. CONTRACTOR POINT OF ACCESS TO AIRPORT
4. CONTRACTOR PATH OF TRAVEL
5. LIGHTED CLOSURE CROSSES
6. LIGHTED CLOSURE CROSSES – ALTERNATE LOCATION
7. TAXIWAY CLOSURE DELINEATION, IN ACCORDANCE WITH DETAIL B OR C, SHEET 2.
8. NON–LIGHTED CLOSURE CROSSES

LEGEND (SHEETS 3–5):

- FENCE LINE
- RUNWAY SAFETY AREA
- RUNWAY OBJECT FREE AREA
- BUILDING RESTRICTION LINE
- RUNWAY PROTECTION ZONE
- WORK AREA
- CONTRACTOR YARD
- CONTRACTOR PATH OF TRAVEL
- AIRPORT ENTRANCE GATE
- LIGHTED CLOSURE CROSS
- LIGHTED CLOSURE CROSS–SECONDARY LOCATION
- NON–LIGHTED CLOSURE CROSS
- TAXIWAY DESIGNATION
- PAVEMENT CLOSED DELINEATION
- AIRCRAFT PATH OF TRAVEL

SCALE BAR
0 250 500 1000
1 inch = 500 ft.

UNDERGROUND SERVICE ALERT
811
DIAL 811
TWO WORKING DAYS BEFORE YOU DIG

CLOSURE PLAN 1
RUNWAY 12-30 CLOSED

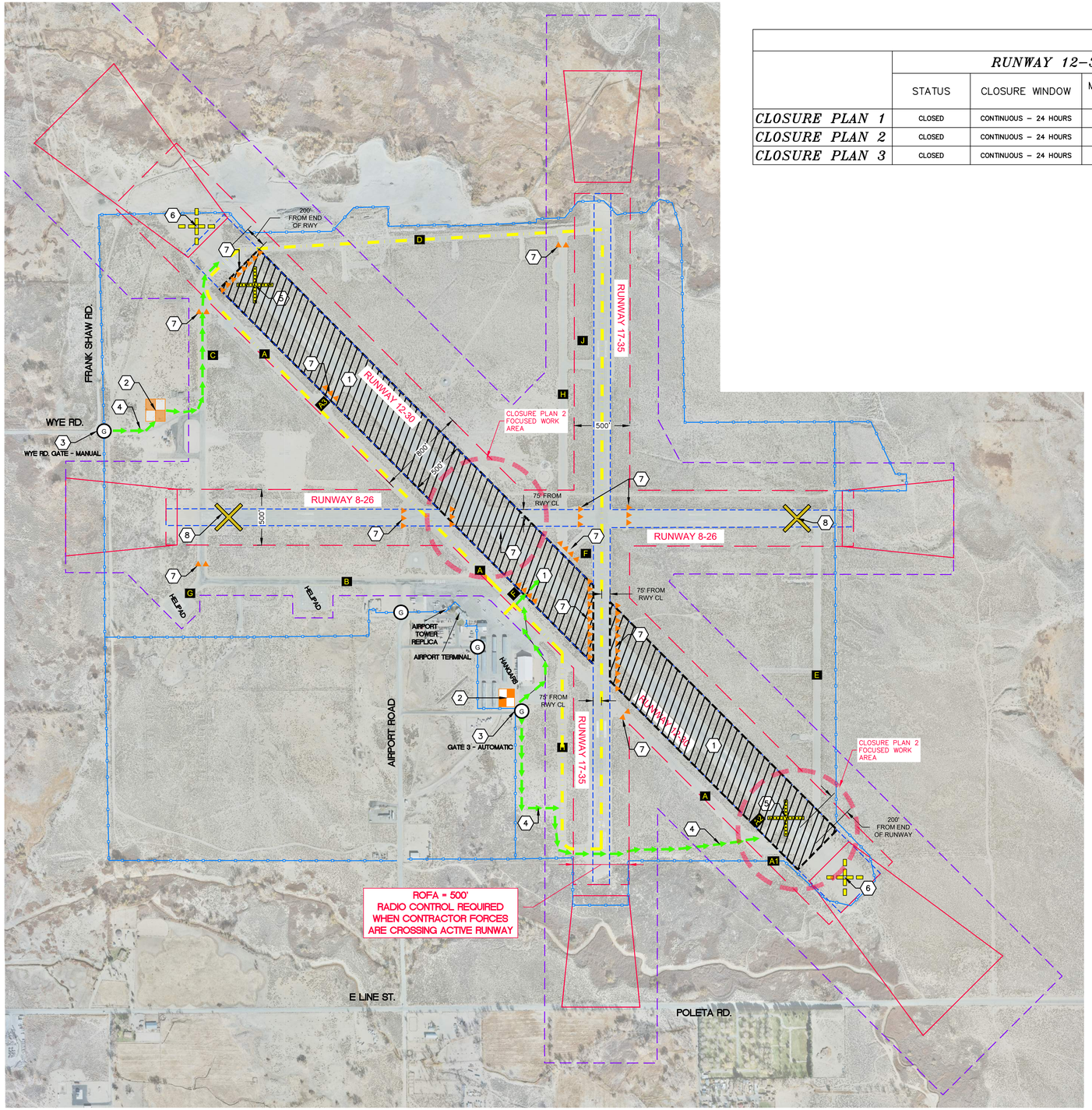
REV.	DESCRIPTION	DATE	APP.
A	–	–	–

TARTAGLIA ENGINEERING
BISHOP AIRPORT
A County of Inyo Aviation Facility
RUNWAY 12-30 SURFACE TREATMENT

REGISTERED PROFESSIONAL ENGINEER
JOHN A. SMITH
No. 46852
EXP. 6-30-25
CIVIL
STATE OF CALIFORNIA

DESIGN JTH
DRAWN NJG
CHECKED JAS
DWG.NO. 24-31
DATE 05/13/2024
SHEET 03 OF 12

PLOT DATE=6/26/2024



RUNWAY CLOSURE PLAN OVERVIEW

	RUNWAY 12–30			RUNWAY 8–26			RUNWAY 17–35		
	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES
CLOSURE PLAN 1	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	OPEN	N/A	N/A	OPEN	N/A	N/A
CLOSURE PLAN 2	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	CLOSED	DAY SHIFT	10 SHIFTS	OPEN	N/A	N/A
CLOSURE PLAN 3	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	OPEN	N/A	N/A	CLOSED	NIGHT SHIFT	10 SHIFTS

WITH ADVANCE NOTICE TO THE AIRPORT, THE CONTRACTOR IS TO IMPLEMENT CLOSURE PLAN 1, 2, OR 3 AT HIS DISCRETION, WITHIN THE CONSTRAINED NUMBER OF SHIFTS ALLOCATED FOR EACH CLOSURE PLAN, AS NECESSARY TO COMPLETE THE WORK.

REFERENCE NOTES (SHEETS 3–5):

1. AREA OF WORK
2. CONTRACTOR YARD, MATERIAL AND EQUIPMENT STORAGE
3. CONTRACTOR POINT OF ACCESS TO AIRPORT
4. CONTRACTOR PATH OF TRAVEL
5. LIGHTED CLOSURE CROSSES
6. LIGHTED CLOSURE CROSSES – ALTERNATE LOCATION
7. TAXIWAY CLOSURE DELINEATION, IN ACCORDANCE WITH DETAIL B OR C, SHEET 2.
8. NON–LIGHTED CLOSURE CROSSES

LEGEND (SHEETS 3–5):

- FENCE LINE
- RUNWAY SAFETY AREA
- RUNWAY OBJECT FREE AREA
- BUILDING RESTRICTION LINE
- RUNWAY PROTECTION ZONE
- WORK AREA
- CONTRACTOR YARD
- CONTRACTOR PATH OF TRAVEL
- AIRPORT ENTRANCE GATE
- LIGHTED CLOSURE CROSS
- LIGHTED CLOSURE CROSS–SECONDARY LOCATION
- NON–LIGHTED CLOSURE CROSS
- TAXIWAY DESIGNATION
- PAVEMENT CLOSED DELINEATION
- AIRCRAFT PATH OF TRAVEL

SCALE BAR
0 250 500 1000
1 inch = 500 ft.

UNDERGROUND SERVICE ALERT
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DIAL 811
TWO WORKING DAYS BEFORE YOU DIG

CLOSURE PLAN 2

RUNWAY 12-30 & RUNWAY 8-26 CLOSED

REV.	DESCRIPTION	DATE	APP.
A	–	–	–

TARTAGLIA ENGINEERING

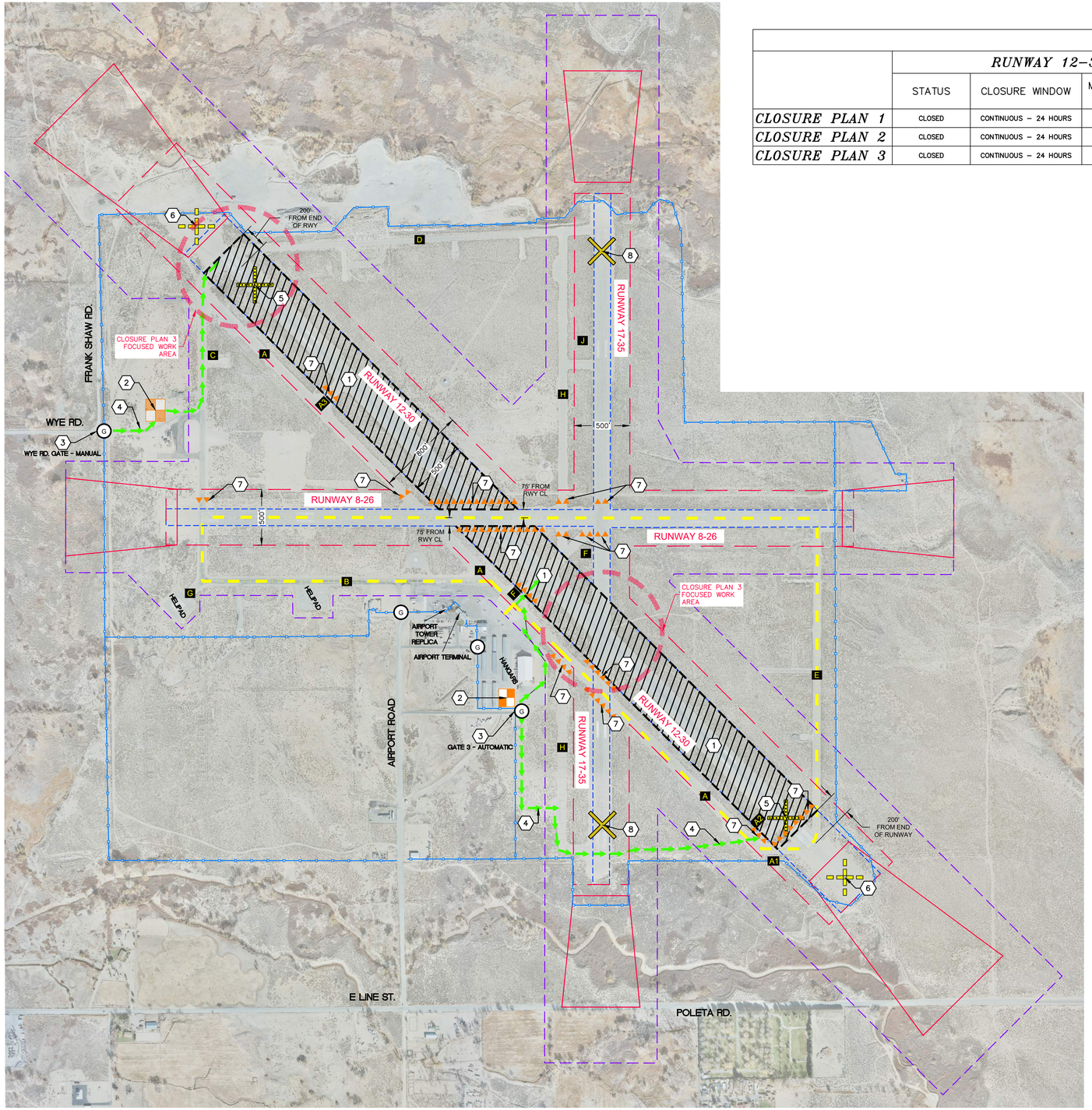
BISHOP AIRPORT
A County of Inyo Aviation Facility

RUNWAY 12-30 SURFACE TREATMENT

REGISTERED PROFESSIONAL ENGINEER
JOHN A. SMITH
No. 46852
EXP. 6-30-25
CIVIL
STATE OF CALIFORNIA

DESIGN JTH
DRAWN NJG
CHECKED JAS
DWG.NO. 24-31
DATE 05/13/2024
SHEET 04 OF 12

PLOT DATE: 6/26/2024



RUNWAY CLOSURE PLAN OVERVIEW

	RUNWAY 12–30			RUNWAY 8–26			RUNWAY 17–35		
	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES	STATUS	CLOSURE WINDOW	MAXIMUM ALLOWABLE CLOSURES
CLOSURE PLAN 1	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	OPEN	N/A	N/A	OPEN	N/A	N/A
CLOSURE PLAN 2	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	CLOSED	DAY SHIFT	10 SHIFTS	OPEN	N/A	N/A
CLOSURE PLAN 3	CLOSED	CONTINUOUS – 24 HOURS	NO RESTRICTIONS	OPEN	N/A	N/A	CLOSED	NIGHT SHIFT	10 SHIFTS

WITH ADVANCE NOTICE TO THE AIRPORT, THE CONTRACTOR IS TO IMPLEMENT CLOSURE PLAN 1, 2, OR 3 AT HIS DISCRETION, WITHIN THE CONSTRAINED NUMBER OF SHIFTS ALLOCATED FOR EACH CLOSURE PLAN, AS NECESSARY TO COMPLETE THE WORK.

REFERENCE NOTES (SHEETS 3–5):

1. AREA OF WORK
2. CONTRACTOR YARD, MATERIAL AND EQUIPMENT STORAGE
3. CONTRACTOR POINT OF ACCESS TO AIRPORT
4. CONTRACTOR PATH OF TRAVEL
5. LIGHTED CLOSURE CROSSES
6. LIGHTED CLOSURE CROSSES – ALTERNATE LOCATION
7. TAXIWAY CLOSURE DELINEATION, IN ACCORDANCE WITH DETAIL B OR C, SHEET 2.
8. NON–LIGHTED CLOSURE CROSSES

LEGEND (SHEETS 3–5):

- FENCE LINE
- RUNWAY SAFETY AREA
- RUNWAY OBJECT FREE AREA
- BUILDING RESTRICTION LINE
- RUNWAY PROTECTION ZONE
- WORK AREA
- CONTRACTOR YARD
- CONTRACTOR PATH OF TRAVEL
- AIRPORT ENTRANCE GATE
- LIGHTED CLOSURE CROSS
- LIGHTED CLOSURE CROSS–SECONDARY LOCATION
- NON–LIGHTED CLOSURE CROSS
- TAXIWAY DESIGNATION
- PAVEMENT CLOSED DELINEATION
- AIRCRAFT PATH OF TRAVEL

SCALE BAR
0 250 500 1000
1 inch = 500 ft.

UNDERGROUND SERVICE ALERT
811
DIAL 811
TWO WORKING DAYS BEFORE YOU DIG

CLOSURE PLAN 3

RUNWAY 12-30 & RUNWAY 17-35 CLOSED

REV.	DESCRIPTION	DATE	APP.
1	–	–	–

TARTAGLIA ENGINEERING
BISHOP AIRPORT
A County of Inyo Aviation Facility
RUNWAY 12-30 SURFACE TREATMENT

REGISTERED PROFESSIONAL ENGINEER
JOHN A. SMITH
No. 46852
EXP. 6-30-25
CIVIL
STATE OF CALIFORNIA

DESIGN JTH
DRAWN NJG
CHECKED JAS
DWG.NO. 24-31
DATE 05/13/2024
SHEET 05 OF 12

PLOT DATE: 5/24/2024

APPENDIX B
FAA AC - OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION

U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Operational Safety on Airports During Construction	**Date:** 12/13/2017 **Initiated By:** AAS-100	**AC No:** 150/5370-2G **Change:**

1 **Purpose.**

This AC sets forth guidelines for operational safety on airports during construction.

2 **Cancellation.**

This AC cancels AC 150/5370-2F, *Operational Safety on Airports during Construction*, dated September 29, 2011.

3 **Application.**

This AC assists airport operators in complying with Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. For those certificated airports, this AC provides one way, but not the only way, of meeting those requirements. The use of this AC is mandatory for those airport construction projects receiving funds under the Airport Improvement Program (AIP). See Grant Assurance No. 34, *Policies, Standards, and Specifications*. While we do not require non-certificated airports without grant agreements or airports using Passenger Facility Charge (PFC) Program funds for construction projects to adhere to these guidelines, we recommend that they do so to help these airports maintain operational safety during construction.

4 **Related Documents.**

ACs and Orders referenced in the text of this AC do not include a revision letter, as they refer to the latest version. Appendix A contains a list of reading material on airport construction, design, and potential safety hazards during construction, as well as instructions for obtaining these documents.

5 **Principal Changes.**

The AC incorporates the following principal changes:

1. Notification about impacts to both airport owned and FAA-owned NAVAIDs was added. See paragraph 2.13.5.3, NAVAIDs.

2. Guidance for the use of orange construction signs was added. See paragraph 2.18.4.2, Temporary Signs.
3. Open trenches or excavations may be permitted in the taxiway safety area while the taxiway is open to aircraft operations, subject to restrictions. See paragraph 2.22.3.4, Excavations.
4. Guidance for temporary shortened runways and displaced thresholds has been enhanced. See Figure 2-1 and Figure 2-2.
5. Figures have been improved and a new Appendix F on the placement of orange construction signs has been added.

Hyperlinks (allowing the reader to access documents located on the internet and to maneuver within this document) are provided throughout this document and are identified with underlined text. When navigating within this document, return to the previously viewed page by pressing the "ALT" and " ←" keys simultaneously.

Figures in this document are schematic representations and are not to scale.

