

LEGAL NOTICE
OSWEGO COUNTY AIRPORT
TAXIWAY “B” & “D” REHABILITATION PROJECT
Bid Reference No: BID 24-AIR-004

Sealed bids for the furnishing of all labor, equipment and material necessary for the Taxiway “B” & “D” Rehabilitation Project at the Oswego County Airport will be received by Oswego County Purchasing Department, 46 East Bridge Street, 3rd Floor, Oswego NY 13126, until **2:00 pm, March 26, 2024**, and there, at which time, they will publically opened and read aloud.

This project includes the rehabilitation of taxiway B & D at the Oswego County Airport. The project includes milling of existing asphalt surfaces, full depth asphalt replacement, stone placement, asphalt paving, replacement of taxiway edge lighting, signage, site restoration including topsoiling, seeding and mulching and striping of new asphalt surfaces.

Electronic PDF copies of the Contract Documents may be obtained at no expense from the purchasing department starting on February 27, 2024 at 9:00am. To initiate the process, please contact Karla Roberts at Karla.Roberts@oswegocounty.com, 315-326-6052 where the Organizations name, contacts name, address, telephone number, and email address will be recorded on the plan holders list. Once the required information is recorded, the contact will receive an email with the attached documents or a download link dependent upon file size. The Bidder will be responsible for any and all printing and shipping costs of plans and specifications, and selection of a printing company, as deemed necessary in order to prepare their Bid.

Questions concerning this project should be directed in writing to both the Oswego County Purchasing Department, email, purchasing@oswegocounty.com and Tyler Long, C&S Engineers, Inc., email: tlong@cscos.com, phone: (315) 703-4216 (office). The deadline for questions is March 15, 2024 at 3:00 pm.

An optional pre-bid conference has been scheduled in order to review the specific requirements of this contract. All prospective bidders are encouraged to attend. The pre-bid conference is scheduled for March 7, 2024 at 10:00 am at the Oswego County Airport Terminal Building, 40 Airport Drive, Fulton, NY 13069.

Each bid must be made using the proposal forms provided in the Contract Documents and shall be accompanied by a certified check or bid bond payable to the County of Oswego in the amount of five percent of the total maximum proposal price as a guarantee that the bidder will enter in to the Contract if the project is awarded to them. If upon acceptance of the bid, a bidder fails to enter into a Contract with the County of Oswego, the certified check or bid bond shall be forfeited and become the property of the County.

The proposal section shall be printed, completed and submitted and include a signed original bid and one copy in a sealed opaque envelope indicating the company’s name and bid title: “BID-24-AIR-004” – Taxiway “B” & “D” Rehabilitation”. Either mail or deliver bids in person to:

Holly Carpenter, Director
Oswego County Purchasing Department
46 East Bridge Street, 3rd Floor, Oswego NY 13126

The General Municipal Law of NYS requires that bidders certify that, under penalty of perjury, that bids have been prepared without collusion with other bidders, subcontractors, suppliers, etc. The Owner reserves the right to waive any informality, and to reject any and all bids. Late bids will not be accepted.

Holly Carpenter, Purchasing Director

Dated: February 27, 2024

END OF ADVERTISEMENT



**CONTRACT DOCUMENTS
FOR THE CONSTRUCTION OF**

TAXIWAY “B” & “D” REHABILITATION

**OSWEGO COUNTY AIRPORT (KFZY)
OSWEGO COUNTY
FULTON, NEW YORK**

FAA AIP PROJECT NO. 3-36-0031-056-2022 (D)
3-36-0031-___-2024 (C)
NYS DOT PROJECT NO. 3904.__(C)
C&S PROJECT No. 180.258.001
COUNTY BID NO. BID 24-AIR-004



OWNER:
Oswego County
46 East Bridge Street
Oswego, New York 13126

ENGINEER:
C&S Engineers, Inc.
499 Col. Eileen Collins Boulevard
Syracuse, New York 13212
(315) 455-2000



FEBRUARY 27, 2024

BID DOCUMENTS



Christopher D. Brubach, P.E. - N.Y.S.P.E. Lic. No. 083424

NO ALTERATION PERMITTED HEREIN EXCEPT AS PROVIDED UNDER SECTION 7209
SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

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7	CD101	Demolition Plan
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Holly Carpenter, Purchasing Director

