TERMINAL APRON REHABILITATION

Charlottesville-Albemarle Airport

ADDENDUM NO. 3

June 20, 2025

This Addendum is hereby made a part of the Contract Documents and Specifications of the above referenced project. All other requirements of the original Contract Documents and Specifications shall remain effective in their respective order. **ACKNOWLEDGE RECEIPT OF THIS ADDENDUM (Page A3-1 to A3-4 and attachments) BY INSERTING ITS NUMBER AND DATE ON PAGE 7 OF THE INVITATION TO BID.**

MODIFICATIONS TO BID PROPOSAL

1. Remove Bid Form (page 20 through 24 of the front end documents) and replace with revised Bid Form. (Added pay item 14 ,Unsuitable Excavation, and renumbered all pay items)

MODIFICATIONS TO CONTRACT DRAWINGS

1. REMOVE Sheet G-002 Drawing Sheet Index and Summary of Quantities and REPLACE with revised Sheet G-002 Drawing Sheet Index and Summary of Quantities (Added P-152-4.2 Unsuitable Excavation).

MODIFICATIONS TO TECHNICAL SPECIFICATION

1. Remove P-152 Excavation, Subgrade, and Embankment and replace with revised P-152 Excavation, Subgrade, and Embankment. (Revised Method of Measurement and Basis of Payment sections to include unsuitable excavation).

CONTRACTOR QUESTIONS

1. Are there any additional DBE participation forms required to be submitted, other than the forms that are in the solicitation?

RESPONSE: No.

2. Can unclassified excavation, asphalt millings, or broken concrete remain on-site for the airport to use on haul roads, future projects, etc.?

RESPONSE: Yes, material demolished or excavated from the project work limits can be stockpiled on the airport at the waste area on the west side of the airfield. The waste area is accessible from the project site via a road entirely inside the airport fence.

3. Can the P-209 layer be substituted with a P-219 crushed concrete alternative?

RESPONSE: The engineer will consider the substitution of P-219 in lieu of P-209, however that will be dependent on the quality of the P-219 material and the gradation. With adequate production controls, P-219 can be equivalent to P-209, but that may require the Contractor to provide additional documentation and expend additional Quality Control effort to maintain tight production controls versus utilizing the P-209 aggregate.

4. Is the Contractor required to have a full time quality control representative, or can the Superintendent serve as the QC manager?

RESPONSE: The contractor quality control program shall follow FAA Technical Specification C-100, which is included in the project specifications.

5. Please confirm that the DBE participation goal is 4.6%.

RESPONSE: Correct.

6. Is there any costs associated with obtaining airport badges for the Contractor or Subcontractors?

RESPONSE: There is no direct cost associated with obtaining airport badging, however the Contractor (and major subcontractors) shall account for the time that one or several superintendents/supervisors will spend on appearing in person at the Airport for completing applications and training to obtain the badge. Costs shall be included in X-102 Safety and Security lump sum bid item.

7. Are off-road haul trucks permitted for use on the AOA?

RESPONSE: Off-road trucks are not permitted on airfield pavements, including the terminal apron where the project is located.

8. Would the engineer consider using a P-304 cement treated subbase course in lieu of the P-403 HMA subbase course?

RESPONSE: The engineer will consider the substitution of CTB in lieu of asphalt as a stabilized base. Schedule and cure time will be the main factors in accepting the substitution.

9. Is the Contractor required to have a certain amount of experience with airfield work and FAA specifications?

RESPONSE: Qualifications of bidders is outlined in Section 20-01 of the FAA General Provisions.

10. How will undercuts and undercut backfills be paid for? Is this incidental to unclassified excavation?

RESPONSE: An undercut pay item will be added to the P-152 specification as a contingency pay item with undistributed quantity. Will be added by addendum prior to bid opening.