6 **Use of Metrics.**

Throughout this AC, U.S. customary units are used followed with "soft" (rounded) conversion to metric units. The U.S. customary units govern.

7 **Where to Find this AC.**

You can view a list of all ACs at http://www.faa.gov/regulations_policies/advisory_circulars/. You can view the Federal Aviation Regulations at http://www.faa.gov/regulations_policies/faa_regulations/.

8 **Feedback on this AC.**

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.

John R. Dermody
Director of Airport Safety and Standards

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CHAPTER 1. PLANNING AN AIRFIELD CONSTRUCTION PROJECT

1.1 Overview.

Airports are complex environments, and procedures and conditions associated with construction activities often affect aircraft operations and can jeopardize operational safety. Safety considerations are paramount and may make operational impacts unavoidable. However, careful planning, scheduling, and coordination of construction activities can minimize disruption of normal aircraft operations and avoid situations that compromise the airport's operational safety. The airport operator must understand how construction activities and aircraft operations affect one another to be able to develop an effective plan to complete the project. While the guidance in this AC is primarily used for construction operations, the concepts, methods and procedures described may also enhance the day-to-day airport maintenance operations, such as lighting maintenance and snow removal operations.

1.2 Plan for Safety.

Safety, maintaining aircraft operations, and construction costs are all interrelated. Since safety must not be compromised, the airport operator must strike a balance between maintaining aircraft operations and construction costs. This balance will vary widely depending on the operational needs and resources of the airport and will require early coordination with airport users and the FAA. As the project design progresses, the necessary construction locations, activities, and associated costs will be identified and their impact to airport operations must be assessed. Adjustments are made to the proposed construction activities, often by phasing the project, and/or to airport operations to maintain operational safety. This planning effort will ultimately result in a project Construction Safety and Phasing Plan (CSPP). The development of the CSPP takes place through the following five steps:

1.2.1 Identify Affected Areas.

The airport operator must determine the geographic areas on the airport affected by the construction project. Some, such as a runway extension, will be defined by the project. Others may be variable, such as the location of haul routes and material stockpiles.

1.2.2 Describe Current Operations.

Identify the normal airport operations in each affected area for each phase of the project. This becomes the baseline from which the impact on operations by construction activities can be measured. This should include a narrative of the typical users and aircraft operating within the affected areas. It should also include information related to airport operations: the Aircraft Approach Category (AAC) and Airplane Design Group (ADG) of the airplanes that operate on each runway; the ADG and Taxiway Design Group (TDG)[1] for each affected taxiway; designated approach visibility minimums;

[1] Find Taxiway Design Group information in AC 150/5300-13, *Airport Design.*

available approach and departure procedures; most demanding aircraft; declared distances; available air traffic control services; airport Surface Movement Guidance and Control System (SMGCS) plan; and others. The applicable seasons, days and times for certain operations should also be identified as applicable.

1.2.3 Allow for Temporary Changes to Operations.

To the extent practical, current airport operations should be maintained during the construction. In consultation with airport users, Aircraft Rescue and Fire Fighting (ARFF) personnel, and FAA Air Traffic Organization (ATO) personnel, the airport operator should identify and prioritize the airport's most important operations. The construction activities should be planned, through project phasing if necessary, to safely accommodate these operations. When the construction activities cannot be adjusted to safely maintain current operations, regardless of their importance, then the operations must be revised accordingly. Allowable changes include temporary revisions to approach procedures, restricting certain aircraft to specific runways and taxiways, suspension of certain operations, decreased weights for some aircraft due to shortened runways, and other changes. An example of a table showing temporary operations versus current operations is shown in Appendix E.

1.2.4 Take Required Measures to Revise Operations.

Once the level and type of aircraft operations to be maintained are identified, the airport operator must determine the measures required to safely conduct the planned operations during the construction. These measures will result in associated costs, which can be broadly interpreted to include not only direct construction costs, but also loss of revenue from impacted operations. Analysis of costs may indicate a need to reevaluate allowable changes to operations. As aircraft operations and allowable changes will vary widely among airports, this AC presents general guidance on those subjects.

1.2.5 Manage Safety Risk.

The FAA is committed to incorporating proactive safety risk management (SRM) tools into its decision-making processes. FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS)*, requires the FAA to conduct a Safety Assessment for certain triggering actions. Certain airport projects may require the airport operator to provide a Project Proposal Summary to help the FAA determine whether a Safety Assessment is required prior to FAA approval of the CSPP. The airport operator must coordinate with the appropriate FAA Airports Regional or District Office early in the development of the CSPP to determine the need for a Safety Risk Assessment. If the FAA requires an assessment, the airport operator must at a minimum:

1. Notify the appropriate FAA Airports Regional or District Office during the project "scope development" phase of any project requiring a CSPP.
2. Provide documents identified by the FAA as necessary to conduct SRM.
3. Participate in the SRM process for airport projects.
4. Provide a representative to participate on the SRM panel.

5. Ensure that all applicable SRM identified risks elements are recorded and mitigated within the CSPP.

1.3 **Develop a Construction Safety and Phasing Plan (CSPP).**

Development of an effective CSPP will require familiarity with many other documents referenced throughout this AC. See Appendix A for a list of related reading material.

1.3.1 List Requirements.

A CSPP must be developed for each on-airfield construction project funded by the Airport Improvement Program (AIP) or located on an airport certificated under Part 139. For on-airfield construction projects at Part 139 airports funded without AIP funds, the preparation of a CSPP represents an acceptable method the certificate holder may use to meet Part 139 requirements during airfield construction activity. As per FAA Order 5200.11, projects that require Safety Assessments do not include construction, rehabilitation, or change of any facility that is entirely outside the air operations area, does not involve any expansion of the facility envelope and does not involve construction equipment, haul routes or placement of material in locations that require access to the air operations area, increase the facility envelope, or impact line-of-sight. Such facilities may include passenger terminals and parking or other structures. However, extraordinary circumstances may trigger the need for a Safety Assessment and a CSPP. The CSPP is subject to subsequent review and approval under the FAA's Safety Risk Management procedures (see paragraph 1.2.5).

1.3.2 Prepare a Safety Plan Compliance Document (SPCD).

The Safety Plan Compliance Document (SPCD) details how the contractor will comply with the CSPP. Also, it will not be possible to determine all safety plan details (for example specific hazard equipment and lighting, contractor's points of contact, construction equipment heights) during the development of the CSPP. The successful contractor must define such details by preparing an SPCD that the airport operator reviews for approval prior to issuance of a notice-to-proceed. The SPCD is a subset of the CSPP, similar to how a shop drawing review is a subset to the technical specifications.

1.3.3 Assume Responsibility for the CSPP.

The airport operator is responsible for establishing and enforcing the CSPP. The airport operator may use the services of an engineering consultant to help develop the CSPP. However, writing the CSPP cannot be delegated to the construction contractor. Only those details the airport operator determines cannot be addressed before contract award are developed by the contractor and submitted for approval as the SPCD. The SPCD does not restate nor propose differences to provisions already addressed in the CSPP.

1.4 Who Is Responsible for Safety During Construction?

1.4.1 Establish a Safety Culture.

Everyone has a role in operational safety on airports during construction: the airport operator, the airport's consultants, the construction contractor and subcontractors, airport users, airport tenants, ARFF personnel, Air Traffic personnel, including Technical Operations personnel, FAA Airports Division personnel, and others, such as military personnel at any airport supporting military operations (e.g. national guard or a joint use facility). Close communication and coordination between all affected parties is the key to maintaining safe operations. Such communication and coordination should start at the project scoping meeting and continue through the completion of the project. The airport operator and contractor should conduct onsite safety inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

1.4.2 Assess Airport Operator's Responsibilities.

An airport operator has overall responsibility for all activities on an airport, including construction. This includes the predesign, design, preconstruction, construction, and inspection phases. Additional information on the responsibilities listed below can be found throughout this AC. The airport operator must:

1.4.2.1 Develop a CSPP that complies with the safety guidelines of Chapter 2, Construction Safety and Phasing Plans, and Chapter 3, Guidelines for Writing a CSPP. The airport operator may develop the CSPP internally or have a consultant develop the CSPP for approval by the airport operator. For tenant sponsored projects, approve a CSPP developed by the tenant or its consultant.

1.4.2.2 Require, review and approve the SPCD by the contractor that indicates how it will comply with the CSPP and provides details that cannot be determined before contract award.

1.4.2.3 Convene a preconstruction meeting with the construction contractor, consultant, airport employees and, if appropriate, tenant sponsor and other tenants to review and discuss project safety before beginning construction activity. The appropriate FAA representatives should be invited to attend the meeting. See AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects.* (Note "FAA" refers to the Airports Regional or District Office, the Air Traffic Organization, Flight Standards Service, and other offices that support airport operations, flight regulations, and construction/environmental policies.)

1.4.2.4 Ensure contact information is accurate for each representative/point of contact identified in the CSPP and SPCD.

1.4.2.5 Hold weekly or, if necessary, daily safety meetings with all affected parties to coordinate activities.

1.4.2.6 Notify users, ARFF personnel, and FAA ATO personnel of construction and conditions that may adversely affect the operational safety of the airport via Notices to Airmen (NOTAM) and other methods, as appropriate. Convene a meeting for review and discussion if necessary.

1.4.2.7 Ensure construction personnel know applicable airport procedures and changes to those procedures that may affect their work.

1.4.2.8 Ensure that all temporary construction signs are located per the scheduled list for each phase of the project.

1.4.2.9 Ensure construction contractors and subcontractors undergo training required by the CSPP and SPCD.

1.4.2.10 Ensure vehicle and pedestrian operations addressed in the CSPP and SPCD are coordinated with airport tenants, the airport traffic control tower (ATCT), and construction contractors.

1.4.2.11 At certificated airports, ensure each CSPP and SPCD is consistent with Part 139.

1.4.2.12 Conduct inspections sufficiently frequently to ensure construction contractors and tenants comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

1.4.2.13 Take immediate action to resolve safety deficiencies.

1.4.2.14 At airports subject to 49 CFR Part 1542, *Airport Security*, ensure construction access complies with the security requirements of that regulation.

1.4.2.15 Notify appropriate parties when conditions exist that invoke provisions of the CSPP and SPCD (for example, implementation of low-visibility operations).

1.4.2.16 Ensure prompt submittal of a Notice of Proposed Construction or Alteration (Form 7460-1) for conducting an aeronautical study of potential obstructions such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. A separate form may be filed for each potential obstruction, or one form may be filed describing the entire construction area and maximum equipment height. In the latter case, a separate form must be filed for any object beyond or higher than the originally evaluated area/height. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp. The appropriate FAA Airports Regional or District Office can provide assistance in determining which objects require an aeronautical study.

1.4.2.17 Ensure prompt transmission of the Airport Sponsor Strategic Event Submission, FAA Form 6000-26, located at https://oeaaa.faa.gov/oeaaa/external/content/AIRPORT_SPONSOR_STRATEGIC_EVENT_SUBMISSION_FORM.pdf, to assure proper coordination for NAS Strategic Interruption per Service Level Agreement with ATO.

1.4.2.18 Promptly notify the FAA Airports Regional or District Office of any proposed changes to the CSPP prior to implementation of the change. Changes to the CSPP require review and approval by the airport operator and the FAA. The FAA Airports Regional or District office will determine if further coordination within the FAA is needed. Coordinate with appropriate local and other federal government agencies, such as Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), Transportation Security Administration (TSA), and the state environmental agency.

1.4.3 Define Construction Contractor's Responsibilities.

The contractor is responsible for complying with the CSPP and SPCD. The contractor must:

1.4.3.1 Submit a Safety Plan Compliance Document (SPCD) to the airport operator describing how it will comply with the requirements of the CSPP and supply any details that could not be determined before contract award. The SPCD must include a certification statement by the contractor, indicating an understanding of the operational safety requirements of the CSPP and the assertion of compliance with the approved CSPP and SPCD unless written approval is granted by the airport operator. Any construction practice proposed by the contractor that does not conform to the CSPP and SPCD may impact the airport's operational safety and will require a revision to the CSPP and SPCD and re-coordination with the airport operator and the FAA in advance.

1.4.3.2 Have available at all times copies of the CSPP and SPCD for reference by the airport operator and its representatives, and by subcontractors and contractor employees.

1.4.3.3 Ensure that construction personnel are familiar with safety procedures and regulations on the airport. Provide a point of contact who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport. Many projects will require 24-hour coverage.

1.4.3.4 Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.

1.4.3.5 Conduct sufficient inspections to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

1.4.3.6 Restrict movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate, and as specified in the CSPP and SPCD.

1.4.3.7 Ensure that no contractor employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations area (AOA) from the construction site unless authorized.

1.4.3.8 Ensure prompt submittal through the airport operator of Form 7460-1 for the purpose of conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, and other equipment), stock piles, and haul routes when different from cases previously filed by the airport operator. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

1.4.3.9 Ensure that all necessary safety mitigations are understood by all parties involved, and any special requirements of each construction phase will be fulfilled per the approved timeframe.

1.4.3.10 Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

1.4.4 Define Tenant's Responsibilities.

If planning construction activities on leased property, Airport tenants, such as airline operators, fixed base operators, and FAA ATO/Technical Operations sponsoring construction are strongly encouraged to:

1. Develop, or have a consultant develop, a project specific CSPP and submit it to the airport operator. The airport operator may forgo a complete CSPP submittal and instead incorporate appropriate operational safety principles and measures addressed in the advisory circular within their tenant lease agreements.
2. In coordination with its contractor, develop an SPCD and submit it to the airport operator for approval issued prior to issuance of a Notice to Proceed.
3. Ensure that construction personnel are familiar with safety procedures and regulations on the airport during all phases of the construction.
4. Provide a point of contact of who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport.
5. Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.
6. Ensure that no tenant or contractor employees, employees of subcontractors or suppliers, or any other persons enter any part of the AOA from the construction site unless authorized.
7. Restrict movement of construction vehicles to construction areas by flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate, as specified in the CSPP and SPCD.
8. Ensure prompt submittal through the airport operator of Form 7460-1 for conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.
9. Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

CHAPTER 2. CONSTRUCTION SAFETY AND PHASING PLANS

2.1 Overview.

Aviation safety is the primary consideration at airports, especially during construction. The airport operator's CSPP and the contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard. They must provide information necessary for the Airport Operations department to conduct airfield inspections and expeditiously identify and correct unsafe conditions during construction. All aviation safety provisions included within the project drawings, contract specifications, and other related documents must also be reflected in the CSPP and SPCD.

2.2 Assume Responsibility.

Operational safety on the airport remains the airport operator's responsibility at all times. The airport operator must develop, certify, and submit for FAA approval each CSPP. It is the airport operator's responsibility to apply the requirements of the FAA approved CSPP. The airport operator must revise the CSPP when conditions warrant changes and must submit the revised CSPP to the FAA for approval. The airport operator must also require and approve a SPCD from the project contractor.

2.3 Submit the CSPP.

Construction Safety and Phasing Plans should be developed concurrently with the project design. Milestone versions of the CSPP should be submitted for review and approval as follows. While these milestones are not mandatory, early submission will help to avoid delays. Submittals are preferred in 8.5 × 11 inch or 11 × 17 inch format for compatibility with the FAA's Obstruction Evaluation / Airport Airspace Analysis (OE / AAA) process.

2.3.1 Submit an Outline/Draft.

By the time approximately 25% to 30% of the project design is completed, the principal elements of the CSPP should be established. Airport operators are encouraged to submit an outline or draft, detailing all CSPP provisions developed to date, to the FAA for review at this stage of the project design.

2.3.2 Submit a CSPP.

The CSPP should be formally submitted for FAA approval when the project design is 80 percent to 90 percent complete. Since provisions in the CSPP will influence contract costs, it is important to obtain FAA approval in time to include all such provisions in the procurement contract.

2.3.3 Submit an SPCD.

The contractor should submit the SPCD to the airport operator for approval to be issued prior to the Notice to Proceed.

2.3.4 Submit CSPP Revisions.

All revisions to a previously approved CSPP must be re-submitted to the FAA for review and approval/disapproval action.

2.4 Meet CSPP Requirements.

2.4.1 To the extent possible, the CSPP should address the following as outlined in Chapter 3, Guidelines for Writing a CSPP. Details that cannot be determined at this stage are to be included in the SPCD.

1. Coordination.
    a. Contractor progress meetings.
    b. Scope or schedule changes.
    c. FAA ATO coordination.
2. Phasing.
    a. Phase elements.
    b. Construction safety drawings.
3. Areas and operations affected by the construction activity.
    a. Identification of affected areas.
    b. Mitigation of effects.
4. Protection of navigation aids (NAVAIDs).
5. Contractor access.
    a. Location of stockpiled construction materials.
    b. Vehicle and pedestrian operations.
6. Wildlife management.
    a. Trash.
    b. Standing water.
    c. Tall grass and seeds.
    d. Poorly maintained fencing and gates.
    e. Disruption of existing wildlife habitat.
7. Foreign Object Debris (FOD) management.
8. Hazardous materials (HAZMAT) management.
9. Notification of construction activities.

a. Maintenance of a list of responsible representatives/ points of contact.

b. NOTAM.

c. Emergency notification procedures.

d. Coordination with ARFF Personnel.

e. Notification to the FAA.

10. Inspection requirements.

a. Daily (or more frequent) inspections.

b. Final inspections.

11. Underground utilities.

12. Penalties.

13. Special conditions.

14. Runway and taxiway visual aids. Marking, lighting, signs, and visual NAVAIDs.

a. General.

b. Markings.

c. Lighting and visual NAVAIDs.

d. Signs, temporary, including orange construction signs, and permanent signs.

15. Marking and signs for access routes.

16. Hazard marking and lighting.

a. Purpose.

b. Equipment.

17. Work zone lighting for nighttime construction (if applicable).

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces.

a. Runway Safety Area (RSA).

b. Runway Object Free Area (ROFA).

c. Taxiway Safety Area (TSA). Provide details for any adjustments to Taxiway Safety Area width to allow continued operation of smaller aircraft. See paragraph 2.22.3.

d. Taxiway Object Free Area (TOFA). Provide details for any continued aircraft operations while construction occurs within the TOFA. See paragraph 2.22.4.

e. Obstacle Free Zone (OFZ).

f. Runway approach/departure surfaces.