Dated: February 27, 2024

END OF ADVERTISEMENT

QUANTITIES FOR CANVASS OF BIDS

OSWEGO COUNTY AIRPORT
 FULTON, NEW YORK
 TAXIWAY "B" & "D" REHABILITATION PROJECT
BID DOCUMENTS

ITEM NO	SPEC	DESCRIPTION	QUANTITY	UNITS
1	C-100	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)	1	LS
2	C-102	COMPLIANCE WITH AIR AND WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL	1	LS
3	C-102	INSTALLATION AND REMOVAL OF STORM DRAIN INLET PROTECTION	6	EACH
4	C-102	INSTALLATION AND REMOVAL OF COMPOST FILTER SOCK	1,650	LF
5	C-102	INSTALLATION OF DRY SWALE	110	LF
6	C-105	MOBILIZATION (4% MAX.)	1	LS
7	C-105	FIELD OFFICE	1	LS
8	C-105	FIELD OFFICE EQUIPMENT	1	LS
9	C-106	SAFETY, SECURITY AND MAINTENANCE OF TRAFFIC	1	LS
10	C-107	PROJECT SURVEY AND STAKEOUT	1	LS
11	P-101	ASPHALT PAVEMENT REMOVAL (TYPE A)	6,900	SY
12	P-101	ASPHALT PAVEMENT REMOVAL (TYPE B)	3,750	SY
13	P-152	UNCLASSIFIED EXCAVATION	2,300	CY
14	P-160	CRUSHED AGGREGATE FOR UNDERCUT REPLACEMENT	300	CY
15	P-209	CRUSHED AGGREGATE BASE COURSE	1,500	CY
16	P-209	SEPARATION GEOTEXTILE	4,750	SY
17	P-401	ASPHALT BASE COURSE, GRADATION 1	2,100	TON
18	P-401	ASPHALT SURFACE COURSE, GRADATION 2	1,500	TON
19	P-603	EMULSIFIED ASPHALT TACK COAT	900	GAL
20	P-605	JOINT SEALING FILLER	1,300	LF
21	P-620	SURFACE PREPARATION	1	LS
22	P-620	AIRFIELD PAVEMENT MARKINGS	1,700	SF
23	P-620	TEMPORARY AIRFIELD PAVEMENT MARKINGS	1,700	SF
24	D-705	REMOVAL OF EXISTING CLEANOUT	3	EACH
25	D-705	REMOVAL OF EXISTING UNDERDRAIN	1,100	LF
26	D-705	6-INCH PERFORATED CORRUGATED PE DRAINAGE PIPE UNDERDRAIN, TYPE CP	1,250	LF
27	D-705	UNDERDRAIN CLEANOUT	3	EACH
28	T-901	SEEDING, WET APPLIED	8,700	SY
29	T-905	TOPSOIL (FURNISHED FROM OFF THE SITE)	525	CY
30	T-905	TOPSOIL (FURNISHED FROM ON SITE)	225	CY
31	T-908	MULCHING	8,700	SY
32	L-108	NO. 8 AWG, 5 KV, L-824, TYPE C CABLE, INSTALLED IN DUCT BANK OR CONDUIT	6,300	LF
33	L-108	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE INSTALLED IN SEPARATE TRENCH	3,350	LF
34	L-108	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE INSTALLED ABOVE THE DUCT BANK OR CONDUIT	325	LF
35	L-110	2-INCH DIA. SCHEDULE 40 PVC CONDUIT IN TURF	3,700	LF
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38	L-110	CONCRETE-ENCASED DUCT BANK, 4-WAY - 4 INCH, SCHEDULE 40 PVC CONDUITS	325	LF
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40	L-115	ELECTRICAL PULLBOX	5	EACH
41	L-125	MEDIUM INTENSITY TAXIWAY EDGE LIGHT FIXTURE, BASE MOUNTED, LED	28	EACH
42	L-125	SALVAGE AND REINSTALL EXISTING MEDIUM INTENSITY TAXIWAY EDGE LIGHT FIXTURE, BASE MOUNTED, QUARTZ	9	EACH
43	L-125	L-867B NON LOAD BEARING LIGHT BASE, IN TURF	37	EACH
44	L-125	AIRFIELD GUIDANCE SIGN, LED, SIZE 2, 3 MODULES	2	EACH
45	L-125	AIRFIELD GUIDANCE SIGN, LED, SIZE 2, 4 MODULES	1	EACH
46	L-125	REMOVE EXISTING STAKE MOUNTED EDGE LIGHT	34	EACH
47	L-125	REMOVE EXISTING GUIDANCE SIGN AND FOUNDATION	3	EACH
48	L-125	SPARE PARTS (NOT TO EXCEED \$10,000 OR 10% TOTAL FIXTURE COST)	1	LS

PROPOSAL
FOR CONSTRUCTION OF THE
TAXIWAY “B” & “D” REHABILITATION
AT
OSWEGO COUNTY AIRPORT
FULTON, NEW YORK
Bid No. BID-24-AIR-004

TO: Oswego County
46 East Bridge Street
Oswego, New York 13126

The undersigned, as bidder, hereby declares that he/she has examined the site of the work and informed himself/herself fully in regard to all conditions pertaining to the place where the work is to be done; that he/she has examined and read the Contract Documents and Contract Drawings for the work and all addenda relative thereto furnished prior to the opening of bids; that he/she has satisfied himself/herself relative to the work to be performed.

The bidder understands that the advertisement, located in the front of these Contract Documents, contains the location and a description of the proposed construction, as well as indicates the place, date, and time of the proposal opening; information about a Pre-Bid conference, if scheduled, is contained in the advertisement; a listing of estimated quantities is located in the front of these Contract Documents; the time in which the work must be completed shall be in accordance with the subsection titled FAILURE TO COMPLETE ON TIME of Section 80. If the bidder considers that the time to complete the work is inadequate, they should not submit a bid.