11. What material should be used to backfill undercuts?

RESPONSE: Asphalt millings and P-209 stone are logical materials to backfill any undercut areas as those materials are already being used in the construction. Soils excavated from the drainage work may also be considered. Using materials onsite will be the first option for backfilling. Backfill of undercut areas will be paid using the P-209 pay item.

12. What permits are required to be acquired by the Contractor and what costs are associated with these permits?

RESPONSE: Contact Albemarle County for permitting requirements. The Airport does not have any specific permit requirements.

13. Are there any limits on percent of total bid value for the lump sum items (Safety & Security, Stakeout, Mobilization, Permit Fees, Temporary Items, etc.)?

RESPONSE: Per Section 20-03 of the FAA General Provisions, the mobilization item is limited to 10% of the total project cost.

14. What is the percent value of the total bid amount that the Contractor is required to self perform?

RESPONSE: Per Section 80-01 of the FAA General Provisions, The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

15. Is there a planholders list available?

RESPONSE: No, as the plans are publicly available for download on the gocho.com website.

16. Is there an engineer's estimate available?

RESPONSE: The engineer's estimate is not available for public broadcast. The project will be funded with a FAA grant.

17. Please confirm that the bid package can be submitted via email, in a PDF format, to Jason Deviller.

RESPONSE: Bid packages can be submitted electronically to Jason Devillier at jdevillier@gocho.com.

CLARIFICATIONS AND ATTACHMENTS

1. Revised Bid Form attached.
2. Revised Contract Drawings attached.
3. Revised Specifications attached.

BID FORM

Airport: Charlottesville Albemarle Airport
Project: Terminal Apron Rehabilitation

RFQ No.: [TBD]
RS&H Project No.: 1054-1892-017

Item No.	Item Description and Unit Price Bid in Words	Estimated Quantity		Unit Price in Numbers	Total Amount per Item
1	CONTRACTOR QUALITY CONTROL PLAN (CQCP) at _____ dollars _____ cents	1	LSUM	$ _____	$ _____
2	INSTALLATION AND REMOVAL OF INLET PROTECTION at _____ dollars _____ cents	5	EA	$ _____	$ _____
3	INSTALLATION AND REMOVAL OF TRENCH DRAIN PROTECTION at _____ dollars _____ cents	310	LF	$ _____	$ _____
4	SAFETY AND SECURITY at _____ dollars _____ cents	1	LSUM	$ _____	$ _____
5	PROJECT STAKEOUT AND AS-BUILT SURVEY at _____ dollars _____ cents	1	LSUM	$ _____	$ _____
6	MOBILIZATION at _____ dollars _____ cents	1	LSUM	$ _____	$ _____
7	PERMIT FEES at _____ dollars _____ cents	1	LSUM	$ _____	$ _____
8	TEMPORARY CONSTRUCTION ITEMS (MAINTENANCE & PROTECTION OF TRAFFIC) at _____ dollars _____ cents	1	LSUM	$ _____	$ _____

9	CONCRETE PAVEMENT REMOVAL at _____ dollars _____ cents	7,740	SY	$ _____	$ _____
10	ASPHALT PAVEMENT REMOVAL at _____ dollars _____ cents	2,240	SY	$ _____	$ _____
11	REMOVAL OF STORM PIPE (36-INCH AND LESS) at _____ dollars _____ cents	300	LF	$ _____	$ _____
12	REMOVAL OF INLET at _____ dollars _____ cents	4	EA	$ _____	$ _____
13	UNCLASSIFIED EXCAVATION at _____ dollars _____ cents	4,810	CY	$ _____	$ _____
14	UNSUITABLE EXCAVATION at _____ dollars _____ cents	100	CY	$ _____	$ _____
15	CRUSHED AGGREGATE BASE COURSE, 7-INCH DEPTH at _____ dollars _____ cents	12,710	SY	$ _____	$ _____
16	SEPARATION GEOTEXTILE at _____ dollars _____ cents	10,030	SY	$ _____	$ _____
17	ASPHALT SURFACE COURSE at _____ dollars _____ cents	1,630	TON	$ _____	$ _____
18	IM-19.0D ASPHALT BASE COURSE, BENEATH CONCRETE PAVEMENT at _____ dollars _____ cents	2,990	TON	$ _____	$ _____