19. Other limitations on construction.

a. Prohibitions.

b. Restrictions.

2.4.2 The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, "I, (Name of Contractor), have read the (Title of Project) CSPP, approved on (Date), and will abide by it as written and with the following additions as noted:"). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

1. Coordination. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.
2. Phasing. Discuss proposed construction schedule elements, including:
   a. Duration of each phase.
   b. Daily start and finish of construction, including "night only" construction.
   c. Duration of construction activities during:
      i. Normal runway operations.
      ii. Closed runway operations.
      iii. Modified runway "Aircraft Reference Code" usage.
3. Areas and operations affected by the construction activity. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.
4. Protection of NAVAIDs. Discuss specific methods proposed to protect operating NAVAIDs.
5. Contractor access. Provide the following:
   a. Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
   b. Listing of individuals requiring driver training (for certificated airports and as requested).
   c. Radio communications.
      i. Types of radios and backup capabilities.
      ii. Who will be monitoring radios.
      iii. Who to contact if the ATCT cannot reach the contractor's designated person by radio.

d. Details on how the contractor will escort material delivery vehicles.

6. Wildlife management. Discuss the following:
   a. Methods and procedures to prevent wildlife attraction.
   b. Wildlife reporting procedures.
7. Foreign Object Debris (FOD) management. Discuss equipment and methods for control of FOD, including construction debris and dust.
8. Hazardous Materials (HAZMAT) management. Discuss equipment and methods for responding to hazardous spills.
9. Notification of construction activities. Provide the following:
   a. Contractor points of contact.
   b. Contractor emergency contact.
   c. Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.
   d. Batch plant details, including 7460-1 submittal.
10. Inspection requirements. Discuss daily (or more frequent) inspections and special inspection procedures.
11. Underground utilities. Discuss proposed methods of identifying and protecting underground utilities.
12. Penalties. Penalties should be identified in the CSPP and should not require an entry in the SPCD.
13. Special conditions. Discuss proposed actions for each special condition identified in the CSPP.
14. Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:
   a. Equipment and methods for covering signage and airfield lights.
   b. Equipment and methods for temporary closure markings (paint, fabric, other).
   c. Temporary orange construction signs.
   d. Types of temporary Visual Guidance Slope Indicators (VGSI).
15. Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.
16. Hazard marking and lighting. Discuss proposed equipment and methods for identifying excavation areas.
17. Work zone lighting for nighttime construction (if applicable). Discuss proposed equipment, locations, aiming, and shielding to prevent interference with air traffic control and aircraft operations.

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:
    a. Equipment and methods for maintaining Taxiway Safety Area standards.
    b. Equipment and methods to ensure the safe passage of aircraft where Taxiway Safety Area or Taxiway Object Free Area standards cannot be maintained.
    c. Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.
19. Other limitations on construction should be identified in the CSPP and should not require an entry in the SPCD.

2.5 **Coordination.**

Airport operators, or tenants responsible for design, bidding and conducting construction on their leased properties, should ensure at all project developmental stages, such as predesign, prebid, and preconstruction conferences, they capture the subject of airport operational safety during construction (see AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects*). In addition, the following should be coordinated as required:

2.5.1 Progress Meetings.

Operational safety should be a standing agenda item for discussion during progress meetings throughout the project developmental stages.

2.5.2 Scope or Schedule Changes.

Changes in the scope or duration at any of the project stages may require revisions to the CSPP and review and approval by the airport operator and the FAA (see paragraph 1.4.2.17).

2.5.3 FAA ATO Coordination.

Early coordination with FAA ATO is highly recommended during the design phase and is required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. Formal agreements between the airport operator and appropriate FAA offices are recommended. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart. Flight inspections may require a reimbursable agreement between the airport operator and FAA ATO. Reimbursable agreements should be coordinated a minimum of 12 months prior to the start of construction. (See paragraph 2.13.5.3.2 for required FAA notification regarding FAA-owned NAVAIDs.)

2.6 **Phasing.**

Once it has been determined what types and levels of airport operations will be maintained, the most efficient sequence of construction may not be feasible. In this case, the sequence of construction may be phased to gain maximum efficiency while allowing for the required operations. The development of the resulting construction phases should be coordinated with local Air Traffic personnel and airport users. The sequenced construction phases established in the CSPP must be incorporated into the project design and must be reflected in the contract drawings and specifications.

2.6.1 Phase Elements.

For each phase the CSPP should detail:

- Areas closed to aircraft operations.
- Duration of closures.
- Taxi routes and/or areas of reduced TSA and TOFA to reflect reduced ADG use.
- ARFF access routes.
- Construction staging, disposal, and cleanout areas.
- Construction access and haul routes.
- Impacts to NAVAIDs.
- Lighting, marking, and signing changes.
- Available runway length and/or reduced RSA and ROFA to reflect reduced ADG use.
- Declared distances (if applicable).
- Required hazard marking, lighting, and signing.
- Work zone lighting for nighttime construction (if applicable).
- Lead times for required notifications.

2.6.2 Construction Safety Drawings.

Drawings specifically indicating operational safety procedures and methods in affected areas (i.e., construction safety drawings) should be developed for each construction phase. Such drawings should be included in the CSPP as referenced attachments and should also be included in the contract drawing package.

2.7 **Areas and Operations Affected by Construction Activity.**

Runways and taxiways should remain in use by aircraft to the maximum extent possible without compromising safety. Pre-meetings with the FAA ATO will support operational simulations. See Appendix E for an example of a table showing temporary operations versus current operations. The tables in Appendix E can be useful for coordination among all interested parties, including FAA Lines of Business.

2.7.1 Identification of Affected Areas.

Identifying areas and operations affected by the construction helps to determine possible safety problems. The affected areas should be identified in the construction safety drawings for each construction phase. (See paragraph 2.6.2.) Of particular concern are:

2.7.1.1 **Closing, or Partial Closing, of Runways, Taxiways and Aprons, and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing, landing, or takeoff in either direction on that pavement is prohibited. A displaced threshold, by contrast, is established to ensure obstacle clearance and adequate safety area for landing aircraft. The pavement prior to the displaced threshold is normally available for take-off in the direction of the displacement and for landing and takeoff in the opposite direction. Misunderstanding this difference, may result in issuance of an inaccurate NOTAM, and can lead to a hazardous condition.

2.7.1.1.1 Partially Closed Runways.

The temporarily closed portion of a partially closed runway will generally extend from the threshold to a taxiway that may be used for entering and exiting the runway. If the closed portion extends to a point between taxiways, pilots will have to back-taxi on the runway, which is an undesirable operation. See Figure 2-1 for a desirable configuration.

2.7.1.1.2 Displaced Thresholds.

Since the portion of the runway pavement between the permanent threshold and a standard displaced threshold is available for takeoff and for landing in the opposite direction, the temporary displaced threshold need not be located at an entrance/exit taxiway. See Figure 2-2.

2.7.1.2 Closing of aircraft rescue and fire fighting access routes.

2.7.1.3 Closing of access routes used by airport and airline support vehicles.

2.7.1.4 Interruption of utilities, including water supplies for fire fighting.

2.7.1.5 Approach/departure surfaces affected by heights of objects.

2.7.1.6 Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads.

Figure 2-1. Temporary Partially Closed Runway

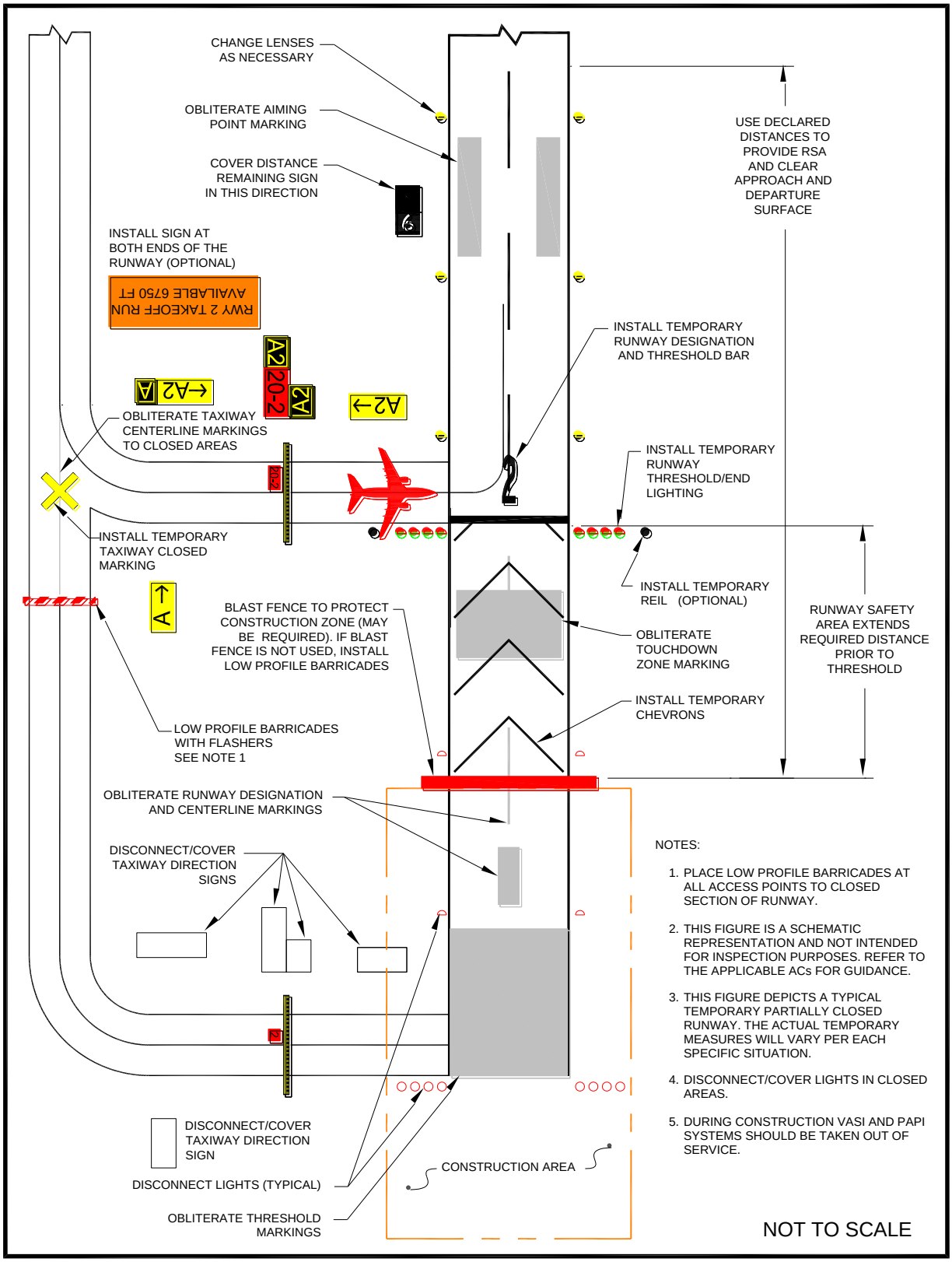
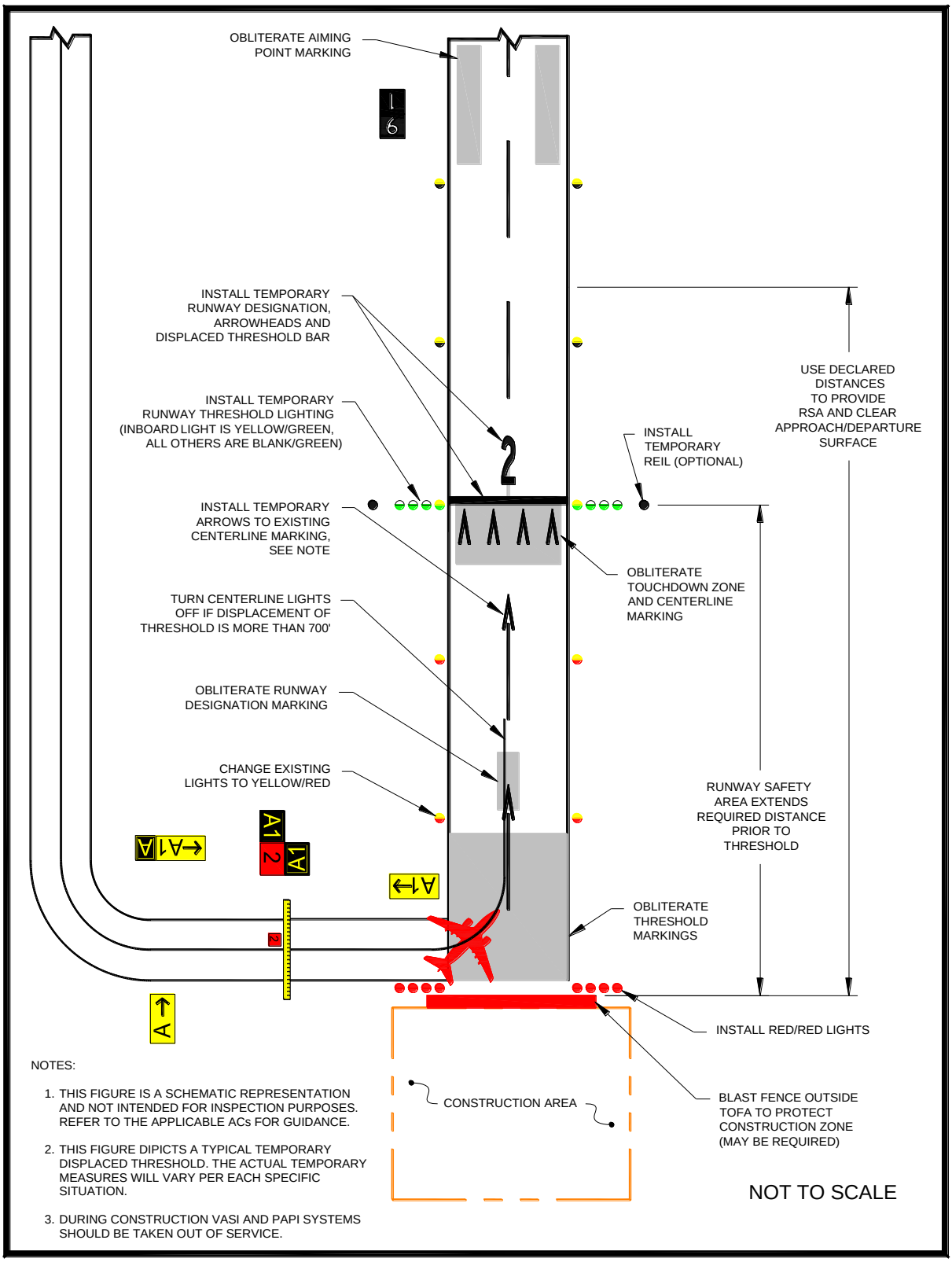


Figure 2-2. Temporary Displaced Threshold



Note: See paragraph 2.18.2.5.

2.7.2 Mitigation of Effects.

Establishment of specific procedures is necessary to maintain the safety and efficiency of airport operations. The CSPP must address:

2.7.2.1 Temporary changes to runway and/or taxi operations.

2.7.2.2 Detours for ARFF and other airport vehicles.

2.7.2.3 Maintenance of essential utilities.

2.7.2.4 Temporary changes to air traffic control procedures. Such changes must be coordinated with the ATO.

2.8 Navigation Aid (NAVAID) Protection.

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. (See paragraph 2.13.5.3.) Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. If any NAVAID may be affected, the CSPP and SPCD must show an understanding of the "critical area" associated with each NAVAID and describe how it will be protected. Where applicable, the operational critical areas of NAVAIDs should be graphically delineated on the project drawings. Pay particular attention to stockpiling material, as well as to movement and parking of equipment that may interfere with line of sight from the ATCT or with electronic emissions. Interference from construction equipment and activities may require NAVAID shutdown or adjustment of instrument approach minimums for low visibility operations. This condition requires that a NOTAM be filed (see paragraph 2.13.2). Construction activities and materials/equipment storage near a NAVAID must not obstruct access to the equipment and instruments for maintenance. Submittal of a 7460-1 form is required for construction vehicles operating near FAA NAVAIDs. (See paragraph 2.13.5.3.)

2.9 Contractor Access.

The CSPP must detail the areas to which the contractor must have access, and explain how contractor personnel will access those areas. Specifically address:

2.9.1 Location of Stockpiled Construction Materials.

Stockpiled materials and equipment storage are not permitted within the RSA and OFZ, and if possible should not be permitted within the Object Free Area (OFA) of an operational runway. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval. The airport operator must ensure that stockpiled materials and equipment adjacent to these areas are prominently marked and lighted during hours of restricted visibility or darkness. (See paragraph 2.18.2.) This includes determining and

verifying that materials are stabilized and stored at an approved location so as not to be a hazard to aircraft operations and to prevent attraction of wildlife and foreign object damage from blowing or tracked material. See paragraphs 2.10 and 2.11.

2.9.2 Vehicle and Pedestrian Operations.

The CSPP should include specific vehicle and pedestrian requirements. 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 operator should coordinate requirements for vehicle operations with airport tenants, contractors, and the FAA air traffic manager. In regard to vehicle and pedestrian operations, the CSPP should include the following, with associated training requirements:

2.9.2.1 **Construction Site Parking.**

Designate in advance vehicle parking areas for contractor employees to prevent any unauthorized entry of persons or vehicles onto the AOA. These areas should provide reasonable contractor employee access to the job site.

2.9.2.2 **Construction Equipment Parking.**

Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids. The FAA must also study those areas to determine effects on airport design criteria, surfaces established by 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), and on NAVAIDs and Instrument Approach Procedures (IAP). See paragraph 2.13.1 for further information.

2.9.2.3 **Access and Haul Roads.**

Determine the construction contractor’s access to the construction sites and haul roads. Do not permit the construction contractor to use any access or haul roads other than those approved. Access routes used by contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Pay special attention to ensure that if construction traffic is to share or cross any ARFF routes that ARFF right of way is not impeded at any time, and that construction traffic on haul

roads does not interfere with NAVAIDs or approach surfaces of operational runways. Address whether access gates will be blocked or inoperative or if a rally point will be blocked or inaccessible.