The bidder understands the quantities for bid items listed on the proposal sheets are estimated quantities only for the purpose of comparing bids; any difference between these estimated quantities and actual quantities required for construction shall not be taken as a basis for claims by the Contractor for extra compensation; compensation will be based upon the unit prices and actual construction quantities.

The bidder understands that the description under each item, being briefly stated, implies, although it does not mention, all incidentals and that the prices stated are intended to cover all such work, materials and incidentals as constitute bidder's obligations as described in the specifications and any details not specifically mentioned, but evidently included in the Contract shall be compensated for in the item which most logically includes it.

The bidder understands that proposal guaranty shall be in the form of a bid bond or certified check in the amount of five percent (5%) of this bid in accordance with the subsection titled BID GUARANTEE of Section 20; the proposal guaranty shall become the property of the Owner in the event the Contract and bond(s) are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

The bidder agrees that upon receipt of written notice of the acceptance of this proposal, bidder will execute the Contract attached within 15 days and deliver a Surety Bond or Bonds as required by the subsection titled REQUIREMENTS OF CONTRACT BONDS OF Section 30. The bidder further agrees to commence construction with an adequate work force, plant and equipment on the date stated in the written notice to proceed and will progress therewith to its completion within the time stated, and in accordance with this Contract and Specification.

OSWEGO COUNTY AIRPORT
 FULTON, NEW YORK
 TAXIWAY "B" AND "D" REHABILITATION PROJECT
 BID 24-AIR-004

ITEM NO.	FAA SPEC NO.	QUANTITY	ITEM LIST ITEM DESCRIPTION (PRICE WRITTEN IN WORDS)	UNIT PRICE IN FIGURES		TOTAL AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
1	C-100	1 LS	CONTRACTOR QUALITY CONTROL PROGRAM (CQCP)				
			AT				
			PER LUMP SUM				
2	C-102	1 LS	COMPLIANCE WITH AIR AND WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL				
			AT				
			PER LUMP SUM				
3	C-102	6 EACH	INSTALLATION AND REMOVAL OF STORM DRAIN INLET PROTECTION				
			AT				
			PER EACH				
4	C-102	1,650 LF	INSTALLATION AND REMOVAL OF COMPOST FILTER SOCK				
			AT				
			PER LINEAR FOOT				
5	C-102	110 LF	INSTALLATION OF DRY SWALE				
			AT				
			PER LINEAR FOOT				
6	C-105	1 LS	MOBILIZATION (4% MAX.)				
			AT				
			PER LUMP SUM				
7	C-105	1 LS	FIELD OFFICE				
			AT				
			PER LUMP SUM				
8	C-105	1 LS	FIELD OFFICE EQUIPMENT				
			AT				
			PER LUMP SUM				

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ITEM NO.	FAA SPEC NO.	QUANTITY	ITEM LIST ITEM DESCRIPTION (PRICE WRITTEN IN WORDS)	UNIT PRICE IN FIGURES		TOTAL AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
9	C-106	1 LS	SAFETY, SECURITY AND MAINTENANCE OF TRAFFIC AT				
			PER LUMP SUM				
10	C-107	1 LS	PROJECT SURVEY AND STAKEOUT AT				
			PER LUMP SUM				
11	P-101	6,900 SY	ASPHALT PAVEMENT REMOVAL (TYPE A) AT				
			PER SQUARE YARD				
12	P-101	3,750 SY	ASPHALT PAVEMENT REMOVAL (TYPE B) AT				
			PER SQUARE YARD				
13	P-152	2,300 CY	UNCLASSIFIED EXCAVATION AT				
			PER CUBIC YARD				
14	P-160	300 CY	CRUSHED AGGREGATE FOR UNDERCUT REPLACEMENT AT				
			PER CUBIC YARD				
15	P-209	1,500 CY	CRUSHED AGGREGATE BASE COURSE AT				
			PER CUBIC YARD				
16	P-209	4,750 SY	SEPARATION GEOTEXTILE AT				
			PER SQUARE YARD				

OSWEGO COUNTY AIRPORT
 FULTON, NEW YORK
 TAXIWAY "B" AND "D" REHABILITATION PROJECT
 BID 24-AIR-004

ITEM NO.	FAA SPEC NO.	QUANTITY	ITEM LIST ITEM DESCRIPTION (PRICE WRITTEN IN WORDS)	UNIT PRICE IN FIGURES		TOTAL AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
17	P-401	2,100 TON	ASPHALT BASE COURSE, GRADATION 1				
			AT				
			PER TON				
18	P-401	1,500 TON	ASPHALT SURFACE COURSE, GRADATION 2				
			AT				
			PER TON				
19	P-603	900 GAL	EMULSIFIED ASPHALT TACK COAT				
			AT				
			PER GALLON				
20	P-605	1,300 LF	JOINT SEALING FILLER				
			AT				
			PER LINEAR FOOT				
21	P-620	1 LS	SURFACE PREPARATION				
			AT				
			PER LUMP SUM				
22	P-620	1,700 SF	AIRFIELD PAVEMENT MARKINGS				
			AT				
			PER SQUARE FOOT				
23	P-620	1,700 SF	TEMPORARY AIRFIELD PAVEMENT MARKINGS				
			AT				
			PER SQUARE FOOT				
24	D-705	3 EACH	REMOVAL OF EXISTING CLEANOUT				
			AT				
			PER EACH				