19	CEMENT CONCRETE PAVEMENT, 13.5-INCH DEPTH at _____ dollars _____ cents	7,980	SY	$ _____	$ _____
20	REINFORCED CEMENT CONCRETE PAVEMENT, 13.5-INCH DEPTH at _____ dollars _____ cents	370	SY	$ _____	$ _____
21	ISOLATED CONCRETE SLAB REPLACEMENT, VARIABLE DEPTH at _____ dollars _____ cents	180	SY	$ _____	$ _____
22	CONCRETE TRANSITION SLABS at _____ dollars _____ cents	1,300	LF	$ _____	$ _____
23	EMULSIFIED ASPHALT TACK COAT at _____ dollars _____ cents	1,490	GAL	$ _____	$ _____
24	EMULSIFIED ASPHALT TACK COAT at _____ dollars _____ cents	8,970	LF	$ _____	$ _____
25	JOINT SEALING FILLER at _____ dollars _____ cents	1,570	LF	$ _____	$ _____
26	PAVEMENT MARKING REMOVAL at _____ dollars _____ cents	4,160	SF	$ _____	$ _____
27	FINAL MARKING at _____ dollars _____ cents	20,600	SF	$ _____	$ _____
28	TEMPORARY MARKING at _____ dollars _____ cents	520	SF	$ _____	$ _____

29	18-INCH CLASS V RCP at _____ dollars _____ cents	130	LF	$ _____	$ _____
30	24-INCH CLASS V RCP at _____ dollars _____ cents	130	LF	$ _____	$ _____
31	AIRCRAFT RATED PIPE COLLAR, 18-INCH at _____ dollars _____ cents	1	EA	$ _____	$ _____
32	AIRCRAFT RATED PIPE COLLAR, 24-INCH at _____ dollars _____ cents	1	EA	$ _____	$ _____
33	AIRCRAFT RATED INLET at _____ dollars _____ cents	4	EA	$ _____	$ _____

SUMMARY

TOTAL AMOUNT OF BASE BID (IN WORDS)