2.9.2.4 Marking and lighting of vehicles in accordance with AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport.*

2.9.2.5 Description of proper vehicle operations on various areas under normal, lost communications, and emergency conditions.

2.9.2.6 Required escorts.

2.9.2.7 **Training Requirements for Vehicle Drivers to Ensure Compliance with the Airport Operator's Vehicle Rules and Regulations.**

Specific training should be provided to vehicle operators, including those providing escorts. See AC 150/5210-20, *Ground Vehicle Operations on Airports*, for information on training and records maintenance requirements.

2.9.2.8 **Situational Awareness.**

Vehicle drivers must confirm by personal observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time. At non-towered airports, all aircraft movements and flight operations rely on aircraft operators to self-report their positions and intentions. However, there is no requirement for an aircraft to have radio communications. Because aircraft do not always broadcast their positions or intentions, visual checking, radio monitoring, and situational awareness of the surroundings is critical to safety.

2.9.2.9 **Two-Way Radio Communication Procedures.**

2.9.2.9.1 General.

The airport operator must ensure that tenant and construction contractor personnel engaged in activities involving unescorted operation on aircraft movement areas observe the proper procedures for communications, including using appropriate radio frequencies at airports with and without ATCT. When operating vehicles on or near open runways or taxiways, construction personnel must understand the critical importance of maintaining radio contact, as directed by the airport operator, with:

1. Airport operations
2. ATCT

3. Common Traffic Advisory Frequency (CTAF), which may include UNICOM, MULTICOM.
4. Automatic Terminal Information Service (ATIS). This frequency is useful for monitoring conditions on the airport. Local air traffic will broadcast information regarding construction related runway closures and "shortened" runways on the ATIS frequency.

2.9.2.9.2 Areas Requiring Two-Way Radio Communication with the ATCT.

Vehicular traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, signal light, or other means appropriate for the particular airport.

2.9.2.9.3 Frequencies to be Used.

The airport operator will specify the frequencies to be used by the contractor, which may include the CTAF for monitoring of aircraft operations. Frequencies may also be assigned by the airport operator for other communications, including any radio frequency in compliance with Federal Communications Commission requirements. At airports with an ATCT, the airport operator will specify the frequency assigned by the ATCT to be used between contractor vehicles and the ATCT.

2.9.2.9.4 Proper radio usage, including read back requirements.

2.9.2.9.5 Proper phraseology, including the International Phonetic Alphabet.

2.9.2.9.6 Light Gun Signals.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure. See the FAA safety placard "Ground Vehicle Guide to Airport Signs and Markings." This safety placard may be downloaded through the Runway Safety Program Web site at http://www.faa.gov/airports/runway_safety/publications/ (see "Signs & Markings Vehicle Dashboard Sticker") or obtained from the FAA Airports Regional Office.

2.9.2.10 **Maintenance of the secured area of the airport, including:**

2.9.2.10.1 Fencing and Gates.

Airport operators and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people. Procedures should 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. The Department of Transportation (DOT) document DOT/FAA/AR-

00/52, *Recommended Security Guidelines for Airport Planning and Construction*, provides more specific information on fencing. A copy of this document can be obtained from the Airport Consultants Council, Airports Council International, or American Association of Airport Executives.

2.9.2.10.2 Badging Requirements.

Airports subject to 49 CFR Part 1542, *Airport Security*, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel.

2.10 Wildlife Management.

The CSPP and SPCD must be in accordance with the airport operator's wildlife hazard management plan, if applicable. See AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports,* and CertAlert 98-05, *Grasses Attractive to Hazardous Wildlife.* Construction contractors 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 airports, such as:

2.10.1 Trash.

Food scraps must be collected from construction personnel activity.

2.10.2 Standing Water.

2.10.3 Tall Grass and Seeds.

Requirements for turf establishment can be at odds with requirements for wildlife control. Grass seed is attractive to birds. Lower quality seed mixtures can contain seeds of plants (such as clover) that attract larger wildlife. Seeding should comply with the guidance in AC 150/5370-10, *Standards for Specifying Construction of Airports,* Item T-901, Seeding. Contact the local office of the United Sates Department of Agriculture Soil Conservation Service or the State University Agricultural Extension Service (County Agent or equivalent) for assistance and recommendations. These agencies can also provide liming and fertilizer recommendations.

2.10.4 Poorly Maintained Fencing and Gates.

See paragraph 2.9.2.10.1.

2.10.5 Disruption of Existing Wildlife Habitat.

While this will frequently be unavoidable due to the nature of the project, the CSPP should specify under what circumstances (location, wildlife type) contractor personnel should immediately notify the airport operator of wildlife sightings.

2.11 Foreign Object Debris (FOD) Management.

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must not leave or place FOD on or near active aircraft movement areas. Materials capable of creating FOD must be continuously removed during the construction project. Fencing (other than security fencing) or covers may be necessary to contain material that can be carried by wind into areas where aircraft operate. See AC 150/5210-24, *Foreign Object Debris (FOD) Management.*

2.12 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 or hydraulic fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. See AC 150/5320-15, *Management of Airport Industrial Waste.*

2.13 Notification of Construction Activities.

The CSPP and SPCD must detail procedures for the immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport. It must address the notification actions described below, as applicable.

2.13.1 List of Responsible Representatives/points of contact for all involved parties, and procedures for contacting each of them, including after hours.

2.13.2 NOTAMs.

Only the airport operator may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must either enter the NOTAM into NOTAM Manager, or 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 operator must file and maintain a list of authorized representatives with the FSS. Refer to AC 150/5200-28, *Notices to Airmen (NOTAMs) for Airport Operators,* for a sample NOTAM form. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator. See paragraph 2.7.1.1 about issuing NOTAMs for partially closed runways versus runways with displaced thresholds.

2.13.3 Emergency notification procedures for medical, fire fighting, and police response.

2.13.4 Coordination with ARFF.

The CSPP must detail procedures for coordinating through the airport sponsor with ARFF personnel, mutual aid providers, and other emergency services if construction requires:

1. The deactivation and subsequent reactivation of water lines or fire hydrants, or
2. The rerouting, blocking and restoration of emergency access routes, or
3. The use of hazardous materials on the airfield.

2.13.5 Notification to the FAA.

2.13.5.1 **Part 77.**

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, other equipment) on airports. FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, can be used for this purpose and submitted to the appropriate FAA Airports Regional or District Office. See Appendix A to download the form. Further guidance is available on the FAA web site at oeaaa.faa.gov.

2.13.5.2 **Part 157.**

With some exceptions, Title 14 CFR Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports*, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project 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. Notification involves submitting FAA Form 7480-1, *Notice of Landing Area Proposal*, to the nearest FAA Airports Regional or District Office. See Appendix A to download the form.

2.13.5.3 **NAVAIDs.**

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

2.13.5.3.1 Airport Owned/FAA Maintained.

If construction operations require a shutdown of 24 hours or greater in duration, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown, using Strategic Event Coordination (SEC) Form 6000.26 contained within FAA Order 6000.15, *General Maintenance Handbook for National Airspace System (NAS) Facilities*.

2.13.5.3.2 FAA Owned.

1. The airport operator must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs, using SEC Form 6000.26.
2. Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. Refer to active Service Level Agreement with ATO for specifics.

2.14 **Inspection Requirements.**

2.14.1 Daily Inspections.

Inspections should be conducted at least daily, but more frequently if necessary to ensure conformance with the CSPP. A sample checklist is provided in Appendix D, Construction Project Daily Safety Inspection Checklist. See also AC 150/5200-18, *Airport Safety Self-Inspection.* Airport operators holding a Part 139 certificate are required to conduct self-inspections during unusual conditions, such as construction activities, that may affect safe air carrier operations.

2.14.2 Interim Inspections.

Inspections should be conducted of all areas to be (re)opened to aircraft traffic to ensure the proper operation of lights and signs, for correct markings, and absence of FOD. The contractor should conduct an inspection of the work area with airport operations personnel. The contractor should ensure that all construction materials have been secured, all pavement surfaces have been swept clean, all transition ramps have been properly constructed, and that surfaces have been appropriately marked for aircraft to operate safely. Only if all items on the list meet with the airport operator's approval should the air traffic control tower be notified to open the area to aircraft operations. The contractor should be required to retain a suitable workforce and the necessary equipment at the work area for any last minute cleanup that may be requested by the airport operator prior to opening the area.

2.14.3 Final Inspections.

New runways and extended runway closures may require safety inspections at certificated airports prior to allowing air carrier service. Coordinate with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection will be necessary.

2.15 **Underground Utilities.**

The CSPP and/or SPCD must include procedures for locating and protecting existing underground utilities, cables, wires, pipelines, and other underground facilities in excavation areas. This may involve coordinating with public utilities and FAA ATO/Technical Operations. Note that "One Call" or "Miss Utility" services do not include FAA ATO/Technical Operations.

2.16 **Penalties.**

The CSPP should detail penalty provisions for noncompliance with airport rules and regulations and the safety plans (for example, if a vehicle is involved in a runway incursion). Such penalties typically include rescission of driving privileges or access to the AOA.

2.17 **Special Conditions.**

The CSPP must detail any special conditions that affect the operation of the airport and will require the activation of any special procedures (for example, low-visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, Vehicle / Pedestrian Deviation (VPD) and other activities requiring construction suspension/resumption).

2.18 **Runway and Taxiway Visual Aids.**

This includes marking, lighting, signs, and visual NAVAIDs. The CSPP must ensure that areas where aircraft will be operating are clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs, and visual NAVAIDs that are to continue to perform their functions during construction remain in place and operational. Visual NAVAIDs that are not serving their intended function during construction must be temporarily disabled, covered, or modified as necessary. The CSPP must address the following, as appropriate:

2.18.1 General.

Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, and other wind currents and constructed of materials that will minimize damage to an aircraft in the event of inadvertent contact. Items used to secure such markings must be of a color similar to the marking.

2.18.2 Markings.

During the course of construction projects, temporary pavement markings are often required to allow for aircraft operations during or between work periods. During the design phase of the project, the designer should coordinate with the project manager,

airport operations, airport users, the FAA Airports project manager, and Airport Certification Safety Inspector for Part 139 airports to determine minimum temporary markings. The FAA Airports project manager will, wherever a runway is closed, coordinate with the appropriate FAA Flight Standards Office and disseminate findings to all parties. Where possible, the temporary markings on finish grade pavements should be placed to mirror the dimensions of the final markings. Markings must be in compliance with the standards of AC 150/5340-1, *Standards for Airport Markings*, except as noted herein. Runways and runway exit taxiways closed to aircraft operations are marked with a yellow X. The preferred visual aid to depict temporary runway closure is the lighted X signal placed on or near the runway designation numbers. (See paragraph 2.18.2.1.2.)

2.18.2.1 **Closed Runways and Taxiways.**

2.18.2.1.1 Permanently Closed Runways.

For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place an X at each end and at 1,000-foot (300 m) intervals. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X.

2.18.2.1.2 Temporarily Closed Runways.

For runways that have been temporarily closed, place an X at each end of the runway directly on or as near as practicable to the runway designation numbers. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X. See Figure 2-3. See also paragraph 2.18.3.3.

2.18.2.1.3 Partially Closed Runways and Displaced Thresholds.

When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, the markings must comply with AC 150/5340-1. An X is not used on a partially closed runway or a runway with a displaced threshold. See paragraph 2.7.1.1 for the difference between partially closed runways and runways with displaced thresholds. Because of the temporary nature of threshold displacement due to construction, it is not necessary to re-adjust the existing runway centerline markings to meet standard spacing for a runway with a visual approach. Some of the requirements below may be waived in the cases of low-activity airports and/or short duration changes that are measured in days rather than weeks. Consider whether the presence of an airport traffic

control tower allows for the development of special procedures. Contact the appropriate FAA Airports Regional or District Office for assistance.

Figure 2-3. Markings for a Temporarily Closed Runway

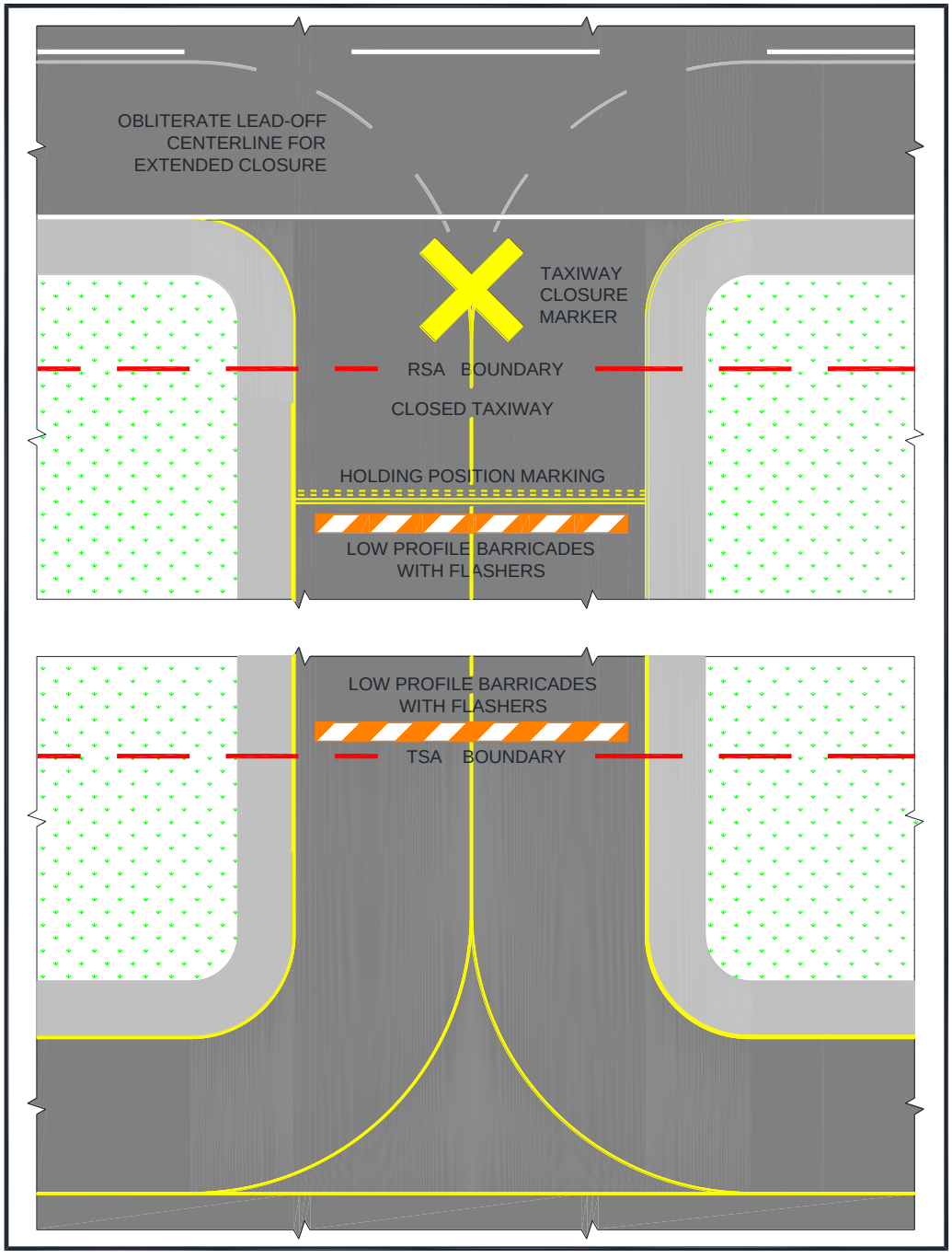
1. **Partially Closed Runways.** Pavement markings for temporary closed portions of the runway consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing (see AC 150/5340-1). Obliterate or cover markings prior to the moved threshold. Existing touchdown zone markings beyond the moved threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See Figure 2-4.

2. **Displaced Thresholds.** Pavement markings for a displaced threshold consist of a runway threshold bar, runway designation, and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. See AC 150/5340-1. Obliterate markings prior to the displaced threshold. Existing touchdown zone markings beyond the displaced threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See Figure 2-2.

2.18.2.1.4 Taxiways.

1. **Permanently Closed Taxiways.** AC 150/5300-13 *Airport Design*, notes that it is preferable to remove the pavement, but for pavement that is to remain, place an X at the entrance to both ends of the closed section. Obliterate taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway. See Figure 2-4.

Figure 2-4. Temporary Taxiway Closure



2. **Temporarily Closed Taxiways.** Place barricades outside the safety area of intersecting taxiways. For runway/taxiway intersections, place an X at the entrance to the closed taxiway from the runway. If the taxiway will be closed for an extended period, obliterate taxiway centerline markings, including runway leadoff lines and taxiway to taxiway turns, leading to the closed section. Always obliterate runway lead-off lines for high speed exits, regardless of the duration of the closure. If the centerline markings will be reused upon reopening the taxiway, it is preferable to paint over the marking. This will result in less damage to the pavement when the upper layer of paint is ultimately removed. See Figure 2-4.

2.18.2.1.5 Temporarily Closed Airport.

When the airport is closed temporarily, mark all the runways as closed.

2.18.2.2 If unable to paint temporary markings on the pavement, construct them from any of the following materials: fabric, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and appropriately secured to prevent movement by prop wash, jet blast, or other wind currents. Items used to secure such markings must be of a color similar to the marking.