OSWEGO COUNTY AIRPORT
 FULTON, NEW YORK
 TAXIWAY "B" AND "D" REHABILITATION PROJECT
 BID 24-AIR-004

ITEM NO.	FAA SPEC NO.	QUANTITY	ITEM LIST ITEM DESCRIPTION (PRICE WRITTEN IN WORDS)	UNIT PRICE IN FIGURES		TOTAL AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
25	D-705	1,100 LF	REMOVAL OF EXISTING UNDERDRAIN AT				
			PER LINEAR FOOT				
26	D-705	1,250 LF	6-INCH PERFORATED CORRUGATED PE DRAINAGE PIPE UNDERDRAIN, TYPE CP AT				
			PER LINEAR FOOT				
27	D-705	3 EACH	UNDERDRAIN CLEANOUT AT				
			PER EACH				
28	T-901	8,700 SY	SEEDING, WET APPLIED AT				
			PER SQUARE YARD				
29	T-905	525 CY	TOPSOIL (FURNISHED FROM OFF THE SITE) AT				
			PER CUBIC YARD				
30	T-905	225 CY	TOPSOIL (FURNISHED FROM ON SITE) AT				
			PER CUBIC YARD				
31	T-908	8,700 SY	MULCHING AT				
			PER SQUARE YARD				
32	L-108	6,300 LF	NO. 8 AWG, 5 KV, L-824, TYPE C CABLE, INSTALLED IN DUCT BANK OR CONDUIT AT				
			PER LINEAR FOOT				

OSWEGO COUNTY AIRPORT
 FULTON, NEW YORK
 TAXIWAY "B" AND "D" REHABILITATION PROJECT
 BID 24-AIR-004

ITEM NO.	FAA SPEC NO.	QUANTITY	ITEM LIST ITEM DESCRIPTION (PRICE WRITTEN IN WORDS)	UNIT PRICE IN FIGURES		TOTAL AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
33	L-108	3,350 LF	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE INSTALLED IN SEPARATE TRENCH AT				
			PER LINEAR FOOT				
34	L-108	325 LF	NO. 6 AWG, SOLID, BARE COPPER COUNTERPOISE WIRE INSTALLED ABOVE THE DUCT BANK OR CONDUIT AT				
			PER LINEAR FOOT				
35	L-110	3,700 LF	2-INCH DIA. SCHEDULE 40 PVC CONDUIT IN TURF AT				
			PER LINEAR FOOT				
36	L-110	100 LF	4-INCH DIA. SCHEDULE 40 PVC CONDUIT IN TURF AT				
			PER LINEAR FOOT				
37	L-110	80 LF	2-INCH DIA. SCHEDULE 40 PVC ELECTRICAL DRAIN PIPE, INCLUDING CONNECTIONS AT				
			PER LINEAR FOOT				
38	L-110	325 LF	CONCRETE-ENCASED DUCT BANK, 4-WAY - 4 INCH, SCHEDULE 40 PVC CONDUITS AT				
			PER LINEAR FOOT				
39	L-115	4 EACH	REMOVAL OF EXISTING ELECTRICAL JUNCTION CAN AT				
			PER EACH				
40	L-115	5 EACH	ELECTRICAL PULLBOX AT				
			PER EACH				

OSWEGO COUNTY AIRPORT
 FULTON, NEW YORK
 TAXIWAY "B" AND "D" REHABILITATION PROJECT
 BID 24-AIR-004

ITEM NO.	FAA SPEC NO.	QUANTITY	ITEM LIST ITEM DESCRIPTION (PRICE WRITTEN IN WORDS)	UNIT PRICE IN FIGURES		TOTAL AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
41	L-125	28 EACH	MEDIUM INTENSITY TAXIWAY EDGE LIGHT FIXTURE, BASE MOUNTED, LED				
			AT				
			PER EACH				
42	L-125	9 EACH	SALVAGE AND REINSTALL EXISTING MEDIUM INTENSITY TAXIWAY EDGE LIGHT FIXTURE, BASE MOUNTED, QUARTZ				
			AT				
			PER EACH				
43	L-125	37 EACH	L-867B NON LOAD BEARING LIGHT BASE, IN TURF				
			AT				
			PER EACH				
44	L-125	2 EACH	AIRFIELD GUIDANCE SIGN, LED, SIZE 2, 3 MODULES				
			AT				
			PER EACH				
45	L-125	1 EACH	AIRFIELD GUIDANCE SIGN, LED, SIZE 2, 4 MODULES				
			AT				
			PER EACH				
46	L-125	34 EACH	REMOVE EXISTING STAKE MOUNTED EDGE LIGHT				
			AT				
			PER EACH				
47	L-125	3 EACH	REMOVE EXISTING GUIDANCE SIGN AND FOUNDATION				
			AT				
			PER EACH				

