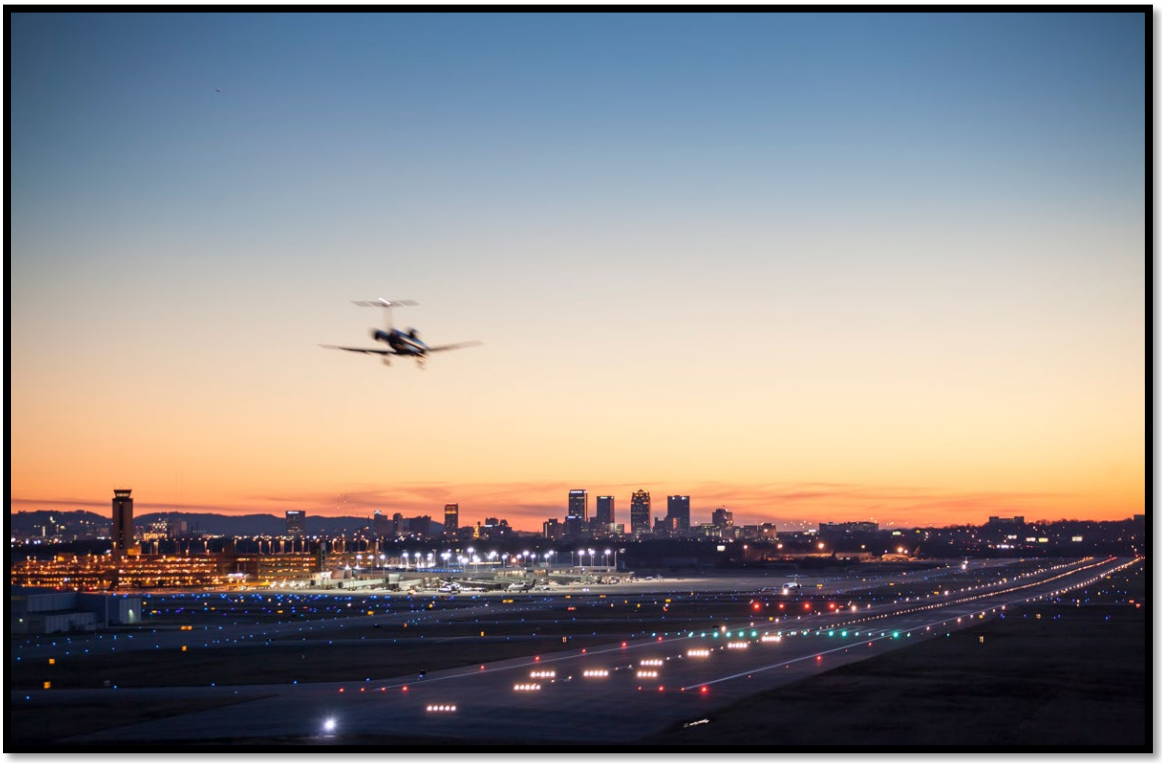
Request for Bid (RFB)

East FBO Connector Taxiway Pavement Repair

BIRMINGHAM-SHUTTLESWORTH
INTERNATIONAL AIRPORT



Birmingham Airport Authority
June 2025

I. Introduction

A. Project Description

The Birmingham Airport Authority ("BAA" or "Authority") is requesting bids (RFB) for the East FBO Connector Taxiway Pavement Repair at the Birmingham-Shuttleworth International Airport.

The goal of this procurement effort is to enter into a contract with the lowest responsive and responsible bidder to install a permanent repair to the East FBO Connector Taxiway, as further described in this RFB.

B. Proposed Scope of Work

See Exhibit A, IFB Plans and Specifications.

C. Term of Agreement

The term of the agreement resulting from this solicitation is for 60 calendar days.

General Conditions

i. **Terms and Conditions:** Contractor agrees to abide by all the terms and conditions contained in this RFB. Any exceptions to the requirements of this RFB, or the BAA's terms and conditions of this RFB, shall be noted in writing, with detailed explanation, and included with the RFB submittal. The Contractor acknowledges that taking exceptions to this RFB may subject the response submittal to be rejected.

ii. **Discussions and Questions:** All questions must be submitted in writing and directed to the Birmingham Airport Authority (BAA) VP of Purchasing, Ed Seoane at eseoane@flybm.com in order to be considered. The Contractor shall not attempt to discuss any aspects of the request with any other party except for the email address described in this RFP. No verbal agreements will be considered during the proposal process. BAA reserves the right to reject the proposal of any Contractor violating this provision.

iii. **Completeness:** All requested information and required forms must be completed, signed, and submitted with this document to constitute a proper bid proposal. The entire package must be complete with all required forms, signature, and information. Failure to complete or comply with any part of the specifications or requirements in this RFB may constitute a basis of rejection. It is within the right of the BAA to reject any RFB submittal in this solicitation document.

iv. **Errors:** Contractors or their authorized representative are expected to fully inform themselves as to the conditions, requirements, and specifications before submitting proposals. Contractors are cautioned not to obliterate, erase, or strike-over any printed material as set forth in this RFB. In quoting prices, wherever Contractor has made an error and has corrected, all such corrections should be initialed by the person signing this RFB. If errors occur in the extension of prices in the RFB, the unit prices shall govern. Failure to comply with this provision may result in rejection of Contractor's submittal. All documents submitted must be legible.

v. **Changes/Modifications:** No changes or modifications shall be made to any BAA forms without the approval of the BAA. If changes or modifications are made without the approval of BAA, the proposal submitted by Contractor may be rejected.

vi. **Compliance with Laws:** The Contractor shall obtain and maintain all licenses, permits, liability insurance, and workman's compensation insurance, and maintain compliance with any other federal, state, or local requirements during the term of the contract with BAA and in submitting a proposal.

vii. **Specifications:** Whenever mention is made of any article, material, or workmanship to be in accordance with any laws, ordinances, codes, regulations, etc., these requirements shall be construed to be the minimum requirements of these specifications.

viii. **Quality:** All materials used for the manufacture or construction of any supplies, materials, equipment, or service shall be new unless otherwise specified. All materials shall be of the best quality, and to the highest grade of workmanship that meet the specifications in this document. Materials or service must comply with all applicable Federal, State, or OSHA requirements.

ix. **Acceptance of Material:** The materials delivered shall remain the property of the Contractor pending physical inspection and acceptance to the satisfaction of the BAA. In the event the material supplied to BAA is found to be defective or does not conform to specifications, the BAA reserves the right to cancel the order upon written notice to the Contractor and return the product(s) to the Contractor at the Contractor's expense, and to invoke the provisions of the section titled "Default".

x. **Default:** Any contract made between BAA and the Contractor can be cancelled by the BAA in whole or in part via written notice, upon the Contractor's non-performance or violation of contract terms. The Contractor will be given 15 days to rectify the non-performance or violation. An award may be made to the lowest quoting Contractor for material or services specified, and purchases may be made on the open market. The defaulting Contractor shall be liable for costs to the BAA in excess of the defaulted contract prices. The Contractor shall continue the performance of the contract to the extent any part is not terminated under the provisions of this clause.

xi. **Termination of Agreement:** In addition to any other rights and remedies allowed by law, BAA may terminate this Agreement at any time for any reason, or no reason, with or without cause, without penalty or expense to BAA of any kind whatsoever, by giving (15) days written notice to Contractor of such termination and specifying the effective date of the termination. Termination of this agreement as provided in section Xi shall release BAA from any further fees to be paid to contractor after the date of termination, other than any unpaid fees earned for Services which were satisfactorily performed prior to the effective date of the termination.

xii. **Guarantee:** The Contractor shall unconditionally guarantee the materials and workmanship on all materials and/or services for the Contractor's specified guaranteed period, unless otherwise stated. Within the guarantee period, if any defects occur which are due to faulty material and/or services, Contractor shall repair, replace, and/or adjust such faulty material and/or services to the complete satisfaction of the BAA. These repairs, replacements, or adjustments shall be made only at a time lest detrimental to the operation of the BAA.

xiii. **Add/Delete Items:** During the term of the contract, items and/or services may be added and/or deleted to the contract upon agreement between the successful Contractor and BAA.

xiv. **Reimbursement:** The BAA will not reimburse the Contractor for any costs associated with the preparation and submittal of any RFB response, or for any travel and/or per diem costs that are incurred.

xv. **Submitted Material:** All requests, responses, inquiries, or correspondence relating to, or in- reference to this document submitted by Contractors shall become the property of the BAA when received. Once an award is made, all excess copies at the Contractor's request may be destroyed.

xvi. **Outside Estimates:** The BAA reserves the right to obtain an outside estimate, or to have the product or service provided outside of this contract when it is in the best interest of the BAA.

xvii. **Disclaimer:** This is a Request for Proposal. This is not an offer or contract. The submission of a proposal in response to this process does not impose any legal obligations upon BAA, nor does it create any contractual or quasi-contractual relationship between BAA and any Contractor. BAA reserves the right to reject or disregard any or all proposals, to negotiate with any or all Contractors, and/or to enter a contract or contracts with any Contractor or Contractors for any or all of the services described herein. BAA is not obligated to respond to any statement or proposal. This RFB is subject to errors, omissions, modifications, withdrawal, or cancellation without notice.

II. Special Conditions

i. **Title VI Solicitation Notice:** The Birmingham Airport Authority (Authority), in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat.252, 42 USC 2000d to 2000d-4) and the regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that any contract entered into pursuant to this RFB, minority business enterprises and/or disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and not businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

ii. **Minority Business:** The BAA encourages all Minority Business Enterprises (MBE), Woman Owned Business Enterprises (WBE), and Small Business Enterprises (SBE) to participate. BAA has a MBE/WBE participation goal for the scope of work associated with this RFB of seventeen percent (17%) and an SBE participation goal of three percent (3%) (the "MBE/WBE & SBE Participation Goal").

iii. **Taxes:** The Contractor, at its expense, shall pay all sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor for which the Contractor is charged.

iv. **Indemnification:** Contractor undertakes and agrees to indemnify and hold harmless BAA, and any and all its Board Members, officers and employees, from and against all suits and causes of action, claims, losses, demands and reasonable expenses, including by not limited to, reasonable attorney's fees and reasonable costs of litigation, damage(s) or liability, including but not limited to death or injury, or for damage to, or destruction of, any property, arising by reasons of the performance of the contract to the extent caused by the negligent performance of the professional services under the contract on the part of the Contractor, or any of the Contractor's Subcontractors, employees, or anyone for whom the Contractor has obligated itself under the contract. THERE IS NO EXPECTATION OF ANY INDEMNIFICATION BEING PROVIDED TO CONTRACTOR BY THE BAA.

v. **Changes and Alterations**: The BAA reserves the right to make any alterations in the RFB and/or contract as may be necessary due to changing conditions found during the Project. The Contractor shall not claim forfeiture of contract by reasons of such changes by the BAA representative. If such changes increase or decrease the amount of the work or materials, the Contractor will be paid according to the quantity of product delivered at the prices established for such work under the contract. Any alterations or changes that diminish the scope of work or materials shall not constitute a claim for damages or for the loss of anticipated profits. Any alterations from the original job estimate provided by Contractor must be submitted in writing and must be approved by the designated BAA Representative.

vi. **Cure and Cover Clause:** If a successful Contractor fails, or BAA concludes that there is a reasonable likelihood that the Contractor will not be able to timely perform its obligations under this RFB and/or contract, BAA may (in addition to any other contractual, legal, or equitable remedies) proceed to take any of the following actions after five (5) days' written notice to the Contractor: (A) Withhold any monies then or next due to the Contractor; or (B) Terminate the contract and obtain the deliverables (or equivalent) or portion thereof (or equivalent) from a third party, pay the third party for the same, and withhold the amount so paid from any money then or thereafter due to Contractor and hold Contractor liable for any amounts paid to the third party (or parties) to the extent that withholding payments to the Contractor does not cover BAA's cost of cover.

vii. **The BAA Reserves the Right:** (a) to award proposals received on individual items, or on the entire list of items; and (b) to reject any or all proposals or any part thereof; and (c) to waive any irregularities and/or technicalities on the proposals; and (d) to accept the proposal that is in the best interest of BAA; and (e) to obtain clarification or additional information for any proposal; and (f) to purchase either selected items, or to not select any Contractor or purchase any goods and/or services resulting from this request; and (g) to reject any Contractor who has previously failed to perform properly or complete on time projects of a similar nature, and (h) to reject any Contractor whom investigation shows Contractor is not in a position to perform the Project and/or service as specified in this RFB.

viii. **Basis of Award:** The basis of evaluation will be best value considering price and Contractor availability to seek or exceed BAA's specifications and requirements. The proposal is subject to be awarded to the most responsive and responsible Contractor whose proposal is evaluated to be the most advantageous to the BAA considering price and other factors. The award can be made to one or multiple Contractors, whichever is in the best interest of the BAA. Other suppliers and tertiary suppliers may be selected to fill orders or provide contracted services if the primary supplier cannot make provision to the BAA when time is of the essence.

ix. **Insurance:** The selected Contractor shall procure, at its expense, and keep in full force and effect at all times during the term of the contract, the types and amounts of insurance specified herein and in Exhibit C attached hereto and made a part hereof.

x. **General Contractors License: The contractor is required to be licensed by the Alabama State Licensing Board for General Contractors if the contract sum is $100,000 or more.**

xi. **Bonds: The Contractor If awarded the contract shall at the Contractor's expense furnish to BAA a Performance Bond and a Payment Bond, each in a penal sum equal to 100% of the Bid price.**

III. Submittal Requirements

A. Selection Process

The basis of award will be the lowest cost summation of pay items associated with the Scope of Work. In determining the apparent low Bid, the Owner reserves the right to correct, in all Bids, obvious mathematical errors within the Total Bid Price, page totals or any combination thereof, and acknowledgement of any MBE/WBE subcontractors.

The Owner will reject any Bid for cause which, in the Owner's judgment and sole discretion, is sufficient to justify disqualification of a Bidder or the rejection of its Bid.

B. Project Proposal

Please submit (sealed) one (1) copy and one (1) electronic copy (via USB Flash Drive) of your bid proposal to the address below by 2:00 P.M. Central on Wednesday, July 16th 2025.

Contact: Ed A Seoane, Vice President of Purchasing

E-mail: eseoane@flybhm.com

Address: Birmingham Airport Authority
5900 Messer Airport Highway
Birmingham, AL 35212

Deliveries can also be made in-person to the BAA Office located on the ground level of the Terminal Building (located at the above address).

All questions associated with this RFB must be submitted in writing via e-mail to Ed Seoane, Vice President of Purchasing, at eseoane@flybhm.com by the deadline identified for questions/clarifications (see timeline).

Bid proposals shall remain valid for ninety (90) calendar days after the submission deadline. By submission of a bid/quote, Contractor agrees that its bid/quote is valid for ninety (90) calendar days after the submission deadline.

C. Bid Proposal Format (Required Documents)

i. **Cost Proposal:** Provide the proposed cost on Exhibit B (Bid Form) to complete the scope of work.
ii. **MBE/WBE Participation:** Provide a detailed breakdown (via Exhibit E) of any MBE/WBE firms that will be utilized throughout the scope of work.
iii. **Construction Contract:** Please confirm review and acceptance of the terms in the BAA Construction Contract, Exhibit D. Pay special attention to Section 2. Standard of Care; licenses; Badges and Section 6. Bonds. Note any exceptions to the contract.

D. Tentative RFB Timeline

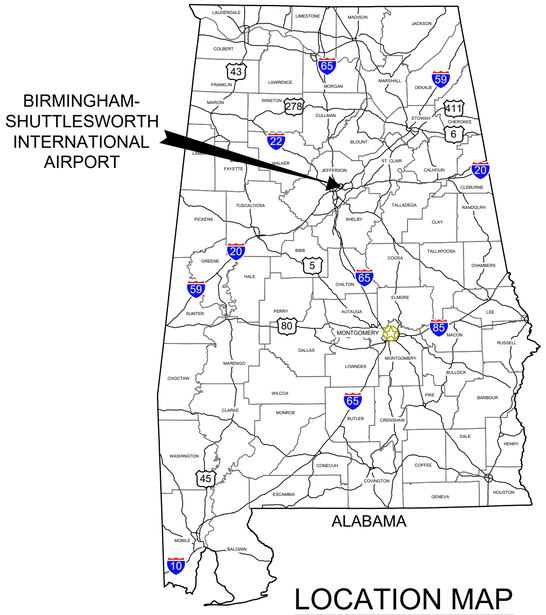
All deadlines are by 2:00 P.M. Central Time on each respective date.

RFB Posted	June 18th, 2025
Pre-Bid Meeting – Virtual Meeting **Send RSVP to Ed Seoane (eseoane@flybhm.com) and Ocean Boyd (oboyd@flybhm.com) no later than Monday, June 23rd to receive calendar invite.**	Wednesday, June 25th, 2025 (at 2 P.M. Central)
Deadline for Proposal Questions/Clarifications	Wednesday, July 2nd, 2025 (at 2 P.M. Central)
Bid Opening	Wednesday, July 16th, 2025 (at 2 P.M. Central)
Contract Award Date	July/August 2025

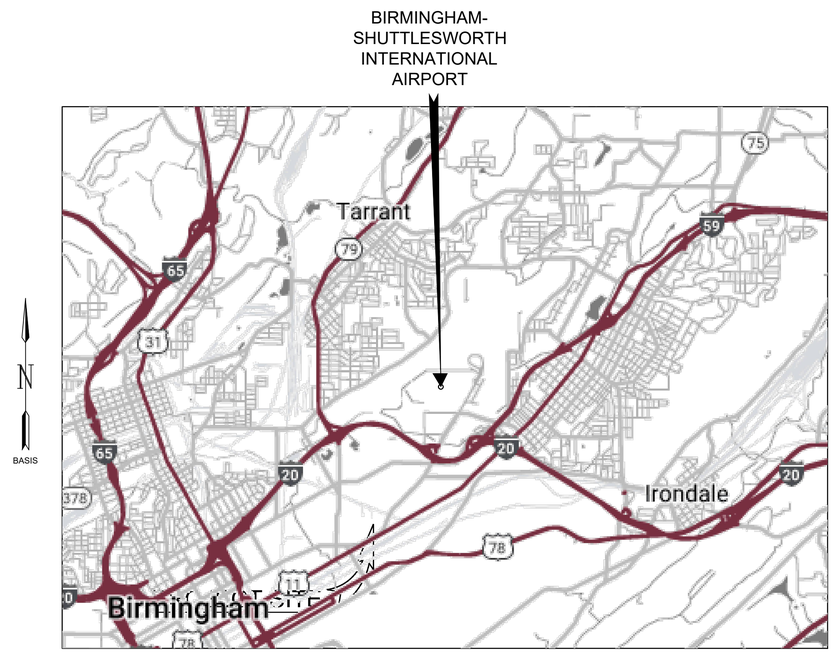
Exhibit A

IFB Plans and Specifications

EAST ATLANTIC CONNECTOR TAXIWAY
PAVEMENT REPAIR PROJECT
BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA



LOCATION MAP



VICINITY MAP

NO SCALE

SHEET INDEX	
DRAWING NO.	TITLE
GI0.01	COVER SHEET
GI1.01	SUMMARY OF QUANTITIES, PROJECT LAYOUT & SURVEY CONTROL PLAN
GC0.01-GC0.02	CONSTRUCTION SAFETY & PHASING PLAN NOTES
GC1.01	CONSTRUCTION SAFETY & PHASING PLAN
CD1.01	EXISTING CONDITIONS & DEMOLITION PLAN
CP1.01	EAST ATLANTIC CONNECTOR TAXIWAY PLAN & PROFILE SHEET
CP2.01	ASPHALT PAVING DETAILS
CM1.01	AIRFIELD PAVEMENT MARKING PLAN
CM2.01	AIRFIELD PAVEMENT MARKING DETAILS
XS1.01	EAST ATLANTIC CONNECTOR TAXIWAY CROSS SECTIONS

GARVER PROJECT NO. 2302499
MAY 2025

GARVER
5125A Research Drive NW
Huntsville, AL 35805
(256) 534-5512

GARVER
5125A Research Drive NW
Huntsville, AL 35805
(256) 534-5512

REV.	DATE	DESCRIPTION	BY

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

COVER SHEET

JOB NO.: 2302499
DATE: MAY 2025
DESIGNED BY: MAH
DRAWN BY: MAH

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DRAWING NUMBER
GI0.01

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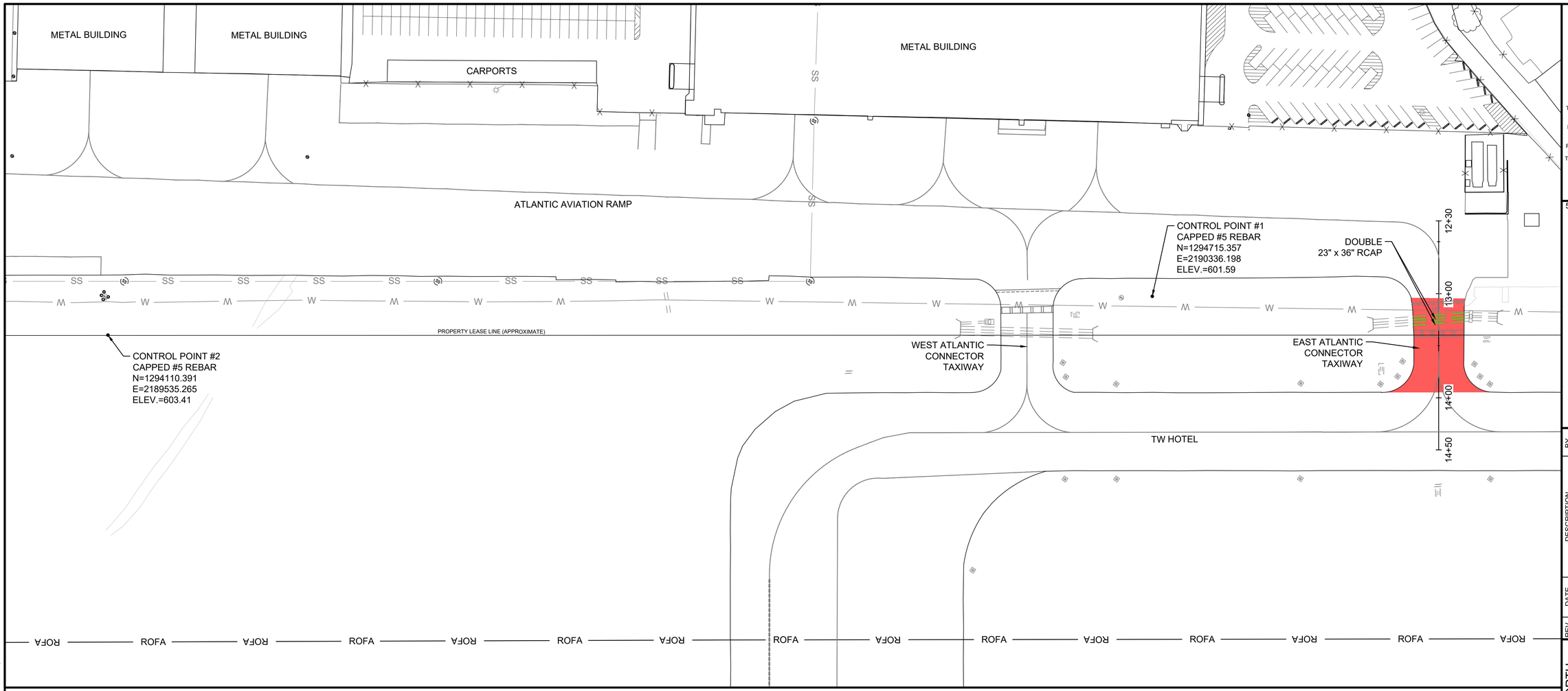
Last plotted by: Harp, Mike. A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 5/13/2025 10:45 AM Plotter used: DWG To PDF.pc3



SUMMARY OF QUANTITIES

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY
1	SS-120-3.1	CONSTRUCTION SAFETY AND SECURITY	LS	1
2	SS-150-5.1	RCP LIFT HOLE REPAIR	LS	1
3	SS-220-5.1	PAVEMENT EDGE GRADING	LF	213
4	C-100-14.1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	LS	1
5	C-105-6.1	MOBILIZATION (MAXIMUM 10% OF TOTAL BID)	LS	1
6	P-101-5.1	PAVEMENT REMOVAL	SY	526
7	P-209-5.1	CRUSHED AGGREGATE BASE COURSE, 6-INCH THICKNESS	SY	550
8	P-401-8.1	ASPHALT SURFACE COURSE, 3-INCH THICKNESS	TON	97
9	P-602-5.1	EMULSIFIED ASPHALT PRIME COAT	GAL	165
10	P-620-5.1	PERMANENT STAIN AND ALGAE RESISTANT PAVEMENT MARKING WITH REFLECTIVE MEDIA, YELLOW	SF	404
11	P-620-5.2	PERMANENT STAIN AND ALGAE RESISTANT PAVEMENT MARKING, BLACK	SF	644
12	T-904-5.1	SODDING	SY	70

EAST ATLANTIC CONNECTOR TAXIWAY ALIGNMENT DATA

DESCRIPTION	STATION	NORTHING	EASTING
POB	12+30.00	1294932.29	2190520.16
POE	14+50.00	1294751.94	2190646.15

ITEMS OF WORK

- CONTRACTOR SHALL REMOVE PAVEMENT IN AREA SPECIFIED IN THE PLANS.
- CONTRACTOR SHALL EXPOSE DOUBLE 23" x 36" ARCH RCP FALLING WITHIN THE PAVEMENT FOOTPRINT AND PLUG ALL OPEN PICK EYE HOLES.
- CONTRACTOR SHALL RE-DRESS AND COMPACT EXISTING CRUSHED AGGREGATE BASE PER PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL PERFORM 3" OVERLAY PER PROJECT PLANS AND SPECIFICATIONS.
- CONTRACTOR SHALL APPLY AIRFIELD PAVEMENT MARKINGS.PER PROJECT PLANS AND SPECIFICATIONS.

LEGEND

- PROPOSED ASPHALT PAVEMENT
- EXISTING PIPES TO BE REPAIRED
- ROFA — RUNWAY OBJECT FREE AREA

NOTES:

1. CONTRACTOR SHALL PROTECT ALL CONTROL POINTS.
2. CONTRACTOR SHALL VERIFY CONTROL POINTS AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION.
3. BASIS FOR BEARINGS SHOWN HEREON IS THE ALABAMA STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83), ZONE WEST. SURVEY PROVIDED BY AULICK ENGINEERING.

0 25' 50' 100' 150'
(IN FEET)

5125A Research Drive NW
Huntsville, AL 35805
(256) 534-5512

REV.	DATE	DESCRIPTION	BY

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

SUMMARY OF QUANTITES, PROJECT LAYOUT & SURVEY CONTROL PLAN

JOB NO.: 2302499
DATE: MAY 2025
DESIGNED BY: MAH
DRAWN BY: MAH

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DRAWING NUMBER
GI1.01

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1. COORDINATION

   A. CONTRACTOR PROGRESS MEETINGS - THE OWNER, ENGINEER AND CONTRACTOR WILL HOLD PROGRESS MEETINGS ON A COORDINATED SCHEDULE DURING CONSTRUCTION. OPERATIONAL SAFETY WILL BE A STANDING AGENDA ITEM IN SUCH MEETINGS.

   B. SCOPE OR SCHEDULE CHANGES - THE OWNER AND/OR ENGINEER WILL CALL SUCH COORDINATION CONFERENCES AS MAY SEEM EXPEDIENT TO HIM FOR THE PURPOSE OF ASSURING COORDINATION OF THE WORK COVERED BY THIS CONTRACT AND/OR SCOPE OR SCHEDULE CHANGES. THE CONTRACTOR SHALL ATTEND ALL SUCH CONFERENCES.

   C. FAA ATO COORDINATION - COORDINATION WITH THE FAA ATO FOR THE REQUIRED SHUTDOWN OF FAA FACILITIES FOR THIS PROJECT WILL BE COORDINATED THROUGH THE ENGINEER AND AIRPORT OPERATIONS.

2. PHASING

   DURING PERFORMANCE OF THIS PROJECT, THE AIRPORT RUNWAYS, TAXIWAYS, AND AIRCRAFT PARKING APRONS SHALL REMAIN IN USE BY AIRCRAFT TO THE MAXIMUM EXTENT POSSIBLE. THE PROJECT SHALL BE PHASED TO REDUCE OPERATIONAL IMPACTS AT THE AIRPORT.

   A. PHASE ELEMENTS - IF NECESSARY FOR A GIVEN PHASE, EACH PHASE OF THE CONSTRUCTION SAFETY DRAWINGS SHALL DETAIL THE AREAS CLOSED TO AIRCRAFT OPERATIONS, ESTIMATED DURATION OF CLOSURES, CONSTRUCTION STAGING AREAS, AND CONSTRUCTION ACCESS AND HAUL ROUTES.

   B. CONSTRUCTION SAFETY DRAWINGS - SEE SHEET CP1.01 FOR CONSTRUCTION SAFETY DRAWINGS.

3. AREAS OF OPERATIONS AFFECTED BY CONSTRUCTION ACTIVITY

   A. IDENTIFICATION OF AFFECTED AREAS - SEE CONSTRUCTION SAFETY DRAWINGS FOR AIRFIELD AREAS OF OPERATIONS AFFECTED BY CONSTRUCTION.

   B. MITIGATION EFFORTS - SEE CONSTRUCTION SAFETY DRAWINGS FOR MITIGATION EFFORTS OF OPERATIONS AFFECTED BY CONSTRUCTION.

4. PROTECTION OF NAVIGATION AIDS (NAVAIDS)

   THE CONTRACTOR MUST NOT CONDUCT ANY CONSTRUCTION ACTIVITY WITHIN NAVIGATIONAL AID RESTRICTED AREAS WITHOUT PRIOR APPROVAL FROM THE LOCAL FAA AIRWAY FACILITIES SECTOR REPRESENTATIVE. NAVIGATIONAL AIDS INCLUDE INSTRUMENT LANDING SYSTEM COMPONENTS, VERY HIGH-FREQUENCY OMNI-DIRECTIONAL RANGE STATIONS, AND AIRPORT SURVEILLANCE RADAR. SUCH RESTRICTED AREAS ARE DEPICTED ON CONSTRUCTION PLANS. PLANNED CONSTRUCTION ACTIVITIES WILL HAVE NO NEGATIVE IMPACTS ON THE FUNCTIONALITY AND SERVICEABILITY OF THE NAVAIDS.