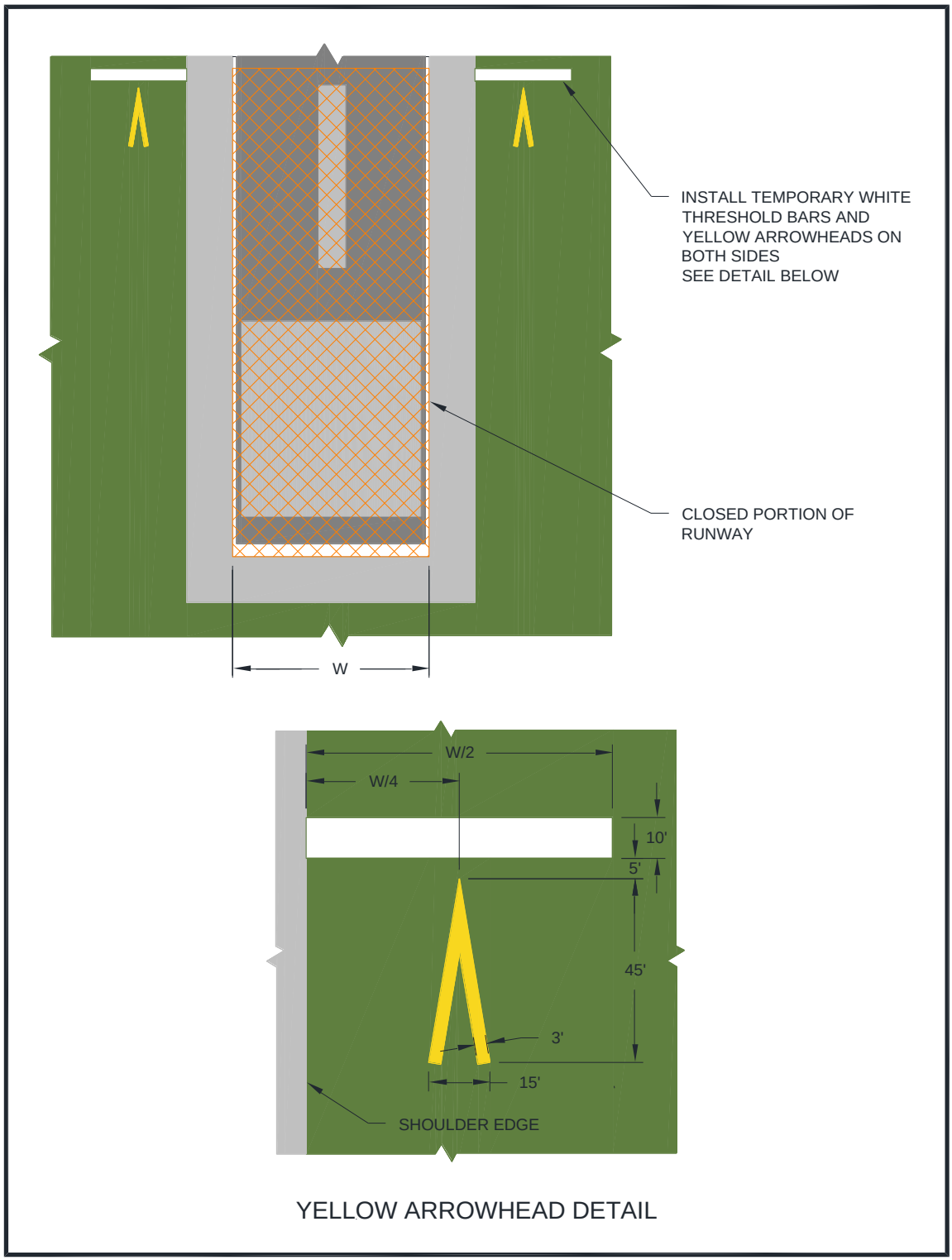
2.18.2.3 It may be necessary to remove or cover runway markings, including but not limited to, runway designation markings, threshold markings, centerline markings, edge stripes, touchdown zone markings and aiming point markings, depending on the length of construction and type of activity at the airport. When removing runway markings, apply the same treatment to areas between stripes or numbers, as the cleaned area will appear to pilots as a marking in the shape of the treated area.

2.18.2.4 If it is not possible to install threshold bars, chevrons, and arrows on the pavement, "temporary outboard white threshold bars and yellow arrowheads", see Figure 2-5, may be used. Locate them outside of the runway pavement surface on both sides of the runway. The dimensions must be as shown in Figure 2-5. If the markings are not discernible on grass or snow, apply a black background with appropriate material over the ground to ensure they are clearly visible.

2.18.2.5 The application rate of paint to mark a short-term temporary runway and taxiway markings may deviate from the standard (see Item P-620, "Runway and Taxiway Painting," in AC 150/5370-10), but the dimensions must meet the existing standards. When applying temporary markings at night, it is recommended that the fast curing, Type II paint be used to help offset the higher humidity and cooler temperatures often experienced at night. Diluting the paint will substantially increase cure time and is not recommended. Glass beads are not recommended for temporary markings. Striated markings may also be used for certain temporary markings. AC

150/5340-1, *Standards for Airport Markings*, has additional guidance on temporary markings.

Figure 2-5. Temporary Outboard White Threshold Bars and Yellow Arrowheads



2.18.3 Lighting and Visual NAVAIDs.

This paragraph refers to standard runway and taxiway lighting systems. See below for hazard lighting. Lighting installation must be in conformance with AC 150/5340-30, *Design and Installation Details for Airport Visual Aids,* and fixture design in conformance with AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights.* When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. See AC 150/5340-26, *Maintenance of Airport Visual Aid Facilities*, for disconnect procedures and safety precautions. Alternately, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value. Secure, identify, and place any above ground temporary wiring in conduit to prevent electrocution and fire ignition sources. Maintain mandatory hold signs to operate normally in any situation where pilots or vehicle drivers could mistakenly be in that location. At towered airports certificated under Part 139, holding position signs are required to be illuminated on open taxiways crossing to closed or inactive runways. If the holding position sign is installed on the runway circuit for the closed runway, install a jumper to the taxiway circuit to provide power to the holding position sign for nighttime operations. Where it is not possible to maintain power to signs that would normally be operational, install barricades to exclude aircraft. Figure 2-1, Figure 2-2, Figure 2-3, and Figure 2-4 illustrate temporary changes to lighting and visual NAVAIDs.

2.18.3.1 **Permanently Closed Runways and Taxiways.**

For runways and taxiways that have been permanently closed, disconnect the lighting circuits.

2.18.3.2 **Temporarily Closed Runways and New Runways Not Yet Open to Air Traffic.**

If available, use a lighted X, both at night and during the day, placed at each end of the runway on or near the runway designation numbers facing the approach. (Note that the lighted X must be illuminated at all times that it is on a runway.) The use of a lighted X is required if night work requires runway lighting to be on. See AC 150/5345-55, *Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure.* For runways that have been temporarily closed, but for an extended period, and for those with pilot controlled lighting, disconnect the lighting circuits or secure switches to prevent inadvertent activation. For runways that will be opened periodically, coordinate procedures with the FAA air traffic manager or, at airports without an ATCT, the airport operator. Activate stop bars if available. Figure 2-6 shows a lighted X by day. Figure 2-7 shows a lighted X at night.

Figure 2-6. Lighted X in Daytime

Figure 2-7. Lighted X at Night

2.18.3.3 **Partially Closed Runways and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing and landing or taking off in either direction. A displaced threshold, by contrast, is put in place to ensure obstacle clearance by landing aircraft. The pavement prior to the displaced threshold is available for takeoff in the direction of the displacement, and for landing and takeoff in the opposite direction. Misunderstanding this difference and issuance of a subsequently inaccurate NOTAM can result in a hazardous situation. For both partially

closed runways and displaced thresholds, approach lighting systems at the affected end must be placed out of service.

2.18.3.3.1 Partially Closed Runways.

Disconnect edge and threshold lights on that part of the runway at and behind the threshold (that is, the portion of the runway that is closed). Alternately, cover the light fixtures in such a way as to prevent light leakage. See Figure 2-1.

2.18.3.3.2 Temporary Displaced Thresholds.

Edge lighting in the area of the displacement emits red light in the direction of approach and yellow light (white for visual runways) in the opposite direction. If the displacement is 700 feet or less, blank out centerline lights in the direction of approach or place the centerline lights out of service. If the displacement is over 700 feet, place the centerline lights out of service. See AC 150/5340-30 for details on lighting displaced thresholds. See Figure 2-2.

2.18.3.3.3 Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.

2.18.3.3.4 A temporary threshold on an unlighted runway may be marked by retroreflective, elevated markers in addition to markings noted in paragraph 2.18.2.1.3. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. At certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR Part 139.309). At non-certificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible. See AC 150/5345-39, *Specification for L-853, Runway and Taxiway Retroreflective Markers.*

2.18.3.3.5 Temporary threshold lights and runway end lights and related visual NAVAIDs are installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 inch (7.6 cm) above ground. (The standard above ground height for airport lighting fixtures is 14 inches (35 cm)). When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage. See AC 150/5370-10.

2.18.3.3.6 Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-30. Battery powered, solar, or portable lights that meet the criteria in AC 150/5345-50 may be used. These systems are intended primarily for visual flight rules (VFR) aircraft operations but may

be used for instrument flight rules (IFR) aircraft operations, upon individual approval from the Flight Standards Division of the applicable FAA Regional Office.

2.18.3.3.7 When runway thresholds are temporarily displaced, reconfigure yellow lenses (caution zone), as necessary, and place the centerline lights out of service.

2.18.3.3.8 Relocate the Visual Glide Slope Indicator (VGSI), such as Visual Approach Slope Indicator (VASI) and Precision Approach Path Indicator (PAPI); other airport lights, such as Runway End Identifier Lights (REIL); and approach lights to identify the temporary threshold. Another option is to disable the VGSI or any equipment that would give misleading indications to pilots as to the new threshold location. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway. If the FAA owns and operates the VGSI, coordinate its installation or disabling with the local ATO/Technical Operations Office. Relocation of such visual aids will depend on the duration of the project and the benefits gained from the relocation, as this can result in great expense. See FAA JO 6850.2, *Visual Guidance Lighting Systems,* for installation criteria for FAA owned and operated NAVAIDs.

2.18.3.3.9 Issue a NOTAM to inform pilots of temporary lighting conditions.

2.18.3.4 **Temporarily Closed Taxiways.**

If possible, deactivate the taxiway lighting circuits. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), cover the light fixture in a way as to prevent light leakage.

2.18.4 Signs.

To the extent possible, signs must be in conformance with AC 150/5345-44, *Specification for Runway and Taxiway Signs*, and AC 150/5340-18, *Standard for Airport Sign Systems.*

2.18.4.1 **Existing Signs.**

Runway exit signs are to be covered for closed runway exits. Outbound destination signs are to be covered for closed runways. Any time a sign does not serve its normal function or would provide conflicting information, it must be covered or removed to prevent misdirecting pilots. Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed. For long term construction projects, consider relocating signs, especially runway distance remaining signs.

2.18.4.2 **Temporary Signs.**

Orange construction signs comprise a message in black on an orange background. Orange construction signs may help pilots be aware of changed conditions. The airport operator may choose to introduce these signs as part of a movement area construction project to increase situational awareness when needed. Locate signs outside the taxiway safety limits and ahead of construction areas so pilots can take timely action. Use temporary signs judiciously, striking a balance between the need for information and the increase in pilot workload. When there is a concern of pilot "information overload," the applicability of mandatory hold signs must take precedence over orange construction signs recommended during construction. Temporary signs must meet the standards for such signs in Engineering Brief 93, *Guidance for the Assembly and Installation of Temporary Orange Construction Signs.* Many criteria in AC 150/5345-44, *Specification for Runway and Taxiway Signs*, are referenced in the Engineering Brief. Permissible sign legends are:

1. CONSTRUCTION AHEAD,
2. CONSTRUCTION ON RAMP, and
3. RWY XX TAKEOFF RUN AVAILABLE XXX FT.

Phasing, supported by drawings and sign schedule, for the installation of orange construction signs must be included in the CSPP or SPCD.

2.18.4.2.1 Takeoff Run Available (TORA) signs.

Recommended: Where a runway has been shortened for takeoff, install orange TORA signs well before the hold lines, such as on a parallel taxiway prior to a turn to a runway hold position. See EB 93 for sign size and location.

2.18.4.2.2 Sign legends are shown in Figure F-1.

Note: See Figure E-1, Figure E-2, Figure E-3, Figure F-2, and Figure F-3 for examples of orange construction sign locations.

2.19 **Marking and Signs for Access Routes.**

The CSPP should indicate that pavement markings and signs for construction personnel will conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23, *Frangible Connections*, which may require modification to size and height guidance in the MUTCD.

2.20 **Hazard Marking, Lighting and Signing.**

2.20.1 Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft, and prevent construction personnel from entering areas open to aircraft. The CSPP must specify prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting must also be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also consider less obvious construction-related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

2.20.2 Equipment.

2.20.2.1 **Barricades.**

Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. For example, if barricades are intended to exclude aircraft, gaps between barricades must be smaller than the wingspan of the smallest aircraft to be excluded; if barricades are intended to exclude vehicles, gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. If barricades are intended to exclude pedestrians, they must be continuously linked. Continuous linking may be accomplished through the use of ropes, securely attached to prevent FOD.

2.20.2.2 **Lights.**

Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.

2.20.2.3 **Supplement Barricades with Signs (for example) As Necessary.**

Examples are “No Entry” and “No Vehicles.” Be aware of the increased effects of wind and jet blast on barricades with attached signs.

2.20.2.4 **Air Operations Area – General.**

Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use orange traffic cones, flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway / taxilane safety area, or apron must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground. Figure 2-8 and Figure 2-9 show sample barricades with proper coloring and flags.

Figure 2-8. Interlocking Barricades

Figure 2-9. Low Profile Barricades

2.20.2.5 **Air Operations Area – Runway/Taxiway Intersections.**

Use highly reflective barricades with lights to close taxiways leading to closed runways. Evaluate all operating factors when determining how to mark temporary closures that can last from 10 to 15 minutes to a much longer period of time. However, even for closures of relatively short duration, close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.

2.20.2.6 **Air Operations Area – Other.**

Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.

2.20.2.7 **Maintenance.**

The construction specifications must include a provision requiring the contractor to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

2.21 Work Zone Lighting for Nighttime Construction.

Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. Refer to AC 150/5370-10 for minimum illumination levels for nighttime paving projects. Additionally, it is recommended that all support equipment, except haul trucks, be equipped with artificial illumination to safely

illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways.

2.22 **Protection of Runway and Taxiway Safety Areas.**

Runway and taxiway safety areas, OFZs, OFAs, and approach surfaces are described in AC 150/5300-13. Protection of these areas includes limitations on the location and height of equipment and stockpiled material. An FAA airspace study may be required. Coordinate with the appropriate FAA Airports Regional or District Office if there is any doubt as to requirements or dimensions (see paragraph 2.13.5) as soon as the location and height of materials or equipment are known. The CSPP should include drawings showing all safety areas, object free areas, obstacle free zones and approach departure surfaces affected by construction.

2.22.1 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 (see AC 150/5300-13). Construction activities within the existing RSA are subject to the following conditions:

2.22.1.1 No construction may occur within the existing RSA while the runway is open for aircraft operations. The RSA dimensions may be temporarily adjusted if the runway is restricted to aircraft operations requiring an RSA that is equal to the RSA width and length beyond the runway ends available during construction. (See AC 150/5300-13). The temporary use of declared distances and/or partial runway closures may provide the necessary RSA under certain circumstances. Coordinate with the appropriate FAA Airports Regional or District Office to have declared distances information published, and appropriate NOTAMs issued. See AC 150/5300-13 for guidance on the use of declared distances.

2.22.1.2 The airport operator must coordinate the adjustment of RSA dimensions as permitted above with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

2.22.1.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations.

2.22.1.4 **Excavations.**

2.22.1.4.1 Open trenches or excavations are not permitted within the RSA while the runway is open. Backfill trenches before the runway is opened. If backfilling excavations before the runway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft.

2.22.1.4.2 Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

2.22.1.5 **Erosion Control.**

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 fire fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.2 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 should 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 Regional or District Office for approval.

2.22.3 Taxiway Safety Area (TSA).

2.22.3.1 A 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. (See AC 150/5300-13.) Since the width of the TSA is equal to the wingspan of the design aircraft, no construction may occur within the TSA while the taxiway is open for aircraft operations. The TSA dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a TSA that is equal to the TSA width available during construction. Give special consideration to TSA dimensions at taxiway turns and intersections. (see AC 150/5300-13).

2.22.3.2 The airport operator must coordinate the adjustment of the TSA width as permitted above with the appropriate FAA Airports Regional or District Office and the FAA air traffic manager and issue a NOTAM.

2.22.3.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations.

2.22.3.4 **Excavations.**

1. Curves. Open trenches or excavations are not permitted within the TSA while the taxiway is open. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.
2. Straight Sections. Open trenches or excavations are not permitted within the TSA while the taxiway is open for unrestricted aircraft operations. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations to allow the safe passage of ARFF equipment and of the heaviest aircraft operating on the taxiway across the trench without causing damage to the equipment or aircraft. In rare circumstances where the section of taxiway is indispensable for aircraft movement, open trenches or excavations may be permitted in the TSA while the taxiway is open to aircraft operations, subject to the following restrictions:
    a. Taxiing speed is limited to 10 mph.
    b. Appropriate NOTAMs are issued.
    c. Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.
    d. Low mass, low-profile lighted barricades are installed.
    e. Appropriate temporary orange construction signs are installed.
3. Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

2.22.3.5 **Erosion control.**

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 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.

2.22.4 Taxiway Object Free Area (TOFA).

Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus, the restrictions are more stringent. Except as provided below, no construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.

2.22.4.1 The taxiway object free area dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a taxiway object free area that is equal to the taxiway object free area width available. Give special consideration to TOFA dimensions at taxiway turns and intersections.

2.22.4.2 Offset taxiway centerline and edge pavement markings (do not use glass beads) may be used as a temporary measure to provide the required taxiway object free area. Where offset taxiway pavement markings are provided, centerline lighting, centerline reflectors, or taxiway edge reflectors are required. Existing lighting that does not coincide with the temporary markings must be taken out of service.

2.22.4.3 Construction activity, including open excavations, may be accomplished without adjusting the width of the taxiway object free area, subject to the following restrictions:

2.22.4.3.1 Taxiing speed is limited to 10 mph.

2.22.4.3.2 NOTAMs issued advising taxiing pilots of hazard and recommending reduced taxiing speeds on the taxiway.

2.22.4.3.3 Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.