OSWEGO COUNTY AIRPORT
 FULTON, NEW YORK
 TAXIWAY "B" AND "D" REHABILITATION PROJECT
 BID 24-AIR-004

ITEM NO.	FAA SPEC NO.	QUANTITY	ITEM LIST ITEM DESCRIPTION (PRICE WRITTEN IN WORDS)	UNIT PRICE IN FIGURES		TOTAL AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
48	L-125	1 LS	SPARE PARTS (NOT TO EXCEED \$10,000 OR 10% TOTAL FIXTURE COST)				
			AT				
PER LUMP SUM							
TOTAL PRICE (WRITTEN IN WORD)						DOLLARS	CENTS

The bidder states that this proposal is based upon prevailing wages in and in no case are wages considered less than those predetermined by the State and Federal Departments of Labor, schedules of which are contained in the Contract Documents.

The bidder proposes and agrees, if this Proposal is accepted, to contract in the form of contract specified with the (Owner), to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of the Taxiway “B” & “D” Rehabilitation project in full and complete accordance with the shown, noted, described and reasonably intended requirements of the Contract Documents and Contract Drawings, to the full and entire satisfaction of the above said Owner, with a definite understanding that no money will be allowed for extra work except as set forth in the attached Contract Documents, for the unit prices listed for each item.

******* IMPORTANT NOTICE: *******

This project is being considered for fiscal year 2024 funding through the Federal Aviation Administration (FAA) Airport Improvement Program (AIP). Award of the Contract and project Notice To Proceed (NTP) will be contingent upon the availability of AIP funds. The FAA requires that Airport Sponsors submit final AIP grant applications based on actual bid results, and the bid total of the lowest qualified bidder. The FAA AIP grant applications are due to the FAA by the date listed in the Federal Register, which is April 15, 2024. The Airport Sponsor and Engineer have no control of when the FAA issues the construction funding grant.

The low bidder shall be prepared to hold their bid prices for construction commencing no later than the spring of 2025 (March-June), weather dependent. The execution of the Construction Contract is expected after May 2024 and is dependent upon the receipt of an FAA AIP grant. The FAA is expected to issue a construction grant prior to September 30, 2024, which marks the end of their fiscal year. Project award by the Owner is expected to be completed in May/June of 2024, but will be issued with a condition that contract execution is dependent upon receipt of the FAA AIP grant.

THIS CONTRACT DOES NOT ALLOW FOR PRICE ESCALATION IN COST OF UNIT BID ITEMS. THE CONTRACTOR SHALL TAKE THIS INTO CONSIDERATION WHEN PREPARING UNIT PRICES FOR BID.

BIDDERS CONTACT INFORMATION:

CONTRACTORS NAME: _____

CONTACT NAME: _____

PHONE NUMBER: _____

EMAIL: _____

ADDRESS: _____

BIDDER, IF AN INDIVIDUAL:

BY: _____
(Printed Name)

(Signature)

COMPANY NAME: _____

ADDRESS: _____

PHONE NO: _____

DATE: _____

BIDDER, IF A PARTNERSHIP (GIVE NAMES AND ADDRESSES OF EACH PARTNER):

BY: _____
(Printed Name)

(Signature)

COMPANY NAME: _____

ADDRESS: _____

PHONE NO: _____

DATE: _____

**PARTNER'S
NAME:** _____

**PARTNER'S
NAME:** _____

**BUSINESS
ADDRESS:** _____

**BUSINESS
ADDRESS:** _____

**PARTNER'S
NAME:** _____

**PARTNER'S
NAME:** _____

**BUSINESS
ADDRESS:** _____

**BUSINESS
ADDRESS:** _____

BIDDER, IF A CORPORATION OR LLC:

BY: _____
(Printed Name & Title)

(Signature)

**CORPORATION
OR LLC NAME:** _____

ADDRESS: _____

(SEAL)

**STATE OF CORPORATION
OR LLC CHARTER:** _____

PHONE NO: _____

DATE: _____

**PRESIDENT'S
NAME:** _____

**BUSINESS
ADDRESS:** _____

**SECRETARY'S
NAME:** _____

**BUSINESS
ADDRESS:** _____

**TREASURER'S
NAME:** _____

**BUSINESS
ADDRESS:** _____

ATTACHMENTS TO PROPOSAL

BIDDER and his/her surety, where appropriate, have completed and executed the attached documents which are identified below.