5. CONTRACTOR ACCESS

   A. LOCATION OF STOCKPILED MATERIALS - THE CONTRACTOR SHALL INSTALL A TEMPORARY FENCE AROUND HIS CONSTRUCTION STAGING AREA TO SEPARATE HIS BATCH PLANT, MATERIAL STOCKPILE, EQUIPMENT STORAGE, AND PARKING AREAS FROM THE PUBLIC. NO PERSONAL VEHICLES OF CONTRACTOR'S EMPLOYEES WILL BE ALLOWED INSIDE THE SECURED AREA OF THE AIRPORT. ALL MATERIAL DELIVERIES SHALL BE RECEIVED IN THE STAGING AREA RESERVED BY THE CONTRACTOR. NO DELIVERY TRUCKS WILL BE ALLOWED ACCESS TO A SECURED AREA OF THE AIRPORT BEYOND THIS STAGING AREA. STOCKPILED MATERIALS AND EQUIPMENT ARE NOT PERMITTED WITHIN THE ACTIVE RUNWAY SAFETY AREA AND OBSTACLE FREE ZONE. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER AND FAA AIR SPACING OFFICE PRIOR TO LOCATING STOCKPILES OR EQUIPMENT WITHIN THE OBJECT FREE AREA, SAFETY AREA, OR OBSTACLE FREE ZONE. NO STOCKPILE SHALL BE GREATER THAN 15-FT IN HEIGHT.

   B. VEHICLE AND PEDESTRIAN OPERATIONS - SEE THE CONSTRUCTION SAFETY DRAWINGS FOR CONSTRUCTION SITE PARKING, EQUIPMENT STORAGE AREAS, AND ACCESS AND HAUL ROUTES. VEHICULAR TRAFFIC SHALL ALWAYS YIELD TO AIRCRAFT TRAFFIC.

      WHEN ANY VEHICLE, OTHER THAN ONE THAT HAS PRIOR APPROVAL FROM THE AIRPORT OPERATOR, MUST TRAVEL OVER ANY PORTION OF AN AIRCRAFT MOVEMENT AREA, IT WILL BE ESCORTED AND PROPERLY IDENTIFIED. TO OPERATE IN THOSE AREAS DURING DAYLIGHT HOURS, THE VEHICLE MUST HAVE A FLAG OR BEACON ATTACHED TO IT. ANY VEHICLE OPERATING ON THE MOVEMENT AREAS DURING HOURS OF DARKNESS OR REDUCED VISIBILITY MUST BE EQUIPPED WITH A FLASHING DOME-TYPE LIGHT, THE COLOR OF WHICH IS IN ACCORDANCE WITH LOCAL OR STATE CODES.

      ALL CONSTRUCTION VEHICLES SHALL BE CLEARLY IDENTIFIED FOR CONTROL PURPOSES BY PROMINENTLY DISPLAYING THE COMPANY NAME ON EACH SIDE OF THE VEHICLE. THE IDENTIFICATION SYMBOLS SHOULD BE A MINIMUM 8-INCH BLOCK-TYPE CHARACTERS OF A CONTRASTING COLOR AND EASY TO READ. THEY MAY BE APPLIED EITHER BY USING TAPE OR A WATER-SOLUBLE PAINT TO FACILITATE REMOVAL. MAGNETIC SIGNS ARE ALSO ACCEPTABLE. IN ADDITION, VEHICLES MUST DISPLAY IDENTIFICATION MEDIA.

      ALL VEHICLE OPERATORS HAVING ACCESS TO THE MOVEMENT AREA MUST UNDERGO BAA AIRFIELD DRIVER TRAINING TO BE FAMILIAR WITH AIRPORT PROCEDURES FOR THE OPERATION OF GROUND VEHICLES AND THE CONSEQUENCES OF NONCOMPLIANCE OR BE ESCORTED BY SOMEONE WHO IS.

      PERSONNEL ENTERING THE SECURED AREA MUST BE IN POSSESSION OF AND DISPLAY A VALID AIRPORT IDENTIFICATION BADGE AT ALL TIMES OR MUST BE ESCORTED BY A PERSON WITH A VALID AIRPORT IDENTIFICATION BADGE. ANY PERSON WHO IS ESCORTING INDIVIDUALS MUST BE IN DIRECT CONTROL OF THE ESCORTED INDIVIDUALS AT ALL TIMES. ANY PERSON WHO HAS BEEN ISSUED A BADGE, BUT IS NOT IN POSSESSION OF THE BADGE, MAY NOT ENTER THE SECURED AREA OF THE AIRPORT. AIRPORT IDENTIFICATION BADGES MAY BE OBTAINED AT THE BHM BADGING OFFICE BY APPOINTMENT ONLY. THERE IS A $25.00 CHARGE FOR ISSUANCE OF THE BADGE AND $35.00 CHARGE FOR THE FINGERPRINTING AND SECURITY THREAT ASSESSMENT. ALL BADGES MUST BE RETURNED TO THE AIRPORT UPON COMPLETION OF THE PROJECT UNLESS DIRECTED OTHERWISE BY THE AIRPORT. ANY FINE, INCLUDING ANY AND ALL ASSOCIATED COSTS, ASSESSED THE AIRPORT FOR FAILURE TO MAINTAIN SECURITY OF THE AIRPORT WHICH ARE A RESULT OF THE NEGLIGENCE OF THE PRIME CONTRACTOR, ANY OF HIS/HER SUBCONTRACTORS, OR ANY SUPPLY/DELIVERY PERSONNEL, WILL BE ASSESSED TO THE PRIME CONTRACTOR AND SHALL BE DEDUCTED FROM ANY MONIES DUE HIM.

      VEHICULAR TRAFFIC LOCATED IN OR CROSSING AN ACTIVE MOVEMENT AREA MUST HAVE A WORKING TWO-WAY RADIO IN CONTACT WITH THE CONTROL TOWER OR BE ESCORTED BY A PERSON IN RADIO CONTACT WITH THE TOWER. THE DRIVER, THROUGH PERSONAL OBSERVATION, SHOULD CONFIRM THAT NO AIRCRAFT IS APPROACHING THE VEHICLE POSITION. CONSTRUCTION PERSONNEL MAY OPERATE IN A MOVEMENT AREA WITHOUT TWO-WAY RADIO COMMUNICATION PROVIDED A NOTAM IS ISSUED CLOSING THE AREA AND THE AREA IS PROPERLY MARKED TO PREVENT INCURSIONS.]

   C. CONTROL OF GATES - THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SECURITY OF THE ACCESS GATES BY KEEPING THE ACCESS GATE LOCKED OR GUARDED AT ALL TIMES. SHOULD THE CONTRACTOR FAIL, AT ANY TIME, TO KEEP THE ACCESS GATE LOCKED OR GUARDED, THERE SHALL BE A FINE OF $200.00 ASSESSED TO THE CONTRACTOR, FOR EACH OCCURRENCE THAT THE CONTRACTOR FAILS TO MAINTAIN THE SECURITY OF THE ACCESS GATE. ALL FINES ASSESSED TO THE CONTRACTOR SHALL BE DEDUCTED FROM ANY MONIES DUE TO HIM/HER.

6. WILDLIFE MANAGEMENT

   IF APPLICABLE, THE CONTRACTOR SHALL REVIEW AND ADHERE TO THE CONTENTS OF THE AIRPORT OPERATOR'S WILDLIFE HAZARD MANAGEMENT PLAN. THE CONTRACTOR SHALL ALSO REVIEW AC 150/5200-33, HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS, AND CERTALERT 98-05, GRASSES ATTRACTIVE TO HAZARDOUS WILDLIFE (www.faa.gov). THE CONTRACTOR SHALL 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. THE CONTRACTOR SHALL MITIGATE THE FOLLOWING ITEMS.

   A. TRASH - THE CONTRACTOR SHALL PERFORM TRASH CLEAN-UP ON A DAILY BASIS.

   B. STANDING WATER - THE CONTRACTOR SHALL PROVIDE TEMPORARY DRAINAGE DURING CONSTRUCTION TO AVOID STANDING WATER.

   C. TALL GRASS AND SEEDS - THE CONTRACTOR SHALL ADHERE TO THE REQUIREMENTS OF SECTION T-901, SEEDING OF THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

   D. POORLY MAINTAINED FENCING AND GATES - THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY DAMAGE TO GATES OR FENCES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRS TO ANY GATES OR FENCES CAUSED BY NEGLIGENCE BY THE CONTRACTOR.

   E. DISRUPTION OF EXISTING WILDLIFE HABITAT - THE CONTRACTOR SHALL NOTIFY THE AIRPORT IMMEDIATELY OF ANY WILDLIFE SIGHTINGS.

7. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT

   THE CONTRACTOR SHALL ENSURE THAT THE PAVEMENT SURFACES ARE KEPT CLEAN FROM DIRT, MUD, AND OTHER DEBRIS FROM THE CONTRACTOR'S EQUIPMENT. FREQUENT CLEAN UP IN THE VICINITY OF CONTRACTOR'S WORK AREAS IS REQUIRED. SEE AC 150/5210-24, FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT (www.faa.gov) FOR FURTHER INSTRUCTION.

8. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT

   IF ANY CONSTRUCTION VEHICLE OR EQUIPMENT IS OPERATED WITHIN AIRPORT PROPERTY, THE CONTRACTOR MUST BE ADEQUATELY PREPARED TO EXPEDITIOUSLY CONTAIN AND CLEAN-UP SPILLS RESULTING FROM FUEL OR HYDRAULIC FLUID LEAKS. SPECIAL CARE MUST ALSO BE TAKEN WHEN HANDLING OR TRANSPORTING HAZARDOUS MATERIALS ON AIRPORT PROPERTY. SEE AC 150/5320-15, MANAGEMENT OF AIRPORT INDUSTRIAL WASTE (www.faa.gov), FOR FURTHER INSTRUCTION.

9. NOTIFICATION OF CONSTRUCTION ACTIVITIES

   A. LIST OF RESPONSIBLE REPRESENTATIVES - A POINT OF CONTACT LIST WILL BE COMPLETED AS PART OF THE SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) AND WILL BE DELIVERED TO ALL PARTIES PRIOR TO CONSTRUCTION.

   B. NOTICES TO AIR MISSIONS (NOTAM) - BEFORE BEGINNING ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR MUST, THROUGH THE AIRPORT OPERATOR, GIVE NOTICE USING THE NOTAM SYSTEM OF PROPOSED LOCATION, TIME, AND DATE OF COMMENCEMENT OF CONSTRUCTION. UPON COMPLETION OF WORK AND RETURN OF ALL SUCH AREAS TO STANDARD CONDITIONS, THE CONTRACTOR MUST, THROUGH THE AIRPORT OPERATOR, VERIFY THE CANCELLATION OF ALL NOTICES ISSUED VIA THE NOTAM SYSTEM.

   C. EMERGENCY NOTIFICATION PROCEDURES - IN THE EVENT OF AN EMERGENCY, THE CONTRACTOR SHALL CALL 911, THEN NOTIFY THE ENGINEER AND AIRPORT OPERATIONS.

   D. COORDINATION WITH ARFF PERSONNEL - ANY DEACTIVATION OF WATER LINES OR HYDRANTS, REROUTING OF ACCESS ROUTES, OR USE OF HAZARDOUS MATERIALS ON THE AIRFIELD SHALL BE COORDINATED AND APPROVED BY THE AIRPORT'S ARFF PERSONNEL PRIOR TO EXECUTION OF SUCH ACTIVITIES.

   E. NOTIFICATION TO THE FAA - THE CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION EQUIPMENT IS AIR SPACED THROUGH THE APPROPRIATE FAA REGIONAL OR DISTRICT OFFICE PRIOR TO USING SUCH EQUIPMENT ON SITE.

   F. SHUTDOWN OF ANY NAVAID (AIRPORT OR FAA OWNED) SHALL BE COORDINATED WITH THE FAA ATO 45 DAYS PRIOR TO THE PROPOSED SHUTDOWN.THE CONTRACTOR SHALL PROVIDE AN ADDITIONAL SEVEN DAYS ADVANCE NOTICE TO THE AIRPORT TO COORDINATE WITH THE FAA ATO TECH OPS OFFICE RESPONSIBLE FOR THE FAA FACILITIES. SHUTDOWN OF AN AIRPORT OWNED AND FAA MAINTAINED NAVAID OF 24 HOURS OR GREATER, OR MORE THAN 4 HOURS DAILY ON CONSECUTIVE DAYS, SHALL BE COORDINATED WITH THE FAA ATO A MINIMUM OF 45 DAYS PRIOR TO THE SHUTDOWN.

10. INSPECTION REQUIREMENTS

   A. DAILY INSPECTIONS - THE CONTRACTOR SHALL PERFORM DAILY SAFETY INSPECTIONS TO VERIFY ALL CONSTRUCTION OPERATIONS ARE IN CONFORMANCE WITH THE CONSTRUCTION SAFETY AND PHASING PLAN (CSPP).

   B. INTERIM INSPECTIONS - PRIOR TO OPENING ANY PORTION OF THE AIRPORT TO TRAFFIC, THE CONTRACTOR, ENGINEER, AND AIRPORT OPERATOR SHALL PERFORM A SAFETY INSPECTION OF THE AREA TO BE OPENED TO TRAFFIC TO VERIFY CONFORMANCE WITH THE CSPP AND FAA STANDARDS.

   C. FINAL INSPECTIONS - PRIOR TO OPENING ANY PORTION OF THE AIRPORT TO TRAFFIC, THE CONTRACTOR, ENGINEER, AND AIRPORT OPERATOR SHALL PERFORM A SAFETY INSPECTION OF THE AREA TO BE OPENED TO TRAFFIC TO VERIFY CONFORMANCE WITH THE CSPP AND FAA STANDARDS.

11. UNDERGROUND UTILITIES

   UNDERGROUND UTILITIES EXIST WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. AN ATTEMPT HAS BEEN MADE TO LOCATE THESE UTILITIES ON THE PLANS. HOWEVER, ALL EXISTING UTILITIES MAY NOT BE SHOWN AND THE ACTUAL LOCATIONS OF THE UTILITIES MAY VARY FROM THE LOCATIONS SHOWN. PRIOR TO BEGINNING ANY TYPE OF EXCAVATION, THE CONTRACTOR SHALL CONTACT THE UTILITIES INVOLVED AND MAKE ARRANGEMENTS FOR THE LOCATION OF THE UTILITIES ON THE GROUND. THE CONTRACTOR SHALL MAINTAIN THE UTILITY LOCATION MARKINGS UNTIL THEY ARE NO LONGER NECESSARY.

   ALABAMA STATE LAW, THE UNDERGROUND FACILITIES DAMAGE PREVENTION ACT, REQUIRES TWO WORKING DAYS ADVANCE NOTIFICATION THROUGH THE ONE-CALL SYSTEM CENTER BEFORE EXCAVATING USING MECHANIZED EQUIPMENT OR EXPLOSIVES (EXCEPT IN THE CASE OF AN EMERGENCY). THE ONE-CALL SYSTEM PHONE NUMBER IS 1-800-292-8525. THE CONTRACTOR IS ADVISED THAT THERE IS A SEVERE PENALTY FOR NOT MAKING THIS CALL. NOT ALL UTILITY COMPANIES ARE MEMBERS OF THE ALABAMA ONE-CALL SYSTEM; THEREFORE, THE CONTRACTOR IS ADVISED TO CONTACT ALL NON-MEMBER UTILITIES AS WELL AS THE ONE-CALL SYSTEM.

12. PENALTIES

   FAILURE OF THE CONTRACTOR (INCLUDING EMPLOYEES) OR ANY OF HIS SUBCONTRACTORS (INCLUDING EMPLOYEES) TO COMPLY WITH ATCT INSTRUCTIONS, THE AIRPORT SAFETY PLAN, OR ANY OF THE OTHER REQUIREMENTS OF THE AIRPORT WHILE OPERATING ON AIRPORT PROPERTY, SHALL BE SUBJECT TO THE FOLLOWING:

   A. FIRST OFFENSE - CONTRACTOR SHALL RECEIVE A WRITTEN WARNING, AND THE VEHICLE OPERATOR WILL RECEIVE A LOSS OF DRIVING PRIVILEGES ON THE AIRPORT. IN ADDITION, ANY FINES OR PENALTIES IMPOSED ON THE AIRPORT AS A RESULT OF THE INCIDENT WILL BE ASSESSED TO THE CONTRACTOR.

   B. SECOND OFFENSE - THE CONTRACTOR SHALL RECEIVE A FINE OF $1,000.00 TO BE DEDUCTED FROM ANY MONIES DUE HIM, AND THE VEHICLE OPERATOR WILL RECEIVE A LOSS OF DRIVING PRIVILEGES ON THE AIRPORT. IN ADDITION, ANY FINE OR PENALTIES IMPOSED ON THE AIRPORT AS A RESULT OF THE INCIDENT WILL BE ASSESSED TO THE CONTRACTOR.

   C. THIRD OFFENSE - WORK WILL BE SUSPENDED. THE CONTRACTOR (INCLUDING EMPLOYEES) AND ANY OF HIS SUBCONTRACTORS (INCLUDING EMPLOYEES) WHO WILL OPERATE GROUND VEHICLES ON THE AIRPORT SHALL SUCCESSFULLY COMPLETE, FOR A SECOND TIME, FORMALIZED AIRPORT SAFETY TRAINING, TO BE CONDUCTED BY AIRPORT STAFF. WHEN THE CONTRACTOR'S EMPLOYEES HAVE COMPLETED AIRPORT SAFETY TRAINING TO THE SATISFACTION OF THE OWNER, WORK MAY CONTINUE AT THE DISCRETION OF THE OWNER.

13. SPECIAL CONDITIONS

   NONE

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5125A Research Drive NW
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(256) 534-5512

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BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

CONSTRUCTION SAFETY & PHASING PLAN NOTES

JOB NO.: 2302499
DATE: MAY 2025
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DRAWN BY: MAH

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14. RUNWAY AND TAXIWAY VISUAL AIDS

A. GENERAL - ALL AIRPORT MARKINGS, LIGHTING, SIGNS, AND VISUAL NAVAIDS THAT ARE IN OPERATION MUST BE CLEAR FROM ALL OBSTRUCTIONS. ALL TEMPORARY MARKINGS, SIGNS, LIGHTS, OR OTHER VISUAL AIDS MUST BE SECURED IN PLACE TO PREVENT DAMAGE OR DISPLACEMENT BY PROP WASH, JET BLAST, WING VORTICES, OR OTHER WIND CURRENTS.

B. MARKINGS - ALL TEMPORARY OR PERMANENT RUNWAY AND TAXIWAY VISUAL AIDS SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENT EDITION OF FAA AC 150/5340-1 (www.faa.gov). MARKINGS FOR THIS PROJECT INCLUDE THE FOLLOWING:

- TEMPORARILY CLOSED TAXIWAYS - THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING LOW PROFILE BARRICADES AT THE ENTRANCE TO THE CLOSED TAXIWAY FROM AN ADJACENT TAXIWAY. BARRICADES SHALL BE INSTALLED OUTSIDE ALL ACTIVE TAXIWAY SAFETY AREAS. SEE DETAILS ON CONSTRUCTION SAFETY DRAWING FOR LOW-PROFILE AIRCRAFT BARRICADE DETAIL.

C. LIGHTING AND VISUAL NAVAIDS - ALL TEMPORARY LIGHTING FOR RUNWAY AND TAXIWAY SYSTEMS SHALL CONFORM TO THE REQUIREMENTS OF THE MOST RECENT EDITION OF FAA AC 150/5340-30 AND 150/5345-50 (www.faa.gov). THE CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING ISOLATION TRANSFORMERS ASSOCIATED WITH ANY RUNWAY OR TAXIWAY LIGHT FIXTURES THAT ARE BEING DISCONNECTED.

IF APPLICABLE, ALL CONSTRUCTION, ALTERATION, OR REMOVAL OF FAA OWNED EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE APPROVED FAA REIMBURSABLE AGREEMENT. NO WORK SHALL BE COMPLETED ON FAA OWNED EQUIPMENT PRIOR TO COMPLETION OF THE FAA REIMBURSABLE AGREEMENT.

D. SIGNS - THE CONTRACTOR SHALL INSTALL ALL SIGNS IN ACCORDANCE WITH THE MOST RECENT EDITION OF FAA AC 150/5345-44 AND 150/5340-18. ANY SIGN THAT IS NOT PERFORMING ITS NORMAL FUNCTION MUST BE COVERED OR REMOVED TO PREVENT MISLEADING PILOTS.

15. MARKING AND SIGNS FOR ACCESS ROUTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING ALL NECESSARY MARKINGS AND SIGNAGE FOR ALL ACCESS ROUTES TO AND FROM THE SITE TO BE USED BY CONTRACTOR PERSONNEL, SUBCONTRACTOR PERSONNEL, OR DELIVERY OPERATIONS. ALL SIGNAGE IN THE AIR OPERATIONS AREA SHALL BE FRANGIBLY MOUNTED.

16. HAZARD MARKING AND LIGHTING

A. PURPOSE - HAZARD MARKING AND LIGHTING PREVENTS PILOTS FROM ENTERING AREAS CLOSED TO AIRCRAFT AND PREVENTS CONTRACTOR PERSONNEL FROM ENTERING AREAS OPEN TO AIRCRAFT.

B. EQUIPMENT - THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN LOW-PROFILE BARRICADES IN HAZARDOUS AREAS INSIDE MOVEMENT AREAS. BARRICADES SHALL RESTRICT ACCESS AND MAKE HAZARDS OBVIOUS TO AIRCRAFT, PERSONNEL, AND VEHICLES. DURING PERIODS OF LOW VISIBILITY AND AT NIGHT, BARRICADES SHALL BE EQUIPPED WITH RED FLASHING OR STEADY BURNING LIGHTS. THE SPACING OF BARRICADES SHALL BE SUCH THAT A BREACH IS PHYSICALLY PREVENTED BARRING A DELIBERATE ACT. IF BARRICADES ARE INTENDED TO PREVENT PEDESTRIANS, THEN THEY SHALL BE LINKED. SEE DETAILS ON CONSTRUCTION SAFETY DRAWINGS FOR LOW-PROFILE AIRCRAFT BARRICADE DETAIL.

17. WORK ZONE LIGHTING FOR NIGHTTIME CONSTRUCTION

ALL WORK CONDUCTED AT NIGHT SHALL BE ACCOMPANIED BY ADEQUATE LIGHT FACILITIES TO COMPLETE THE WORK. ALL LIGHT FACILITIES SHALL BE AIMED OR SHIELDED AS NECESSARY TO AVOID IMPACTING AIRCRAFT OR ATCT OPERATIONS. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT A LIGHTING PLAN SHOWING THE LOCATION AND AIMING DIRECTION OF ALL LIGHT FACILITIES PRIOR TO THE COMPLETION OF ANY NIGHT WORK.

18. PROTECTION OF SAFETY AREAS, OBJECT FREE AREAS, OBJECT FREE ZONES, AND APPROACH/DEPARTURE SURFACES.

A. RUNWAY SAFETY AREAS (RSA) - NO WORK SHALL BE PERMITTED WITHIN AN ACTIVE RUNWAY SAFETY AREA.

B. RUNWAY OBJECT FREE AREAS (ROFA) - NO MATERIAL SHALL BE STOCKPILED INSIDE THE LIMITS OF THE ACTIVE ROFA.

C. TAXIWAY SAFETY AREAS (TSA) - NO WORK SHALL BE PERMITTED WITHIN AN ACTIVE TSA.

D. TAXIWAY OBJECT FREE AREAS (TOFA) - NO CONSTRUCTION SHALL BE PERMITTED INSIDE AN ACTIVE TOFA.

E. OBSTACLE FREE ZONE (OFZ) - NO PERSONNEL, MATERIAL, OR EQUIPMENT SHALL PENETRATE THE OFZ WHILE THE RUNWAY IS OPEN TO OPERATIONS. THE DIMENSIONS OF THE OFZ ARE AS DEFINED IN FAA AC 150/5300-13 (www.faa.gov).

F. APPROACH/DEPARTURE SURFACES - ALL CONTRACTOR PERSONNEL, MATERIALS, AND EQUIPMENT SHALL REMAIN CLEAR OF THE APPLICABLE THRESHOLD SITING SURFACES AS DEFINED IN CHAPTER 3 OF FAA AC 150/5300-13 (www.faa.gov).

19. OTHER LIMITATIONS ON CONSTRUCTION

A. PROHIBITIONS - THE USE OF TALL EQUIPMENT (I.E. CRANES, CONCRETE PUMPS) SHALL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER.

OPEN FLAME WELDING AND TORCH CUTTING OPERATIONS ARE NOT PERMITTED UNLESS ADEQUATE FIRE SAFETY PRECAUTIONS ARE PROVIDED AND THESE OPERATIONS ARE AUTHORIZED BY THE AIRPORT OPERATOR AND THE ENGINEER.

ELECTRICAL BLASTING CAPS SHALL NOT BE PERMITTED WITHIN 1,000-FT OF THE AIRPORT PROPERTY. FLARE POTS ARE NOT PERMITTED WITHIN THE AIR OPERATIONS AREA.

B. RESTRICTIONS - NONE

5125A Research Drive NW
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(256) 534-5512

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BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

CONSTRUCTION SAFETY & PHASING PLAN NOTES

JOB NO.: 2302499
DATE: MAY 2025
DESIGNED BY: MAH
DRAWN BY: MAH

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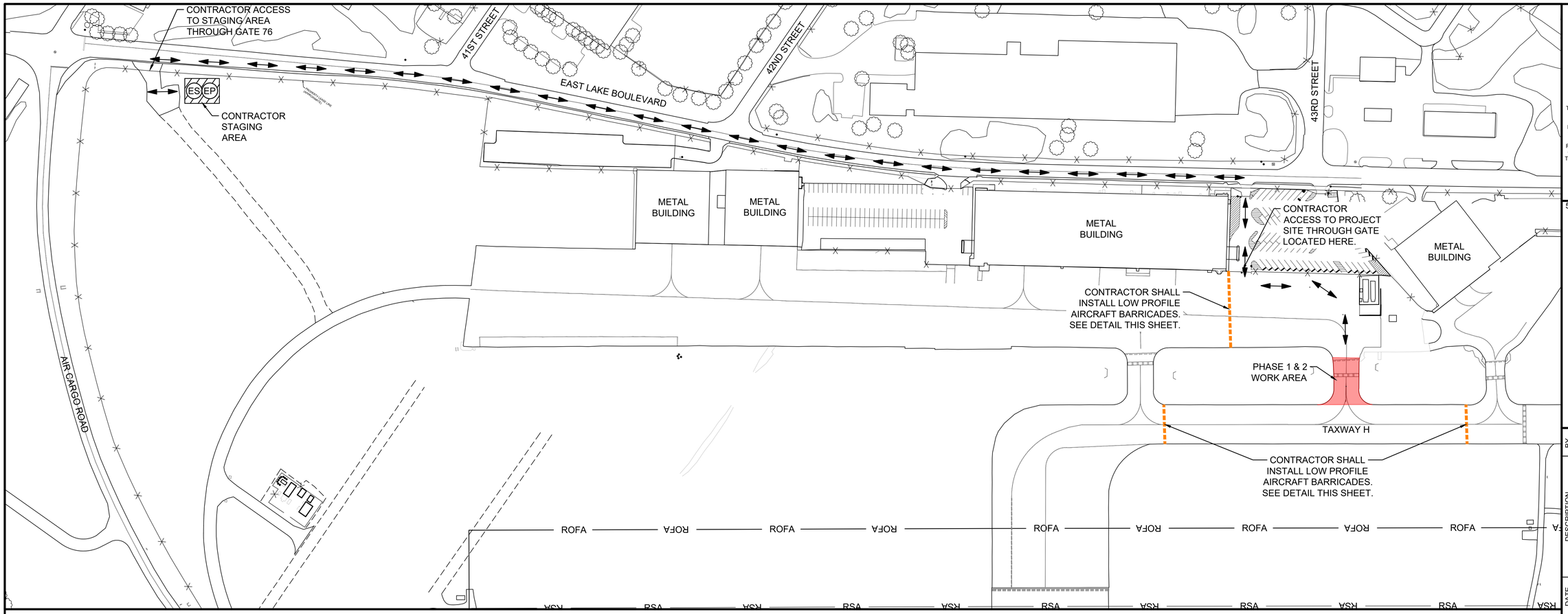

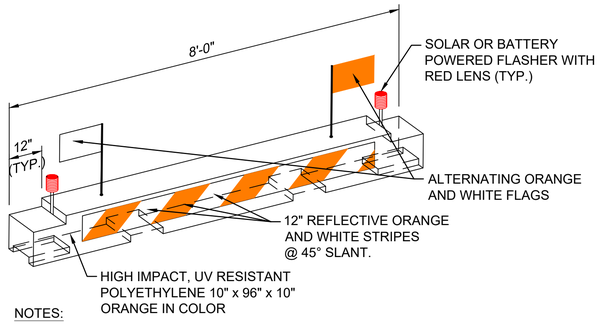

NOTES:

1. INTENDED USE FOR THE FOLLOWING:
   - MARKING/LIGHTING OF TEMPORARY HAZARDS WITHIN THE AOA
   - LONG TERM CLOSURE OF AIRCRAFT ROUTES.
2. INSTALL AT 12' C/C SPACING ALONG FULL WIDTH OF PAVEMENT.
3. BARRICADE SHALL BE EQUIPPED WITH ALTERNATING ORANGE AND WHITE 20"X20" FLAGS. IN ADDITION TO THE FLAGS, THE BARRICADES SHALL BE EQUIPPED WITH FLASHING RED CAUTION LIGHT.
4. BARRICADES SHALL BE WATER-FILLED AND MODULAR TO ASSEMBLE/DISASSEMBLE AND NEST FOR COMPACT STORAGE.
5. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL BARRICADES DURING CONSTRUCTION.

MULTI-BARRIER LOW PROFILE AIRCRAFT BARRICADE DETAIL

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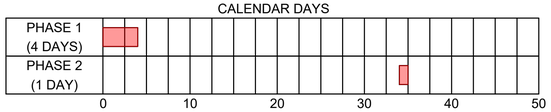
SCALE: NONE

CONTRACT TIME

CALENDAR DAYS



ITEMS OF WORK

1

- CONTRACTOR SHALL MILL TAXIWAY H CONNECTOR
- CONTRACTOR SHALL EXPOSE DOUBLE 23" x 36" ARCH RCP AND PLUG ALL PICK EYE HOLES.
- CONTRACTOR SHALL RE-DRESS AND COMPACT EXISTING EXPOSED CRUSHED AGGREGATE BASE.
- CONTRACTOR SHALL PERFORM 3" OVERLAY.
- CONTRACTOR SHALL APPLY TEMPORARY PAVEMENT MARKINGS.