2.22.4.3.4 If desired, appropriate orange construction signs are installed. See paragraph 2.18.4.2 and Appendix F.

2.22.4.3.5 Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its main landing gear at the edge of the usable pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.

2.22.4.3.6 Flaggers furnished by the contractor must be used to direct and control construction equipment and personnel to a pre-established setback distance for safe passage of aircraft, and airline and/or airport personnel. Flaggers must also be used to direct taxiing aircraft. Due to liability issues, the airport operator should require airlines to provide flaggers for directing taxiing aircraft.

2.22.5 Obstacle Free Zone (OFZ).

In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. If a penetration to the OFZ is necessary, it may be possible to continue aircraft operations through operational restrictions. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6 Runway Approach/Departure Areas and Clearways.

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in AC 150/5300-13. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6.1 Construction activity in a runway approach/departure area may result in the need to partially close a runway or displace the existing runway threshold. Partial runway closure, displacement of the runway threshold, as well as closure of the complete runway and other portions of the movement area also require coordination through the airport operator with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

2.22.6.2 **Caution About Partial Runway Closures.**

When filing a NOTAM for a partial runway closure, clearly state that the portion of pavement located prior to the threshold is not available for landing and departing traffic. In this case, the threshold has been moved for both landing and takeoff purposes (this is different than a displaced threshold). There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition).

2.22.6.3 **Caution About Displaced Thresholds.**

Implementation of a displaced threshold affects runway length available for aircraft landing over the displacement. Depending on the reason for the displacement (to provide obstruction clearance or RSA), such a displacement may also require an adjustment in the landing distance available and accelerate-stop distance available in the opposite direction. If project scope includes personnel, equipment, excavation, or other work within the existing RSA of any usable runway end, do not implement a displaced threshold unless arrivals and departures toward the construction activity are prohibited. Instead, implement a partial closure.

2.23 **Other Limitations on Construction.**

The CSPP must specify any other limitations on construction, including but not limited to:

2.23.1 Prohibitions.

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

2.23.1.2 No use of open flame welding or torches unless fire safety precautions are provided and the airport operator has approved their use.

2.23.1.3 No use of electrical blasting caps on or within 1,000 feet (300 meters) of the airport property. See AC 150/5370-10.

2.23.2 Restrictions.

2.23.2.1 Construction suspension required during specific airport operations.

2.23.2.2 Areas that cannot be worked on simultaneously.

2.23.2.3 Day or night construction restrictions.

2.23.2.4 Seasonal construction restrictions.

2.23.2.5 Temporary signs not approved by the airport operator.

2.23.2.6 Grades changes that could result in unplanned effects on NAVAIDs.

CHAPTER 3. GUIDELINES FOR WRITING A CSPP

3.1 General Requirements.

The CSPP is a standalone document written to correspond with the subjects outlined in paragraph 2.4. The CSPP is organized by numbered sections corresponding to each subject listed in paragraph 2.4, and described in detail in paragraphs 2.5 - 2.23. Each section number and title in the CSPP matches the corresponding subject outlined in paragraph 2.4 (for example, 1. Coordination, 2. Phasing, 3. Areas and Operations Affected by the Construction Activity, and so on). With the exception of the project scope of work outlined in Section 2. Phasing, only subjects specific to operational safety during construction should be addressed.

3.2 Applicability of Subjects.

Each section should, to the extent practical, focus on the specific subject. Where an overlapping requirement spans several sections, the requirement should be explained in detail in the most applicable section. A reference to that section should be included in all other sections where the requirement may apply. For example, the requirement to protect existing underground FAA ILS cables during trenching operations could be considered FAA ATO coordination (Coordination, paragraph 2.5.3), an area and operation affected by the construction activity (Areas and Operations Affected by the Construction Activity, paragraph 2.7.1.4), a protection of a NAVAID (Protection of Navigational Aids (NAVAIDs), paragraph 2.8), or a notification to the FAA of construction activities (Notification of Construction Activities, paragraph 2.13.5.3.2). However, it is more specifically an underground utility requirement (Underground Utilities, paragraph 2.15). The procedure for protecting underground ILS cables during trenching operations should therefore be described in 2.4.2.11: "The contractor must coordinate with the local FAA System Support Center (SSC) to mark existing ILS cable routes along Runway 17-35. The ILS cables will be located by hand digging whenever the trenching operation moves within 10 feet of the cable markings." All other applicable sections should include a reference to 2.4.2.11: "ILS cables shall be identified and protected as described in 2.4.2.11" or "See 2.4.2.11 for ILS cable identification and protection requirements." Thus, the CSPP should be considered as a whole, with no need to duplicate responses to related issues.

3.3 Graphical Representations.

Construction safety drawings should be included in the CSPP as attachments. When other graphical representations will aid in supporting written statements, the drawings, diagrams, and/or photographs should also be attached to the CSPP. References should be made in the CSPP to each graphical attachment and may be made in multiple sections.

3.4 **Reference Documents.**

The CSPP must not incorporate a document by reference unless reproduction of the material in that document is prohibited. In that case, either copies of or a source for the referenced document must be provided to the contractor. Where this AC recommends references (e.g. as in paragraph 3.9) the intent is to include a reference to the corresponding section in the CSPP, not to this Advisory Circular.

3.5 **Restrictions.**

The CSPP should not be considered as a project design review document. The CSPP should also avoid mention of permanent ("as-built") features such as pavements, markings, signs, and lighting, except when such features are intended to aid in maintaining operational safety during the construction.

3.6 **Coordination.**

Include in this section a detailed description of conferences and meetings to be held both before and during the project. Include appropriate information from AC 150/5370-12. Discuss coordination procedures and schedules for each required FAA ATO Technical Operations shutdown and restart and all required flight inspections.

3.7 **Phasing.**

Include in this section a detailed scope of work description for the project as a whole and each phase of work covered by the CSPP. This includes all locations and durations of the work proposed. Attach drawings to graphically support the written scope of work. Detail in this section the sequenced phases of the proposed construction. Include a reference to paragraph 3.8, as appropriate.

3.8 **Areas and Operations Affected by Construction.**

Focus in this section on identifying the areas and operations affected by the construction. Describe corresponding mitigation that is not covered in detail elsewhere in the CSPP. Include references to paragraphs below as appropriate. Attach drawings as necessary to graphically describe affected areas and mechanisms proposed. See Appendix F for sample operational effects tables and figures.

3.9 **NAVAID Protection.**

List in this section all NAVAID facilities that will be affected by the construction. Identify NAVAID facilities that will be placed out of service at any time prior to or during construction activities. Identify individuals responsible for coordinating each shutdown and when each facility will be out of service. Include a reference to paragraph 3.6 for FAA ATO NAVAID shutdown, restart, and flight inspection coordination. Outline in detail procedures to protect each NAVAID facility remaining in service from interference by construction activities. Include a reference to paragraph 3.14 for the

issuance of NOTAMs as required. Include a reference to paragraph 3.16 for the protection of underground cables and piping serving NAVAIDs. If temporary visual aids are proposed to replace or supplement existing facilities, include a reference to paragraph 3.19. Attach drawings to graphically indicate the affected NAVAIDS and the corresponding critical areas.

3.10 **Contractor Access.**

This will necessarily be the most extensive section of the CSPP. Provide sufficient detail so that a contractor not experienced in working on airports will understand the unique restrictions such work will require. Due to this extent, it should be broken down into subsections as described below:

3.10.1 Location of Stockpiled Construction Materials.

Describe in this section specific locations for stockpiling material. Note any height restrictions on stockpiles. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify stockpiles. Include a reference to paragraph 3.11 for provisions to prevent stockpile material from becoming wildlife attractants. Include a reference to paragraph 3.12 for provisions to prevent stockpile material from becoming FOD. Attach drawings to graphically indicate the stockpile locations.

3.10.2 Vehicle and Pedestrian Operations.

While there are many items to be addressed in this major subsection of the CSPP, all are concerned with one main issue: keeping people and vehicles from areas of the airport where they don't belong. This includes preventing unauthorized entry to the AOA and preventing the improper movement of pedestrians or vehicles on the airport. In this section, focus on mechanisms to prevent construction vehicles and workers traveling to and from the worksite from unauthorized entry into movement areas. Specify locations of parking for both employee vehicles and construction equipment, and routes for access and haul roads. In most cases, this will best be accomplished by attaching a drawing. Quote from AC 150/5210-5 specific requirements for contractor vehicles rather than referring to the AC as a whole, and include special requirements for identifying HAZMAT vehicles. Quote from, rather than incorporate by reference, AC 150/5210-20 as appropriate to address the airport's rules for ground vehicle operations, including its training program. Discuss the airport's recordkeeping system listing authorized vehicle operators.

3.10.3 Two-Way Radio Communications.

Include a special section to identify all individuals who are required to maintain communications with Air Traffic (AT) at airports with active towers, or monitor CTAF at airports without or with closed ATCT. Include training requirements for all individuals required to communicate with AT. Individuals required to monitor AT frequencies should also be identified. If construction employees are also required to communicate by radio with Airport Operations, this procedure should be described in detail. Usage of vehicle mounted radios and/or portable radios should be addressed. Communication procedures for the event of disabled radio communication (that is, light

signals, telephone numbers, others) must be included. All radio frequencies should by identified (Tower, Ground Control, CTAF, UNICOM, ATIS, and so on).

3.10.4 Airport Security.

Address security as it applies to vehicle and pedestrian operations. Discuss TSA requirements, security badging requirements, perimeter fence integrity, gate security, and other needs. Attach drawings to graphically indicate secured and/or Security Identification Display Areas (SIDA), perimeter fencing, and available access points.

3.11 **Wildlife Management.**

Discuss in this section wildlife management procedures. Describe the maintenance of existing wildlife mitigation devices, such as perimeter fences, and procedures to limit wildlife attractants. Include procedures to notify Airport Operations of wildlife encounters. Include a reference to paragraph 3.10 for security (wildlife) fence integrity maintenance as required.

3.12 **FOD Management.**

In this section, discuss methods to control and monitor FOD: worksite housekeeping, ground vehicle tire inspections, runway sweeps, and so on. Include a reference to paragraph 3.15 for inspection requirements as required.

3.13 **HAZMAT Management.**

Describe in this section HAZMAT management procedures: fuel deliveries, spill recovery procedures, Safety Data Sheet (SDS), Material Safety Data Sheet (MSDS) or Product Safety Data Sheet (PSDS) availability, and other considerations. Any specific airport HAZMAT restrictions should also be identified. Include a reference to paragraph 3.10 for HAZMAT vehicle identification requirements. Quote from, rather than incorporate by reference, AC 150/5320-15.

3.14 **Notification of Construction Activities.**

List in this section the names and telephone numbers of points of contact for all parties affected by the construction project. We recommend a single list that includes all telephone numbers required under this section. Include emergency notification procedures for all representatives of all parties potentially impacted by the construction. Identify individual representatives – and at least one alternate – for each party. List both on-duty and off-duty contact information for each individual, including individuals responsible for emergency maintenance of airport construction hazard lighting and barricades. Describe procedures to coordinate immediate response to events that might adversely affect the operational safety of the airport (such as interrupted NAVAID service). Explain requirements for and the procedures for the issuance of Notices to Airmen (NOTAMs), notification to FAA required by 14 CFR Part 77 and Part 157 and in the event of affected NAVAIDs. For NOTAMs, identify an individual, and at least one alternate, responsible for issuing and cancelling each specific type of Notice to

Airmen (NOTAM) required. Detail notification methods for police, fire fighting, and medical emergencies. This may include 911, but should also include direct phone numbers of local police departments and nearby hospitals. Identify the E911 address of the airport and the emergency access route via haul roads to the construction site. Require the contractor to have this information available to all workers. The local Poison Control number should be listed. Procedures regarding notification of Airport Operations and/or the ARFF Department of such emergencies should be identified, as applicable. If airport radio communications are identified as a means of emergency notification, include a reference to paragraph 3.10. Differentiate between emergency and nonemergency notification of ARFF personnel, the latter including activities that affect ARFF water supplies and access roads. Identify the primary ARFF contact person and at least one alternate. If notification is to be made through Airport Operations, then detail this procedure. Include a method of confirmation from the ARFF department.

3.15 **Inspection Requirements.**

Describe in this section inspection requirements to ensure airfield safety compliance. Include a requirement for routine inspections by the resident engineer (RE) or other airport operator's representative and the construction contractors. If the engineering consultants and/or contractors have a Safety Officer who will conduct such inspections, identify this individual. Describe procedures for special inspections, such as those required to reopen areas for aircraft operations. Part 139 requires daily airfield inspections at certificated airports, but these may need to be more frequent when construction is in progress. Discuss the role of such inspections on areas under construction. Include a requirement to immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

3.16 **Underground Utilities.**

Explain how existing underground utilities will be located and protected. Identify each utility owner and include contact information for each company/agency in the master list. Address emergency response procedures for damaged or disrupted utilities. Include a reference to paragraph 3.14 for notification of utility owners of accidental utility disruption as required.

3.17 **Penalties.**

Describe in this section specific penalties imposed for noncompliance with airport rules and regulations, including the CSPP: SIDA violations, VPD, and others.

3.18 **Special Conditions.**

Identify any special conditions that may trigger specific safety mitigation actions outlined in this CSPP: low visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, VPD, and other activities requiring construction suspension/resumption. Include a reference to paragraph 3.10 for compliance with airport safety and security measures and for radio communications as required. Include

a reference to paragraph 3.14 for emergency notification of all involved parties, including police/security, ARFF, and medical services.

3.19 **Runway and Taxiway Visual Aids.**

Include marking, lighting, signs, and visual NAVAIDS. Detail temporary runway and taxiway marking, lighting, signs, and visual NAVAIDs required for the construction. Discuss existing marking, lighting, signs, and visual NAVAIDs that are temporarily, altered, obliterated, or shut down. Consider non-federal facilities and address requirements for reimbursable agreements necessary for alteration of FAA facilities and for necessary flight checks. Identify temporary TORA signs or runway distance remaining signs if appropriate. Identify required temporary visual NAVAIDs such as REIL or PAPI. Quote from, rather than incorporate by reference, AC 150/5340-1, *Standards for Airport Markings;* AC 150/5340-18, *Standards for Airport Sign Systems;* and AC 150/5340-30, as required. Attach drawings to graphically indicate proposed marking, lighting, signs, and visual NAVAIDs.

3.20 **Marking and Signs for Access Routes.**

Detail plans for marking and signs for vehicle access routes. To the extent possible, signs should be in conformance with the Federal Highway Administration MUTCD and/or State highway specifications, not hand lettered. Detail any modifications to the guidance in the MUTCD necessary to meet frangibility/height requirements.

3.21 **Hazard Marking and Lighting.**

Specify all marking and lighting equipment, including when and where each type of device is to be used. Specify maximum gaps between barricades and the maximum spacing of hazard lighting. Identify one individual and at least one alternate responsible for maintenance of hazard marking and lighting equipment in the master telephone list. Include a reference to paragraph 3.14. Attach drawings to graphically indicate the placement of hazard marking and lighting equipment.

3.22 **Work Zone Lighting for Nighttime Construction.**

If work is to be conducted at night, specify all lighting equipment, including when and where each type of device is to be used. Indicate the direction lights are to be aimed and any directions that aiming of lights is prohibited. Specify any shielding necessary in instances where aiming is not sufficient to prevent interference with air traffic control and aircraft operations. Attach drawings to graphically indicate the placement and aiming of lighting equipment. Where the plan only indicates directions that aiming of lights is prohibited, the placement and positioning of portable lights must be proposed by the Contractor and approved by the airport operator’s representative each time lights are relocated or repositioned.

3.23 **Protection of Runway and Taxiway Safety Areas.**

This section should focus exclusively on procedures for protecting all safety areas, including those altered by the construction: methods of demarcation, limit of access, movement within safety areas, stockpiling and trenching restrictions, and so on. Reference AC 150/5300-13, as required. Include a reference to paragraph 3.10 for procedures regarding vehicle and personnel movement within safety areas. Include a reference to paragraph 3.10 for material stockpile restrictions as required. Detail requirements for trenching, excavations, and backfill. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify open excavations as required. If runway and taxiway closures are proposed to protect safety areas, or if temporary displaced thresholds and/or revised declared distances are used to provide the required Runway Safety Area, include a reference to paragraphs 3.14 and 3.19. Detail procedures for protecting the runway OFZ, runway OFA, taxiway OFA and runway approach surfaces including those altered by the construction: methods of demarcation, limit of cranes, storage of equipment, and so on. Quote from, rather than incorporate by reference, AC 150/5300-13, as required. Include a reference to paragraph 3.24 for height (i.e., crane) restrictions as required. One way to address the height of equipment that will move during the project is to establish a three-dimensional "box" within which equipment will be confined that can be studied as a single object. Attach drawings to graphically indicate the safety area, OFZ, and OFA boundaries.

3.24 **Other Limitations on Construction.**

This section should describe what limitations must be applied to each area of work and when each limitation will be applied: limitations due to airport operations, height (i.e., crane) restrictions, areas which cannot be worked at simultaneously, day/night work restrictions, winter construction, and other limitations. Include a reference to paragraph 3.7 for project phasing requirements based on construction limitations as required.

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APPENDIX A. RELATED READING MATERIAL

Obtain the latest version of the following free publications from the FAA on its Web site at http://www.faa.gov/airports/.