_____ dollars
_____ cents

Total Base Bid in Numbers $ _____

LINE ITEM PRICING

1 -	CONTRACTOR QUALITY CONTROL PLAN (CQCP)	Total Cost	$ _____
2 -	INSTALLATION AND REMOVAL OF INLET PROTECTION	Total Cost	$ _____
3 -	INSTALLATION AND REMOVAL OF TRENCH DRAIN PROTECTION	Total Cost	$ _____
4 -	SAFETY AND SECURITY	Total Cost	$ _____
5 -	PROJECT STAKEOUT AND AS-BUILT SURVEY	Total Cost	$ _____
6 -	MOBILIZATION	Total Cost	$ _____
7 -	PERMIT FEES	Total Cost	$ _____
8 -	TEMPORARY CONSTRUCTION ITEMS (MAINTENANCE & PROTECTION OF TRAFFIC)	Total Cost	$ _____
9 -	CONCRETE PAVEMENT REMOVAL	Total Cost	$ _____
10 -	ASPHALT PAVEMENT REMOVAL	Total Cost	$ _____
11 -	REMOVAL OF STORM PIPE (36-INCH AND LESS)	Total Cost	$ _____
12 -	REMOVAL OF INLET	Total Cost	$ _____
13 -	UNCLASSIFIED EXCAVATION	Total Cost	$ _____
14 -	UNSUITABLE EXCAVATION	Total Cost	$ _____
15 -	CRUSHED AGGREGATE BASE COURSE	Total Cost	$ _____
16 -	SEPARATION GEOTEXTILE	Total Cost	$ _____
17 -	ASPHALT SURFACE COURSE	Total Cost	$ _____
18 -	IM-19.0D ASPHALT BASE COURSE, BENEATH CONCRETE PAVEMENT	Total Cost	$ _____
19 -	CEMENT CONCRETE PAVEMENT, 13.5-INCH DEPTH	Total Cost	$ _____
20 -	REINFORCED CEMENT CONCRETE PAVEMENT, 13.5-INCH DEPTH	Total Cost	$ _____
21 -	ISOLATED CONCRETE SLAB REPLACEMENT, VARIABLE DEPTH	Total Cost	$ _____
22 -	CONCRETE TRANSITION SLABS	Total Cost	$ _____
23 -	EMULSIFIED ASPHALT TACK COAT	Total Cost	$ _____
24 -	EMULSIFIED ASPHALT TACK COAT	Total Cost	$ _____
25 -	JOINT SEALING FILLER	Total Cost	$ _____
26 -	PAVEMENT MARKING REMOVAL	Total Cost	$ _____
27 -	FINAL MARKING	Total Cost	$ _____
28 -	TEMPORARY MARKING	Total Cost	$ _____
29 -	18-INCH CLASS V RCP	Total Cost	$ _____
30 -	24-INCH CLASS V RCP	Total Cost	$ _____
31 -	AIRCRAFT RATED PIPE COLLAR, 18-INCH	Total Cost	$ _____
32 -	AIRCRAFT RATED PIPE COLLAR, 24-INCH	Total Cost	$ _____
33 -	AIRCRAFT RATED INLET	Total Cost	$ _____

Name of Bidder (Typed or Printed): _____

Signature of Bidder (Same as Proposal Form): _____

Title: _____

END OF BID FORM

SHEET INDEX

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5	G-102	HORIZONTAL AND VERTICAL CONTROL PLAN
6	G-103	PROPOSED ALIGNMENT STATIONING PLAN
7	G-110	CONTRACTOR STAGING AREA AND HAUL ROUTE PLAN
8	G-120	OVERALL PHASING PLAN
9	G-121	PHASE 1 PLAN
10	G-122	PHASE 2A PLAN
11	G-123	PHASE 2B PLAN
12	G-124	PHASE 3 PLAN
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14	G-126	PHASE 5 PLAN
15	G-127	PHASE 6 PLAN
16	G-128	PHASE 7 PLAN
17	G-151	CONSTRUCTION SAFETY AND PHASING NOTES AND DETAILS 1
18	G-152	CONSTRUCTION SAFETY AND PHASING NOTES AND DETAILS 2
19	G-153	CONSTRUCTION SAFETY AND PHASING NOTES AND DETAILS 3
20	G-200	GEOTECHNICAL BORINGS & CORES LOCATION PLAN
21	G-201	BORING LOGS AND PAVEMENT CORE PHOTOS 1
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24	C-102	EXISTING CONDITIONS PLAN 2
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26	C-104	EXISTING CONDITIONS PLAN 4
27	C-200	EROSION AND SEDIMENT CONTROL PLAN
28	C-251	EROSION AND SEDIMENT CONTROL DETAILS
29	C-252	EROSION AND SEDIMENT CONTROL NOTES
30	C-253	EROSION AND SEDIMENT CONTROL NARRATIVE
31	CD-100	DEMOLITION OVERALL PLAN
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34	CD-103	DEMOLITION PLAN 3
35	CD-151	PAVEMENT DEMOLITION AND REPAIR DETAILS
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42	C-402	GRADING AND DRAINAGE PLAN 2
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44	C-452	DRAIANGE DETAILS 2
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46	C-454	DRAIANGE DETAILS 4
47	C-455	DRAINAGE DETAILS 5
48	C-500	CONCRETE JOINT LAYOUT OVERALL PLAN
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50	C-502	CONCRETE JOINT LAYOUT PLAN 2
51	C-503	CONCRETE JOINT LAYOUT PLAN 3
52	C-551	CONCRETE JOINT DETAILS 1
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SUMMARY OF QUANTITIES