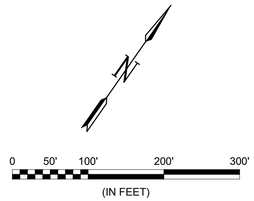
2

- CONTRACTOR SHALL APPLY FINAL PAVEMENT MARKINGS AFTER ADEQUATE ASPHALT CURE TIME.

LEGEND

- PHASE 1 & PHASE 2 WORK AREA
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- (ES) EQUIPMENT STORAGE
- (EP) EMPLOYEE PARKING
- CONTRACTOR ROUTE
- LIGHTED BARRICADE

1. PRINT NOTE: SHEET SHALL BE PRINTED IN COLOR.
2. SEE CONSTRUCTION SAFETY AND PHASING NOTES FOR ADDITIONAL INFORMATION.
3. LIGHTED BARRICADES SHOWN ARE FOR GRAPHIC PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF LIGHTED BARRICADES REQUIRED TO COMPLETE THE WORK AS SHOWN AND MUST BE IN ACCORDANCE WITH CURRENT FAA ADVISORY CIRCULARS.
4. CONTRACTOR SHALL HAVE AN APPROVED PAVEMENT BROOM OR VACUUM TRUCK AVAILABLE ON SITE AT ALL TIMES. HYDRANTS TO FILL VACUUM TRUCK WILL BE AVAILABLE ON AIRPORT PROPERTY.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING SUFFICIENT LIGHTING TO ADEQUATELY ILLUMINATE THE WORK AREA DURING NIGHTTIME OPERATIONS. PORTABLE LIGHTING SHALL NOT BE ORIENTED IN SUCH A WAY TO CAUSE IMPACT TO AIRPORT OPERATIONS.
6. IN NO EVENT SHALL CONSTRUCTION VEHICLES, EQUIPMENT, OR MATERIALS BE PARKED/STORED WITHIN 50' OF BARRICADES OR ACTIVE AIRFIELD PAVEMENT.
7. PERIMETER FENCE SHALL BE MAINTAINED AT ALL TIMES.



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BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

CONSTRUCTION SAFETY & PHASING PLAN

JOB NO.: 2302499
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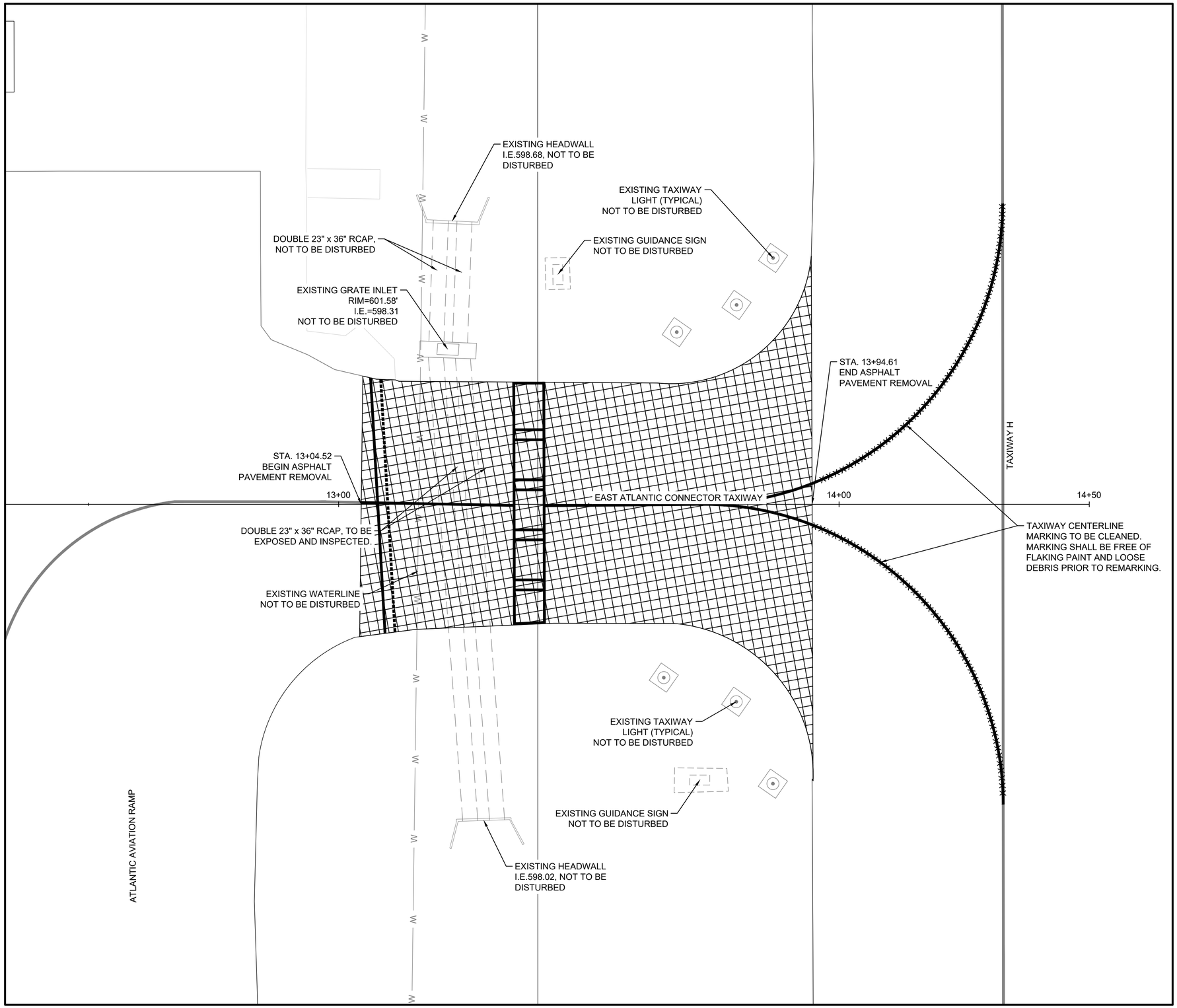

0 5' 10' 20' 30'

(IN FEET)

LEGEND

	3" ASPHALT PAVEMENT REMOVAL
	EXISTING STORM DRAIN PIPE
	EXISTING DRAINAGE STRUCTURE
	EXISTING TAXIWAY LIGHT
XXXXXXXXX	PAVEMENT MARKING TO BE CLEANED

NOTES:

1. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, HAND HOLES, AIRFIELD EQUIPMENT, DRAINAGE STRUCTURES, AND BUILDINGS NOT SHOWN FOR DEMOLITION. ANY DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

2. WHERE INDICATED IN THE PLANS, THE CONTRACTOR SHALL SAWCUT AT THE PROPOSED EDGE OF CONSTRUCTION, AND 6" INSIDE THE PROPOSED EDGE OF CONSTRUCTION TO PROVIDE A CLEAN VERTICAL EDGE OF EXISTING PAVEMENT. THE CONTRACTOR SHALL NOT REMOVE THE REMAINING 6" PORTION OF PAVEMENT UNTIL NECESSARY FOR CONSTRUCTION OF THE PROPOSED PAVEMENT SECTION.

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EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

EXISTING CONDITIONS & DEMOLITION PLAN

JOB NO.: 2302499
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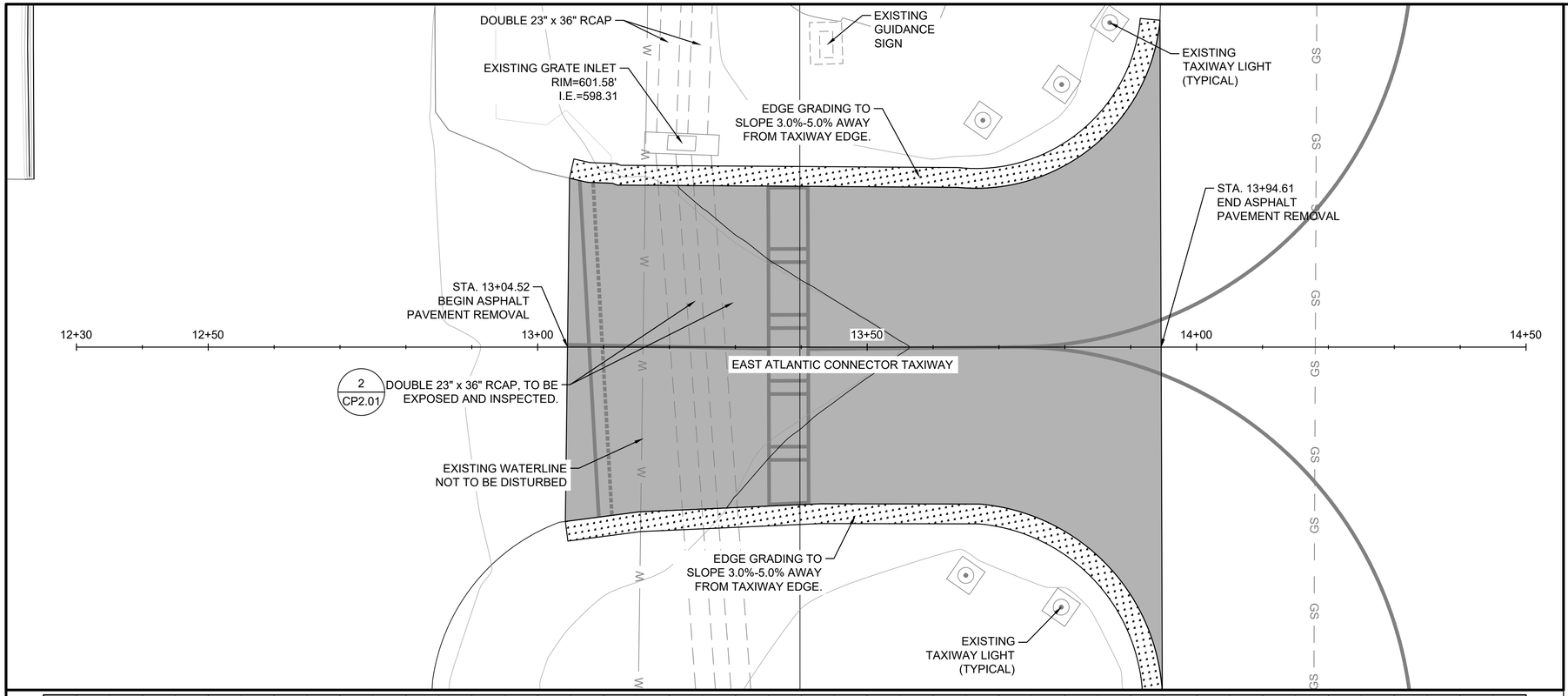
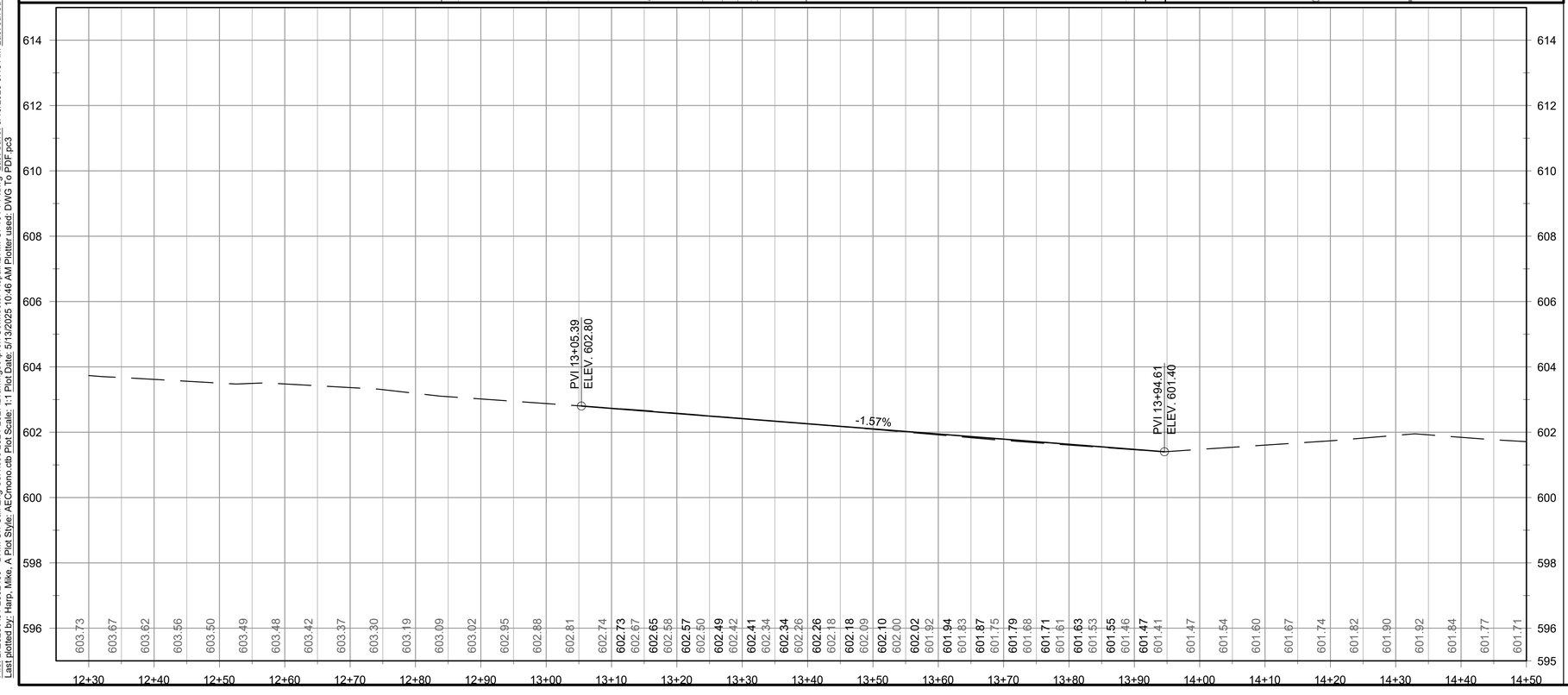
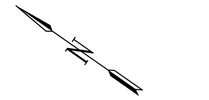






LEGEND

- EXISTING ASPHALT PAVEMENT
- PROPOSED ASPHALT PAVEMENT
- PROPOSED 3' SOD AND EDGE GRADING
- EXISTING PROFILE
- PROPOSED PROFILE

NOTES:

1. PROFILE VERTICAL EXAGGERATION = 5.
2. SEE SHEET CP201 FOR PAVEMENT DETAILS.
3. CONTRACTOR SHALL SAWCUT A CLEAN VERTICAL EDGE AT ALL PAVEMENT TIE-INS.

GARVER

5125A Research Drive NW
Huntsville, AL 35805
(256) 534-5512

REV	DATE	DESCRIPTION	BY

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

EAST ATLANTIC CONNECTOR TAXIWAY PLAN & PROFILE SHEET

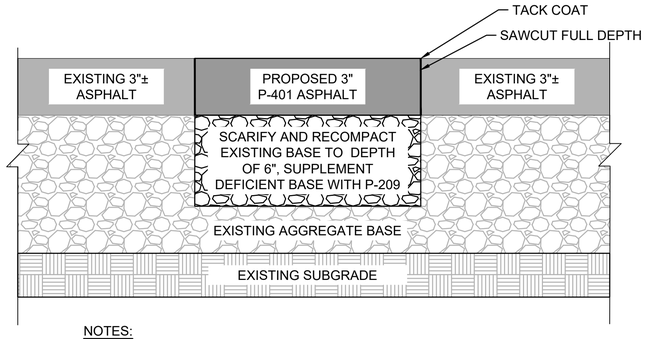
JOB NO.: 2302499
DATE: MAY 2025
DESIGNED BY: MAH
DRAWN BY: MAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER

CP1.01

File: L:\2023\A01-2302499 - BHM On-Call Eng Services 2024-2027\Drawings\Apron Connector Repair\BHM-CP101-PP.dwg Last Save: 5/13/2025 9:48 AM Last saved by: MAHarp
Last plotted by: Harp, Mike. A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 5/13/2025 10:46 AM Plotter used: DWG To PDF.pc3

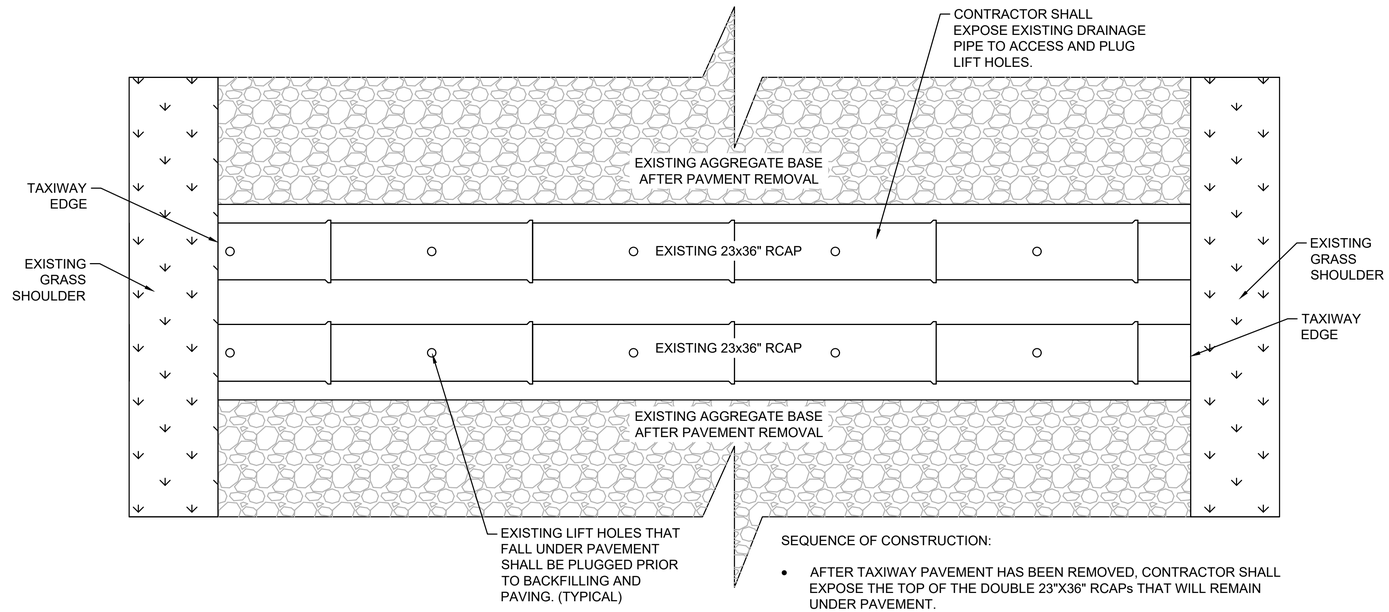


NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE EXISTING PAVEMENT AND AGGREGATE BASE TO REMAIN. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

1 / CP2.01 — ## ASPHALT PAVEMENT FULL DEPTH REPAIR

SCALE: NONE

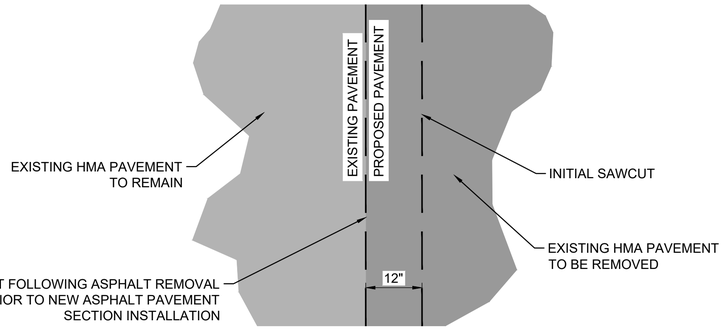


SEQUENCE OF CONSTRUCTION:

- AFTER TAXIWAY PAVEMENT HAS BEEN REMOVED, CONTRACTOR SHALL EXPOSE THE TOP OF THE DOUBLE 23"X36" RCAPs THAT WILL REMAIN UNDER PAVEMENT.
- CONTRACTOR SHALL THEN PLUG EXISTING LIFT HOLES IN EXPOSED RCAPs BY INSTALLING POPITS BY POPIT, INC. OR APPROVED EQUAL TO MANUFACTURER'S SPECIFICATIONS.
- CONTRACTOR SHALL THEN SPREAD AND RECOMPACT EXISTING BASE AS PER PROJECT SPECIFICATION P-209.

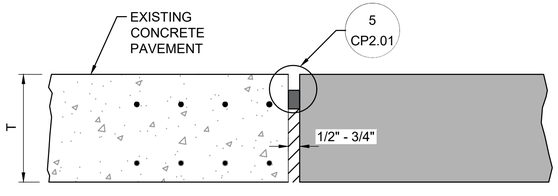
2 / CP2.01 — ## EXISTING PIPE LIFT HOLE REPAIR DETAIL

SCALE: NONE



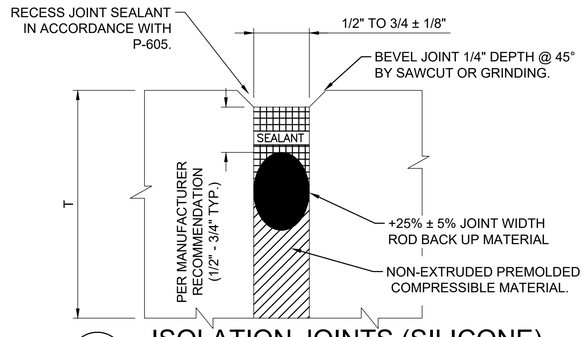
3 / CP2.01 — ## HMA DEMOLITION DETAIL

SCALE: NONE



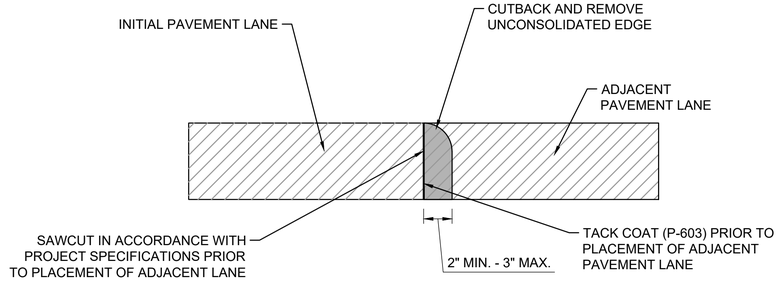
4 / CP2.01 — ## ISOLATION JOINT AT EXISTING CONCRETE PAVEMENT

SCALE: NONE



5 / CP2.01 — ## ISOLATION JOINTS (SILICONE)

SCALE: NONE



NOTE:

1. SAWCUTTING, REMOVAL/DISPOSAL OF CUTBACK MATERIAL, SURFACE PREP, AND TACK COAT SHALL BE INCIDENTAL TO PAVING BID ITEMS AND WILL NOT BE PAID FOR SEPARATELY.
2. CONTRACTOR SHALL COMPLETE CONTROL STRIP TO DEMONSTRATE CUTBACK PROCEDURE PRODUCES ACCEPTABLE JOINT DENSITIES PRIOR TO PRODUCTION PAVING.
3. LONGITUDINAL JOINTS SHALL BE PLACED AND CUTBACK SUCH THAT A MINIMUM OF 1' OFFSET IS MAINTAINED BETWEEN CONSECUTIVE COURSES.

6 / CP2.01 — ## ASPHALT LONGITUDINAL CONSTRUCTION JOINT DETAIL

SCALE: NONE

5125A Research Drive NW
Huntsville, AL 35805
(256) 534-5512

REV.	DATE	DESCRIPTION	BY

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

ASPHALT PAVING DETAILS

JOB NO.: 2302499
DATE: MAY 2025
DESIGNED BY: MAH
DRAWN BY: MAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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DRAWING NUMBER
CP2.01

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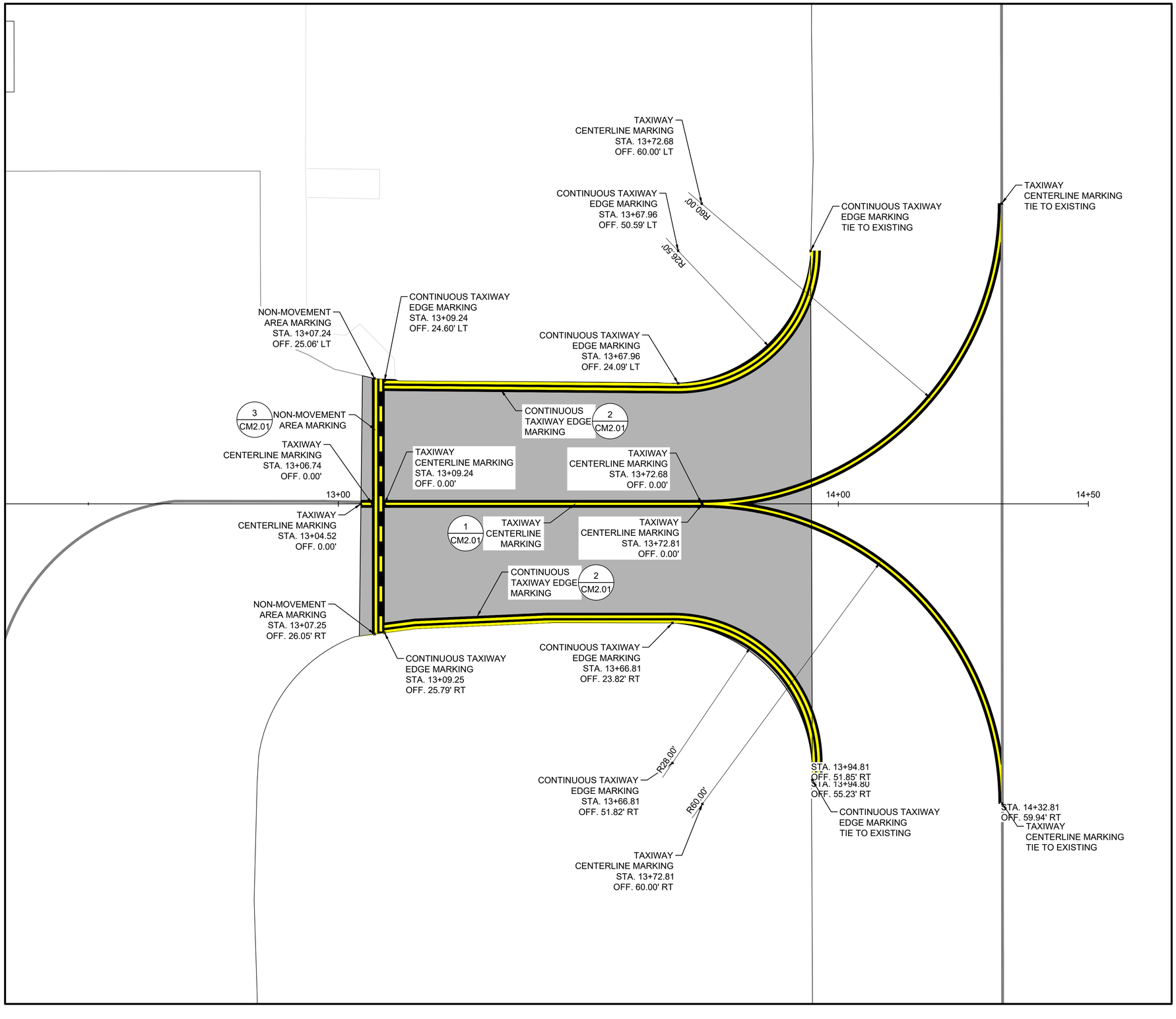
Last plotted by: Harp, Mike. A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 5/13/2025 10:46 AM Plotter used: DWG To PDF.pc3



0 15' 30' 60' 90'

(IN FEET)

LEGEND

- EXISTING MARKINGS
- PROPOSED YELLOW MARKINGS

NOTES:

1. SHEET INTENDED TO BE PRINTED IN COLOR.
2. SEE SHEET CM2.01 FOR AIRFIELD PAVEMENT MARKING DETAILS.
3. MARKINGS ON EXISTING PAVEMENT SHOWN FOR REFERENCE ONLY.
4. THE CONTRACTOR WILL BE REQUIRED TO REPAINT ANY MARKINGS THAT ARE OUTSIDE OF THE PROJECT LIMITS WHICH ARE DAMAGED BY THE CONTRACTOR'S OPERATIONS. REPAINTING OF DAMAGED AREAS WILL BE AT THE CONTRACTOR'S EXPENSE.
5. ANY DISCREPANCIES BETWEEN THESE PLANS AND THE ACTUAL STRIPING PRESENT IN THE FIELD SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO MARKING REMOVAL OR INSTALLATION OPERATIONS.
6. MARKINGS TO BE REPAINTED SHALL BE CLEANED AND HAVE ANY LOOSE MATERIAL REMOVED PRIOR TO THE NEW APPLICATION.
7. ALL PAVEMENT MARKINGS SHALL BE OUTLINED IN 6" BLACK PAINT UNLESS OTHERWISE NOTED. SEE PAVEMENT MARKING DETAILS SHEETS FOR MORE DETAILS. BLACK PAINT SHALL NOT RECEIVE REFLECTIVE MEDIA. TEMPORARY MARKINGS SHALL NOT RECEIVE BLACK OUTLINE.

GARVER

5125A Research Drive NW
Huntsville, AL 35805
(256) 534-5512

REV	DATE	DESCRIPTION	BY

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

AIRFIELD PAVEMENT MARKING PLAN

JOB NO.: 2302499
DATE: MAY 2025
DESIGNED BY: MAH
DRAWN BY: MAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER

CM1.01

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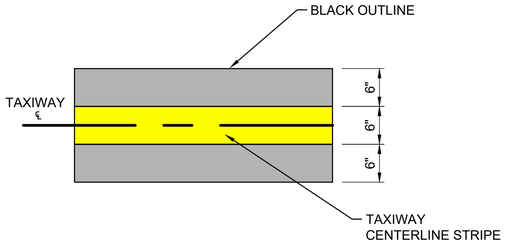
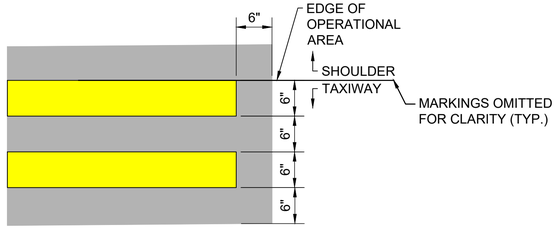


NOTE:

1. ALL YELLOW MARKINGS SHALL HAVE GLASS BEADS.
2. ALL BLACK MARKINGS SHALL NOT HAVE GLASS BEADS.
3. BLACK OUTLINE SHALL BE 6" OUTSIDE OF YELLOW MARKING.
4. DIMENSIONS DO NOT INCLUDE BLACK OUTLINE.