Non-Collusive Bidding Certificate

Resolution for Corporate Bidders

Buy American Certification

Certifications:

- Certification of Non-Segregated Facilities
- Debarment & Suspension Certification
- Lobbying and Influencing Federal Employees
- Certification of Offerer/Bidder Regarding Tax Delinquency and Felony Convictions
- Trade Restriction

Bidder's Statement of Previous Contracts Subject to EEO Clause as Described in Special Provisions to the General Provisions, Section SP 70-23, subsection A-12

Certification for Receipt of Addenda

Statement of Surety's Intent

Contractor's Storm Water Pollution Prevention Plan Certification

Iranian Energy Sector Divestment Statement

Certification of Compliance with the Iran Divestment Act

Disadvantaged Business Enterprise (DBE) Statement

Bidder's List Collection Form (Bidder's Information)

Bidder's List Collection Form (Subcontractor's Information)

Safety Plan Compliance Document (SPCD) Certification

Prevention of Sexual Harassment Statement

NON-COLLUSIVE BIDDING CERTIFICATE

The Signer of this Bid declares:

- A. That he/she has carefully examined the annexed form of the Agreement and Contract.
- B. Pursuant to Section 103-d of the General Municipal Law, by submission of this Bid, each Bidder and each person signing on behalf of any Bidder certifies, and in the case of a joint Bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
 - 1. The prices in this Bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other Bidder or with any competitor;
 - 2. Unless otherwise required by law, the prices which have been quoted in this Bid have not been knowingly disclosed by the Bidder, and will not knowingly be disclosed by the Bidder prior to opening, directly or indirectly, to any other Bidder or to any competitor; and
 - 3. No attempt has been made or will be made by the Bidder to induce any other person, partnership or corporation to submit or not to submit a Bid for the purpose of restricting competition.

I hereby affirm under the penalties of perjury that the foregoing statement is true.

Affix Seal
if Principal
is Corporation

BIDDER: _____

BY: _____

TITLE: _____

STATE OF NEW YORK)
SS:
COUNTY OF _____)

On the _____ day of _____, 20____, before me personally came _____

to me known, who, being by me duly sworn, did swear and affirm that he/she resides at _____

_____ ; that he/she is the _____

of the Bidder herein and signs the foregoing Non-Collusive Certification on behalf of such Bidder; that he/she executed the foregoing Non-Collusive Certification; and that, to the best of his knowledge and belief, the statement made in the foregoing Non- Collusive Certification is true.

NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

(This form must be completed and submitted with the Proposal.)

RESOLUTION FOR CORPORATE BIDDERS

RESOLVED, that _____ be authorized
(Name of Officer)

to sign and submit the bid or proposal of this corporation for the following project:

Taxiway "B" & "D" Rehabilitation

and to include in such bid or proposal the certificate as to non-collusion required by section one hundred three-d of the General Municipal Law as the act and deed of such corporation, and for any inaccuracies or misstatements in such certificate this corporate bidder shall be liable under penalties of perjury.

The foregoing is a true and correct copy of the resolution adopted by _____

_____ Corporation at a meeting of its Board of

Directors held on the _____ day of __, 20____.

(Secretary)

(Seal)

(This form must be completed and submitted with the Proposal.)

BUY AMERICAN CERTIFICATION

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws (Per Executive Order 14005 “Made in America Laws” means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to “Buy America” or “Buy American,” that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.), U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA’s Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA’s Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

CERTIFICATION OF COMPLIANCE WITH FAA BUY AMERICAN PREFERENCE – CONSTRUCTION PROJECTS

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter “X”.

- Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
- a) Only installing iron, steel and manufactured products produced in the United States;
 - b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
 - c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or

-
- d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
- b) To faithfully comply with providing U.S. domestic products.
- c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
- d) Certify that all construction materials used in the project are manufactured in the U.S.

The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

- a) To submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
- b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
- c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
- d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
- e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “facility/project.” The required documentation for a Type 3 waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
- b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).

-
- c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
 - d) Percentage of non-domestic component and subcomponent cost as compared to total “facility” component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
- b) At minimum two comparable equal bids and/or offers;
- c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
- d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date

Signature

Company Name

Title

(Buy American form(s) must be completed and submitted with the Proposal.)

CERTIFICATIONS

BIDDER'S NAME: _____

ADDRESS: _____

TELEPHONE NO.: _____ **FAX NO.** _____

IRS EMPLOYER IDENTIFICATION NUMBER: _____

NOTICE OF NONSEGREGATED FACILITIES REQUIREMENT

Notice to Prospective Federally Assisted Construction Contractors

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a federally-assisted construction contract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity Clause.
2. Contractors receiving federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause.
3. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

Notice to Prospective Subcontractors of Requirements for Certification of Non-Segregated Facilities

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a subcontract exceeding \$10,000, which is not exempt from the provisions of the Equal Opportunity Clause.
2. Contractors receiving subcontract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause.
3. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

* * * * *

CERTIFICATION OF NON-SEGREGATED FACILITIES

The federally-assisted construction contractor certifies that she or he does not maintain or provide, for his employees, any segregated facilities at any of his establishments and that she or he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The federally-assisted construction contractor certifies that she or he will not maintain or provide, for his employees, segregated facilities at any of his establishments and that she or he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The federally-assisted construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and

housing facilities provided for employees which are segregated by explicit directives or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The federally-assisted construction contractor agrees that (except where she or he has obtained identical certifications from proposed subcontractors for specific time periods) she or he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that she or he will retain such certifications in his files.