ITEM NO.	SPEC REFER.	WORK ITEM DESCRIPTION	UNIT	QUANTITY
1	C-100-1	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	LSUM	1
2	C-102-5.1	INSTALLATION AND REMOVAL OF INLET PROTECTION	EA	5
3	C-102-5.2	INSTALLATION AND REMOVAL OF TRENCH DRAIN PROTECTION	LF	310
4	C-103-1	SAFETY AND SECURITY	LSUM	1
5	C-104-1	PROJECT STAKEOUT AND AS-BUILT SURVEY	LSUM	1
6	C-105-6.1	MOBILIZATION	LSUM	1
7	C-105-6.2	PERMIT FEES	LSUM	1
8	C-106-1	TEMPORARY CONSTRUCTION ITEMS (MAINTENANCE & PROTECTION OF TRAFFIC)	LSUM	1
9	P-101-5.1	CONCRETE PAVEMENT REMOVAL	SY	7,740
10	P-101-5.2	ASPHALT PAVEMENT REMOVAL	SY	2,240
11	P-101-5.3	REMOVAL OF STORM PIPE (36-INCH AND LESS)	LF	300
12	P-101-5.4	REMOVAL OF INLET	EA	4
13	P-152-4.1	UNCLASSIFIED EXCAVATION	CY	4,810
2 14	P-152-4.2	UNSUITABLE EXCAVATION	CY	200
15	P-209-5.1	CRUSHED AGGREGATE BASE COURSE, 7-INCH DEPTH	SY	12,710 1
16	P-209-5.2	SEPARATION GEOTEXTILE	SY	10,030
17	P-401-8.1	ASPHALT SURFACE COURSE	TON	1,630
18	P-403-8.1	IM-19.0D ASPHALT BASE COURSE, BENEATH CONCRETE PAVEMENT	TON	2,990
19	P-501-8.1	CEMENT CONCRETE PAVEMENT, 13.5-INCH DEPTH	SY	7,980
20	P-501-8.2	REINFORCED CEMENT CONCRETE PAVEMENT, 13.5-INCH DEPTH	SY	370
21	P-501-8.3	ISOLATED CONCRETE SLAB REPLACEMENT, VARIABLE DEPTH	SY	180
22	P-501-8.4	CONCRETE TRANSITION SLABS	LF	1,300
23	P-603-5.1	EMULSIFIED ASPHALT TACK COAT	GAL	1,490
24	P-604-6.1	COMPRESSION JOINT SEALS FOR CONCRETE PAVEMENT	LF	8,970
25	P-605-6.1	JOINT SEALING FILLER	LF	1,570
26	P-620-5.1	PAVEMENT MARKING REMOVAL	SF	4,160
27	P-620-5.2	FINAL MARKING	SF	20,600
28	P-620-5.3	TEMPORARY MARKING	SF	520
29	D-701-5.1	18-INCH CLASS V RCP	LF	130
30	D-701-5.2	24-INCH CLASS V RCP	LF	130
31	D-701-5.3	AIRCRAFT RATED PIPE COLLAR, 18-INCH	EA	1
32	D-701-5.4	AIRCRAFT RATED PIPE COLLAR, 24-INCH	EA	1
33	D-751-5.1	AIRCRAFT RATED INLET	EA	4