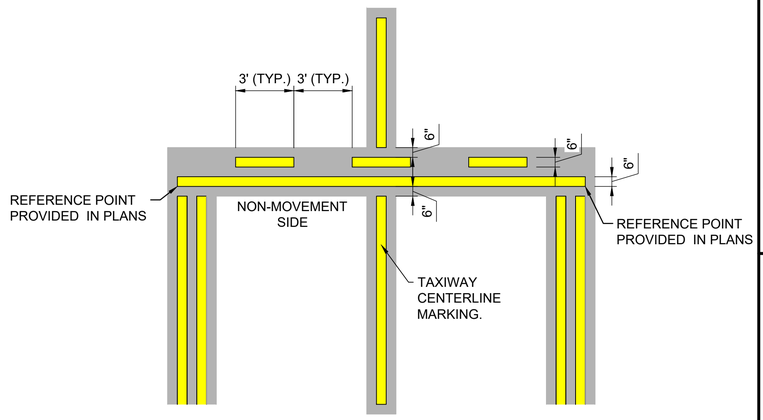
1 CM2.01 **TAXIWAY CENTERLINE MARKINGS**
SCALE: NONE



NOTE:

1. ALL YELLOW MARKINGS SHALL HAVE GLASS BEADS.
2. ALL BLACK MARKINGS SHALL HAVE NO GLASS BEADS.
3. BLACK OUTLINE SHALL BE 6" OUTSIDE OF YELLOW MARKING.
4. DIMENSIONS DO NOT INCLUDE BLACK OUTLINE.

2 CM2.01 **TAXIWAY CONTINUOUS EDGE MARKINGS**
SCALE: NONE



3 CM2.01 **NON-MOVEMENT AREA MARKING**
SCALE: NONE

5125A Research Drive NW
Huntsville, AL 35805
(256) 534-5512

REV.	DATE	DESCRIPTION	BY

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

AIRFIELD PAVEMENT MARKING DETAILS

JOB NO.: 2302499
DATE: MAY 2025
DESIGNED BY: MAH
DRAWN BY: MAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
CM2.01

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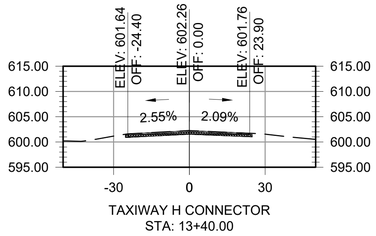
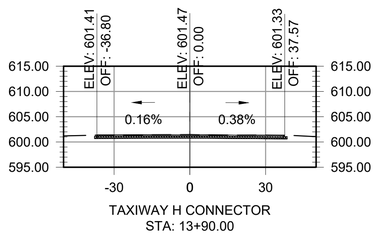


TAXIWAY H CONNECTOR
STA: 13+40.00



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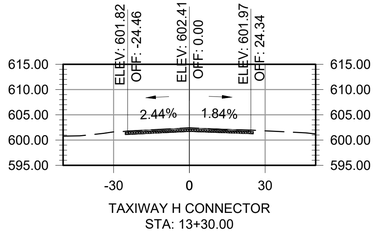

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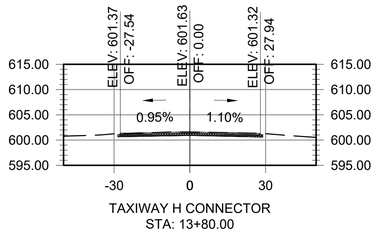

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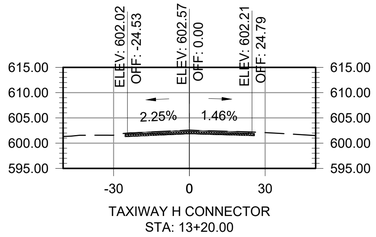

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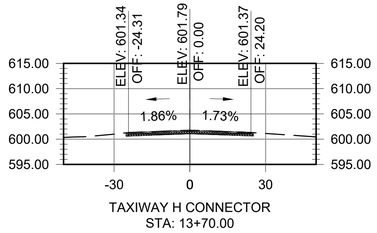

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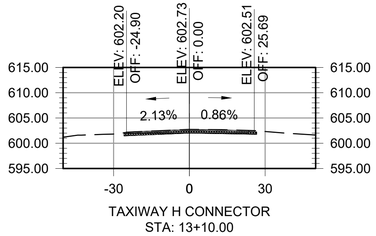

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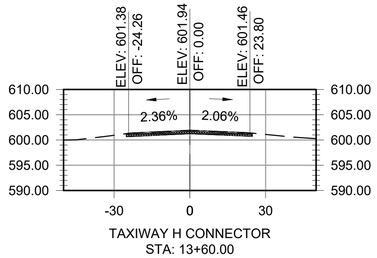

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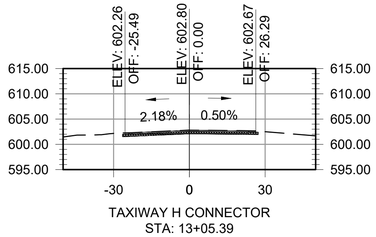

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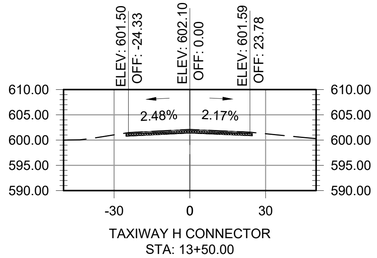

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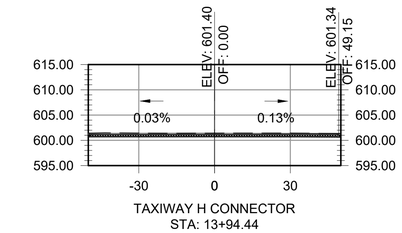

TAXIWAY H CONNECTOR
STA: 13+94.44

5125A Research Drive NW
Huntsville, AL 35805
(256) 534-5512

REV.	DATE	DESCRIPTION	BY

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
BIRMINGHAM, ALABAMA

EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR PROJECT

EAST ATLANTIC CONNECTOR TAXIWAY CROSS SECTIONS

JOB NO.: 2302499
DATE: MAY 2025
DESIGNED BY: MAH
DRAWN BY: MAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

XS1.01

SUPPLEMENTAL SPECIFICATIONS

ITEM SS-101 SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

DESCRIPTION

101-1.1 The Contractor shall thoroughly review the approved Construction Safety and Phasing Plan (CSPP) and shall comply with approved CSPP. The Contractor shall certify such compliance by completing the attached SPCD and submitting to the Engineer for approval. No separate payment shall be made for completion of the SPCD.

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Contractor Safety Plan Compliance Documents

Owner Name: **BIRMINGHAM AIRPORT AUTHORITY**

Airport: **Birmingham-Shuttlesworth International Airport**

Project Description: **East Atlantic Connector Taxiway Pavement Repair**

Contractor: _____

Each item listed below corresponds to a specific section of the approved CSPP. The Contractor shall certify that he/she will comply with each section of the approved CSPP. Each certified section with a "no" response must be fully explained in an attachment to the SPCD. The document shall be signed and dated by a principal or owner in the Contractor's company. All other requested information shall be completed by the Contractor and submitted to the Engineer for approval as part of the SPCD.

1. **Section 1 - Coordination:** This project shall be completed in accordance with Section 1 "Coordination" of the approved Construction Safety and Phasing Plan.

Owner: BIRMINGHAM AIRPORT AUTHORITY	
Contact:	**Phone:**
Engineer:	
Project Manager:	**Phone:**
Project Engineer:	**Phone:**
Construction Observer:	**Phone:**
Materials Testing:	**Phone:**
Contractor:	
Project Manager:	**Phone:**
Superintendent:	**Phone:**
Subcontractors:	**Phone:**
LIST ALL SUBS	

Yes_____ No_____

2. **Section 2 - Phasing:** This project shall be completed in accordance with Section 2 "Phasing" of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

3. **Section 3 – Areas of Operations Affected by Construction Activity:** This project shall be completed in accordance with Section 3 "Areas of Operations Affected by Construction Activity" of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

4. **Section 4 – Protection of Navigational Aids (NAVAIDS):** This project shall be completed in accordance with Section 4 “Protection of Navigational Aids (NAVAIDS)” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

5. **Section 5 – Contractor Access:** This project shall be completed in accordance with Section 5 “Contractor Access” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

6. **Section 6 – Wildlife Management:** This project shall be completed in accordance with Section 6 “Wildlife Management” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

7. **Section 7 – Foreign Object Debris (FOD) Management:** This project shall be completed in accordance with Section 7 “Foreign Object Debris (FOD) Management” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

8. **Section 8 – Hazardous Materials (HAZMAT) Management:** This project shall be completed in accordance with Section 8 “Hazardous Materials (HAZMAT) Management” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

9. **Section 9 – Notification of Construction Activities:** This project shall be completed in accordance with Section 9 “Notification of Construction Activities” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

10. **Section 10 – Inspection Requirements:** This project shall be completed in accordance with Section 10 “Inspection Requirements” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

11. **Section 11 – Underground Utilities:** This project shall be completed in accordance with Section 11 “Underground Utilities” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

12. **Section 12 – Penalties:** This project shall be completed in accordance with Section 12 “Penalties” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

13. **Section 13 – Special Conditions:** This project shall be completed in accordance with Section 13 “Special Conditions” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

14. **Section 14 – Runway and Taxiway Visual Aids:** This project shall be completed in accordance with Section 14 “Runway and Taxiway Visual Aids” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

15. **Section 15 – Marking and Signs for Access Routes:** This project shall be completed in accordance with Section 15 “Marking and Signs for Access Routes” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

16. **Section 16 – Hazard Marking and Lighting:** This project shall be completed in accordance with Section 16 “Hazard Marking and Lighting” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

17. Section 17 – Work Zone Lighting for Nighttime Construction: This project shall be completed in accordance with Section 17 “Work Zone Lighting for Nighttime Construction” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

18. **Section 18 – Protection of Safety Areas, Object Free Areas, Object Free Zones, and Approach / Departure Surfaces:** This project shall be completed in accordance with Section 18 “Protection of Safety Areas, Object Free Areas, Object Free Zones, and Approach / Departure Surfaces” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

19. **Section 19 – Other Limitations on Construction:** This project shall be completed in accordance with Section 19 “Other Limitations on Construction” of the approved Construction Safety and Phasing Plan.

Yes_____ No_____

I certify that, for the project identified herein, the responses to the foregoing items are correct as marked, and that I shall comply with the approved Construction Safety and Plan.

Signed: _____
Contractor's Authorized Representative

Date: _____

_____
Print Name and Title of Contractor's Representative

END OF ITEM SS-101

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ITEM SS-120 CONSTRUCTION SAFETY AND SECURITY

DESCRIPTION

120-1.1 This item covers safety and security for construction of the proposed improvements.

The attention of the bidder is directed to the necessity for careful examination of the entire project site to determine, at the time of bid preparation, the full extent of work to be done under the item "Construction Safety and Security."

The item "Construction Safety and Security" shall include:

1. Lighted Barricades and Closed Taxiway Markers
2. Airport Security Requirements
3. Airport Safety Requirements

CONSTRUCTION METHODS

120-2.1 Lighted barricades and closed taxiway and runway markers.

a. The Contractor shall furnish, install, maintain, and remove closed taxiway and runway markers and lighted barricades in accordance with details on the plans and as directed by the Engineer. The closed taxiway and runway markers shall be aviation yellow, nylon-reinforced vinyl. The markers shall be secured to the pavement/ground as shown on the plans and as directed by the Engineer. The lighted barricades shall be constructed and installed as shown on the plans. All lighted barricades and closed taxiway and runway markers shall be constructed in accordance with AC 150/5370-2G Operational Safety on Airports During Construction.

b. All work involved in the furnishing, installation, maintenance, and removal of lighted barricades, barrels and closed taxiway and runway markers will not be measured for separate payment, but will be considered subsidiary to the bid item “Construction Safety and Security.”

120-2.2 Airport security requirements. The Contractor shall abide by the Airport Security requirements that are outlined in the Construction Safety and Phasing Plan (CSPP). Any costs associated with the Airport Security requirements will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

120-2.3 Airport safety requirements. The Contractor shall abide by the Airport Safety requirements that are outlined in the Construction Safety and Phasing Plan (CSPP). All costs associated with the Airport Safety requirements will not be measured for separate payment but will be considered subsidiary to the bid item "Construction Safety and Security."

MEASUREMENT AND PAYMENT

120-3.1 Construction safety and security will be measured as a lump sum complete item. Work completed and accepted under this item will be paid for at the contract lump sum price bid for "Construction Safety and Security", which price shall be full compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Periodic payments will be made under this item in proportion to the amount of work accomplished, as

determined by the Engineer.

Payment will be made under:

Item SS-120-3.1	Construction Safety and Security - per Lump Sum

END OF ITEM SS-120

ITEM SS-150 RCP LIFT HOLE REPAIR

DESCRIPTION

150-1.1 This item covers the repair or "plugging" of the lift holes in existing arch pipe within the project area. RCP lift hole repair shall include removal of crushed aggregate base, soil, pavement or other items covering the reinforced concrete pipe to expose the lift holes, repair or "plugging" of the lift holes, and replacement and compaction of crushed aggregate to the grades and elevations shown in the plans.

MATERIALS

150-2.1 Plugs. Lift holes shall be plugged with an appropriate sized product for the existing lift holes in the reinforced concrete pipe within the project limits such as POPIT, Inc. POPIT Plug or approved equivalent product.

CONSTRUCTION METHODS

150-3.1 General. After asphalt pavement has been removed according to item P-101, the Contractor shall pull back and stockpile existing base to expose the reinforced concrete pipe, plug defective lift holes and replace existing base over the pipe.

150-3.2 Lift hole repair. After asphalt pavement has been removed, the contractor shall carefully remove and stockpile the aggregate base and any other cover materials without damaging the underlying reinforced concrete pipe. Once exposed, lift hole plugs shall be checked for integrity by the RPR. Lift hole plugs showing lack of integrity or other defects shall be removed and replaced with POPIT lift hole plugs or approved equal.

150-3.3 Preparation of existing aggregate base to remain. Once defective lift holes have been repaired, existing stockpiled base shall be replaced to form an even layer over the reinforced concrete pipe. Base shall be proof rolled per section P-209-3.2 of these specifications.

150-3.4 P-209 crushed aggregate base placement. Additional crushed aggregate base shall be placed to the grades and elevations shown in the plans as specified in Item P-209 of these specifications.

METHOD OF MEASUREMENT

150-4.1 RCP Lift Hole Repair shall be measured as a lump sum complete item, completed in place and accepted as approved by the Engineer.

BASIS OF PAYMENT

150-5.1 Payment shall be made at the contract lump sum unit price for "RCP Lift Hole Repair", as set forth in the Plans. This price shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

Item SS-150-5.1 RCP Lift Hole Repair – per Lump Sum

END OF ITEM SS-150

ITEM SS-220 PAVEMENT EDGE GRADING

DESCRIPTION

220-1.1 This item covers placement and compaction of all materials within the limits of the work required to construct edge grading along the edges of the pavement overlay, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

MATERIALS

220-2.1 Topsoil. Topsoil used shall meet the requirements of T-905. Additional topsoil required to complete the project shall be obtained as provided in T-905.

CONSTRUCTION METHODS

220-3.1 General. Along the edges of new pavement overlay, topsoil shall be placed to provide a 1.5 inch drop-off from the edge of the new pavement surface to ground level and provide grading from the pavement edge to the shoulder as shown in the plans.

a. If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the Engineer, who shall arrange for their removal if necessary. The Contractor shall, at his/her own expense, satisfactorily repair or pay the cost of all damage to such facilities or structures which may result from any of the Contractor's operations during the period of the contract.

220-3.2 Preparation of embankment area. Before beginning any embankment, the areas where the embankment is to be made shall be stripped or disked to a minimum depth of four inches. Topsoil obtained from the stripping operations shall be salvaged and stockpiled for later use.

220-3.3 Formation of embankments. The placed material shall be within +/-2 percent of optimum moisture content before rolling to obtain the prescribed compaction. In order to achieve uniform moisture content throughout the layer, wetting or drying of the material and manipulation shall be required when necessary. Should the material be too wet to permit proper compaction or rolling, all work on all of the affected portions of the embankment shall be delayed until the material has dried to the required moisture content. Sprinkling of dry material to obtain the proper moisture content shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times. The embankment shall be compacted by small roller or other means approved by the engineer. Rolling operations shall be continued until the embankment is compacted to not less than 90 percent of maximum density as determined by ASTM D 1557.

Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material.

METHOD OF MEASUREMENT

220-4.1 The quantity of pavement edge grading to be paid for shall be the number of linear feet placed measured along the pavement edge, regardless of the transverse width or depth of the grading. There will be no separate measurement of payment for compacted embankment, and all costs incidental to placing, compacting, disking, watering, shaping, and other necessary operations for construction of edge grading embankment will be included in the contract price for pavement edge grading.

BASIS OF PAYMENT

220-5.1 For "Pavement Edge Grading" payment shall be made at the contract unit price per linear foot. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item SS-220-5.1	Pavement Edge Grading – per Linear Foot

END OF ITEM SS-220

TECHINICAL SPECIFICATIONS

ITEM C-100 CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)

100-1 General. Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall establish a CQCP that will:

a. Provide qualified personnel to develop and implement the CQCP.

b. Provide for the production of acceptable quality materials.

c. Provide sufficient information to assure that the specification requirements can be met.

d. Document the CQCP process.

The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the *Engineer.* ~~Resident Project Representative (RPR).~~ No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the RPR or Contractor as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Resident Project Representative (RPR), Contractor, subcontractors, testing laboratories, and Owner's representative must be held prior to start of construction.The QC/QA workshop will be facilitated by the *Engineer.* ~~Contractor.~~ The Contractor shall coordinate with the Airport and the *Engineer* ~~RPR~~ on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

a. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.

b. Discussion of the QA program.

c. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.

d. Establish regular meetings to discuss control of materials, methods and testing.

e. Establishment of the overall QC culture.

100-2 Description of program.

a. General description. The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

b. Contractor Quality Control Program (CQCP). The Contractor shall describe the CQCP in a written document that shall be reviewed and approved by the *Engineer* ~~RPR~~ prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the RPR for review and approval at least 10 calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the *Engineer* ~~RPR~~ prior to the *start of work items included in the CQCP (earthwork, base, stabilized base, paving, etc.).* ~~Notice to Proceed (NTP).~~

The CQCP shall be organized to address, as a minimum, the following:

1. QC organization and resumes of key staff

2. Project progress schedule

3. Submittals schedule

4. Inspection requirements

5. QC testing plan

6. Documentation of QC activities and distribution of QC reports

7. Requirements for corrective action when QC and/or QA acceptance criteria are not met

8. Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

100-3 CQCP organization. The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function, and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of paragraphs 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall, as a minimum, consist of the following personnel:

a. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) must be a full-time on-site employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA must have a minimum of five (5) years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

(1) Professional Engineer with one (1) year of airport paving experience.

(2) Engineer-in-training with two (2) years of airport paving experience.

(3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.

(4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

The CQCPA must have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract plans and technical specifications. The CQCPA authority must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

b. QC technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher, and shall have a minimum of two (2) years of experience in their area of expertise.

The QC technicians must report directly to the CQCPA and shall perform the following functions:

(1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by paragraph 100-6.

(2) Performance of all QC tests as required by the technical specifications and paragraph100-8.

(3) Performance of tests for the *Engineer and* RPR when required by the technical specifications.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing levels. The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

100-4 Project progress schedule. Critical QC activities must be shown on the project schedule as required by Section 80, paragraph 80-03, *Execution and Progress*.

100-5 Submittals schedule. The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

a. Specification item number

b. Item description

c. Description of submittal

d. Specification paragraph requiring submittal

e. Scheduled date of submittal

100-6 Inspection requirements. QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by paragraph 100-9.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

a. During plant operation for material production, QC test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment used in proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and used.

b. During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and used.

100-7 Contractor QC testing facility.

a. For projects that include Item P-401, Item P-403, and Item P-404, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

- 8.1.3 Equipment Calibration and Checks;
- 8.1.9 Equipment Calibration, Standardization, and Check Records;
- 8.1.12 Test Methods and Procedures

b. For projects that include P-501, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM C1077, Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation:

- 7 Test Methods and Procedures
- 8 Facilities, Equipment, and Supplemental Procedures

100-8 QC testing plan. As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

a. Specification item number (e.g., P-401)

b. Item description (e.g., Hot Mix Asphalt Pavements)

c. Test type (e.g., gradation, grade, asphalt content)

d. Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (e.g., plant technician)

g. Control requirements (e.g., target, permissible deviations)

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The *Engineer and* RPR shall be provided the opportunity to witness QC sampling and testing.

All QC test results shall be documented by the Contractor as required by paragraph 100-9.

100-9 Documentation. The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the *Engineer and* RPR daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily inspection reports. Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous QC inspections have been performed and shall, as a minimum, include the following:

(1) Technical specification item number and description
(2) Compliance with approved submittals
(3) Proper storage of materials and equipment
(4) Proper operation of all equipment
(5) Adherence to plans and technical specifications
(6) Summary of any necessary corrective actions
(7) Safety inspection.
(8) Photographs and/or video

The daily inspection reports shall identify all QC inspections and QC tests conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible QC technician and the CQCPA. The *Engineer and* RPR shall be provided at least one copy of each daily inspection report on the work day following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results must be archived.

b. Daily test reports. The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

(1) Technical specification item number and description
(2) Test designation
(3) Location
(4) Date of test
(5) Control requirements
(6) Test results
(7) Causes for rejection

(8) Recommended remedial actions

(9) Retests

Test results from each day's work period shall be submitted to the *Engineer and* RPR prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically, the results must be archived.

100-10 Corrective action requirements. The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 Inspection and/or observations by the *Engineer and* RPR. All items of material and equipment are subject to inspection and/or observation by the *Engineer and* RPR at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate QC system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the *Engineer and* RPR at the site for the same purpose.

Inspection and/or observations by the *Engineer and* RPR does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

100-12 Noncompliance.

a. The *Engineer* ~~Resident Project Representative (RPR)~~ will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must take corrective action.

b. When QC activities do not comply with either the CQCP or the contract provisions or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the *Engineer* ~~RPR~~ will recommend the Owner take the following actions:

(1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors and/or

(2) Order the Contractor to stop operations until appropriate corrective actions are taken.

METHOD OF MEASUREMENT

100-13 Basis of measurement and payment. Contractor Quality Control Program (CQCP) is for the personnel, tests, facilities and documentation required to implement the CQCP. The CQCP will be paid as a lump sum with the following schedule of payments:

a. With first pay request, 100% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.

BASIS OF PAYMENT

100-14 Payment will be made under:

Item C-100-14.1 Contractor Quality Control Program (CQCP) – Lump Sum

REFERENCES

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

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

END OF ITEM C-100

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ITEM C-102 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

DESCRIPTION

102-1.1 This item shall consist of temporary control measures as shown on the plans or as ordered by the Resident Project Representative (RPR) during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

102-1.2 *This item covers the application of Temporary Erosion Control items at locations shown on the Plans, as directed by the Engineer, and as required for permit compliance, and the requirement of the Contractor to produce, execute, and maintain a specific Storm Water Pollution Prevention Plan (SWPPP) for the project. The Contractor will also be required to request and obtain all necessary federal, state, and local permits. The temporary erosion control measures shown in the Plans do not represent the extent of work and coordination required by the Contractor under this item.*

MATERIALS

102-2.1 Grass. Grass that will not compete with the grasses sown later for permanent cover per Item T-904 ~~shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses)~~ suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

102-2.2 Mulches. Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials ~~per Item T-908~~. Mulches shall not create a wildlife attractant.

102-2.3 Fertilizer. Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

102-2.4 Slope drains. Slope drains may be constructed of pipe, fiber mats, rubble, concrete, asphalt, or other materials that will adequately control erosion.

102-2.5 Silt fence. Silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

102-2.6 Other. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project. *In addition, all other materials shall meet commercial grade standards and be in accordance with SECTION 665 - TEMPORARY SOIL EROSION AND SEDIMENT of the Standard Specifications, except as modified or augmented herein. Heavy Duty silt fencing (with welded wire in the fabric) may be required on steep slopes if the Engineer determines that the silt fence used by the Contractor is not performing satisfactory.*

CONSTRUCTION REQUIREMENTS

102-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The ~~*RPR*~~ *Contractor* shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

102-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the RPR.

102-3.3 Construction details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The RPR shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the RPR.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the RPR. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the RPR, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The RPR may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

102-3.4 Installation, maintenance and removal of silt fence. Silt fences shall extend a minimum of 16 inches and a maximum of 34 inches above the ground surface. Posts shall be set no more than 10 feet on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch overlap and securely sealed. A trench shall be excavated approximately 4 inches deep by 4 inches wide on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt

fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the RPR.

102-3.5 Construction Methods. *Providing the temporary erosion control items and devices shown on the Plans is intended to minimize the erosion of soils during construction. However, the items and devices shown are not intended to represent all of the necessary items or procedures required to be implemented by the Contractor. The plans and specifications show the Engineer's estimate of a minimum effort needed to maintain proper erosion control during construction. Additional effort and materials may be required by the Contractor to minimize the erosion of soils during construction. It shall be the Contractor's responsibility to install and maintain all the items shown in the Plans and to coordinate, submit, obtain, and comply with all necessary Federal, State, and local permits. The coordination with governing agencies shall include, but not limited to the following:*

- *Filing the Notice of Intent with the STATE Department of Environmental Quality (DEQ),*
- *Producing and maintaining an approved Storm Water Pollution Prevention Plan,*
- *Coordinating and obtaining all local permits regarding grading operations for the proposed improvements, Contractor's staging area, spoil placement and any other grading operations related to the project as directed by the local governing agency.*

METHOD OF MEASUREMENT

102-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the RPR. *This work is subsidiary to other contract work and includes obtaining all necessary federal, state, and local permits required to complete this project.*

102-4.2 Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

BASIS OF PAYMENT

102-5.1 *Temporary erosion control will not be paid for separately as it shall be considered subsidiary to other contract work.*

REFERENCES

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

Advisory Circulars (AC)

AC 150/5200-33 *Hazardous Wildlife Attractants on or Near Airports*

AC 150/5370-2 *Operational Safety on Airports During Construction*

ASTM International (ASTM)

ASTM D6461 *Standard Specification for Silt Fence Materials*

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM C-102

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ITEM C-105 MOBILIZATION

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to 10 percent of the total project cost.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4.1 Engineer/RPR field office.

An Engineer/RPR field office is not required.

105-4.2 Contractor's access / haul routes. *The Contractor shall layout, construct, maintain, and repair all access/haul roads needed to construct the work. Prior to beginning construction, the contractor shall document the existing conditions of any proposed haul routes. Documentation methods shall be approved by the Engineer. The existing access roads shown on the plans shall be repaired, as determined necessary by the Engineer, at the close of the project. All such work, including all materials and labor, involved in the layout, construction, maintenance, and repair of the Contractor's access/haul roads will not be measured for separate payment but will be considered subsidiary to the bid item "Mobilization." Temporary pipe culverts shall be installed and maintained as required and shall be of the size as directed by the Engineer. The type of pipe used for temporary pipe shall be at the option of the Contractor. Temporary pipe culverts will not be measured for separate payment, but will be considered subsidiary to the access/haul road. All temporary pipe culverts shall be removed by the Contractor and shall remain his property at the close of the project.*

105-4.3 Contractor's Staging Area. *The areas designated in the plans or by the Engineer as the Contractor's staging area shall be cleared and graded by the Contractor as needed for use by the Contractor in constructing the work on this project. All areas used or otherwise occupied by the Contractor for his operations shall be cleaned, regraded, and seeded, as directed by the Engineer, prior to the final acceptance of the project by the Airport. All work involved in the preparation and restoration of areas used or occupied by the Contractor, including clearing, grubbing, regrading, seeding, and installing and removing fence, will not be measured for separate payment but will be considered subsidiary to the bid item "Mobilization."*

105-4.4 Instrument Control. *The Contractor will be furnished survey baselines and benchmarks to control the work as shown on the Plans. The Contractor shall be responsible for the additional instrument control necessary to layout and construct the work. The Contractor shall provide the instrument control as provided for in Section 50 of the General Provisions. The Contractor's instrument control of the work shall not be measured for separate payment, but will be considered subsidiary to the bid item "Mobilization".*

105-4.5 Location of Underground Utilities. *Prior to performing excavations, the Contactor shall be responsible for performing such spot digging or "potholing" as necessary to verify the location and depth of existing underground utilities. This work shall be in addition to requirements included the General Provisions and plan notes. Spot digging or "potholing" will not be paid separately, but shall be considered subsidiary to the bid item "Mobilization."*

105-4.6 Clean-Up. *From time to time, the Contractor shall clean up the site in order that the site presents a neat appearance and that the progress of work will not be impeded. One such clean up shall immediately precede final inspection.*

Immediately following acceptance of the work by the Owner, the Contractor shall remove all temporary equipment, surplus materials, and debris resulting from his operations, and leave the site in a condition fully acceptable to the Owner.

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

a. With first pay request, 50%.

d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by Section 90, paragraph 90-11, Contractor Final Project Documentation, the final 50%.

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105-6.1 Mobilization (Maximum 10% of Total Bid) – per Lump Sum

REFERENCES

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

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

ITEM P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS

DESCRIPTION

101-1.1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

101-1.2 *Limits of pavement removal, pavement repair, joint and crack repair, paint and rubber removal, and cold milling are estimated in the plans. Actual limits of these items shall be coordinated with the Engineer prior to construction.*

EQUIPMENT AND MATERIALS

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place.

CONSTRUCTION

101-3.1 Removal of existing pavement.