* * * * *

CERTIFICATION OF OFFEROR/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a “covered transaction”, must verify each lower tier participant of a “covered transaction” under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: <http://www.sam.gov>
2. Collecting a certification statement similar to the Certificate Regarding Debarment and Suspension (Bidder or Offeror), above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

* * * * *

CERTIFICATION REGARDING LOBBYING

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of

Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

* * * * *

CERTIFICATION OF OFFERER/BIDDER REGARDING TAX DELINQUENCY AND FELONY CONVICTIONS

The Contractor must complete the following two certification statements. The Contractor must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The Contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

- 1) The Contractor represents that it is () is not () a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
- 2) The Contractor represents that it is () is not () a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If a Contractor responds in the affirmative to either of the above representations, the Contractor is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The Contractor therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

* * * * *

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

- 1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);
- 2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and
- 3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

- 1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
- 2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
- 3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

Printed Name & Title: _____

Signature: _____

Date: _____

(These certifications must be completed and submitted with the Proposal.)

**BIDDER'S STATEMENT OF PREVIOUS CONTRACTS SUBJECT TO EEO CLAUSE
AS DESCRIBED IN SPECIAL PROVISIONS TO THE GENERAL PROVISIONS,
SECTION SP 70-23, SUBSECTION A16**

The Bidder shall complete the following statement by checking the appropriate boxes.

The Bidder has ____ has not ____ participated in a previous contract subject to the Equal Opportunity Clause prescribed by Executive Order 11246, as amended, of September 24, 1965.

The Bidder has ____ has not ____ submitted all compliance reports in connection with any such contract due under the applicable filing requirements; and that representations indicating submission of required compliance reports signed by proposed subcontractors will be obtained prior to award of subcontracts.

If the Bidder has participated in a previous contract subject to the Equal Opportunity Clause and has not submitted compliance reports due under applicable filing requirements, the Bidder shall submit a compliance report on Standard Form 100, "Employee Information Report EEO-1", attached to this proposal.

CERTIFICATION FOR RECEIPT OF ADDENDA

Receipt of the following Addenda is acknowledged:

ADDENDUM NO.: _____

DATED: _____

ADDENDUM NO.: _____

DATED: _____

ADDENDUM NO.: _____

DATED: _____

(Firm or Corporation Making Bid)

(Signature of Authorized Person)

P.O. Address: _____

Dated: _____

(This form must be completed and submitted with the Proposal.)

STATEMENT OF SURETY'S INTENT

TO: Oswego County

We have reviewed the bid of _____
(Contractor)

of _____
(Address)

for the Taxiway "B" & "D" Rehabilitation,

project for which bids will be received on: _____
(Bid Opening Date)

and wish to advise that should this Bid of the Contractor be accepted and the Contract awarded to him, it is our present intention to become surety on the performance bond and labor and material bond required by the Contract.

Any arrangement for the bonds required by the Contract is a matter between the Contractor and ourselves and we assure no liability to you or third parties if for any reason we do not execute the requisite bonds.

We are duly authorized to do business in the State of .

ATTEST: _____

Surety's Authorized Signature(s)

(Corporate seal, if any. If no seal, write "No Seal" across this place and sign.)

ATTACH PROPOSAL GUARANTEE

ATTACH POWER OF ATTORNEY

**(This form must be complete and submitted with the Proposal.
Copies of this form may be filled out and attached to this page.)**

CONTRACTOR'S STORM WATER POLLUTION PREVENTION PLAN CERTIFICATION

Airport Name/Location: Oswego County Airport / Fulton, NY

Project Name: Taxiway "B" & "D" Rehabilitation

Contractor's Official Name: _____

Address: _____

Telephone Number: _____

Certification Statement:

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the Storm Water Pollution Prevention Plan for this project presented in the technical specifications of these Contract Documents in Item C-102 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control. I understand and agree to comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. I understand that the Owner must file a "Notice of Intent for Stormwater Discharges Associated with Construction Activity Under SPDES General Permit #GP-0-20-001 (Permit)". I agree that I will not engage in activity that will cause stormwater to discharge from the construction site until such time that the Owner has received acknowledgment from the New York State Department of Environmental Conservation that construction activity associated with this project is covered under the Permit."

Printed Name of Bidder

Signature

Title

Date

(This form must be completed and submitted with the Proposal.)