Table A-1. FAA Publications

Number	Title and Description
AC 150/5200-28	*Notices to Airmen (NOTAMs) for Airport Operators* Guidance for using the NOTAM System in airport reporting.
AC 150/5200-30	*Airport Field Condition Assessments and Winter Operations Safety* Guidance for airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures.
AC 150/5200-33	*Hazardous Wildlife Attractants On or Near Airports* Guidance on locating certain land uses that might attract hazardous wildlife to public-use airports.
AC 150/5210-5	*Painting, Marking, and Lighting of Vehicles Used on an Airport* Guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas.
AC 150/5210-20	*Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports* Guidance to airport operators on developing ground vehicle operation training programs.
AC 150/5300-13	*Airport Design* FAA standards and recommendations for airport design. Establishes approach visibility minimums as an airport design parameter, and contains the Object Free area and the obstacle free-zone criteria.
AC 150/5210-24	*Airport Foreign Object Debris (FOD) Management* Guidance for developing and managing an airport foreign object debris (FOD) program

Number	Title and Description
AC 150/5320-15	*Management of Airport Industrial Waste* Basic information on the characteristics, management, and regulations of industrial wastes generated at airports. Guidance for developing a Storm Water Pollution Prevention Plan (SWPPP) that applies best management practices to eliminate, prevent, or reduce pollutants in storm water runoff with particular airport industrial activities.
AC 150/5340-1	*Standards for Airport Markings* FAA standards for the siting and installation of signs on airport runways and taxiways.
AC 150/5340-18	*Standards for Airport Sign Systems* FAA standards for the siting and installation of signs on airport runways and taxiways.
AC 150/5345-28	*Precision Approach Path Indicator (PAPI) Systems* FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing.
AC 150/5340-30	*Design and Installation Details for Airport Visual Aids* Guidance and recommendations on the installation of airport visual aids.
AC 150/5345-39	*Specification for L-853, Runway and Taxiway Retroreflective Markers*
AC 150/5345-44	*Specification for Runway and Taxiway Signs* FAA specifications for unlighted and lighted signs for taxiways and runways.
AC 150/5345-53	*Airport Lighting Equipment Certification Program* Details on the Airport Lighting Equipment Certification Program (ALECP).
AC 150/5345-50	*Specification for Portable Runway and Taxiway Lights* FAA standards for portable runway and taxiway lights and runway end identifier lights for temporary use to permit continued aircraft operations while all or part of a runway lighting system is inoperative.
AC 150/5345-55	*Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure*

Number	Title and Description
AC 150/5370-10	*Standards for Specifying Construction of Airports* Standards for construction of airports, including earthwork, drainage, paving, turfing, lighting, and incidental construction.
AC 150/5370-12	*Quality Management for Federally Funded Airport Construction Projects*
EB 93	*Guidance for the Assembly and Installation of Temporary Orange Construction Signs*
FAA Order 5200.11	FAA Airports (ARP) Safety Management System (SMS) Basics for implementing SMS within ARP. Includes roles and responsibilities of ARP management and staff as well as other FAA lines of business that contribute to the ARP SMS.
FAA Certalert 98-05	*Grasses Attractive to Hazardous Wildlife* Guidance on grass management and seed selection.
FAA Form 7460-1	Notice of Proposed Construction or Alteration
FAA Form 7480-1	Notice of Landing Area Proposal
FAA Form 6000.26	National NAS Strategic Interruption Service Level Agreement, Strategic Events Coordination, Airport Sponsor Form

Obtain the latest version of the following free publications from the Electronic Code of Federal Regulations at http://www.ecfr.gov/.

Table A-2. Code of Federal Regulation

Number	Title
Title 14 CFR Part 77	Safe, Efficient Use and Preservation of the Navigable Airspace
Title 14 CFR Part 139	Certification of Airports
Title 49 CFR Part 1542	Airport Security

Obtain the latest version of the Manual on Uniform Traffic Control Devices from the Federal Highway Administration at http://mutcd.fhwa.dot.gov/.

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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 C. SAFETY AND PHASING PLAN CHECKLIST

This appendix is keyed to Chapter 2. In the electronic version of this AC, clicking on the paragraph designation in the Reference column will access the applicable paragraph. There may be instances where the CSPP requires provisions that are not covered by the list in this appendix.

This checklist is intended as an aid, not a required submittal.

Table C-1. CSPP Checklist

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
General Considerations					
Requirements for predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction are specified.	2.5				
Operational safety is a standing agenda item for construction progress meetings.	2.5				
Scheduling of the construction phases is properly addressed.	2.6				
Any formal agreements are established.	2.5.3				
Areas and Operations Affected by Construction Activity					
Drawings showing affected areas are included.	2.7.1				
Closed or partially closed runways, taxiways, and aprons are depicted on drawings.	2.7.1.1				
Access routes used by ARFF vehicles affected by the project are addressed.	2.7.1.2				
Access routes used by airport and airline support vehicles affected by the project are addressed.	2.7.1.3				
Underground utilities, including water supplies for firefighting and drainage.	2.7.1.4				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Approach/departure surfaces affected by heights of temporary objects are addressed.	2.7.1.5				
Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads are properly depicted on drawings.	2.7.1				
Temporary changes to taxi operations are addressed.	2.7.2.1				
Detours for ARFF and other airport vehicles are identified.	2.7.2.2				
Maintenance of essential utilities and underground infrastructure is addressed.	2.7.2.3				
Temporary changes to air traffic control procedures are addressed.	2.7.2.4				
NAVAIDs					
Critical areas for NAVAIDs are depicted on drawings.	2.8				
Effects of construction activity on the performance of NAVAIDS, including unanticipated power outages, are addressed.	2.8				
Protection of NAVAID facilities is addressed.	2.8				
The required distance and direction from each NAVAID to any construction activity is depicted on drawings.	2.8				
Procedures for coordination with FAA ATO/Technical Operations, including identification of points of contact, are included.	2.8, 2.13.1, 2.13.5.3.1, 2.18.1				
Contractor Access					
The CSPP addresses areas to which contractor will have access and how	2.9				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
the areas will be accessed.					
The application of 49 CFR Part 1542 Airport Security, where appropriate, is addressed.	2.9				
The location of stockpiled construction materials is depicted on drawings.	2.9.1				
The requirement for stockpiles in the ROFA to be approved by FAA is included.	2.9.1				
Requirements for proper stockpiling of materials are included.	2.9.1				
Construction site parking is addressed.	2.9.2.1				
Construction equipment parking is addressed.	2.9.2.2				
Access and haul roads are addressed.	2.9.2.3				
A requirement for marking and lighting of vehicles to comply with AC 150/5210-5, *Painting, Marking and Lighting of Vehicles Used on an Airport,* is included.	2.9.2.4				
Proper vehicle operations, including requirements for escorts, are described.	2.9.2.5, 2.9.2.6				
Training requirements for vehicle drivers are addressed.	2.9.2.7				
Two-way radio communications procedures are described.	2.9.2.9				
Maintenance of the secured area of the airport is addressed.	2.9.2.10				
Wildlife Management					
The airport operator's wildlife management procedures are addressed.	2.10				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Foreign Object Debris Management					
The airport operator's FOD management procedures are addressed.	2.11				
Hazardous Materials Management					
The airport operator's hazardous materials management procedures are addressed.	2.12				
Notification of Construction Activities					
Procedures for the immediate notification of airport user and local FAA of any conditions adversely affecting the operational safety of the airport are detailed.	2.13				
Maintenance of a list by the airport operator of the responsible representatives/points of contact for all involved parties and procedures for contacting them 24 hours a day, seven days a week is specified.	2.13.1				
A list of local ATO/Technical Operations personnel is included.	2.13.1				
A list of ATCT managers on duty is included.	2.13.1				
A list of authorized representatives to the OCC is included.	2.13.2				
Procedures for coordinating, issuing, maintaining and cancelling by the airport operator of NOTAMS about airport conditions resulting from construction are included.	2.8, 2.13.2, 2.18.3.3.9				
Provision of information on closed or hazardous conditions on airport movement areas by the airport operator to the OCC is specified.	2.13.2				
Emergency notification procedures for medical, fire fighting, and police	2.13.3				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
response are addressed.					
Coordination with ARFF personnel for non-emergency issues is addressed.	2.13.4				
Notification to the FAA under 14 CFR parts 77 and 157 is addressed.	2.13.5				
Reimbursable agreements for flight checks and/or design and construction for FAA owned NAVAIDs are addressed.	2.13.5.3.2				
Inspection Requirements					
Daily and interim inspections by both the airport operator and contractor are specified.	2.14.1, 2.14.2				
Final inspections at certificated airports are specified when required.	2.14.3				
Underground Utilities					
Procedures for protecting existing underground facilities in excavation areas are described.	2.15				
Penalties					
Penalty provisions for noncompliance with airport rules and regulations and the safety plans are detailed.	2.16				
Special Conditions					
Any special conditions that affect the operation of the airport or require the activation of any special procedures are addressed.	2.17				
Runway and Taxiway Visual Aids - Marking, Lighting, Signs, and Visual NAVAIDs					
The proper securing of temporary airport markings, lighting, signs, and visual NAVAIDs is addressed.	2.18.1				
Frangibility of airport markings, lighting, signs, and visual NAVAIDs is specified.	2.18.1, 2.18.3, 2.18.4.2, 2.20.2.4				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
The requirement for markings to be in compliance with AC 150/5340-1, *Standards for Airport Markings*, is specified.	2.18.2				
Detailed specifications for materials and methods for temporary markings are provided.	2.18.2				
The requirement for lighting to conform to AC 150/5340-30, *Design and Installation Details for Airport Visual Aids;* AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights;* and AC 150/5345-53, *Airport Lighting Certification Program*, is specified.	2.18.3				
The use of a lighted X is specified where appropriate.	2.18.2.1.2, 2.18.3.2				
The requirement for signs to conform to AC 150/5345-44, *Specification for Runway and Taxiway Signs;* AC 50/5340-18, *Standards for Airport Sign Systems;* and AC 150/5345-53, *Airport Lighting Certification Program*, is specified.	2.18.4				
Marking and Signs For Access Routes					
The CSPP specifies that pavement markings and signs intended for construction personnel should conform to AC 150/5340-18 and, to the extent practicable, with the MUTCD and/or State highway specifications.	2.18.4.2				
Hazard Marking and Lighting					
Prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles are specified.	2.20.1				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Hazard marking and lighting are specified to identify open manholes, small areas under repair, stockpiled material, and waste areas.	2.20.1				
The CSPP considers less obvious construction-related hazards.	2.20.1				
Equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast is specified.	2.20.2.1				
The spacing of barricades is specified such that a breach is physically prevented barring a deliberate act.	2.20.2.1				
Red lights meeting the luminance requirements of the State Highway Department are specified.	2.20.2.2				
Barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxi lane, or apron are specified to be as low as possible to the ground, and no more than 18 inch high.	2.20.2.3				
Barricades are specified to indicate construction locations in which no part of an aircraft may enter.	2.20.2.3				
Highly reflective barriers with lights are specified to barricade taxiways leading to closed runways.	2.20.2.5				
Markings for temporary closures are specified.	2.20.2.5				
The provision of a contractor's representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades is specified.	2.20.2.7				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Work Zone Lighting for Nighttime Construction					
If work is to be conducted at night, the CSPP identifies construction lighting units and their general locations and aiming in relationship to the ATCT and active runways and taxiways.	2.21				
Protection of Runway and Taxiway Safety Areas					
The CSPP clearly states that no construction may occur within a safety area while the associated runway or taxiway is open for aircraft operations.	2.22.1.1, 2.22.3.1				
The CSPP specifies that the airport operator coordinates the adjustment of RSA or TSA dimensions with the ATCT and the appropriate FAA Airports Regional or District Office and issues a local NOTAM.	2.22.1.2, 2.22.3.2				
Procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations, are detailed.	2.22.3.3				
The CSPP specifies that open trenches or excavations are not permitted within a safety area while the associated runway or taxiway is open, subject to approved exceptions.	2.22.1.4				
Appropriate covering of excavations in the RSA or TSA that cannot be backfilled before the associated runway or taxiway is open is detailed.	2.22.1.4				
The CSPP includes provisions for prominent marking of open trenches and excavations at the construction site.	2.22.1.4				
Grading and soil erosion control to maintain RSA/TSA standards are	2.22.3.5				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
addressed.					
The CSPP specifies that equipment is to be removed from the ROFA when not in use.	2.22.2				
The CSPP clearly states that no construction may occur within a taxiway safety area while the taxiway is open for aircraft operations.	2.22.3				
Appropriate details are specified for any construction work to be accomplished in a taxiway object free area.	2.22.4				
Measures to ensure that personnel, material, and/or equipment do not penetrate the OFZ or threshold siting surfaces while the runway is open for aircraft operations are included.	2.22.4.3.6				
Provisions for protection of runway approach/departure areas and clearways are included.	2.22.6				
Other Limitations on Construction					
The CSPP prohibits the use of open flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use.	2.23.1.2				
The CSPP prohibits the use of electrical blasting caps on or within 1,000 ft (300 m) of the airport property.	2.23.1.3				

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.		

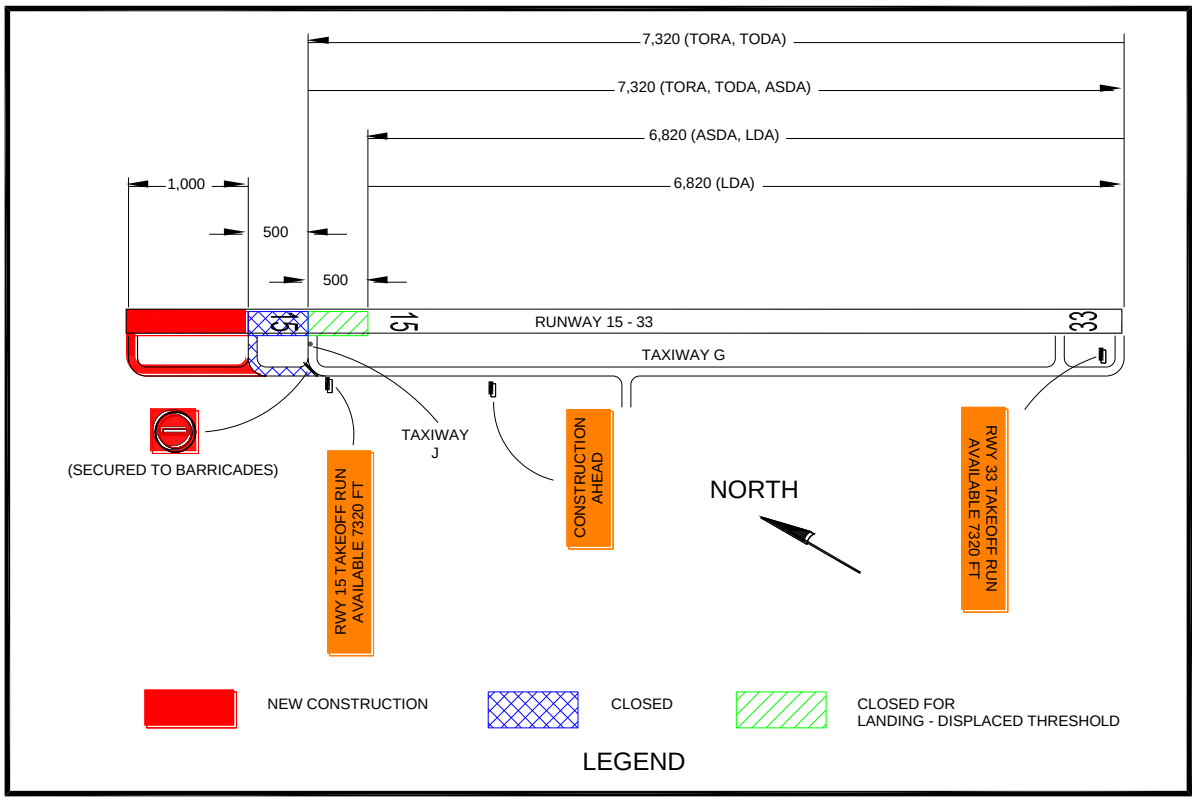
APPENDIX E. SAMPLE OPERATIONAL EFFECTS TABLE

E.1 Project Description.

Runway 15-33 is currently 7820 feet long, with a 500 foot stopway on the north end. This project will remove the stopway and extend the runway 1000 feet to the north and 500 feet to the south. Finally, the existing portion of the runway will be repaved. The runway 33 glide slope will be relocated. The new runway 33 localizer has already been installed by FAA Technical Operations and only needs to be switched on. Runway 15 is currently served only by a localizer, which will remain in operation as it will be beyond the future RSA. Appropriate NOTAMS will be issued throughout the project.

E.1.1 During Phase I, the runway 15 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 15 takeoff and the departure end of runway 33 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 33 will be adjusted to provide the required RSA and applicable departure surface. Excavation near Taxiway G will require its ADG to be reduced from IV to III. See Figure E-1.

Figure E-1. Phase I Example

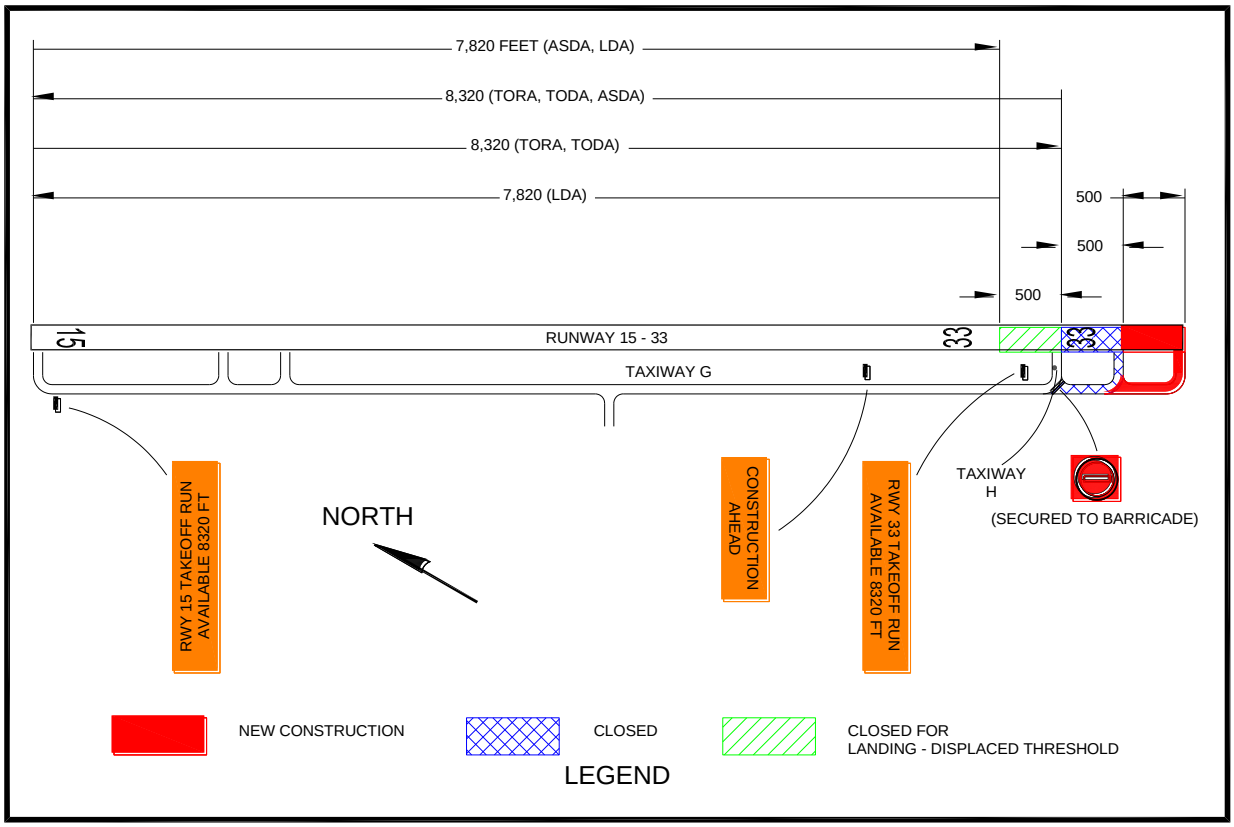


Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

Note 2: Based on the declared distances for Runway 33 departures, the maximum equipment height in the construction area is 12.5 feet (500/40 = 12.5).