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

a. Concrete pavement removal. Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. ~~If the material is to be wasted on the airport site, it shall be reduced to a maximum size of **[___]**.~~ Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the RPR.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlaying material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

b. Asphalt pavement removal. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed. ~~If the material is to be **[** wasted on the airport site **] [** incorporated into embankment **]**, it shall be **[** broken to a maximum size of **[___]** inches. **] [** meet the following gradation: **[___]**.~~

c. Repair or removal of Base, Subbase, and/or Subgrade. All failed material including surface, base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the RPR. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense.

d. Disposal. *All existing pavement removed shall be disposed of off-site. All hauling will be considered a necessary and incidental part of the work. Its costs shall be considered by the Contractor and included in the contract unit price for the pay items of work involved. No payment will be made separately or directly for hauling on any part of the work.*

101-3.2 Preparation of joints and cracks prior to overlay/surface treatment. Remove all vegetation and debris from cracks to a minimum depth of 1 inch. If extensive vegetation exists, treat the specific area with a concentrated solution of a water-based herbicide approved by the RPR. Fill all cracks greater than 1/4 inch wide with a crack sealant per ASTM D6690 . The crack sealant, preparation, and application shall be compatible with the surface treatment/overlay to be used. To minimize contamination of the asphalt with the crack sealant, underfill the crack sealant a minimum of 1/8 inch, not to exceed ¼ inch. Any excess joint or crack sealer shall be removed from the pavement surface.

Wider cracks (over 1-~~1/2~~ inch wide), along with soft or sunken spots, indicate that the pavement or the pavement base should be repaired or replaced as stated below.

Cracks and joints may be filled with a mixture of emulsified asphalt and aggregate. The aggregate shall consist of limestone, volcanic ash, sand, or other material that will cure to form a hard substance. The combined gradation shall be as shown in the following table.

Gradation

Sieve Size	Percent Passing
No. 4 (4.75 mm)	100
No. 8 (2.36 mm)	90-100
No. 16 (1.18 mm)	65-90
No. 30 (600 µm)	40-60
No. 50 (300 µm)	25-42
No. 100 (150 µm)	15-30
No. 200 (75 µm)	10-20

Up to 3% cement can be added to accelerate the set time. The mixture shall not contain more than 20% natural sand without approval in writing from the RPR.

The proportions of asphalt emulsion and aggregate shall be determined in the field and may be varied to facilitate construction requirements. Normally, these proportions will be approximately one part asphalt emulsion to five parts aggregate by volume. The material shall be poured or placed into the joints or cracks and compacted to form a voidless mass. The joint or crack shall be filled to within +0 to -1/8 inches of the surface. Any material spilled outside the width of the joint shall be removed from the pavement surface prior to constructing the overlay. Where concrete overlays are to be constructed, only the excess joint material on the pavement surface and vegetation in the joints need to be removed.

***a. Soil Sterilants**. Soil sterilants shall contain Bromacil or Prometone and shall be approved by the Engineer. Application rates shall be in accordance with the manufacturer's recommendations.*

***b. Crack Preparation.** A high temperature compressed air lance shall be used at all times to blast out any vegetation, dirt, dampness and loose materials from the cracks. Existing crack sealant which is deteriorated shall be removed as directed by the Engineer. The high velocity hot air shall be not less than 2,000 °F in temperature. The air lance shall operate in a no flame impingement condition and shall have a directional controlled velocity of 330-fps minimum and a combustion temperature at ignition of no less than 2,000 °F. After cleaning of crack, tack coat shall be applied prior to the application of emulsified asphalt and aggregate. Tack coat shall conform to Item P-603 of these specifications.*

***c. Filler Application.** After cracks have been cleaned, received soil sterilant and tack coat, and have been approved by the Engineer, the cracks shall be filled with the emulsified asphalt and aggregate described within this specification. The mix shall be raked in the crack by hand in order to completely fill the entire crack. Once the crack is filled, excess asphalt mix shall be rounded up along the length of the crack, and pinched into the crack using a small asphalt roller. The application and compaction method shall be approved by the Engineer prior to beginning crack cleaning operations.*

101-3.3 Removal of Foreign Substances/contaminates prior to overlay orremarking. Removal of foreign substances/contaminates from existing pavement that will affect the bond of the new treatment shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances

from the surface of the pavement. Areas that require removal are designated on the plans and as directed by the RPR in the field during construction.

Chemicals, high-pressure water, heater scarifier (asphaltic concrete only), cold milling, or sandblasting may be used. If chemicals are used, they shall comply with the state's environmental protection regulations. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the RPR.

Removal of foreign substances shall not proceed until approved by the RPR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be deposited on the pavement shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair.

a. Repair of concrete spalls in areas to be overlaid with asphalt. The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The perimeter of the repair shall be saw cut a minimum of 2 inches outside the affected area and 2 inches deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphalt mixture with aggregate sized appropriately for the depth of the patch. The material shall be compacted with equipment approved by the RPR until the material is dense and no movement or marks are visible. The material shall not be placed in lifts over 4 inches in depth. This method of repair applies only to pavement to be overlaid.

b. Asphalt pavement repair. The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. Materials and methods of construction shall comply with the applicable sections of these specifications.

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed off Airport property. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

a. Patching. The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The ~~RPR~~ *Contractor* shall layout the area to be milled with a straightedge in increments of 1-foot widths. *The Contractor's layout shall be approved by the RPR prior to beginning milling operations.* The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor's Expense.

b. Profiling, grade correction, or surface correction. The milling machine shall have a minimum width of 7 feet and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to the millings or cuttings from the pavement and load them into a truck. All millings shall be removed and disposed of off the airport.

c. Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual material.

Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed off Airport property.

101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment. Existing asphalt pavements to be treated with a surface treatment shall be prepared as follows:

a. Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt pavement similar to that of the existing pavement in accordance with paragraph 101-3.4b.

b. Repair joints and cracks in accordance with paragraph 101-3.2.

c. Remove oil or grease that has not penetrated the asphalt pavement by scrubbing with a detergent and washing thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.

d. Clean pavement surface immediately prior to placing the surface treatment so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the RPR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

101-3.8 Preparation of Joints in Rigid Pavement prior to resealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method used cleans the joint and does not damage the joint.

101-3.8.1 Removal of Existing Joint Sealant. All existing joint sealants will be removed by plowing or use of hand tools. Any remaining sealant and or debris will be removed by use of wire brushes or other tools as necessary. Resaw joints removing no more than 1/16 inch from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry.

101-3.8.2 Cleaning prior to sealing. Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Allow sufficient time to dry out joints prior to sealing. Joint surfaces will be surface-dry prior to installation of sealant.

101-3.8.3 Joint sealant. Joint material and installation will be in accordance with Item P-605.

101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, the method used cleans the cracks and does not damage the pavement.

101-3.9.1 Preparation of Crack. Widen crack with router **or** random crack saw by removing a minimum of 1/16 inch from each side of crack. Immediately before sealing, cracks will be blown out with a hot air lance combined with oil and water-free compressed air.

101-3.9.2 Removal of Existing Crack Sealant. Existing sealants will be removed by routing **or** random crack saw. Following routing **or** sawing any remaining debris will be removed by use of a hot lance combined with oil and water-free compressed air.

101-3.9.3 Crack Sealant. Crack sealant material and installation will be in accordance with Item P-605.

101-3.10 Removal of Pipe and other Buried Structures.

a. Removal of Existing Pipe Material. Remove the types of pipe as indicated on the plans. The pipe material shall be legally disposed of off-site in a timely manner following removal. Trenches shall be

backfilled with material equal to or better in quality than adjacent embankment. Trenches under paved areas must be compacted to 95% of ASTM D1557.

b. Removal of Inlets/Manholes. Where indicated on the plans or as directed by the RPR, inlets and/or manholes shall be removed and legally disposed of off-site in a timely fashion after removal. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment. When under paved areas must be compacted to 95% of ASTM D1557, when outside of paved areas must be compacted to 95% of ASTM D698.

METHOD OF MEASUREMENT

101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the number of square yards removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal. Dowel bar installation shall be incidental to pavement removal.

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P-101-5.1	Pavement Removal - per square yard

REFERENCES

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

Advisory Circulars (AC)

AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements.

ASTM International (ASTM)

ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

END OF ITEM P-101

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ITEM P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature which is not otherwise classified and paid for under one of the following items.

152-1.3 Unsuitable excavation. Unsuitable material shall be disposed in designated waste areas as shown on the plans. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR. *Undercutting of material unsatisfactory for subgrade foundation, roads, shoulders, or areas intended for turfing shall be considered unsuitable excavation and shall be excavated to the depth specified by the Engineer below the subgrade.*

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared ~~or cleared and grubbed in accordance with Item P-151~~.

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of *off airport property* in ~~waste areas as shown on the plans.~~ All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches, to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

a. Blasting. Blasting shall not be allowed

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

Volumetric quantities were calculated using design cross sections which were created for this project using the DTM files of the applicable design surfaces and generating End Area Volume Reports. Paper copies of

design cross sections and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed of *as described in paragraph 152-1.3* ~~shown on the plans~~.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

~~**a. Selective grading.** When *the quality of material varies significantly* selective grading is indicated on the plans, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.~~

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard for Unsuitable Excavation. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a *necessary part of Unsuitable Excavation* ~~part of the embankment~~. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as Unsuitable Excavation.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the

removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as “Unclassified Excavation.”

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by someone other than the contractor. All existing foundations shall be excavated at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the RPR. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans. *All work associated with the excavation, removal, backfill, disposal, and/or stockpiling of existing structures and culverts will not be measured for separate payment but will be considered subsidiary to “Unclassified Excavation”.*

152-2.3 Borrow excavation. Borrow areas are not required.

152-2.4 Drainage excavation. Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the RPR. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

152-2.5 Preparation of cut areas or areas where existing pavement has been removed. In those areas on which a subbase or base course is to be placed, the top 12 inches of subgrade shall be compacted to not less than 100 % of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM **D1557**. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of embankment area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.7 Control Strip. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor’s demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor’s expense. Full operations shall not begin until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

152-2.8 Formation of embankments. The material shall be constructed in lifts as established in the control strip, but not less than 6 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify

that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The RPR will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D 1557. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the RPR for every 200 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR.

If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 100% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM **D 1557**. Under all areas to be paved, the embankments shall be compacted to a depth of **12”** and to a density of not less than **100** percent of the maximum density as determined by ASTM **D 1557**. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches which shall be prepared for a seedbed in accordance with Item T-904.

The in-place field density shall be determined in accordance with ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The RPR shall perform all density tests. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones,

fragmentary rock, and recycled pavement larger than 4 inches in their greatest dimensions will not be allowed in the top 12 inches of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the RPR and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-2.9 Proof rolling. The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. After compaction is completed, the subgrade area shall be proof rolled with a Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 100 psi in the presence of the RPR. Apply a minimum of **100%** coverage, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 100 percent of the maximum dry density as determined by ASTM D1557. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 8 inches and to a density of not less than 95 percent of the maximum density as determined by ASTM D698.

The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the ¾ inch (19.0 mm) sieve, follow the methods in ASTM D1557**.** Tests for moisture content and compaction will be taken at a minimum of **500** S.Y. of subgrade. All quality assurance testing shall be done by the RPR.

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the RPR, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be paid for as provided in Item T-905. No direct payment will be made for topsoil under Item P-152.

METHOD OF MEASUREMENT

152-3.1 This item shall not be measured separately for payment. This specification is provided as a reference for other specifications within the project.

BASIS OF PAYMENT

152-4.1 Payment shall not be made separately for excavation and embankment. This specification is provided as a reference for other specifications within the project.

REFERENCES

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

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Advisory Circulars (AC)

AC 150/5370-2	Operational Safety on Airports During Construction Software

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66	Design and Construction of Airport Pavements on Expansive Soils

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ITEM P-209 CRUSHED AGGREGATE BASE COURSE

DESCRIPTION

209-1.1 This item consists of a base course composed of crushed aggregate base constructed on a prepared course in accordance with these specifications and in conformity to the dimensions and typical cross-sections shown on the plans.

MATERIALS

209-2.1 Crushed aggregate base. Crushed aggregate shall consist of clean, sound, durable particles of crushed stone, crushed gravel, or crushed slag and shall be free from coatings of clay, silt, organic material, clay lumps or balls or other deleterious materials or coatings. The method used to produce the crushed gravel shall result in the fractured particles in the finished product as consistent and uniform as practicable. Fine aggregate portion, defined as the portion passing the No. 4 (4.75 mm) sieve shall consist of fines from the coarse aggregate crushing operation. The fine aggregate shall be produced by crushing stone, gravel, or slag that meet the coarse aggregate requirements for wear and soundness. Aggregate base material requirements are listed in the following table.

CRUSHED AGGREGATE BASE MATERIAL REQUIREMENTS

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 45% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Percentage of Fractured Particles	Minimum 90% by weight of particles with at least two fractured faces and 98% with at least one fractured face[1]	ASTM D5821
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% maximum, by weight, of flat, elongated, or flat and elongated particles [2]	ASTM D4791
Bulk density of slag	Weigh not less than 70 pounds per cubic foot	ASTM C29
Clay lumps and friable particles	Less than or equal to 3 percent	ASTM C142
Fine Aggregate		
Liquid limit	Less than or equal to 25	ASTM D4318
Plasticity Index	Not more than five (5)	ASTM D4318

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

209-2.2 Gradation requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa.

GRADATION OF AGGREGATE BASE

Sieve Size	Design Range Percentage by Weight passing	Contractor's Final Gradation	Job Control Grading Band Tolerances[1] (Percent)
2 inch (50 mm)	100		0
1-1/2 inch (37.5 mm)	95-100		±5
1 inch (25.0 mm)	70-95		±8
3/4 inch (19.0 mm)	55-85		±8
No. 4 (4.75 mm)	30-60		±8
No. 40[2] (425 µm)	10-30		±5
No. 200[2] (75 µm)	0-10		±3

[1] The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

[2] The fraction of material passing the No 200 (75 µm) sieve shall not exceed two-thirds the fraction passing the No 40 (425 µm) sieve.

209-2.3 Sampling and Testing.

a. Aggregate base materials. The Contractor shall take samples of the aggregate base in accordance with ASTM D75 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in paragraph 209-2.1. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

b. Gradation requirements. The Contractor shall take at least two aggregate base samples per day in the presence of the Resident Project Representative (RPR) to check the final gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in paragraph 209-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the RPR.

209-2.4 Separation Geotextile. Not used.

CONSTRUCTION METHODS

~~**209-3.1 Control strip.** The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.~~

~~Control strips that do not meet specification requirements shall be reworked, re-compacted or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved by the RPR.~~

209-3.2 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the RPR before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with Item P-152, at the Contractor's expense, may be required by the RPR if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

209-3.3 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.5, the approved material may be transported directly to the placement.

209-3.4 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.

The aggregate shall meet gradation and moisture requirements prior to compaction. The base course shall be constructed in lifts ~~as established in the control strip~~, but not less than 4 inches nor more than 12 inches of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications at the Contractor's expense.

209-3.5 Compaction. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.

The field density of each compacted lift of material shall be at least 100% of the maximum density of laboratory specimens prepared from samples of the base material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with ASTM D1557. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM D1557. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

209-3.6 Weather limitations. Material shall not be placed unless the ambient air temperature is at least 40°F and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

209-3.7 Maintenance. The base course shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.8 Surface tolerances. After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and recompacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8-inch when tested with a 12-foot straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +0 and -1/2 inch of the specified grade.

209-3.9 Acceptance sampling and testing. Crushed aggregate base course shall be accepted for density and thickness on an area basis. Two tests shall be made for density and thickness for each 1200 square yards. Sampling locations will be determined on a random basis per ASTM D3665

a. Density. The RPR shall perform all density tests.

Each area shall be accepted for density when the field density is at least 100% of the maximum density of laboratory specimens compacted and tested per ASTM 1557. The in-place field density shall be determined per ASTM D1556. or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. Depth tests shall be made by test holes at least 3 inches in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch, the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches, adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

209-4.1 The quantity of crushed aggregate base course will be determined by measurement of the number of square yards of material actually constructed and accepted by the RPR as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

BASIS OF PAYMENT

209-5.1 Payment shall be made at the contract unit price per square yard for crushed aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-209-5.1	Crushed Aggregate Base Course, 6-inch Thickness - per square yard

REFERENCES

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

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D2167	Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4643	Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM D7928	Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

American Association of State Highway and Transportation Officials (AASHTO)

M288	Standard Specification for Geosynthetic Specification for Highway Applications

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ITEM P-401 ASPHALT MIX PAVEMENT

DESCRIPTION

401-1.1 This item shall consist of pavement courses composed of mineral aggregate and asphalt binder mixed in a central mixing plant and placed on a prepared base or stabilized course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross-sections shown on the plans. Each course shall be constructed to the depth, typical section, and elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course.

MATERIALS

401-2.1 Aggregate. Aggregates shall consist of crushed stone, crushed gravel, crushed slag, screenings, natural sand, and mineral filler, as required. The aggregates should have no known history of detrimental pavement staining due to ferrous sulfides, such as pyrite. Coarse aggregate is the material retained on the No. 4 (4.75 mm) sieve. Fine aggregate is the material passing the No. 4 (4.75 mm) sieve.

a. Coarse aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from films of matter that would prevent thorough coating and bonding with the asphalt material and free from organic matter and other deleterious substances. Coarse aggregate material requirements are given in the table below.

Coarse Aggregate Material Requirements

Material Test	Requirement	Standard
Resistance to Degradation	Loss: 40% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	1.0% maximum	ASTM C142
Percentage of Fractured Particles	For pavements designed for aircraft gross weights of 60,000 pounds or more: Minimum 75% by weight of particles with at least two fractured faces and 85% with at least one fractured face[1]	ASTM D5821
Flat, Elongated, or Flat and Elongated Particles	8% maximum, by weight, of flat, elongated, or flat and elongated particles at 5:1 [2]	ASTM D4791
Bulk density of slag [3]	Weigh not less than 70 pounds per cubic foot	ASTM C29.

[1] The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2] A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

[3] Only required if slag is specified.

b. Fine aggregate. Fine aggregate shall consist of clean, sound, tough, durable, angular shaped particles produced by crushing stone, slag, or gravel and shall be free from coatings of clay, silt, or other objectionable matter. Natural (non-manufactured) sand may be used to obtain the gradation of the fine aggregate blend or to improve the workability of the mix. Fine aggregate material requirements are listed in the table below.

Fine Aggregate Material Requirements

Material Test	Requirement	Standard
Liquid limit	25 maximum	ASTM D4318
Plasticity Index	4 maximum	ASTM D4318
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 10% maximum using Sodium sulfate - or - 15% maximum using magnesium sulfate	ASTM C88
Clay lumps and friable particles	1.0% maximum	ASTM C142
Sand equivalent	45 minimum	ASTM D2419
Natural Sand	15% maximum by weight of total aggregate	ASTM D1073

c. Sampling. ASTM D75 shall be used in sampling coarse and fine aggregate.

401-2.2 Mineral filler. Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of ASTM D242.

Mineral Filler Requirements

Material Test	Requirement	Standard
Plasticity Index	4 maximum	ASTM D4318

401-2.3 Asphalt binder. Asphalt binder shall conform to ASTM D6373 Performance Grade (PG) **76-22**.

Asphalt Binder PG Plus Test Requirements

Material Test	Requirement	Standard
Elastic Recovery	75% minimum	ASTM D6084[1]

[1] Follow procedure B on RTFO aged binder.

401-2.4 Anti-stripping agent. Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond specifications. Anti-strip shall be an approved material of the Department of Transportation of the State in which the project is located.

COMPOSITION

401-3.1 Composition of mixture(s). The asphalt mix shall be composed of a mixture of aggregates, filler and anti-strip agent if required, and asphalt binder. The aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

401-3.2 Job mix formula (JMF) laboratory. The laboratory used to develop the JMF shall possess a current certificate of accreditation, listing D3666 from a national accrediting authority and all test methods required for developing the JMF; and be listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the Resident Project Representative (RPR) prior to start of construction.

401-3.3 Job mix formula (JMF). No asphalt mixture shall be placed until an acceptable mix design has been submitted to the RPR for review and accepted in writing. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

When the project requires asphalt mixtures of differing aggregate gradations and/or binders, a separate JMF shall be submitted for each mix. Add anti-stripping agent to meet tensile strength requirements.

The JMF shall be prepared by an accredited laboratory that meets the requirements of paragraph 401-3.2. The asphalt mixture shall be designed using procedures contained in Asphalt Institute MS-2 Mix Design Manual, 7th Edition**.** Samples shall be prepared and compacted using a Marshall compactor in accordance with ASTM D6926.

Should a change in sources of materials be made, a new JMF must be submitted to the RPR for review and accepted in writing before the new material is used. After the initial production JMF has been approved by the RPR and a new or modified JMF is required for whatever reason, the subsequent cost of the new or modified JMF, including a new control strip when required by the RPR, will be borne by the Contractor.

The RPR may request samples at any time for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

The JMF shall be submitted in writing by the Contractor at least 30 days prior to the start of paving operations. The JMF shall be developed within the same construction season using aggregates proposed for project use.

The JMF shall be dated, and stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items as a minimum:

- Manufacturer's Certificate of Analysis (COA) for the asphalt binder used in the JMF in accordance with paragraph 401-2.3. Certificate of asphalt performance grade is with modifier already added, if used and must indicate compliance with ASTM D6373. For plant modified asphalt binder, certified test report indicating grade certification of modified asphalt binder.
- Manufacturer's Certificate of Analysis (COA) for the anti-stripping agent if used in the JMF in accordance with paragraph 401-2.4.
- Certified material test reports for the course and fine aggregate and mineral filler in accordance with paragraphs 401-2.1.
- Percent passing each sieve size for individual gradation of each aggregate cold feed and/or hot bin; percent by weight of each cold feed and/or hot bin used; and the total combined gradation in the JMF.
- Specific Gravity and absorption of each coarse and fine aggregate.
- Percent natural sand.
- Percent fractured faces.
- Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).
- Percent of asphalt.
- Number of blows or gyrations
- Laboratory mixing and compaction temperatures.
- Supplier-recommended field mixing and compaction temperatures.
- Plot of the combined gradation on a 0.45 power gradation curve.
- Graphical plots of air voids, voids in the mineral aggregate (VMA), and unit weight versus asphalt content. To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.

- Tensile Strength Ratio (TSR).
- Type and amount of Anti-strip agent when used.
- Asphalt Pavement Analyzer (APA) results.
- Date the JMF was developed. Mix designs that are not dated or which are from a prior construction season shall not be accepted.

Table 1. Asphalt Design Criteria

Test Property	Value	Test Method
Number of blows or gyrations	75	
Air voids (%)	3.5	ASTM D3203
Percent voids in mineral aggregate (VMA), minimum	See Table 2	ASTM D6995
Tensile Strength Ratio (TSR)[1]	not less than 80 at a saturation of 70-80%	ASTM D4867
Asphalt Pavement Analyzer (APA)[2,3]	Less than 10 mm @ 4000 passes	AASHTO T340 at 250 psi hose pressure at 64°C test temperature

[1] Test specimens for TSR shall be compacted at 7 ± 1.0 % air voids. In areas subject to freeze-thaw, use freeze-thaw conditioning in lieu of moisture conditioning per ASTM D4867

[2] AASHTO T340 at 100 psi hose pressure at 64°C test temperature may be used in the interim. If this method is used the required Value shall be less than 5 mm @ 8000 passes

[3] Where APA is not available, use Hamburg wheel test (AASHTO T324) 10mm @ 20,000 passes at 64°C

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 2 when tested in accordance with ASTM C136 and ASTM C117.

The gradations in Table 2 represent the limits that shall determine the suitability of aggregate for use from the sources of supply; be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa.

Table 2. Aggregate - Asphalt Pavements

Sieve Size	Percentage by Weight Passing Sieve
1 inch (25.0 mm)	**100**
3/4 inch (19.0 mm)	**90-100**
1/2 inch (12.5 mm)	**68-88**
3/8 inch (9.5 mm)	**60-82**
No. 4 (4.75 mm)	**45-67**
No. 8 (2.36 mm)	**32-54**
No. 16 (1.18 mm)	**22-44**
No. 30 (600 µm)	**15-35**
No. 50 (300 µm)	**9-25**
No. 100 (150 µm)	**6-18**
No. 200 (75 µm)	**3-6**
Minimum Voids in Mineral Aggregate (VMA)[1]	14.0
Asphalt Percent:	
Stone or gravel	**4.5-7.0**
Slag	**5.0-7.5**
Recommended Minimum Construction Lift Thickness	**3 inch**

[1]To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition.

401-3.4 Reclaimed asphalt pavement (RAP). RAP shall not be used.

401-3.5 Control Strip. A control strip is not required.

CONSTRUCTION METHODS

401-4.1 Weather limitations. The asphalt shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 4. The temperature requirements may be waived by the RPR, if requested; however, all other requirements including compaction shall be met.

Table 4. Surface Temperature Limitations of Underlying Course

Mat Thickness	Base Temperature (Minimum)
	°F
3 inches or greater	40
Greater than 2 inches but less than 3 inches	45

401-4.2 Asphalt plant. Plants used for the preparation of asphalt shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M156 including the following items.

a. Inspection of plant. The RPR, or RPR's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.

b. Storage bins and surge bins. The asphalt mixture stored in storage and/or surge bins shall meet the same requirements as asphalt mixture loaded directly into trucks. Asphalt mixture shall not be stored in storage and/or surge bins for a period greater than twelve (12) hours. If the RPR determines there is an excessive heat loss, segregation, or oxidation of the asphalt mixture due to temporary storage, temporary storage shall not be allowed.

401-4.3 Aggregate stockpile management. Aggregate stockpiles shall be constructed in a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the asphalt batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used.

A continuous supply of materials shall be provided to the work to ensure continuous placement.

401-4.4 Hauling equipment. Trucks used for hauling asphalt shall have tight, clean, and smooth metal beds. To prevent the asphalt from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the RPR. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

401-4.4.1 Material transfer vehicle (MTV). Material transfer vehicles used to transfer the material from the hauling equipment to the paver, shall use a self-propelled, material transfer vehicle with a swing conveyor that can deliver material to the paver without making contact with the paver. The MTV shall be able to move back and forth between the hauling equipment and the paver providing material transfer to the paver, while allowing the paver to operate at a constant speed. The Material Transfer Vehicle will have remixing and storage capability to prevent physical and thermal segregation.

401-4.5 Asphalt pavers. Asphalt pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of asphalt that will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface. The asphalt paver shall be equipped with a control system capable of automatically maintaining the specified screed grade and elevation.

If the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued.

The paver shall be capable of paving to a minimum width specified in paragraph 401-4.12.

401-4.6 Rollers. The number, type, and weight of rollers shall be sufficient to compact the asphalt to the required density while it is still in a workable condition without crushing of the aggregate, depressions or other damage to the pavement surface. Rollers shall be in good condition, clean, and capable of operating at slow speeds to avoid displacement of the asphalt. All rollers shall be specifically designed and suitable for compacting asphalt concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used.

401-4.7 Density device. The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall supply a

qualified technician during all paving operations to calibrate the gauge and obtain accurate density readings for all new asphalt. These densities shall be supplied to the RPR upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

401-4.8 Preparation of asphalt binder. The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt binder to the mixer at a uniform temperature. The temperature of unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325°F when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F when added to the aggregate.

401-4.9 Preparation of mineral aggregate. The aggregate for the asphalt shall be heated and dried. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350°F when the asphalt binder is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

401-4.10 Preparation of Asphalt mixture. The aggregates and the asphalt binder shall be weighed or metered and mixed in the amount specified by the JMF. The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in ASTM D2489, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture delivered per second by the mixer. The moisture content of all asphalt upon discharge shall not exceed 0.5%.

401-4.11 Application of Prime and Tack Coat. Immediately before placing the asphalt mixture, the underlying course shall be cleaned of all dust and debris.

A prime coat in accordance with Item P-602 shall be applied to aggregate base prior to placing the asphalt mixture.

A tack coat shall be applied in accordance with Item P-603 to all vertical and horizontal asphalt and concrete surfaces prior to placement of the first and each subsequent lift of asphalt mixture.

401-4.12 Laydown plan, transporting, placing, and finishing. Prior to the placement of the asphalt, the Contractor shall prepare a laydown plan with the sequence of paving lanes and width to minimize the number of cold joints; the location of any temporary ramps; laydown temperature; and estimated time of completion for each portion of the work (milling, paving, rolling, cooling, etc.). The laydown plan and any modifications shall be approved by the RPR.

Deliveries shall be scheduled so that placing and compacting of asphalt is uniform with minimum stopping and starting of the paver. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to approximately ambient temperature. The Contractor, at their expense, shall be responsible for repair of any damage to the pavement caused by hauling operations.

~~Contractor shall survey each lift of asphalt surface course and certify to RPR that every lot of each lift meets the grade tolerances of paragraph 401-6.2d before the next lift can be placed.~~

Edges of existing asphalt pavement abutting the new work shall be saw cut and the cut off material and laitance removed. Apply a tack coat in accordance with P-603 before new asphalt material is placed against it.

The speed of the paver shall be regulated to eliminate pulling and tearing of the asphalt mat. Placement of the asphalt mix shall begin along the centerline of a crowned section or on the high side of areas with a one way slope unless shown otherwise on the laydown plan as accepted by the RPR. The asphalt mix shall be placed in consecutive adjacent lanes having a minimum width of 12.5 feet except where edge lanes require less width to complete the area. Additional screed sections attached to widen the paver to meet the minimum lane width requirements must include additional auger sections to move the asphalt mixture uniformly along the screed extension.

The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least one foot; however, the joint in the surface top course shall be at the centerline of crowned pavements. Transverse joints in one course shall be offset by at least 10 feet from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the asphalt may be spread and luted by hand tools.

The RPR may at any time, reject any batch of asphalt, on the truck or placed in the mat, which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or overheated asphalt mixture. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the RPR, and if it can be demonstrated in the laboratory, in the presence of the RPR, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

Areas of segregation in the surface course, as determined by the RPR, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of the construction lift thickness as specified in paragraph 401-3.3, Table 2 for the approved mix design. The area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet long.

401-4.13 Compaction of asphalt mixture. After placing, the asphalt mixture shall be thoroughly and uniformly compacted by self-propelled rollers. The surface shall be compacted as soon as possible when the asphalt has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any surface defects and/or displacement occurring as a result of the roller, or from any other cause, shall be corrected at the Contractor's expense.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross-section, and the required field density is obtained. To prevent adhesion of the asphalt to the roller, the wheels shall be equipped with a scraper and kept moistened with water as necessary.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with approved power tampers.

Any asphalt that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

401-4.14 Joints. The formation of all joints shall be made to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid asphalt except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. In both methods, all contact surfaces shall be coated with an asphalt tack coat before placing any fresh asphalt against the joint.

Longitudinal joints which have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°; or are irregular, damaged, uncompacted or otherwise defective shall be cut back with a ~~cutting wheel or~~ pavement saw a maximum of 3 inches to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material and any laitance produced from cutting joints shall be removed from the project. Asphalt tack coat in accordance with P-603 shall be applied to the clean, dry joint prior to placing any additional fresh asphalt against the joint. The cost of this work shall be considered incidental to the cost of the asphalt.