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CHO AIRPORT

CHARLOTTESVILLE ALBEMARLE AIRPORT

TERMINAL APRON REHABILITATION

100 BOWEN LOOP, #200
CHARLOTTESVILLE, VA 22911

COMMONWEALTH OF VIRGINIA
CHAD CHARLES ACKLEY
LIC. NO. 042530
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

REVISIONS

NO.	DATE	ISSUED FOR
1	06-16-2025	ADDENDUM #2
2	06-20-2025	ADDENDUM #3

FAA NO: X-XX-XXXX-XXX-XXXX
RS&H NO: 1054-1892-017
DATE ISSUED: MAY 2025
DESIGN BY: RKH
DRAWN BY: GNH
REVIEWED BY: CCA

SHEET TITLE

DRAWING SHEET INDEX AND SUMMARY OF QUANTITIES

SHEET NUMBER

G-002

BID DOCUMENTS

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.
b. **Drainage excavation.** Drainage excavation shall consist of all excavation made for the primary purpose of drainage and includes drainage ditches, such as intercepting, inlet or outlet ditches; temporary levee construction; or any other type as shown on the plans.

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.

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 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 (100 mm), to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) 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.

Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans.

Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files 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 (30 mm) of the stated elevations for ground surfaces, or within 0.04 foot (12 mm) 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 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 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 (300 mm) 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. 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 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 unclassified 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 the Contractor as indicated on the plans. 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.

152-2.3 Borrow excavation. There are no borrow sources within the boundaries of the airport property. The Contractor shall locate and obtain borrow sources, subject to the approval of the RPR. The Contractor shall notify the RPR at least 15 days prior to beginning the excavation so necessary measurements and tests can be made by the RPR. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant.

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. Not Used. ~~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 (150 mm) 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 (300 mm) 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 (300 mm) 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. Not Used. ~~The material shall be constructed in lifts as established in the control strip, but not less than 6 inches (150 mm) nor more than 12 inches (300 mm) 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 contractor 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 D1557. A new Proctor shall be developed for each soil type based on visual classification.~~

~~Density tests will be taken by the contractor for every 3,000 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 D1557. Under all areas to be paved, the embankments shall be compacted to a depth of 12 inches and to a density of not less than 100% percent of the maximum density 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.~~

~~On all areas outside of the pavement areas, no compaction will be required on the top [4 inches (100 mm)] which shall be prepared for a seedbed in accordance with [Item T-901] [T-906].~~

~~The in-place field density shall be determined in accordance with ASTM D1556 or 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 Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance. 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 (100 mm) in their greatest dimensions will not be allowed in the top 12 inches (300 mm) 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 (60 cm) 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 (1.2 m) 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 three (3) 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 [12 inches (300 mm)] 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 1,500 S.Y. of subgrade. All quality assurance testing shall be done by the Contractor's laboratory in the presence of the RPR, and density test results shall be furnished upon completion to the RPR for acceptance determination.

The in-place field density shall be determined in accordance with ASTM D1556.

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 (75 mm), 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 (12 mm) when tested with a 12-foot (3.7-m) 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 (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

b. Grade. The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +/- 0.05 feet (15 mm) 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 (30 mm) 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. Not Used. ~~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 Measurement for payment specified by the cubic yard (cubic meter) shall be computed by the comparison of digital terrain model (DTM) surfaces for computation of neat line design quantities. The end area is that bound by the original ground line established by field cross-sections and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the RPR.

152-3.2 The quantity of unclassified excavation to be paid for shall be the number of cubic yards (cubic meters) measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

152-3.3 The quantity of unsuitable excavation to be paid for shall be the number of cubic yards (cubic meters) measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.

152-3.4 No separate measurement will be made for the quantity of drainage excavation. Drainage excavation will be incidental to the removal of drainage infrastructure. ~~The quantity of unclassified excavation to be paid for shall be the number of cubic yards (cubic meters) measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed.~~

BASIS OF PAYMENT

152-4.1 Unclassified excavation payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.2 Unsuitable excavation payment shall be made at the contract unit price per cubic yard. 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 P-152-4.1	Unclassified Excavation – per cubic yard
Item P-152-4.2	Unsuitable Excavation – per cubic 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.

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

END OF ITEM P-152