E.2 During Phase II, the runway 33 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 33 takeoff and the departure end of runway 15 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 15 will be adjusted to provide the required RSA and applicable departure surface. See Figure E-2.

Figure E-2. Phase II Example



Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

Note 2: Based on the declared distances for Runway 15 departures, the maximum equipment height in the construction area is 12.5 feet (500/40 = 12.5).

E.3 During Phase III, the existing portion of the runway will be repaved with Hot Mix Asphalt (HMA) and the runway 33 glide slope will be relocated. Construction will be accomplished between the hours of 8:00 pm and 5:00 am, during which the runway will be closed to operations.

Figure E-3. Phase III Example

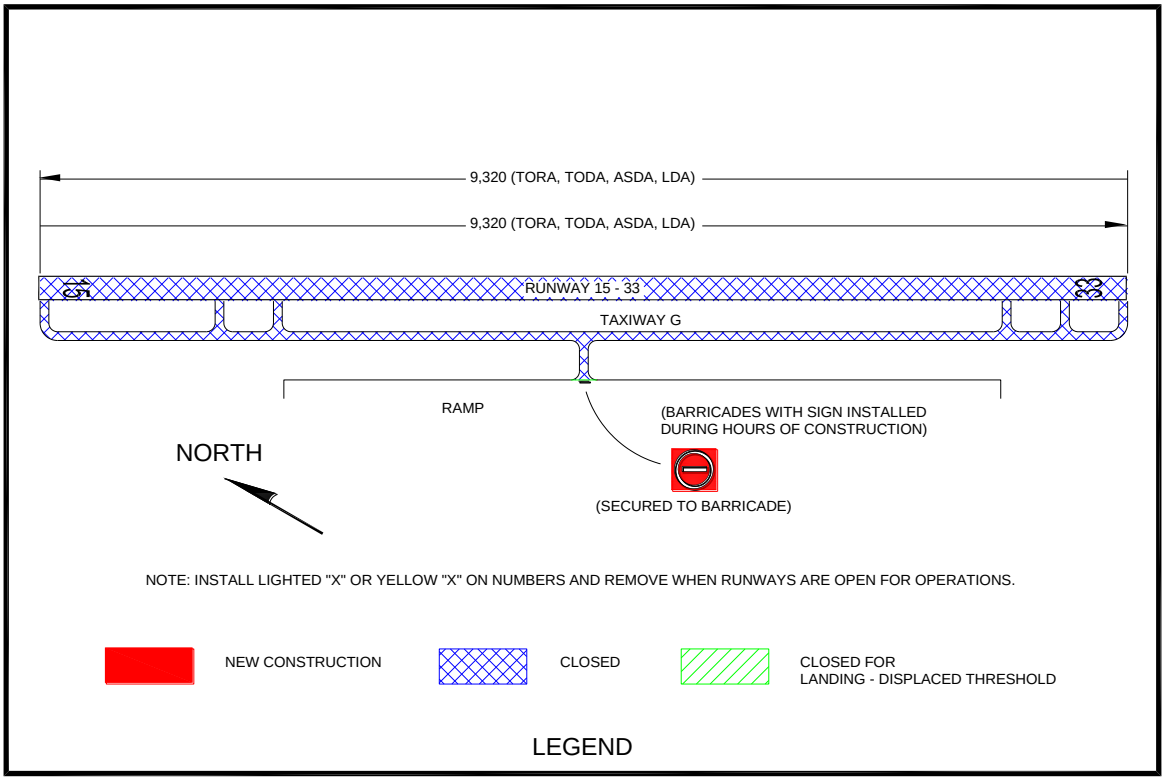


Table E-1. Operational Effects Table

Project	**Runway 15-33 Extension and Repaving**			
Phase	**Normal (Existing)**	**Phase I: Extend Runway 15 End**	**Phase II: Extend Runway 33 End**	**Phase III: Repave Runway**
Scope of Work	N/A	Extend Runway 15-33 1,000 ft on north end with Hot Mix Asphaltic Concrete (HMA).	Extend Runway 15-33 500 ft on south end with Hot Mix Asphaltic Concrete (HMA).	Repave existing runway with HMA Relocate Runway 33 Glide Slope
Effects of Construction Operations	N/A	Existing North 500 ft closed	Existing South 500 ft closed	Runway closed between 8:00 pm and 5:00 am Edge lighting out of service
Construction Phase	N/A	Phase I (Anticipated)	Phase II (Anticipated)	Phase III (Anticipated)
Runway 15 Average Aircraft Operations	Carrier: 52 /day GA: 26 /day Military: 11 /day	Carrier: 40 /day GA: 26 /day Military: 0 /day	Carrier: 45 /day GA: 26 /day Military: 5 /day	Carrier: 45 / day GA: 20 / day Military: 0 /day
Runway 33 Average Aircraft Operations	Carrier: 40 /day GA: 18 /day Military: 10 /day	Carrier: 30 /day GA: 18 /day Military: 0 /day	Carrier: 25 /day GA: 18 /day Military: 5 /day	Carrier: 20 /day GA: 5 /day Military: 0 /day
Runway 15-33 Aircraft Category	C-IV	C-IV	C-IV	C-IV
Runway 15 Approach Visibility Minimums	1 mile	1 mile	1 mile	1 mile
Runway 33 Approach Visibility Minimums	¾ mile	¾ mile	¾ mile	1 mile

Note: Proper coordination with Flight Procedures group is necessary to maintain instrument approach procedures during construction.

Project		Runway 15-33 Extension and Repaving			
Phase		Normal (Existing)	Phase I: Extend Runway 15 End	Phase II: Extend Runway 33 End	Phase III: Repave Runway
Runway 15 Declared Distances	TORA	7,820	7,320	8,320	9,320
	TODA	7,820	7,320	8,320	9,320
	ASDA	7,820	7,320	7,820	9,320
	LDA	7,820	6,820	7,820	9,320
Runway 33 Declared Distances	TORA	7,820	7,320	8,320	9,320
	TODA	7,820	7,320	8,320	9,320
	ASDA	8,320	6,820	8,320	9,320
	LDA	7,820	6,820	7,820	9,320
Runway 15 Approach Procedures		LOC only	LOC only	LOC only	LOC only
		RNAV	RNAV	RNAV	RNAV
		VOR	VOR	VOR	VOR
Runway 33 Approach Procedures		ILS	ILS	ILS	LOC only
		RNAV	RNAV	RNAV	RNAV
		VOR	VOR	VOR	VOR
Runway 15 NAVAIDs		LOC	LOC	LOC	LOC
Runway 33 NAVAIDs		ILS, MALSR	ILS, MALSR	ILS, MALSR	LOC, MALSR
Taxiway G ADG		IV	III	IV	IV
Taxiway G TDG		4	4	4	4
ATCT (hours open)		24 hours	24 hours	24 hours	0500 - 2000
ARFF Index		D	D	D	D

Project	Runway 15-33 Extension and Repaving			
Phase	**Normal (Existing)**	**Phase I: Extend Runway 15 End**	**Phase II: Extend Runway 33 End**	**Phase III: Repave Runway**
Special Conditions	Air National Guard (ANG) military operations	All military aircraft relocated to alternate ANG Base	Some large military aircraft relocated to alternate ANG Base	All military aircraft relocated to alternate ANG Base
Information for NOTAMs		Refer above for applicable declared distances. Taxiway G limited to 118 ft wingspan	Refer above for applicable declared distances.	Refer above for applicable declared distances. Airport closed 2000 – 0500. Runway 15 glide slope OTS.

Note: This table is one example. It may be advantageous to develop a separate table for each project phase and/or to address the operational status of the associated NAVAIDs per construction phase.

Complete the following chart for each phase to determine the area that must be protected along the runway and taxiway edges:

Table E-2. Runway and Taxiway Edge Protection

Runway/Taxiway	Aircraft Approach Category* A, B, C, or D	Airplane Design Group* I, II, III, or IV	Safety Area Width in Feet Divided by 2*

*See AC 150/5300-13 to complete the chart for a specific runway/taxiway.

Complete the following chart for each phase to determine the area that must be protected before the runway threshold:

Table E-3. Protection Prior to Runway Threshold

Runway End Number	Airplane Design Group* I, II, III, or IV	Aircraft Approach Category* A, B, C, or D	Minimum Safety Area Prior to the Threshold*	Minimum Distance to Threshold Based on Required Approach Slope*	
			ft	ft	: 1
			ft	ft	: 1
			ft	ft	: 1
			ft	ft	: 1

*See AC 150/5300-13 to complete the chart for a specific runway.

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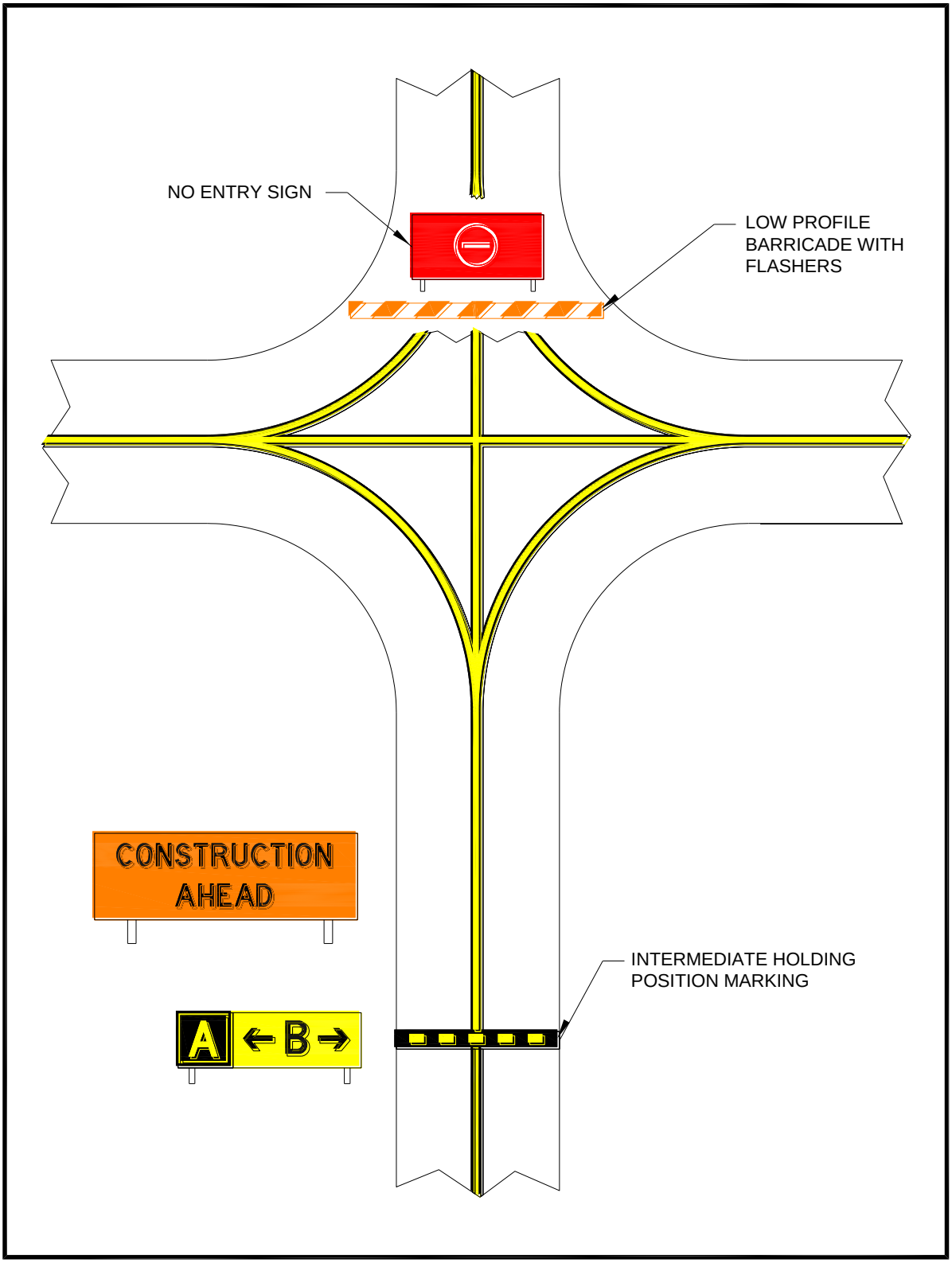
APPENDIX F. ORANGE CONSTRUCTION SIGNS

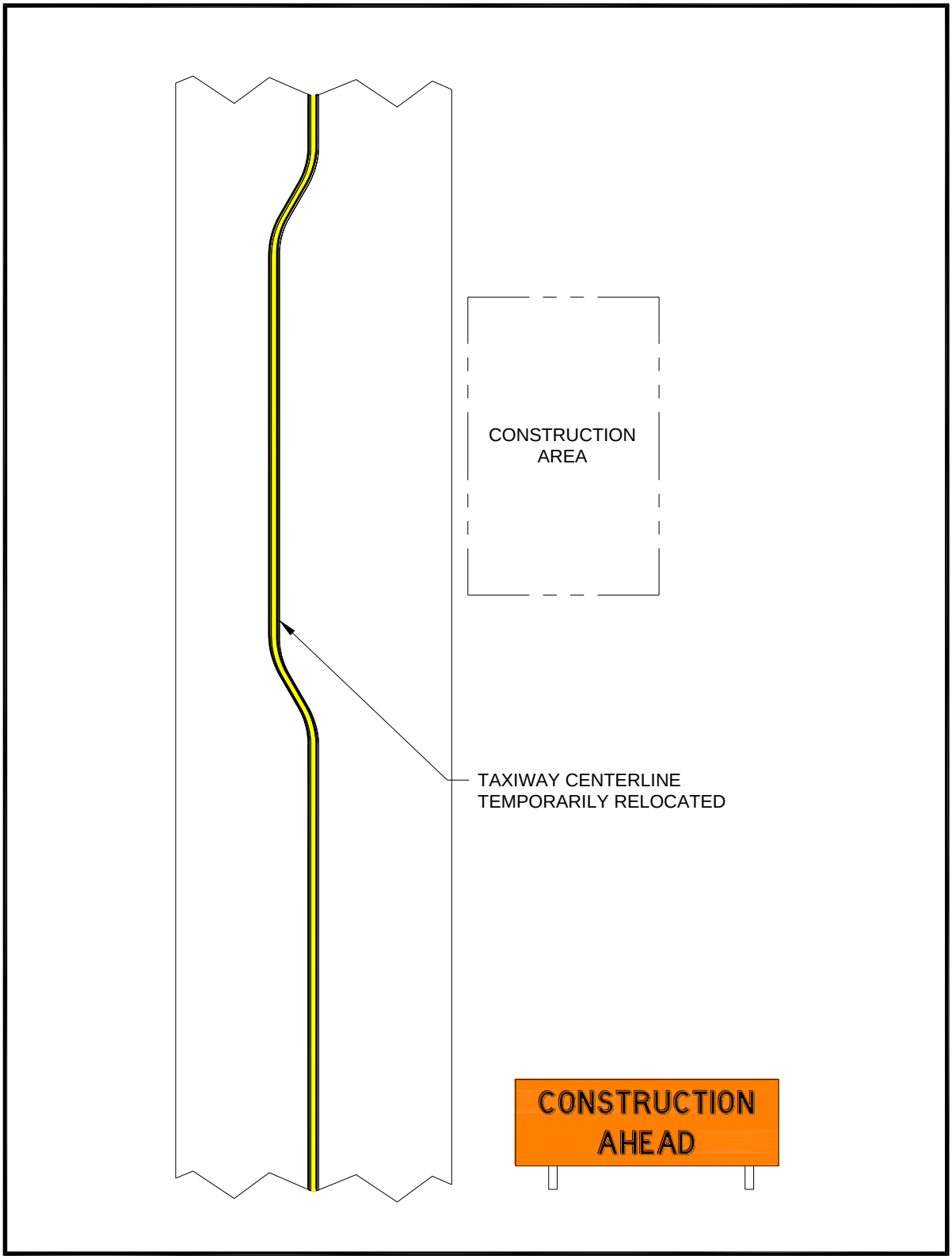
Figure F-1. Approved Sign Legends

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.

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Advisory Circular Feedback

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Engineering Division, Federal Aviation Administration ATTN: AAS-100, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5370-2G Date: _____

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:

_____
_____
_____

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

_____
_____
_____

☐ Other comments:

_____
_____
_____

☐ I would like to discuss the above. Please contact me at (phone number, email address).

_____

Submitted by: _____ Date: _____

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