401-4.15 Saw-cut grooving. Saw-cut grooving is not required. **]**

401-4.16 Diamond grinding. Diamond grinding shall be completed prior to pavement grooving. Diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive.

Diamond grinding shall be performed with a machine designed specifically for diamond grinding capable of cutting a path at least 3 feet wide. The saw blades shall be 1/8-inch wide with a sufficient number of blades to create grooves between 0.090 and 0.130 inches wide; and peaks and ridges approximately 1/32 inch higher than the bottom of the grinding cut. The actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Equipment or grinding procedures that cause ravels, aggregate fractures, spalls or disturbance to the pavement will not be permitted. Contractor shall demonstrate to the RPR that the grinding equipment will produce satisfactory results prior to making corrections to surfaces. Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. The Contractor shall apply a surface treatment per P-608 to all areas that have been subject to grinding.

401-4.17 Nighttime paving requirements. The Contractor shall provide adequate lighting during any nighttime construction. A lighting plan shall be submitted by the Contractor and approved by the RPR prior to the start of any nighttime work. All work shall be in accordance with the approved CSPP and lighting plan.

CONTRACTOR QUALITY CONTROL (CQC)

401-5.1 General. The Contractor shall develop a Contractor Quality Control Program (CQCP) in accordance with Item C-100. No partial payment will be made for materials without an approved CQCP.

401-5.2 Contractor quality control (QC) facilities. The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The RPR will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

401-5.3 Contractor QC testing. The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to these specifications and as set forth in the approved CQCP. The testing program shall include, but not necessarily be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A QC Testing Plan shall be developed as part of the CQCP.

a. Asphalt content. A minimum of two tests shall be performed per day in accordance with ASTM D6307 or ASTM D2172 for determination of asphalt content. When using ASTM D6307, the correction factor shall be determined as part of the first test performed at the beginning of plant production; and as part of every tenth test performed thereafter. The asphalt content for the day will be determined by averaging the test results.

b. Gradation. Aggregate gradations shall be determined a minimum of twice per day from mechanical analysis of extracted aggregate in accordance with ASTM D5444, ASTM C136, and ASTM C117.

c. Moisture content of aggregate. The moisture content of aggregate used for production shall be determined a minimum of once per day in accordance with ASTM C566.

d. Moisture content of asphalt. The moisture content shall be determined once per day in accordance with AASHTO T329 or ASTM D1461.

e. Temperatures. Temperatures shall be checked, at least four times per day, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the asphalt at the plant, and the asphalt at the job site.

f. In-place density monitoring. The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density in accordance with ASTM D2950.

g. Smoothness for Contractor Quality Control.

The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing pavement with variances less than ¼ inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues

The Contractor may use a 12-foot straightedge, a rolling inclinometer meeting the requirements of ASTM E2133, or rolling external reference device that can simulate a 12-foot straightedge, approved by the RPR. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer or external reference device is used, the data may be evaluated using either the FAA profile program, ProFAA, or FHWA ProVal, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the plans.

(1) Transverse measurements. Transverse measurements shall be taken for each day's production placed. Transverse measurements shall be taken perpendicular to the pavement centerline each 50 feet or more often as determined by the RPR. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

(2) Longitudinal measurements. Longitudinal measurements shall be taken for each day's production placed. Longitudinal tests shall be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet; and at the third points of paving lanes when widths of paving lanes are 20 ft or greater. When placement abuts previously placed material the first measurement shall start with one half the length of the straight edge on the previously placed material.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4 inch shall be corrected with diamond grinding per paragraph 401-4.16 or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in paragraph 401-6.1d(3). Areas that have been ground shall be sealed with a surface treatment in accordance with Item P-608. To avoid the surface treatment creating any conflict with runway or taxiway markings, it may be necessary to seal a larger area.

Control charts shall be kept to show area of each day's placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor's machines and/or methods produce significant areas that need corrective

actions in excess of 10 percent of a day's production, production shall be stopped until corrective measures are implemented by the Contractor.

h. Grade. Grade shall be evaluated daily to allow adjustments to paving operations when grade measurements do not meet specifications. As a minimum, grade shall be evaluated prior to and after the placement of the first lift and after placement of the surface lift.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and plans. The final surface of the pavement will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch vertically and 0.1 feet laterally. The documentation will be provided by the Contractor to the RPR within 24 hours.

Areas with humps or depressions that exceed grade or smoothness criteria and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2 inch less than the thickness specified on the plans. Grinding shall be in accordance with paragraph 401-4.16.

The Contractor shall repair low areas or areas that cannot be corrected by grinding by removal of deficient areas to the depth of the final course plus ½ inch and replacing with new material. Skin patching is not allowed.

401-5.4 Sampling. When directed by the RPR, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

401-5.5 Control charts. The Contractor shall maintain linear control charts for both individual measurements and range (i.e. difference between highest and lowest measurements) for aggregate gradation, asphalt content, and VMA. The VMA for each day will be calculated and monitored by the QC laboratory.

Control charts shall be posted in a location satisfactory to the RPR and kept current. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and Suspension Limits applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a problem and the Contractor is not taking satisfactory corrective action, the RPR may suspend production or acceptance of the material.

a. Individual measurements. Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation, asphalt content, and VMA. The control charts shall use the job mix formula target values as indicators of central tendency for the following test parameters with associated Action and Suspension Limits:

Control Chart Limits for Individual Measurements

Sieve	Action Limit	Suspension Limit
3/4 inch (19.0 mm)	±6%	±9%
1/2 inch (12.5 mm)	±6%	±9%
3/8 inch (9.5 mm)	±6%	±9%
No. 4 (4.75 mm)	±6%	±9%
No. 16 (1.18 mm)	±5%	±7.5%
No. 50 (300 µm)	±3%	±4.5%
No. 200 (75 µm)	±2%	±3%
Asphalt Content	±0.45%	±0.70%
Minimum VMA	-0.5%	-1.0%

b. Range. Control charts shall be established to control gradation process variability. The range shall be plotted as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of n = 2. Should the Contractor elect to perform more than two tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for n = 3 and by 1.27 for n = 4.

Control Chart Limits Based on Range

Sieve	Suspension Limit
1/2 inch (12.5 mm)	11%
3/8 inch (9.5 mm)	11%
No. 4 (4.75 mm)	11%
No. 16 (1.18 mm)	9%
No. 50 (300 µm)	6%
No. 200 (75 µm)	3.5%
Asphalt Content	0.8%

c. Corrective Action. The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:

(1) One point falls outside the Suspension Limit line for individual measurements or range; or

(2) Two points in a row fall outside the Action Limit line for individual measurements.

401-5.6 QC reports. The Contractor shall maintain records and shall submit reports of QC activities daily , in accordance with Item C-100.

MATERIAL ACCEPTANCE

401-6.1 Acceptance sampling and testing. Unless otherwise specified, all acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the RPR at no cost to the Contractor except that coring as required in this section shall be completed and paid for by the Contractor.

a. Quality assurance (QA) testing laboratory. The QA testing laboratory performing these acceptance tests will be accredited in accordance with ASTM D3666. The QA laboratory accreditation will be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing will be listed on the lab accreditation.

b. Lot size. A standard lot will be equal to one day's production divided into approximately equal sublots of between 400 to 600 tons. When only one or two sublots are produced in a day's production, the sublots will be combined with the production lot from the previous or next day.

Where more than one plant is simultaneously producing asphalt for the job, the lot sizes will apply separately for each plant.

c. Asphalt air voids. Plant-produced asphalt will be tested for air voids on a sublot basis.

(1) Sampling. Material from each sublot shall be sampled in accordance with ASTM D3665. Samples shall be taken from material deposited into trucks at the plant or at the job site in accordance with ASTM D979. The sample of asphalt may be put in a covered metal tin and placed in an oven for not less than 30 minutes nor more than 60 minutes to maintain the material at or above the compaction temperature as specified in the JMF.

(**2) Testing.** Air voids will be determined for each sublot in accordance with ASTM D3203 for a set of three compacted specimens prepared in accordance with ASTM D6926.

d. In-place asphalt mat and joint density. Each sublot will be tested for in-place mat and joint density as a percentage of the theoretical maximum density (TMD).

(1) Sampling. The Contractor will cut minimum 5 inch diameter samples in accordance with ASTM D5361. The Contractor shall furnish all tools, labor, and materials for cleaning, and filling the cored pavement. Laitance produced by the coring operation shall be removed immediately after coring, and core holes shall be filled within one day after sampling in a manner acceptable to the RPR.

(2) Bond. Each lift of asphalt shall be bonded to the underlying layer. If cores reveal that the surface is not bonded, additional cores shall be taken as directed by the RPR to determine the extent of unbonded areas. Unbonded areas shall be removed by milling and replaced at no additional cost as directed by the RPR.

(3) Thickness. Thickness of each lift of surface course will be evaluated by the RPR for compliance to the requirements shown on the plans after any necessary corrections for grade. Measurements of thickness will be made using the cores extracted for each sublot for density measurement. The maximum allowable deficiency at any point will not be more than 1/4 inch less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, will not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or sublot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the RPR to circumscribe the deficient area.

(4) Mat density. One core shall be taken from each sublot. Core locations will be determined by the RPR in accordance with ASTM D3665. Cores for mat density shall not be taken closer than one foot from a transverse or longitudinal joint. The bulk specific gravity of each cored sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each sublot sample by the TMD for that sublot.

(5) Joint density. One core centered over the longitudinal joint shall be taken for each sublot that has a longitudinal joint. Core locations will be determined by the RPR in accordance with ASTM D3665. The bulk specific gravity of each core sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each joint density sample by the average TMD for the lot. The TMD used to determine the joint density at joints formed between lots will be the lower of the average TMD values from the adjacent lots.

401-6.2 Acceptance criteria.

a. General. Acceptance will be based on the implementation of the Contractor Quality Control Program (CQCP) and the following characteristics of the asphalt and completed pavements: air voids, mat density, joint density, grade ~~and Profilograph roughness.~~

b. Air Voids and Mat density. Acceptance of each lot of plant produced material for mat density and air voids will be based on the percentage of material within specification limits (PWL). If the PWL of the lot equals or exceeds 90%, the lot will be acceptable. Acceptance and payment will be determined in accordance with paragraph 401-8.1.

c. Joint density. Acceptance of each lot of plant produced asphalt for joint density will be based on the PWL. If the PWL of the lot is equal to or exceeds 90%, the lot will be considered acceptable. If the PWL is less than 90%, the Contractor shall evaluate the reason and act accordingly. If the PWL is less than 80%, the Contractor shall cease operations and until the reason for poor compaction has been determined. If the PWL is less than 71%, the pay factor for the lot used to complete the joint will be reduced by five (5) percentage points. This lot pay factor reduction will be incorporated and evaluated in accordance with paragraph 401-8.1.

d. Grade. The final finished surface of the pavement shall be surveyed to verify that the grade elevations and cross-sections shown on the plans do not deviate more than 1/2 inch vertically or 0.1 feet laterally**.**

Cross-sections of the pavement shall be taken at a minimum 50-foot longitudinal spacing, at all longitudinal grade breaks, and at start and end of each lane placed. Minimum cross-section grade points shall include grade at centerline, ± 10 feet of centerline**,** and edge of taxiway pavement.

The survey and documentation shall be stamped and signed by a licensed surveyor. Payment for sublots that do not meet grade for over 25% of the sublot shall not be more than 95%.

e. Profilograph roughness for QA Acceptance. Not used.

401-6.3 Percentage of material within specification limits (PWL). The PWL will be determined in accordance with procedures specified in Item C-110. The specification tolerance limits (L) for lower and (U) for upper are contained in Table 5.

Table 5. Acceptance Limits for Air Voids and Density

Test Property	Pavements Specification Tolerance Limits	
	L	**U**
Air Voids Total Mix (%)	2.0	5.0
Surface Course Mat Density (%)	92.8	**-**
Base Course Mat Density (%)	92.0	**-**
Joint density (%)	90.5	--

a. Outliers. All individual tests for mat density and air voids will be checked for outliers (test criterion) in accordance with ASTM E178, at a significance level of 5%. Outliers will be discarded, and the PWL will be determined using the remaining test values. The criteria in Table 5 is based on production processes which have a variability with the following standard deviations: Surface Course Mat Density (%), 1.30; Base Course Mat Density (%), 1.55; Joint Density (%), 1.55.

The Contractor should note that (1) 90 PWL is achieved when consistently producing a surface course with an average mat density of at least 94.5% with 1.30% or less variability, (2) 90 PWL is achieved when

consistently producing a base course with an average mat density of at least 94.0% with 1.55% or less variability, and (3) 90 PWL is achieved when consistently producing joints with an average joint density of at least 92.5% with 1.55% or less variability.

401-6.4 Resampling pavement for mat density.

a. General. Resampling of a lot of pavement will only be allowed for mat density, and then, only if the Contractor requests same, in writing, within 48 hours after receiving the written test results from the RPR. A retest will consist of all the sampling and testing procedures contained in paragraphs 401-6.1d and 401-6.2b. Only one resampling per lot will be permitted.

(1) A redefined PWL will be calculated for the resampled lot. The number of tests used to calculate the redefined PWL will include the initial tests made for that lot plus the retests.

(2) The cost for resampling and retesting shall be borne by the Contractor.

b. Payment for resampled lots. The redefined PWL for a resampled lot will be used to calculate the payment for that lot in accordance with Table 6.

c. Outliers. Check for outliers in accordance with ASTM E178, at a significance level of 5%.

METHOD OF MEASUREMENT

401-7.1 Measurement. Asphalt shall be measured by the number of tons of asphalt used in the accepted work. Batch weights or truck scale weights will be used to determine the basis for the tonnage.

BASIS OF PAYMENT

401-8.1 Payment. Payment for a lot of asphalt meeting all acceptance criteria as specified in paragraph 401-6.2 shall be made based on results of tests for mat density and air voids. Payment for acceptable lots shall be adjusted according to paragraph 401-8.1c for mat density and air voids; and paragraph 401-6.2c for joint density, subject to the limitation that:

a. The total project payment for plant mix asphalt pavement shall not exceed 100 percent of the product of the contract unit price and the total number of tons of asphalt used in the accepted work.

b. The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

c. Basis of adjusted payment. The pay factor for each individual lot shall be calculated in accordance with Table 6. A pay factor shall be calculated for both mat density and air voids. The lot pay factor shall be the higher of the two values when calculations for both mat density and air voids are 100% or higher. The lot pay factor shall be the product of the two values when only one of the calculations for either mat density or air voids is 100% or higher. The lot pay factor shall be the lower of the two values when calculations for both mat density and air voids are less than 100%. If PWL for joint density is less than 71% then the lot pay factor shall be reduced by 5% but be no higher than 95%.

For each lot accepted, the adjusted contract unit price shall be the product of the lot pay factor for the lot and the contract unit price. Payment shall be subject to the total project payment limitation specified in paragraph 401-8.1a. Payment in excess of 100% for accepted lots of asphalt shall be used to offset payment for accepted lots of asphalt pavement that achieve a lot pay factor less than 100%.

Payment for sublots which do not meet grade in accordance with paragraph 401-6.2d after correction for over 25% of the sublot shall be reduced by 5%.

Table 6. Price adjustment schedule[1]

Percentage of material within specification limits (PWL)	Lot pay factor (percent of contract unit price)
96 – 100	106
90 – 95	PWL + 10
75 – 89	0.5 PWL + 55
55 – 74	1.4 PWL – 12
Below 55	Reject [2]

[1] Although it is theoretically possible to achieve a pay factor of 106% for each lot, actual payment above 100% shall be subject to the total project payment limitation specified in paragraph 401-8.1a.

[2] The lot shall be removed and replaced. However, the RPR may decide to allow the rejected lot to remain. In that case, if the RPR and Contractor agree in writing that the lot shall not be removed, it shall be paid for at 50% of the contract unit price and the total project payment shall be reduced by the amount withheld for the rejected lot.

d. Profilograph Roughness. Not used.

401-8.1 Payment.

Payment will be made under:

Item P-401-8.1 Asphalt Surface Course, 3-inch Thickness - per ton

REFERENCES

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

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM C566	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D242	Standard Specification for Mineral Filler for Bituminous Paving Mixtures

ASTM D946	Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction
ASTM D979	Standard Practice for Sampling Asphalt Paving Mixtures
ASTM D1073	Standard Specification for Fine Aggregate for Asphalt Paving Mixtures
ASTM D1188	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples
ASTM D2172	Standard Test Method for Quantitative Extraction of Bitumen from Asphalt Paving Mixtures
ASTM D1461	Standard Test Method for Moisture or Volatile Distillates in Asphalt Paving Mixtures
ASTM D2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D2489	Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures
ASTM D2726	Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures
ASTM D2950	Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods
ASTM D3203	Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures
ASTM D3381	Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D3666	Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4552	Standard Practice for Classifying Hot-Mix Recycling Agents
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D4867	Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures
ASTM D5361	Standard Practice for Sampling Compacted Asphalt Mixtures for Laboratory Testing
ASTM D5444	Standard Test Method for Mechanical Size Analysis of Extracted Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate

ASTM D6084	Standard Test Method for Elastic Recovery of Bituminous Materials by Ductilometer
ASTM D6307	Standard Test Method for Asphalt Content of Hot Mix Asphalt by Ignition Method
ASTM D6373	Standard Specification for Performance Graded Asphalt Binder
ASTM D6752	Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method
ASTM D6925	Standard Test Method for Preparation and Determination of the Relative Density of Hot Mix Asphalt (HMA) Specimens by Means of the SuperPave Gyratory Compactor.
ASTM D6926	Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus
ASTM D6927	Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures
ASTM D6995	Standard Test Method for Determining Field VMA based on the Maximum Specific Gravity of the Mix (Gmm)
ASTM E11	Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves
ASTM E178	Standard Practice for Dealing with Outlying Observations
ASTM E1274	Standard Test Method for Measuring Pavement Roughness Using a Profilograph
ASTM E950	Standard Test Method for Measuring the Longitudinal Profile of Traveled Surfaces with an Accelerometer Established Inertial Profiling Reference
ASTM E2133	Standard Test Method for Using a Rolling Inclinometer to Measure Longitudinal and Transverse Profiles of a Traveled Surface

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M156	Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
AASHTO T329	Standard Method of Test for Moisture Content of Hot Mix Asphalt (HMA) by Oven Method
AASHTO T324	Standard Method of Test for Hamburg Wheel-Track Testing of Compacted Asphalt Mixtures
AASHTO T 340	Standard Method of Test for Determining the Rutting Susceptibility of Hot Mix Asphalt (APA) Using the Asphalt Pavement Analyzer (APA)

Asphalt Institute (AI)

Asphalt Institute Handbook MS-26, Asphalt Binder

Asphalt Institute MS-2 Mix Design Manual, 7th Edition

AI State Binder Specification Database

Federal Highway Administration (FHWA)

Long Term Pavement Performance Binder Program

Advisory Circulars (AC)

AC 150/5320-6	Airport Pavement Design and Evaluation

FAA Orders

5300.1	Modifications to Agency Airport Design, Construction, and Equipment Standards

Software

FAARFIELD

END OF ITEM P-401

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ITEM P-602 EMULSIFIED ASPHALT PRIME COAT

DESCRIPTION

602-1.1 This item shall consist of an application of emulsified asphalt material on the prepared base course in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

602-2.1 Emulsified Asphalt material. The emulsified asphalt material shall be as specified in ASTM D3628 for use as a prime coat appropriate to local conditions. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the emulsified asphalt material. The COA shall be provided to and approved by the Resident Project Representative (RPR) before the emulsified asphalt material is applied. The furnishing of the COA for the emulsified asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

CONSTRUCTION METHODS

602-3.1 Weather limitations. The emulsified asphalt prime coat shall be applied only when the existing surface is dry; the atmospheric temperature is 50°F or above, and the temperature has not been below 35°F for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

602-3.2 Equipment. The equipment shall include a self-powered pressure asphalt material distributor and equipment for heating asphalt material.

Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 65.0 psi of tire width to prevent rutting, shoving or otherwise damaging the base, surface or other layers in the pavement structure. Design and equip the distributor to spray the asphalt material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.05 to 1.0 gallons per square yard, with a pressure range of 25 to 75 psi and with an allowable variation from the specified rate of not more than ±5%, and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying asphalt material manually to areas inaccessible to the distributor. Equip the distributor to circulate and agitate the asphalt material during the heating process. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

A power broom and power blower suitable for cleaning the surfaces to which the asphalt coat is to be applied shall be provided.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the RPR.

602-3.3 Application of emulsified asphalt material. Immediately before applying the prime coat, the full width of the surface to be primed shall be swept with a power broom to remove all loose dirt and other objectionable material.

The asphalt emulsion material shall be uniformly applied with an asphalt distributor at the rate of 0.15 to 0.30 gallons per square yard depending on the base course surface texture. The type of asphalt material and application rate shall be approved by the RPR prior to application.

Following application of the emulsified asphalt material and prior to application of the succeeding layer of pavement, allow the asphalt coat to cure and to obtain evaporation of any volatiles or moisture. Maintain the coated surface until the succeeding layer of pavement is placed, by protecting the surface against

damage and by repairing and recoating deficient areas. Allow the prime coat to cure without being disturbed for a period of at least 48 hours or longer, as may be necessary to attain penetration into the treated course. Furnish and spread sand to effectively blot up and cure excess asphalt material. The Contractor shall remove blotting sand prior to asphalt concrete lay down operations at no additional expense to the Owner. Keep traffic off surfaces freshly treated with asphalt material. Provide sufficient warning signs and barricades so that traffic will not travel over freshly treated surfaces.

602-3.4 Trial application rates. The Contractor shall apply a minimum of three lengths of at least 100 feet for the full width of the distributor bar to evaluate the amount of emulsified asphalt material that can be satisfactorily applied with the equipment. Apply three different application rates of emulsified asphalt materials within the application range specified in paragraph 602-3.3. Other trial applications can be made using various amounts of material as directed by the RPR. The trial application is to demonstrate the equipment can uniformly apply the emulsified asphalt material within the rates specified and determine the application rate for the project.

602-3.5 Freight and waybills. The Contractor shall submit waybills and delivery tickets during the progress of the work. Before the final estimate is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

602-4.1 The emulsified asphalt material for prime coat shall be measured by the gallon. Volume shall be corrected to the volume at 60°F (16°C) in accordance with ASTM D4311. The emulsified asphalt material paid for will be the measured quantities used in the accepted work, provided that the measured quantities are not 10% over the specified application rate. Any amount of emulsified asphalt material more than 10% over the specified application rate for each application will be deducted from the measured quantities, except for irregular areas where hand spraying of the emulsified asphalt material is necessary. Water added to emulsified asphalt will not be measured for payment.

BASIS OF PAYMENT

602-5.1 Payment shall be made at the contract unit price per gallon for emulsified asphalt prime coat. This price shall be full compensation for furnishing all materials and for all preparation, delivering, and applying the materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item P-602-5.1	Emulsified Asphalt Prime Coat - per gallon

REFERENCES

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

ASTM International (ASTM)

ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END OF ITEM P-602

ITEM P-603 EMULSIFIED ASPHALT TACK COAT

DESCRIPTION

603-1.1 This item shall consist of preparing and treating an asphalt or concrete surface with asphalt material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

603-2.1 Asphalt materials. The asphalt material shall be an emulsified asphalt as specified in ASTM D3628 as an asphalt application for tack coat appropriate to local conditions. The emulsified asphalt shall not be diluted. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt material to the Resident Project Representative (RPR) before the asphalt material is applied for review and acceptance. The furnishing of COA for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

CONSTRUCTION METHODS

603-3.1 Weather limitations. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50°F or above; the temperature has not been below 35°F for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

603-3.2 Equipment. The Contractor shall provide equipment for heating and applying the emulsified asphalt material. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour or seven hundred (700) feet per minute.

The equipment will be tested under pressure for leaks and to ensure proper set-up before use to verify truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application, spray-bar height and pressure and pump speed, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use.

The distributor truck shall be equipped with a minimum 12-foot spreader spray bar with individual nozzle control with computer-controlled application rates. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

The distributor truck shall be equipped to effectively heat and mix the material to the required temperature prior to application as required. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Do not overheat or over mix the material.

The distributor shall be equipped with a hand sprayer.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the RPR.

A power broom and/or power blower suitable for cleaning the surfaces to which the asphalt tack coat is to be applied shall be provided.

603-3.3 Application of emulsified asphalt material. The emulsified asphalt shall not be diluted. Immediately before applying the emulsified asphalt tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

The emulsified asphalt material shall be uniformly applied with an asphalt distributor at the rates appropriate for the conditions and surface specified in the table below. The type of asphalt material and application rate shall be approved by the RPR prior to application.

EMULSIFIED ASPHALT

Surface Type	Residual Rate, gal/SY	Emulsion Application Bar Rate, gal/SY
New asphalt	0.02-0.05	0.03-0.07
Existing asphalt	0.04-0.07	0.06-0.11
Milled Surface	0.04-0.08	0.06-0.12
Concrete	0.03-0.05	0.05-0.08

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the RPR. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed. When the tack coat has been disturbed by the Contractor, tack coat shall be reapplied at the Contractor's expense.

603-3.4 Freight and waybills The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

603-4.1 The emulsified asphalt material for tack coat shall not be paid for separately but shall be considered subsidiary to Item P-401-8.1 Asphalt Surface Course, 3-inch Thickness.

BASIS OF PAYMENT

603.5-1 Payment for emulsified asphalt material for tack coat shall be considered subsidiary to P-401 Asphalt Mix Pavement.

REFERENCES

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

ASTM International (ASTM)

ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END ITEM P-603

ITEM P-605 JOINT SEALANTS FOR PAVEMENTS

DESCRIPTION

605-1.1 This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in pavement; joints between different types of pavements; and cracks in existing pavement.

MATERIALS

605-2.1 Joint sealants. Joint sealant materials shall meet the requirements of **ASTM D6690 for asphalt pavements and ASTM D5893 for concrete pavements.**

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

605-2.2 Backer rod. The material furnished shall be a compressible, non-shrinking, non-staining, non-absorbing material that is non-reactive with the joint sealant in accordance with ASTM D5249. The backer-rod material shall be 25% ± 5 % larger in diameter than the nominal width of the joint.

605-2.3 Bond breaking tapes. Provide a bond breaking tape or separating material that is a flexible, non-shrinkable, non-absorbing, non-staining, and non-reacting adhesive-backed tape. The material shall have a melting point at least 5°F greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The bond breaker tape shall be approximately 1/8 inch wider than the nominal width of the joint and shall not bond to the joint sealant.

CONSTRUCTION METHODS

605-3.1 Time of application. Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

605-3.2 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, 14 days prior to use on the project.

a. Tractor-mounted routing tool. Provide a routing tool, used for removing old sealant from the joints, of such shape and dimensions and so mounted on the tractor that it will not damage the sides of the joints. The tool shall be designed so that it can be adjusted to remove the old material to varying depths as required. The use of V-shaped tools or rotary impact routing devices will not be permitted. Hand-operated spindle routing devices may be used to clean and enlarge random cracks.

b. Concrete saw. Provide a self-propelled power saw, with water-cooled diamond or abrasive saw blades, for cutting joints to the depths and widths specified.

c. Sandblasting equipment. Sandblasting is not allowed.

d. Waterblasting equipment. The Contractor must demonstrate waterblasting equipment including the pumps, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

e. Hand tools. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. Hand tools should be carefully evaluated for potential spalling effects prior to approval for use.

f. Hot-poured sealing equipment. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

g. Cold-applied, single-component sealing equipment. The equipment for installing ASTM D5893 single component joint sealants shall consist of an extrusion pump, air compressor, following plate, hoses, and nozzle for transferring the sealant from the storage container into the joint opening. The dimension of the nozzle shall be such that the tip of the nozzle will extend into the joint to allow sealing from the bottom of the joint to the top. Maintain the initially approved equipment in good working condition, serviced in accordance with the supplier's instructions, and unaltered in any way without obtaining prior approval. Small hand-held air-powered equipment (i.e., caulking guns) may be used for small applications.

605-3.3 Preparation of joints. Pavement joints for application of material in this specification must be dry, clean of all scale, dirt, dust, curing compound, and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

a. Sawing. All joints shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

b. Sealing. Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, filler, protrusions of hardened concrete, old sealant and other foreign material from the sides and upper edges of the joint space to be sealed. Cleaning shall be accomplished by tractor-mounted routing equipment**,** concrete saw**, or** waterblaster as specified in paragraph 605-3.2. The newly exposed concrete joint faces and the pavement surface extending a minimum of ½ inch from the joint edge shall be sandblasted clean. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more than 3 inches from it. After final cleaning and immediately prior to sealing, blow out the joints with compressed air and leave them completely free of debris and water. The joint faces shall be surface dry when the seal is applied.

c. Backer Rod. When the joint opening is of a greater depth than indicated for the sealant depth, plug or seal off the lower portion of the joint opening using a backer rod in accordance with paragraph 605-2.2 to prevent the entrance of the sealant below the specified depth. Take care to ensure that the backer rod is placed at the specified depth and is not stretched or twisted during installation.

d. Bond-breaking tape. Where inserts or filler materials contain bitumen, or the depth of the joint opening does not allow for the use of a backup material, insert a bond-separating tape breaker in accordance with paragraph 605-2.3 to prevent incompatibility with the filler materials and three-sided adhesion of the sealant. Securely bond the tape to the bottom of the joint opening so it will not float up into the new sealant.

605-3.4 Installation of sealants. Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the RPR before sealing is allowed. Sealants shall be installed in accordance with the following requirements:

Immediately preceding, but not more than 50 feet ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch ±1/16 inch below the top of pavement surface; or bottom of groove for grooved pavement. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids and entrapped air. In no case shall gravity methods or pouring pots be used to install the

sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the RPR. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified.

605-3.5 Inspection. The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

605-3.6 Clean-up. Upon completion of the project, remove all unused materials from the site and leave the pavement in a clean condition.

METHOD OF MEASUREMENT

605-4.1 Joint sealing material shall not be measured separately for payment as it shall be considered subsidiary to Item P-401 Asphalt Mix Pavement.

BASIS OF PAYMENT

605-5.1 Payment for joint sealing material shall not be made separately as it shall be considered subsidiary to item P-401 Asphalt Mix Pavement.

REFERENCES

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

ASTM International (ASTM)

ASTM D789	Standard Test Method for Determination of Relative Viscosity of Polyamide (PA)
ASTM D5249	Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints
ASTM D5893	Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements
ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt]
ASTM D7116	Standard Specification for Joint Sealants, Hot Applied, Jet Fuel Resistant Types for Portland Cement Concrete Pavements]

Advisory Circulars (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids

END ITEM P-605

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ITEM P-620 RUNWAY AND TAXIWAY MARKING

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms "paint" and "marking material" as well as "painting" and "application of markings" are interchangeable throughout this specification.

MATERIALS

620-2.1 Materials acceptance. The Contractor shall furnish manufacturer's certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer's surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

620-2.2 Marking materials.

Table 1. Marking Materials

Paint[1]				Glass Beads[2]	
Type	**Color**	**Fed Std. 595 Number**	**Application Rate Maximum**	**Type**	**Application Rate Minimum**
Waterborne Type I or II	Yellow	33538 or 33655	115 ft^2/gal	Type I, Gradation A[1]	7lb/gal
Waterborne Type I or II	Black	37038	115 ft^2/gal	N/A	N/A
Temporary Waterborne Type I or II	Yellow	33538 or 33655	230 ft^2/gal	N/A	N/A

[1] See paragraph 620-2.2a

[2] See paragraph 620-2.2b

a. Paint. Paint shall be waterborne **and** in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

Waterborne. Paint shall meet the requirements of Federal Specification TT-P-1952F, Type I or Type II. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

b. Reflective media. Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A**.**

Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black and green paint.

CONSTRUCTION METHODS

620-3.1 Weather limitations. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

620-3.2 Equipment. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

620-3.3 Preparation of surfaces. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminates that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process. *Preparation and removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the RPR.*

a. Preparation of new pavement surfaces. The area to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface.

b. Preparation of pavement to remove existing markings. Existing pavement markings shall be removed by rotary grinding, water blasting, or by other methods approved by the RPR minimizing damage to the pavement surface. The removal area may need to be larger than the area of the markings to eliminate ghost markings. After removal of markings on asphalt pavements, apply a fog seal or seal coat to 'block out' the removal area to eliminate 'ghost' markings.

c. Preparation of pavement markings prior to remarking. Prior to remarking existing markings, loose existing markings must be removed minimizing damage to the pavement surface, with a method approved by the RPR. After removal, the surface shall be cleaned of all residue or debris.

Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufacturer's application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

620-3.4 Layout of markings. The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans.

620-3.5 Application. A period of **30** days shall elapse between placement of surface course or seal coat and application of the permanent paint markings. Paint shall be applied at the locations and to the

dimensions and spacing shown on the plans. Paint shall not be applied until the layout and condition of the surface has been approved by the RPR.

The edges of the markings shall not vary from a straight line more than 1/2 inch in 50 feet, and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	Tolerance
36 inch or less	±1/2 inch
greater than 36 inch to 6 feet	±1 inch
greater than 6 feet to 60 feet	±2 inch
greater than 60 feet	±3 inch

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

620-3.6 Application--preformed thermoplastic airport pavement markings.

Preformed thermoplastic pavement markings not used.

620-3.7 Control strip. Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the RPR. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads (per Table 1) that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

620-3.8 Retro-reflectance. Reflectance shall be measured with a portable retro-reflectometer meeting ASTM E1710 (or equivalent). *Readings shall be taken as specified in the table below. The average of the test values for each marking type shall meet the minimum retro-reflectance values specified. The RPR shall determine the location of testing and may approve modifications to the table below.* ~~A total of 6 reading shall be taken over a 6 square foot area with 3 readings taken from each direction.~~ The average shall be equal to or above the minimum levels of all readings which are within 30% of each other. *Retroreflectivity testing shall be performed by the contractor. Test results shall be provided to the RPR in the form of a table indicating the location of each test, type of marking, color, result, and minimum requirement.*

Retroreflectivity Testing Frequencies

Marking Type	***Testing Interval***
Non-movement Area Marking	*[4] tests per marking* *Repeat test every [100] linear feet*
Taxiway Centerline Marking	*[1] test per [400] linear feet*

Taxiway Edge Marking	*[1] tests per [400] linear feet*
Taxiway Shoulder Markings	*[1] test per line* *Test [10] percent of lines*

Minimum Retro-Reflectance Values

Material	**Retro-reflectance mcd/m^2/lux**		
	White	**Yellow**	**Red**
Initial Type I	300	175	35
Initial Type III	600	300	35
Initial Thermoplastic	225	100	35
All materials, remark when less than[1]	100	75	10

[1] Prior to remarking determine if removal of contaminants on markings will restore retro-reflectance

620-3.9 Protection and cleanup. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the RPR. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

METHOD OF MEASUREMENT

620-4.1 The quantity of markings shall be paid for shall be measuredby the number of square feet of permanent stain and algae resistant pavement marking, with or without reflective media. No additional or separate measurement shall be made for the inclusion of reflective media or the application of temporary marking.**.**

620-4.6 *Retroreflectivity testing of markings shall be subsidiary to other marking pay items**.***

BASIS OF PAYMENT

620-5.1 This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item complete in place and accepted by the RPR in accordance with these specifications. This price also includes the application of temporary marking and any surface preparation that is necessary for the removal of loose existing markings and/or surface treatment materials.

620-5.2 Payment for markings shall be made at the contract price for the number of square feet of stain and algae resistant permanent markings with or without reflective media.

620-5.6 *Payment for retroreflectivity testing shall not be paid for separately.*

Payment will be made under:

Item P-620-5.1 Permanent Stain and Algae Resistant Pavement Marking With Reflective Media, Yellow - per square foot

Item P-620-5.2 Permanent Stain and Algae Resistant Pavement Marking, Black - per square foot

REFERENCES

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

ASTM International (ASTM)

ASTM D476 Standard Classification for Dry Pigmentary Titanium Dioxide Products

ASTM D968 Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive

ASTM D1652 Standard Test Method for Epoxy Content of Epoxy Resins

ASTM D2074 Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method

ASTM D2240 Standard Test Method for Rubber Property - Durometer Hardness

ASTM D7585 Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments

ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester

ASTM E1710 Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer

ASTM E2302 Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer

ASTM G154 Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Code of Federal Regulations (CFR)

40 CFR Part 60, Appendix A-7, Method 24
Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings

29 CFR Part 1910.1200 Hazard Communication

Federal Specifications (FED SPEC)

FED SPEC TT-B-1325D Beads (Glass Spheres) Retro-Reflective

FED SPEC TT-P-1952F Paint, Traffic and Airfield Marking, Waterborne

FED STD 595 Colors used in Government Procurement

Commercial Item Description

A-A-2886B Paint, Traffic, Solvent Based

Advisory Circulars (AC)

AC 150/5340-1 Standards for Airport Markings

AC 150/5320-12 Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces

END OF ITEM P-620

ITEM T-904 SODDING

DESCRIPTION

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

MATERIALS

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

904-2.2 Lime. Not required.

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

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

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

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

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

Fertilizers shall be **10-10-10** commercial fertilizer and shall be spread at the rate of **500lb/acre**.

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

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

CONSTRUCTION METHODS

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

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

904-3.2 Preparing the ground surface. After grading of areas has been completed and before applying fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

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

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

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

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

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

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

904-3.6 Watering. Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases,

watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

904-3.7 Establishing turf. The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work. All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the RPR. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. Weeds or other undesirable vegetation shall be mowed and the clippings raked and removed from the area.

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

METHOD OF MEASUREMENT

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

BASIS OF PAYMENT

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

Payment will be made under:

Item T-904-5.1	Sodding - per square yard

REFERENCES

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

ASTM International (ASTM)

ASTM C602	Standard Specification for Agricultural Liming Materials

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-904

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ITEM T-905 TOPSOIL

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

905-2.1 Topsoil. Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches) or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (75 µm) sieve as determined by the wash test in accordance with ASTM C117. *Topsoil testing shall be completed and paid for by the Contractor.*

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 Inspection and tests. Within 10 days following acceptance of the bid, the RPR shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in paragraph 905-2.1.

CONSTRUCTION METHODS

905-3.1 General. Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the RPR before the various operations are started.

905-3.2 Preparing the ground surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the RPR, to a minimum depth of 2 inches to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

905-3.3 Obtaining topsoil. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the RPR. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the RPR. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the RPR. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoil purposes, shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the RPR. The Contractor shall notify the RPR sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

905-3.4 Placing topsoil. The topsoil shall be evenly spread on the prepared areas to a uniform depth of 4 inches after compaction, unless otherwise shown on the plans or stated in the special provisions. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. after spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the RPR. The compacted topsoil surface shall conform to the required lines, grades, and cross-sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

METHOD OF MEASUREMENT

905-4.2 Topsoil obtained off the site shall not be measured separately for payment.

BASIS OF PAYMENT

905-5.2 Payment will not be made separately for topsoil (obtained off the site), as it shall be considered subsidiary to Item T-904 Sodding.

REFERENCES

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

ASTM International (ASTM)

ASTM C117	Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing

Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-905

Exhibit B

Bid Form

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT
EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR
UNIT PRICES - BASE BID (BB)
EAST ATLANTIC CONNECTOR TAXIWAY PAVEMENT REPAIR

ITEM NO.	SPEC. NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	UNIT PRICE	AMOUNT
1	SS-120-3.1	CONSTRUCTION SAFETY AND SECURITY	LS	1		
2	SS-150-5.1	RCP LIFT HOLE REPAIR	LS	1		
3	SS-220-5.1	PAVEMENT EDGE GRADING	LF	213		
4	C-100-14.1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	LS	1		
5	C-105-6.1	MOBILIZATION (MAXIMUM 10% OF TOTAL BID)	LS	1		
6	P-101-5.1	PAVEMENT REMOVAL	SY	526		
7	P-209-5.1	CRUSHED AGGREGATE BASE COURSE, 6-INCH THICKNESS	SY	550		
8	P-401-8.1	ASPHALT SURFACE COURSE, 3-INCH THICKNESS	TON	97		
9	P-602-5.1	EMULSIFIED ASPHALT PRIME COAT	GAL	165		
10	P-620-5.1	PERMANENT STAIN AND ALGAE RESISTANT PAVEMENT MARKING WITH REFLECTIVE MEDIA, YELLOW	SF	404		
11	P-620-5.2	PERMANENT STAIN AND ALGAE RESISTANT PAVEMENT MARKING, BLACK	SF	644		
12	T-904-5.1	SODDING	SY	70		

TOTAL BID - BASE BID (BB) _____

Exhibit C

Insurance Requirements

The Selected Contractor shall procure, at its expense, and always keep in full force and effect during the term of this Agreement, the types and amounts of insurance specified in Exhibit C: “BAA Contractor Insurance Requirements” which is attached hereto and incorporated by reference herein.

The specified insurance shall include and insure Birmingham Airport Authority, City of Birmingham, Alabama and their respective directors, council members, agents and employees, including, with limits, the OAR and the Engineer and the other named consultants, their officers, agents and employees as additional insured’s (with the exception of Worker’s Compensation and Professional Liability), against the areas of risk associated with the Services as described in this RFP with respect to Contractor’s operations, acts or omissions in the performance of this Agreement, its operations, use and occupancy of the Airport, and other related functions performed by or on behalf of Contractor in, on or about Airport, which the Contractor may be legally liable, whether such operations be by the Contractor, or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose act any of them may be liable.

A copy of the Contractor’s current insurance certificate, verifying the Contractor’s insurance coverage, must be submitted upon execution of the Agreement and prior to commencement of the Work. The minimum required insurance coverage is not intended to, and shall not in any manner, limit or reduce liabilities and obligations assumed by the Contractor, its agents, employees, or any Subcontractor. Contractor shall furnish the insurance coverages outlined in Exhibit C: “BAA Contractor Insurance Requirements” either through existing policies or by virtue of a specific project policy, with deductible limits acceptable to the Authority.

Certificates of Insurance shall be filed with the Owner prior to commencement of the Work on a Certificate of Insurance form, or Certificates, policies, or endorsements acceptable to the Owner. If such insurance coverages are required to remain in force after Final Payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment by the Contractor. Information concerning reduction or cancellation of coverage shall be immediately furnished by the Contractor to the Owner.

All such insurance shall be primary and non-contributing with any other insurance held by Authority where liability arises out of or results from the acts or omissions of Contractor, its agents, employees, officers, assigns or any person or entity acting for or on behalf of Contractor. Such policies shall also include a Waiver of Subrogation and provide the Owner at least thirty (30) days prior written notice of any cancellation or non-renewal thereof. Such policies may provide for reasonable deductibles and/or retentions acceptable to the Authority based upon the nature of Contractor’s operations and the type of insurance involved.

Coverages, whether written on an occurrence or claims made basis, shall be maintained without interruption from date of commencement of the Work until date of Final Payment and termination of any coverage required to be maintained after Final Payment. If such insurance coverages are required to remain in force after Final Payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment by the Contraction. If the Contractor’s coverage is written on a claims-made basis, the Contractor shall also provide tail coverage to include claims made after the completion of the Work for the Completed Operations coverage for the required statute of repose.

Each specified insurance policy (other than Worker's Compensation and Employers' Liability and fire and extended coverage's) shall contain a Severability of Interest (Cross Liability) clause

which states, "It is agreed that the insurance afforded by this policy shall apply separately to each insured against whom a claim is made or suit is brought except with respect to the limits of the company's liability," and a Contractual Endorsement which shall state, "Such insurance as is afforded by this policy shall also apply to liability assumed by the insured under insured's Agreement with the Authority."

At least ten (10) days prior to the expiration date of the above policies, documentation showing that the insurance coverage has been renewed or extended shall be filed with Authority. If such coverage is canceled or reduced, Contractor shall, within fifteen (15) days of such cancellation or reduction of coverage, file with Authority evidence that the required insurance has been reinstated or provided through another insurance company or companies. In the event Contractor fails to furnish Authority with evidence of insurance and maintain the insurance as required, Authority upon ten (10) days prior written notice to comply, may, but shall not be required to, procure such insurance at the cost and expense of Contractor, and Contractor agrees to promptly reimburse Authority for the cost thereof. Payment shall be made within thirty (30) days of invoice date.

Contractor shall provide proof of all required insurance and related requirements to Authority either by production of: the actual insurance policy(ies); or a Certificate of Insurance in a form acceptable to the Authority. The documents evidencing all required coverages shall be filed with Authority prior to Contractor performing Services or occupying the Airport. The documents shall contain (i) the applicable policy number, (ii) the inclusive dates of policy coverage's, (iii) the insurance carrier's name, address and telephone number, (iv) shall bear an original signature of an authorized representative of said carrier, and (v) shall provide that such insurance shall not be subject to cancellation, reduction in coverage, or nonrenewal except after written notice by certified mail, return receipt requested, to the Authority at least thirty (30) days prior to the effective date thereof. Information concerning reduction or cancellation of coverage shall be immediately furnished by the Contractor to Owner. Owner reserves the right to have submitted to it, upon request, all pertinent information about the agent, broker, and carrier providing such insurance.

Authority and Contractor agree that the insurance policy limits specified herein shall be reviewed for adequacy annually throughout the term of this Agreement by the Authority who may, thereafter, require Contractor, on thirty (30) days prior written notice, to adjust the amounts of insurance coverage to whatever reasonable amount said Authority deems to be adequate.

All insurance policies shall be written in a company or companies lawfully authorized to do business in Alabama and are required to have minimum A.M. Best financial rating of A minus, 8 (A-, VIII).

If Contractor has Subcontractor performing any work, the Subcontractor is subject to the same insurance requirements outlined in this section and on Exhibit C: BAA Contractor’s Insurance Requirements.

Contractor is also advised of the statutory immunity of negligence applicable to the owner and its directors, which is contained in Article 2, Chapter 3 of Title 4 Section 4-30-50 of the Code of Alabama, 1975.

BAA CONTRACTOR INSURANCE REQUIREMENTS

It is highly recommended that each Bidder request that its current insurance broker/agent review the insurance requirements in this Contract before completing and submitting a Bid, so each Bidder will be aware of any additional cost that may be incurred to meet the Owner's insurance requirements for this Contract. No such additional costs shall be part of the Bid price, and the Contractor shall be responsible for paying the same.

All such insurance policies shall provide that coverage is primary and non-contributory, includes waiver of subrogation and provides the Owner at least thirty (30) days prior written notice of any cancellations or modification thereof. The Owner shall be named as an additional insured on all policies except Workers' Compensation and the Professional Liability/E&O policies.

Additional Insureds shall read: Birmingham Airport Authority, City of Birmingham, Alabama and their respective directors, council members, agents and employees.

Please note that separate limits may be required if RFB requires work be performed "Airside" vs "non-Airside" as outlined on the attached Exhibit C.

Contractor shall at all times during the term of this Agreement maintain, at its own expense, the following minimum levels and types of insurance (see next page):

BAA CONTRACTOR INSURANCE REQUIREMENTS

CONTRACTOR PROVIDED INSURANCE FOR AIR-SIDE PROJECT COVERAGE

Type of Coverage	Minimum Limits
Worker's Compensation	Statutory for Coverage A
Employee's Liability	$1,000,000 each Accident $1,000,000 Disease – Policy Limit $1,000,000 per Employee
Requirements:	1. Voluntary Compensation Endorsement 2. Waiver of Subrogation
General Liability	$1,000,000 each occurrence $10,000,000 General Aggregate $10,000,000 Completed Operations/Products Aggregate $1,000,000 Personal Injury $5,000 Medical Payments
Requirements:	1. XCU Perils Coverage 2. Completed Operations Extended 3 Years 3. Broad Form Property Damage 4. Fellow Employee Coverage 5. Primary & Non-Contributory 6. Waiver of Subrogation 7. 30 Days' Notice of Cancellation to Certificate Holder 8. CG2010 and CG2037 Endorsements 9. Contractual Liability applicable to Contractor's indemnification obligations
Business Automobile	$2,000,000 per occurrence combined limit for bodily injury liability and property damage
Requirements:	1. Covers owned, non-owned and hired autos 2. Primary & Non-Contributory 3. Waiver of Subrogation 4. 30 Days' Notice of Cancellation to Certificate Holder
Umbrella	$10,000,000
Builder's Risk Policy	Amount of Project
Requirement:	1. Contractor provide coverage for Contractor's equipment on the job site and all construction material and equipment which is schedule for the Work but has not been delivered to the Job Site 2. Coverage shall insure interest of Owner and Contractor 3. Provide Replacement Cost 4. Event of Loss, proceeds of any claim shall be paid to the Owner who shall apportion the proceeds between the Owner and the Contractor as their interest may appear 5. Coverage includes flood and earth movement 6. Per Project Aggregate
Pollution Policy	$5,000,000
Professional Liability	$1,000,000

Exhibit D

BAA Contract

BAA CONSTRUCTION CONTRACT
(Small Projects)

THIS BAA CONSTRUCTION CONTRACT (the "Contract") made this ____ day of _____, 20___, by and between _____, whose address is _____ (the "Contractor"), and Birmingham Airport Authority, a public corporation organized under the laws of the State of Alabama d/b/a Birmingham-Shuttlesworth International Airport**,** whose address is 5900 Airport Highway, Birmingham, AL 35212 (the "Owner").

For purposes of this Contract, the term "Contract Documents" shall mean and consist of this Contract, any Project drawings, any Project specifications, addenda agreed upon and issued prior to execution of this Contract, other documents listed in this Contract and modifications (including change orders) issued after execution of this Contract, all of which form the Contract, and are as fully a part of the Contract as if attached to this Contract or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral.

For purposes of this Contract, the term "Work" shall mean the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project. In the even that any of the terms and conditions in any other Contract Documents conflict with terms and conditions in this Contract, the terms and conditions of this Contract shall govern.

WITNESSETH:

For the consideration hereinafter named, the Contractor and the Owner agree and bind themselves as follows:

Section 1. The Work. The Contractor shall and will provide all labor and services, including installation and handling of materials, equipment and supplies furnished by the Owner which are called for and needed in connection with the below described Work, and shall provide such other materials, equipment and supplies not furnished by the Owner called for and needed in connection therewith, and shall fully and completely perform the following which shall be included in the Work:

For the following project (the "Project"):_____

Located in the Building or at the real property with an address of: 5900 Airport Highway, Birmingham, AL 35212.

According to the plans, specifications and/or other drawings prepared by the following architect or engineer, if any, and dated as follows: _____ (the "Architect").

Section 2. Standard of Care; Licenses; Badges.

A. The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Sum is $100,000.00 or more, or if the Contractor is required to be licensed by the Alabama State Licensing Board for General Contractors, the Contractor does hereby certify that Contractor is currently licensed by the Alabama State Licensing Board for General Contractors and that the certificate for such license bears the following:

License No.: Bid Limit: Classification:

The Contractor has all other licenses and permits required by the State of Alabama and the City of Birmingham, Alabama to perform the Work. The Contractor represents that it has substantial experience with projects of this type and is familiar with the requirements of this type of Work. The Contractor covenants with the Owner to furnish its best skill and judgment and to cooperate with the Architect, as necessary, in furthering the interests of the Owner, to furnish efficient business administration and superintendence, to use its best efforts to furnish at all times an adequate supply of skilled workers and materials, and to perform the Work in an efficient manner. Nothing herein shall be deemed or construed to (1) make Contractor the agent or employee of Owner, or the Architect; or (2) create any partnership, joint venture, or other association between the Owner and Contractor or the Architect and the Contractor. Any direction or instruction by the Owner or the Architect in respect of the Work shall relate to the results the Owner or the Architect desires to obtain from the Work, and shall in no way affect the Contractor's independent contractor status as described herein. If there is no Architect on the Project, all references herein to the Architect shall mean the Owner.

B. The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. The Contractor shall be responsible to the Owner for the acts and omissions of the Contractor's employees, subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of or under the direction of the Contractor or any of its Subcontractors.

C. The Contractor shall obtain any necessary or appropriate construction or other permits to perform the Work from any and all municipal and/or governmental authorities. In performing the Work, Contractor shall abide by all applicable laws, rules and regulations, including, but not limited to, any Rules and Regulations of Owner (a copy of which has been furnished to Contractor).

D. The Contractor shall cause its employees, subcontractors and other persons carrying out the Work to park in the parking spaces located in:_____. At no time shall Contractor's employees, subcontractors or other persons carrying out the Work park in the Visitor parking spaces, along the curbs or common area roads, or in the loading docks serving the Building or real property.

E. In order to perform Work on-site in secured areas of Owner's facilities, personnel are required to undergo a background check and obtain a badge allowing them access to such areas. On completion of the Work, the Contractor's personnel are required to turn their badges in to Owner's security department. Failure to return a badge on completion of the Work will result in a fine in the amount of $500. The Contractor is responsible for paying all badging fees and all fines for badges not returned after the Work is completed. In connection with the provision of Work, the Contractor may incur expenses to the Owner or the Owner may be charged for expenses of the Contractor. Contractor will pay or reimburse the Owner for such expenses within thirty (30) days after the date of the invoice. If the Owner owes the Contractor any fees on completion of the Work and any badging fees, fines or other expenses owed by the Contractor are then due and payable, Owner will have the right to deduct and offset the badging fees, fines and other expenses from the fees then owed to the Contractor. If the amount due to Owner exceeds the amount of fees due to Contractor or there are no fees then due to the Contractor, Owner will invoice and the Contractor will pay the badging fees, fines and other expenses incurred within thirty (30) days after the date of the invoice. Failure to pay all badging fees, fines and other expenses in full may prevent the Contractor from competing for future contracting opportunities with Owner.

Section 3. Contact Sum.

A. The Owner agrees to pay the Contractor, in accordance with the provisions of Sections 3 and 4 hereof and subject to any increase or decrease resulting from changes and change orders that may be agreed upon pursuant to this Contract, an amount equal to _____ and __/100 Dollars ($_____) (the "Contract Sum"). The Contract Sum may be reduced by the sum of the amounts paid by the Owner for materials, supplies or equipment, if any, purchased by the Owner for the completion of this Project.

B. If requested by the Owner or the Owner's lender, the Contractor shall prepare and submit to the Owner (or lender as applicable), a budget and schedule for the Work along with any other information reasonably requested by the Owner's lender.

Section 4. Applications for Payment. Based on the Contractor's applications for payment (or invoices) submitted to the Owner every _____ days, the Owner shall pay the Contractor as follows:

The Owner shall make payment to the Contractor not later than thirty (30) days after receipt of such application for payment (or invoice), subject to, however, the Owner's right to withhold payment in the event that the Work for which payment is sought, has not been completed in accordance with the terms of this Contract or for any other reason permitted under this Contract. The Owner and the Contractor represent and acknowledge that all payments to the Contractor shall be subject to retainage of 5% until the Project is 50% complete, as determined by the Architect, after which no additional retainage shall be withheld; provided, however, that Owner may continue to withhold the 5% retainage previously held until the Work has reached final completion. Final payment of the Contract shall be paid in accordance with Section 5.

Section 5. Payments.

A. Payments may be withheld on account of (1) defective Work not remedied, (2) claims filed by third parties, (3) failure of the Contractor to make payments properly to subcontractors or for labor, materials or equipment, (4) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum, (5) damage to the Owner or another contractor, (6) reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay, or (7) failure to carry out the Work in accordance with the Contract Documents.

B. Upon the Contractor's submittal of each application for payment to the Owner, or as otherwise reasonably requested by the Owner or its lender, the Contractor shall provide a certification to the Owner, or, if requested by the Owner, to the Owner's lender, stating and attaching, as applicable, the following:

(1) that all of the Work at the Project for which payment is sought pursuant to the application for payment has been completed in good and workmanlike manner, and in accordance with applicable law and the Contract Documents;

(2) identifying each person, subcontractor or material supplier that has supplied materials or labor in connection with the Work for which payment is sought;

(3) stating that each subcontractor or person providing materials (for which payment is sought) has been or will be paid in full upon the Owner's payment pursuant to such application for payment;

(4) a copy of any license, permit or other approval by any governmental authority required in connection the Work for which payment is sought; and

(5) such other evidence as the Owner, or the Owner's lender may reasonably request, evidencing that the Work for which payment is sought has been fully completed and will be property paid by the Contractor.

C. The Contractor agrees to furnish, if and when requested by the Owner in the Owner's sole and absolute discretion, any and all releases and waivers of liens, or affidavits from the Contractor or any subcontractor, evidencing that all bills for materials and labor have been paid. Such affidavits and lien waivers shall be supported by receipted bills and other supporting documentation, including but not limited to the information required in Section 5B, if required by the Owner. The Owner reserves the right to pay any outstanding past due obligations of the Contractor arising as a result of the Work by checks made payable jointly to the Contractor and its vendor or contractor, or made payable solely to such vendor or contractor. Any such payments shall apply as a payment on this Contract.

D. Once the Contractor believes that the Work has been fully completed, the Contractor shall submit to the Owner an itemized final application for payment (or invoice) for the Work. Such application shall be supported by data substantiating the Contractor's right to payment as the Owner may reasonably require. Upon receipt of such final application for payment and all supporting materials reasonably required by the Owner, the Owner will inspect the Work. When the Owner finds the Work acceptable and the Contract fully performed, the Owner shall make final payment to the Contractor, subject to the Owner's right to withhold payment in whole or in part, if in the Owner's reasonable opinion the Work or a portion thereof has not been completed in accordance with the Contract Documents or for any other reason for withholding payment as set forth in this Contract.

E. Final payment shall not become due until the Contractor submits to the Owner releases and waivers of liens (from the Contractor and Subcontractors, if required by the Owner), and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests or encumbrances arising out of the Contract, if so requested by the Owner.

F. The Contractor shall promptly pay each subcontractor and supplier, upon receipt of any payment from the Owner, including the final payment, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.

G. The Owner shall not have responsibility for payments to a subcontractor or supplier, unless otherwise determined by the Owner in its sole and absolute discretion.

H. In the event that there exists, or subsequently exists at any time after final payment by the Owner under this Contract, any mechanics', materialmen's or laborers' lien or claim or any other lien or claim, legal or equitable, contractual, or statutory, on the Work caused to be filed by a subcontractor, sub-subcontractor, material supplier or laborer in connection with the Work, the Contractor herein agrees to indemnify, defend and hold harmless the Owner from any such lien or claim and immediately satisfy payment of such lien so as to cause the lien to be immediately released and satisfied (which such indemnification shall not be interpreted to limit any other indemnification provision set forth in the Contract between the Owner and the Contractor).

Section 6. Bonds. If the Contract Sum is $50,000.00 or more, the Contractor shall, at the Contractor's expense, furnish to the Owner a Performance Bond and a Payment Bond, each in a penal sum equal to 100% of the Contract Sum. Each bond shall be in form and substance as required by *Alabama Code* § 39-1-1 (1975), shall be executed by a surety company ("Surety") acceptable to the Owner and duly authorized and qualified to make such bonds in the State of Alabama in the required amounts, shall be countersigned by an authorized, Alabama resident agent of the Surety who is qualified to execute such instruments, and shall have attached thereto a power of attorney of the signing official. All Contract change orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the change order form. The Surety waives notification of any Contract change orders involving only extension of the Contract Time. The provisions of this Section are not applicable to this Contract if the Contract Sum is less than $50,000.

A. Through the Performance Bond, the Surety's obligation to the Owner shall be to assure the prompt and faithful performance of the Contract and any change orders. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by change orders. In case of default on the part of the Contractor, the Surety shall take charge of and complete the Work in accordance with the terms of the Performance Bond. Any reasonable expenses incurred by the Owner as a result of default on the part of the Contractor, including architectural, engineering, administrative, and legal services, shall be recoverable under the Performance Bond. The obligations of the Contractor's Performance Bond Surety shall be coextensive with the Contractor's performance obligations under the Contract Documents; provided, however, that the Surety's obligation shall expire at the end of the one-year warranty periods of Section 14.

B. Through the Payment Bond the Surety's obligation to the Owner shall be to guarantee that the Contractor and its subcontractors shall promptly make payment to all persons supplying labor, materials, or supplies for, or in, the prosecution of the Work, including the payment of reasonable attorneys' fees incurred by successful claimants or plaintiffs in civil actions on the Bond. Any person or entity indicating that they have a claim of nonpayment under the Bond shall, upon written request, be promptly furnished a certified copy of the Bond and Construction Contract by the Contractor, Architect, Owner, whomever is recipient of the request.

Section 7. Contract Time. The date of commencement of the Work shall be the date of this Contract unless otherwise indicated below. The Work shall be completed in _____ (___) days from the date of commencement (the "Contract Time").

Insert the date of commencement if it differs from the date of this Contract: _____.

Section 8. Time of Essence; Defaults. Time is of the essence in the performance of this Contract. If the Contractor should be adjudged a bankrupt, or if the Contractor should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of the Contractor's insolvency, or if the Contractor should fail to carry forward and complete the Work as provided in this Contract as rapidly as the Owner may judge that the progress of the structure or structures will permit, or if the Contractor should become insolvent or should fail to make prompt payment for material or labor used on the job, or should fail to comply with instructions of the Architect or with applicable portions of law or ordinances, or if the Contractor should otherwise in any way whatsoever be guilty of a breach of this Contract, then the Owner may without prejudice to any other right or remedy terminate the Contract after giving 7 days written notice of the intention to do so, may thereupon take control of the Work covered by this Contract and may take possession of all materials, whether in transit to the job site, on the job site, or stored at any place other than the job site for use in, on, or about the Project at the time of giving of such notice of intention, may also take possession of all equipment, tools, instruments, construction equipment, and machinery owned or rented by the Contractor and on the Project site at the time of giving of such notice of intention and complete the Work by whatever method the Owner deems expedient, in which case the Contractor shall not be entitled to receive any further payments until the Work is completed. If the unpaid balance under this Contract shall exceed the costs and expense of finishing the Work including compensation for additional managerial and administrative services, satisfaction of any outstanding obligations of the Contractor arising on this job and all other expenses made necessary by the termination of the Contract, the excess shall be paid to the Contractor. If such expense is greater than such unpaid balance, the Contractor shall pay the difference to the Owner.

In the event of any default hereunder on the part of the Contractor, all cost and expenses connected with or incident to ascertaining, determining and collecting losses and damages sustained, incurred or suffered by the Owner, including without limiting the generality hereof, all engineering and legal services, shall be the obligation of the Contractor, and shall be paid by the Contractor, for the performance of the Work and payment of labor and materials hereunder, due to be furnished by the Contractor to the Owner.

Section 9. Employment Related Taxes. The Contractor assumes exclusive liability for all contributions, taxes, or payments required to be made because of employees of the Contractor by the Federal and State Unemployment Compensation Acts, Social Security Acts or any amendments thereto, and by all other or future acts, local, state or federal, requiring the payment of similar contributions to taxes, and for all sales tax and use tax.

Section 10. Insurance.

A. The Contractor, for the protection and benefit of the Owner and any and all of its partners, officers, directors, shareholders, beneficiaries, agents and employees (collectively, the "Indemnitees") and in satisfaction of the Contractor's obligations, shall specifically procure, pay for, and maintain, in full force and effect until final payment (unless otherwise designated), at no expense to the Owner, policies of insurance to be written by an insurer approved by the Owner, who is lawfully authorized to do business in the State in which the Project is located and which shall, as a minimum, afford the types and limits of coverage set forth in Exhibit A hereto. All insurance policies shall be written in a company or companies lawfully authorized to do business in Alabama and are required to have minimum A.M. Best financial rating of A minus, 8 (A-, VIII). All such insurance policies shall provide that coverage is primary and non-contributory, include a waiver of subrogation and provide the Owner with at least thirty (30) days prior written notice of any cancellations or modification thereof. The Owner shall be named as an additional insured on all policies except Workers' Compensation and the Professional Liability/E&O policies. The additional insureds provision shall read: Birmingham Airport Authority, City of Birmingham, Alabama and their respective directors, council members, agents and employees.

B. The Contractor shall provide the Owner with copies of the insurance policies or certificates evidencing that the required coverages are in place. Certificates of Insurance shall be filed with the Owner prior to commencement of the Work on a Certificate of Insurance form, or Certificates, policies, or endorsements acceptable to the Owner. If such insurance coverages are not issued on an occurrence basis, such insurance coverages are required to remain in force after the termination or expiration of this Contract. If such insurance coverages are required to remain in force after the expiration or termination of this Contract, an additional certificate evidencing continuation of such coverage shall be submitted prior to final payment to the Contractor. If the Contractor's coverage is written on a claims-made basis, the Contractor shall also provide tail coverage to include claims made after the completion of the Work for the required statute of repose. In the event the Contractor fails to furnish the Owner with evidence of insurance and maintain the insurance as required, the Owner upon ten (10) days prior written notice to comply, may, but shall not be required to, procure such insurance at the cost and expense of the Contractor, and the Contractor agrees to promptly reimburse the Owner for the cost thereof. Payment shall be made within thirty (30) days of invoice date. If the Contractor has any subcontractor performing any of the Work, the subcontractor is subject to the same insurance requirements outlined in this Exhibit A unless waived or reduced by the Owner. The Contractor is advised of the statutory immunity from tort claims applicable to the Owner and its directors, which is contained in § 4-3-50 and § 4-3-47(2) of the Code of Alabama, 1975.

Section 11. Indemnification. The Contractor shall indemnify, defend and save and hold harmless and exonerate the Owner, the City of Birmingham, Alabama, and their respective directors, council members, agents and employees (collectively, "Indemnitees"), of and from all liability and loss for claims and demands for bodily injury, death and property damage arising out of, in the course of, incidental to or in whatever manner the same may be caused or occasioned in or about the Work undertaken by the Contractor, its employees, subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of or under the direction of, the Contractor or any of its subcontractors, and arising out of, in the course of, or incidental to the Work, or in whatever manner the same may be occasioned in or about any other operation, no matter by whom performed, for and on behalf of the Contractor, whether or not and even though caused, occasioned or contributed to in whole or part by the negligence, sole or concurrent, of the Indemnitees.

In claims against any Indemnitees indemnified under this Section 11 by an employee of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section 11 shall not be limited by a limitation on amount of type of damages, compensation or benefits payable by or for the Contractor or a subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

Section 12. Change Orders.

A. Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by change order. A change order shall be based upon written agreement among the Owner, the Contractor and the Architect (if applicable).

B. Claims for extra compensation or time extensions will only be allowed where written authorization has been given and agreed upon prior to execution of the Work entitling the Contractor to extra compensation or time extensions. The Contractor shall proceed with any extra work ordered notwithstanding the failure or inability to agree on the amount of extra compensation or time extensions for such work.

Section 13. Site Cleanup. It is fully understood that the Contractor will be responsible for keeping the Project site clean and in an orderly fashion subject to the approval of the Owner and the Architect. Should it become necessary for the Owner to incur any expenses performing cleanup work for the Contractor, such expenses will become subject to deduction from the Contract Sum.

Section 14. Warranties.

A. The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract, that the Work will be free from defects, and that the Work will conform with the requirements of the Contract. Work not conforming to the requirements of the Contract Documents (including substitutions not properly approved and authorized), within a period of one (1) year from the date of final payment, will be corrected or replaced at the Contractor's expense. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear under normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

B. The provisions of this Section 14 apply to Work, including all labor and materials undertaken by the subcontractors as well as to Work, including labor and materials undertaken by direct employees of the Contractor.

C. The one-year period for correction of Work shall be extended by corrective Work performed by the Contractor for an additional year, but only as to the corrective Work (labor and materials) and any inseparable components of such corrective Work.

D. Nothing contained in this Section 14 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one year as described in Section 14.A. relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

E. All guarantees or warranties of materials furnished to the Contractor or any subcontractor by any manufacturer or supplier shall be deemed to run for the benefit of the Owner. The Contractor shall and does hereby assign to the Owner the benefits of all warranties and guarantees directly furnished to the Contractor or furnished by any and all subcontractors (or the subcontracts themselves if necessary to perfect such assignment), but such assignment shall not relieve the Contractor of its warranty obligations to the Owner under the Contract or at law.

Section 15. Subcontractors.

A. The term subcontractor as used herein shall mean a person or entity who has an agreement with the Contractor to perform a portion of the Work at the Project or that is performing portions of the Work directly or indirectly for, or on behalf of or under the direction of the Contractor.

B. Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner the names of the subcontractors for each of the principal portions of the Work. The Contractor shall not contract with any subcontractor to whom the Owner has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection. Contracts between the Contractor and subcontractors shall (1) require each subcontractor, to the extent of the Work to be performed by the subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and has assumed toward the Contractor all the obligations and responsibilities which the Contractor, by the Contract Documents, and to assume toward the Owner, and (2) allow to the subcontractor the benefit of all rights, remedies and redress afforded to the Contractor by these Contract Documents.

Section 16. Site Conditions. Execution of the Contract by the Contractor is a representation that the Contractor has visited the site and become familiar with the local conditions under which the Work is to be performed.

Section 17. Safety; Compliance with Laws.

A. The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable measures and precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

(1) employees on the Work and other persons who may be affected thereby;
(2) the Work and materials and equipment to be incorporated therein; and
(3) other property at the site or adjacent thereto.

The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury or loss, including but not limited to all requirements under the Occupational Safety and Health Act. The Contractor shall promptly remedy damage and loss to property at the site caused in whole or in part by the Contractor, a subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible. The foregoing obligations of the Contractor are in addition to and shall not be deemed to limit in any manner, the Contractor's obligations under Section 11. The Owner shall have no responsibility to ensure that the Contractor provides a safe working environment and/or complies with occupational safety and health laws, rules and regulations.

B. The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work. The Contractor shall promptly notify the Architect and the Owner of the Drawings and Specifications are observed by the Contractor to be at variance therewith.

Section 18. Governing Law; Venue. This Contract shall be governed by the laws of the State of Alabama. Any action to enforce this Contractt shall be instituted solely and exclusively in the Circuit Court of Jefferson County, Alabama or in the United States District Court for the Northern District of Alabama.

Section 19. No Assignment. Neither this Contract, nor the Work, nor any portion thereof to be done under this Contract, nor the moneys nor any portion thereof to become due under this Contract, shall be assigned as collateral security or otherwise, by the Contractor without the prior written consent of the Owner, and on such assignment without such prior written consent, the Owner shall have the right, at its sole option, to terminate this Contract and the rights of the Contractor hereunder.

Section 20. Counterparts; Electronic Signatures. This Contract may be executed in counterparts which will be construed together as one instrument. It shall not be necessary when making proof of this Contract to produce counterparts with original signatures, it being agreed that photocopies of signatures or signatures received by facsimile transmission shall have the same effect as original signatures.

Section 21. General.

A. Non-Discrimination. Contractor agrees to abide by the Nondiscrimination Requirements set forth in Exhibit B attached hereto and incorporated herein by reference.

B. Notices. All written notices required or otherwise provided hereunder will be sent by certified or registered mail (return receipt requested), reputable courier with shipment tracking capabilities, postage prepaid, facsimile, e-mail, or hand delivery to the address for each party appearing on the first page of this Contract. All notices to the Owner shall include a mandatory copy to: Maynard, Cooper & Gale, P.C., Attention: David Smith, 1901 Sixth Avenue North, Suite 1700, Birmingham, Alabama 35203; Email: dsmith@maynardcooper.com; Facsimile: (205) 254-1999. Notices will be deemed to have been given when delivered.

C. Immigration. The Owner is committed to complying with all applicable immigration laws of the United States, including the Immigration Reform and Control Act of 1986, as amended, which act requires that all employees hired since 1986 provide proof of identity and employment eligibility before working in the United States. The Contractor shall not place any of its employees at the Project worksite, nor shall the Contractor permit any of its employees, nor any of its contractors or subcontractors, or their respective employees, to perform any Work on behalf of or for the benefit of the Owner without first verifying and ensuring their authorization to lawfully work in the United States. The Contractor acknowledges, agrees, and warrants (a) that the Contractor maintains and follows an established policy to verify the employment authorization of its employees and to ensure continued compliance for the duration of employment, (b) that the Contractor has verified the identity and employment eligibility of all of its employees in compliance with applicable law, (c) that the Contractor has established internal safeguards and reporting policies to encourage its employees to report any suspected violations of immigration policies or of immigration law promptly to the Contractor's senior management, (d) that the Contractor has implemented a policy to verify the validity of Social Security information provided by its employees at the time of hire by the Contractor, (e) that the Contractor is without knowledge of any fact that would render any of its employees or any of its contractors or subcontractors, or their respective employees, ineligible to legally work in the United States, and (f) that the Contractor will promptly notify the Owner in writing in the event that any of its employees or any of its contractors or subcontractors, or their respective employees, that are working on the Owner's premises should lose authorization to legally work in the United States.

D. Criminal Background Check. To the extent permitted by law, the Contractor represents and warrants that it shall conduct background investigations of each of its employees, regardless of whether or not such employees will provide Work under this Contract. Background investigations shall include, at a minimum, verification of prior employment (five to ten years where available) and criminal background checks to the extent permitted by law. The Contractor will ensure that no person performing Work for the Owner has been convicted of a felony.

E. No Third Party Beneficiaries. With the exception of the City of Birmingham, Alabama, this Contract shall not be construed to confer any rights or remedies upon any person not a party to this Contract.

F. Waiver. Any waiver of any right or provision herein will not be effective unless in writing and signed by authorized representatives of both parties. The waiver or failure of either party to exercise any right provided herein will not be deemed a waiver of any further right under this Contract.

G. Termination of Contract. In addition to any other rights and remedies allowed by law, Owner may terminate this Contract at any time for any reason, or no reason, with or without cause, by giving fifteen (15) days' written notice to the Contractor of such termination and specifying the effective date thereof. Termination of this Contract shall (i) release Owner from any future fees to the Contractor for work not performed and materials not supplied, but Owner will pay the Contractor for fees earned for work which was performed and materials which were provided prior to the delivery of the notice of termination but not yet paid, and (ii) release the Contractor from any obligation to provide further work or materials to Owner after the effective date of termination.

H. Counterparts and Telecopy Execution. This Contract may be executed and delivered by telecopy and in counterparts, each of which when executed and delivered shall be deemed an original, but all of which together shall be deemed one and the same agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the day and year first above written.

OWNER:	**CONTRACTOR:**
BIRMINGHAM AIRPORT AUTHORITY	_____
By: _____	By: _____
Name: Ronald F. Mathieu	Name: _____
Its: President and Chief Executive Officer	Its: _____
	(Title)

EXHIBIT A

BAA CONTRACTOR INSURANCE REQUIREMENTS
CONTRACTOR PROVIDED INSURANCE FOR AIR-SIDE PROJECT COVERAGE

Type of Coverage	Minimum Limits
Worker's Compensation	Statutory for Coverage A
Employee's Liability	$1,000,000 each Accident
	$1,000,000 Disease – Policy Limit
	$1,000,000 per Employee

Requirements:

1. Voluntary Compensation Endorsement
2. Waiver of Subrogation

General Liability	$1,000,000 each occurrence
	$10,000,000 General Aggregate
	$10,000,000 Completed Operations/Products Aggregate
	$1,000,000 Personal Injury
	$5,000 Medical Payments

Requirements:

1. XCU Perils Coverage
2. Completed Operations Extended 3 Years
3. Broad Form Property Damage
4. Fellow Employee Coverage
5. Primary & Non-Contributory
6. Waiver of Subrogation
7. 30 Days' Notice of Cancellation to Certificate Holder
8. CG2010 and CG2037 Endorsements
9. Contractual Liability applicable to Contractor's indemnification obligations

Business Automobile $2,000,000 per occurrence combined limit for bodily injury liability and property damage

Requirements:

1. Covers owned, non-owned and hired autos
2. Primary & Non-Contributory
3. Waiver of Subrogation
4. 30 Days' Notice of Cancellation to Certificate Holder

Umbrella $10,000,000

Builder's Risk Policy Amount of Project

Requirement:

1. Contractor provide coverage for Contractor's equipment on the job site and all construction material and equipment which is schedule for the Work but has not been delivered to the Job Site
2. Coverage shall insure interest of Owner and Contractor
3. Provide Replacement Cost
4. Event of Loss, proceeds of any claim shall be paid to the Owner who shall apportion the proceeds between the Owner and the Contractor as their interest may appear
5. Coverage includes flood and earth movement
6. Per Project Aggregate

Pollution Policy $5,000,000

Professional Liability $1,000,000

EXHIBIT B

NONDISCRIMINATION REQUIREMENTS
Federal Aviation Administration Required Provisions

A. **Civil Rights – General**. Contractor agrees to comply with pertinent statutes, Executive Orders and such rules as are promulgated to ensure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance. If Contractor transfers its obligation to another, the transferee is obligated in the same manner as Contractor.

This provision obligates Contractor for the period during which the BAA remains obligated to the Federal Aviation Administration. This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

B. **Civil Rights – Title VI Assurances – Compliance with Nondiscrimination Requirements.**

1. **Compliance with Regulations**: Contractor will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** Contractor, with regard to the work performed by it during the Agreement, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the Agreement covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment**: In all solicitations, either by competitive bidding or negotiation made by Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by Contractor of Contractor's obligations under this Agreement and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.

4. **Information and Reports**: Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the BAA or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of Contractor is in the exclusive possession of another who fails or refuses to furnish the information, Contractor will so certify to the BAA or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance**: In the event of Contractor's noncompliance with the non-discrimination provisions of this contract, the BAA will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

   (a) Withholding payments to Contractor under the Agreement until Contractor complies; and/or

   (b) Cancelling, terminating or suspending the Agreement, in whole or in part.

6. **Incorporation of Provisions**: Contractor will include the provisions of paragraphs one through six in every subcontract,

including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. Contractor will take action with respect to any subcontract or procurement as the BAA or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, BAA may request the Contractor to enter into any litigation to protect the interests of the BAA. In addition, Contractor may request the United States to enter into the litigation to protect the interests of the United States.

7. **Civil Rights – Title VI Clauses for Use/Access to Real Property**. Contractor for itself, its heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of the Airport, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that Contractor will use the premises in compliance with all other requirements imposed by or pursuant to the List of Pertinent Nondiscrimination Acts And Authorities in Paragraph C below.

   In the event of breach of any of the above nondiscrimination covenants, the BAA will have the right to terminate the Agreement and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said Agreement had never been made or issued.

C. **Title VI List of Pertinent Nondiscrimination Acts and Authorities.** During the performance of this Agreement, Contractor, for itself, its assignees, and successors in interest agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

1. **Title VI of the Civil Rights Act of 1964** (42 USC § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);

2. **49 CFR part 21** (Non-discrimination in Federally-assisted programs of the Department of Transportation — Effectuation of Title VI of the Civil Rights Act of 1964);

3. **The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970** (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

4. **Section 504 of the Rehabilitation Act of 1973** (29 USC § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27;

5. **The Age Discrimination Act of 1975**, as amended (42 USC § 6101 *et seq.*), (prohibits discrimination on the basis of age);

6. **Airport and Airway Improvement Act of 1982** (49 USC § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);

7. **The Civil Rights Restoration Act of 1987** (PL 100-209) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

8. **Titles II and III of the Americans with Disabilities Act of 1990**, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 USC §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;

9. **The Federal Aviation Administration's Nondiscrimination statute** (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);

10. **Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations**, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

11. **Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency**, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure

compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

12. **Title IX of the Education Amendments of 1972**, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC 1681 et seq).

D. **DBE**. Contractor acknowledges that the provisions of 49 CFR, Part 23, Disadvantaged Business Enterprises ("DBE"), as such regulations may be amended, and such other similar regulations as may be enacted, may be applicable to the activities of Contractor at the Airport, unless exempted by said regulations, and by choosing to operate at the Airport, Contractor shall be deemed to have agreed to comply with the regulatory agencies, in reference thereto. These requirements may include, but not be limited to, compliance with DBE participation goals, the keeping of certain records of good faith compliance efforts, which would be subject to review by the various agencies, the submission of various reports and, if so directed, the contracting of specified percentages of goods and services contracts to DBEs.

Exhibit E

MBE/WBE Participation Documentation

MBE/WBE/SBE Bid Opportunity List

Please furnish the following subcontracting information for ALL bidders/quoters/proposers. This information must also be included in your bid or proposal package.

Prime Contractor/Consultant: _____

Bid/Proposal/Task Number: _____

Bid/Proposal/Task Name: _____

IThe Birmingham Airport Authority (BHM) is committed to providing all Alabama businesses a fair opportunity to participate in its contracts. BHM encourages the inclusion of Minority, Women-Owned, and Small Business Enterprises (MBE/WBE/SBE) in both prime and subcontracting roles. An SBE is a for-profit business that is independently owned, not dominant in its field, and meets size standards based on revenue or employees. BHM aims to remove barriers that limit small business participation.

Prime Contractor/Consultant

Firm Name _____ **Firm's Age** _____

Address _____

State & Zip Code _____

Firm Status ☐ Non-DBE ☐ DBE ☐ ACDBE ☐ SBE ☐ MBE/WBE

Gender
☐ Female
☐ Male

Annual Gross Receipts
☐ Less than $1 million
☐ Between $1 - $3 million
☐ Between $3 - $6 million
☐ Between $6 - $10 million
☐ Greater than $10 million

Ethnicity
☐ Asian Pacific American
☐ Black American
☐ Hispanic America
☐ Native America
☐ Subcontinental Asian America
☐ Other

Subcontracts/Consultant

Firm Name _____ **Firm's Age** _____

Address _____

State & Zip Code _____

NACIS Code(s): _____ _____ _____

Work Preformed on contract:

_____

_____

_____

Annual Gross Receipts
☐ Less than $1 million
☐ Between $1 - $3 million
☐ Between $3 - $6 million
☐ Between $6 - $10 million
☐ Greater than $10 million

Firm Status ☐ Non-DBE ☐ DBE ☐ ACDBE ☐ SBE ☐ MBE/WBE

Gender / Ethnicity
☐ Female
☐ Male
☐ Asian Pacific American
☐ Black American
☐ Hispanic America
☐ Native America
☐ Subcontinental Asian America
☐ Other

Subcontracts/Consultant

Firm Name _____ **Firm's Age** _____

Address _____

State & Zip Code _____

NACIS Code(s): _____ _____ _____

Work Preformed on contract:

_____

_____

_____

Annual Gross Receipts
☐ Less than $1 million
☐ Between $1 - $3 million
☐ Between $3 - $6 million
☐ Between $6 - $10 million
☐ Greater than $10 million

Firm Status ☐ Non-DBE ☐ DBE ☐ ACDBE ☐ SBE ☐ MBE/WBE

Gender / Ethnicity
☐ Female
☐ Male
☐ Asian Pacific American
☐ Black American
☐ Hispanic America
☐ Native America
☐ Subcontinental Asian America
☐ Other

MBE/WBE/SBE Bid Opportunity List

Please furnish the following subcontracting information for ALL bidders/quoters/proposers. This information must also be included in your bid or proposal package.

Prime Contractor/Consultant: _____

Bid/Proposal/Task Number: _____

Bid/Proposal/Task Name: _____

Subcontracts/Consultant

Firm Name _____ **Firm's Age** _____

Address _____

State & Zip Code _____

NACIS Code(s): _____ _____ _____

Work Preformed on contract:

_____

_____

_____

Annual Gross Receipts

- ☐ Less than $1 million
- ☐ Between $1 - $3 million
- ☐ Between $3 - $6 million
- ☐ Between $6 - $10 million
- ☐ Greater than $10 million

Firm Status ☐ Non-DBE

☐ DBE ☐ ACDBE

☐ SBE ☐ MBE/WBE

Gender / Ethnicity

- ☐ Female
- ☐ Male

- ☐ Asian Pacific American
- ☐ Black American
- ☐ Hispanic America
- ☐ Native America
- ☐ Subcontinental Asian America
- ☐ Other

Subcontracts/Consultant

Firm Name _____ **Firm's Age** _____

Address _____

State & Zip Code _____

NACIS Code(s): _____ _____ _____

Work Preformed on contract:

_____

_____

_____

Annual Gross Receipts

- ☐ Less than $1 million
- ☐ Between $1 - $3 million
- ☐ Between $3 - $6 million
- ☐ Between $6 - $10 million
- ☐ Greater than $10 million

Firm Status ☐ Non-DBE

☐ DBE ☐ ACDBE

☐ SBE ☐ MBE/WBE

Gender / Ethnicity

- ☐ Female
- ☐ Male

- ☐ Asian Pacific American
- ☐ Black American
- ☐ Hispanic America
- ☐ Native America
- ☐ Subcontinental Asian America
- ☐ Other

Subcontracts/Consultant

Firm Name _____ **Firm's Age** _____

Address _____

State & Zip Code _____

NACIS Code(s): _____ _____ _____

Work Preformed on contract:

_____

_____

_____

Annual Gross Receipts

- ☐ Less than $1 million
- ☐ Between $1 - $3 million
- ☐ Between $3 - $6 million
- ☐ Between $6 - $10 million
- ☐ Greater than $10 million

Firm Status ☐ Non-DBE

☐ DBE ☐ ACDBE

☐ SBE ☐ MBE/WBE

Gender / Ethnicity

- ☐ Female
- ☐ Male

- ☐ Asian Pacific American
- ☐ Black American
- ☐ Hispanic America
- ☐ Native America
- ☐ Subcontinental Asian America
- ☐ Other

BIRMINGHAM-SHUTTLESWORTH INTERNATIONAL AIRPORT

Birmingham Airport Authority

Birmingham Airport Authority – Subcontractor Letter of Intent

This form documents the intent of a bidder/offeror to utilize a subcontractor or supplier for specific work or services related to a BAA project. It also captures the subcontractor's acknowledgment and agreement to perform the work.
(To be completed for each subcontractor or supplier proposed in the response to an RFP or RFQ)

Solicitation Number:	**Project Title:**

Bidder/Offeror Name: _____

Address: _____ City: _____ State: ___ Zip: _____

Authorized Representative: _____ Phone: _____

Subcontractor/Supplier Name: _____

Check one:

ACDBE ☐ MBE ☐
DBE ☐ WBE ☐
SBE ☐ None ☐

Address: _____

City: _____ State: ___ Zip: _____ Phone: _____

Authorized Representative: _____

A. This Letter of Intent confirms the agreement between the bidder/offeror and the subcontractor or supplier listed above to participate in the project identified in this solicitation.

B. By signing below, the bidder/offeror agrees to retain the subcontractor/supplier to perform the scope of work described in this form, contingent upon award of the prime contract.

C. By signing below, the subcontractor/supplier confirms its intent to perform the described work if the prime contract is awarded to the bidder/offeror.

D. If the subcontractor/supplier is certified as a DBE, ACDBE, MBE, WBE, or SBE and any portion of the work described is further subcontracted, that portion must be subcontracted to another firm with the same certification in order for the bidder/offeror to receive credit toward applicable participation goals.

Work to be performed by Subcontractor/Supplier			
Description	NAICS*	Contract Amount†	Percentage of Total Project Value

AFFIRMATION: I hereby affirm that the information above is true and correct.

Bidder/Offeror Authorized Representative

_____

(Signature) (Title) (Date)

Subcontractor/Supplier Authorized Representative

_____

(Signature) (Title) (Date)

* Visit http://www.census.gov/eos/www/naics/ to search. Match type of work with NAICS code as closely as possible.
† To be provided only when the solicitation requires that bidder/offer include a dollar amount in its bid-offer.

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

GOOD FAITH EFFORT

(Must be submitted with bids/proposals NOT meeting the MBE/WBE goals or requesting full or partial waiver)

Pursuant to the requirements for bidders under the MBE/WBE Program, and in consideration of the privilege to submit bids/proposals funded, in whole or in part, by the Birmingham Airport Authority (BAA),

I/We, (_____), (_____) of (_____)
Name(s) of Person(s) Signing Below Title(s) Company Name

attest that I/We have exercised the following good faith efforts in addition to my/our regular and customary solicitation process: (Check ALL that apply and complete as indicated)

☐ I/We are requesting a FULL/PARTIAL WAIVER of the MBE ☐ **WBE** ☐ Participation Goal for the following reason(s):_____
_____

☐ I/We have contacted BAA or website to obtain a list of MBE/WBEs appropriate to the bid/proposal.

☐ I/We delivered written notice to available registered MBE/WBEs for each potential subcontracting or supply category in the contract AND all potential subcontractors or vendors which requested information on the contract. **(MUST SUBMIT/ATTACH PROOF)**

☐ I/We have provided all potential subcontractors or vendors with adequate information as to plans, specifications, relevant terms and conditions of the contract, bonding requirements, and the last date and time for receipt of price quotations. **(MUST SUBMIT/ATTACH PROOF)**

☐ I/We have attended the pre-bid/proposal conference.

☐ I/We have **provided a written explanation for rejection of any potential** MBE/WBE subcontractor or vendor to BAA. When the MBE/WBE subcontractor rejection is due to unreasonably high pricing, I/We have provided supporting documentation.

☐ I/We have actively solicited, through sending letters, emails or initiating personal contact, MBE/WBEs in all feasible and appropriate categories providing subcontracting opportunities for the contract under consideration. **(MUST SUBMIT/ATTACH PROOF)**

☐ I/We have utilized the services of available community organizations and associations, contractors' groups, and trade associations known to publicize contracting and procurement opportunities, for the purpose of obtaining assistance in the contacting and recruitment of MBE/WBEs for the Birmingham Airport Authority (BAA) contract under consideration. **(MUST SUBMIT/ATTACH PROOF)**

☐ I/We have conducted discussions with interested MBE/WBEs in good faith and provided the same willingness to assist MBE/WBEs as has been extended to any other similarly situated subcontractor.

☐ I/We have taken steps to ensure that all labor supervisors, superintendents, and other on-site supervisory personnel are aware of and carry out the obligation to maintain a non-discriminatory work environment, free of harassment, intimidation and coercion at all construction sites, offices and other facilities to which employees are assigned to work

If applicable, identify all MBE/WBEs contacted to participate that declined or were not chosen:

1. _____ _____ _____
Name of Subcontractor/Vendor | Address | Phone

_____ _____ _____ _____
Name of Contact | Date of Offer to Participate | Bid Amount | Date Offer Declined

Reasons Given for Declining _____

_____

_____

2. _____ _____ _____
Name of Subcontractor/Vendor | Address | Phone

_____ _____ _____ _____
Name of Contact | Date of Offer to Participate | Bid Amount | Date Offer Declined

Reasons Given for Declining _____

_____

_____

3. _____ _____ _____
Name of Subcontractor/Vendor | Address | Phone

_____ _____ _____ _____
Name of Contact | Date of Offer to Participate | Bid Amount | Date Offer Declined

Reasons Given for Declining_____

_____

_____

(Make additional copies to extend list of MBE/WBE contacts if needed)

I/We affix my/our signature to this document to attest that I/We have exercised the above-indicated Good Faith Efforts to promote MBE/WBE participation on the Bid/Proposal and Contract under consideration and to comply fully with the provisions of the Birmingham Airport Authority (BAA) MBE/WBE Program.

_____ _____
Printed/Typed Name of Company Official | Date

_____ _____
Signature (Must be Original) | Title of Company Official

_____ _____
Full Company Name | Mailing Address

_____ _____
Area Code/ Phone Number | City, State, Zip

_____ _____
Notary Public | My Commission Expires

PLEASE NOTE: **Failure to properly complete** and submit DIV-1, DIV-2, and DIV-3 (if applicable) will result in bids/proposals being ruled **non-responsive.**