IRANIAN ENERGY SECTOR DIVESTMENT STATEMENT

1. Contractor/Proposer hereby represents that said Contractor/Proposer is in compliance with New York State General Municipal Law Section 103-g entitled “Iranian Energy Sector Divestment”, in that said Contractor/Proposer has not:
 - (a) Provided goods or services of \$20 Million or more in the energy sector of Iran including but not limited to the provision of oil or liquefied natural gas tankers or products used to construct or maintain pipelines used to transport oil or liquefied natural gas for the energy sector of Iran; or
 - (b) Acted as a financial institution and extended \$20 Million or more in credit to another person for forty-five days or more, if that person’s intent was to use the credit to provide goods or services in the energy sector in Iran.
2. Any Contractor/Proposer who has undertaken any of the above and is identified on a list created pursuant to Section 165-a (3)(b) of the New York State Finance Law as a person engaging in investment activities in Iran, shall not be deemed a responsible bidder pursuant to Section 103 of the New York State General Municipal Law.
3. Except as otherwise specifically provided herein, every Contractor/Proposer submitting a bid/proposal in response to this Request for Bids/Request for Proposals must certify and affirm the following under penalties of perjury:
 - (a) “By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief, that each bidder is not on the list created pursuant to NYS Finance Law Section 165-a (3)(b).”
4. Except as otherwise specifically provided herein, any Bid/Proposal that is submitted without having complied with subdivision (a) above, shall not be considered for award. In any case where the Bidder/Proposer cannot make the certification as set forth in subdivision (a) above, the Bidder/Proposer shall so state and shall furnish with the bid a signed statement setting forth in detail the reasons therefore. The Owner reserves its rights, in accordance with General Municipal Law Section 103-g to award the Bid/Proposal to any Bidder/Proposer who cannot make the certification, on a case-by-case basis under the following circumstances:
 - (1) The investment activities in Iran were made before April 12, 2012, the investment activities in Iran have not been expanded or renewed after April 12, 2012, and the Bidder/Proposer has adopted, publicized and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
 - (2) The Owner has made a determination that the goods or services are necessary for the Owner to perform its functions and that, absent such an exemption, the Owner would be unable to obtain the goods or services for which the Bid/Proposal is offered. Such determination shall be made by the Owner in writing and shall be a public document.
5. **Bidder or Proposer shall sign and notarize the attached “Certification of Compliance with the Iran Divestment Act” form with your proposal.**

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

As a result of the Iran Divestment Act of 2012 (the "Act"), Chapter 1 of the 2012 Laws of New York, a new provision has been added to State Finance Law (SFL) § 165-a and New York General Municipal Law § 103-g, both effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list of "persons" who are engaged in "investment activities in Iran" (both are defined terms in the law) (the "Prohibited Entities List"). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act's effective date at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, each Bidder/Contractor, any person signing on behalf of any Bidder/Contractor and any assignee or subcontractor and, in the case of a joint bid, each party thereto, certifies, under penalty of perjury, that once the Prohibited Entities List is posted on the OGS website, that to the best of its knowledge and belief, that each Bidder/Contractor and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to SFL § 165-a(3)(b).

Additionally, Bidder/Contractor is advised that once the Prohibited Entities List is posted on the OGS Website, any Bidder/Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to this solicitation must certify at the time the Contract is renewed, extended or assigned that it is not included on the Prohibited Entities List.

During the term of the Contract, should the Owner receive information that a Bidder/Contractor is in violation of the above-referenced certification, the Owner will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that he/she/it has ceased engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the Owner shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages or declaring the Bidder/Contractor in default.

The Owner reserves the right to reject any bid or request for assignment for a Bidder/Contractor that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any Bidder/Contractor that is awarded a contract and subsequently appears on the Prohibited Entities List.

I, _____, being duly sworn, deposes and says that he/she is the _____ of the _____ Corporation and that neither the Bidder/Contractor nor any proposed subcontractor is identified on the Prohibited Entities List.

SIGNED

SWORN to before me this

_____ day of _____, 20__

Notary Public: _____

(This form must be completed and submitted with the Proposal.)

DISADVANTAGED BUSINESS ENTERPRISE (DBE) STATEMENT

The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the Sponsor to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract.

DISADVANTAGED BUSINESS ENTERPRISE:

The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. It is the policy of the Sponsor to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. All firms qualifying under this solicitation are encouraged to submit proposals. Award of this contract will be conditioned upon satisfying the DBE requirements of this contract. These requirements apply to all bidders, including those who qualify as a DBE. **A DBE contract goal of 10.6 percent** has been established for this contract. The bidder shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26, to meet the contract goal for DBE participation in the performance of this contract. Excerpts from 49 CFR Part 26 are included in Special Provisions to the General Provisions, Section SP 70-23, subsection A12.

As a condition of bid responsibility, the Bidder or Offeror shall submit within 5 days of bid the “Contractor’s DBE Plan”, and “DBE Letter of Intent Forms” from each of the DBE firms the Bidder or Offeror intends to use. If the contract goal is not met, Bidder or Offeror shall include documentation of good faith efforts with its DBE Plan.

The Contractor’s DBE Plan Form and DBE Letter Of Intent Form are located in Special Provisions.

The website for the Unified Certification Program directory in the state of New York is: <https://nysucp.newnycontracts.com/>. DBE firms must be registered on this website.

CERTIFICATION OF BIDDER/OFFEROR: The undersigned Bidder or Offeror will satisfy the DBE requirements of these specifications in the following manner (please check the appropriate space):

_____ The Bidder or Offeror is committed to meeting or exceeding the DBE utilization goal stated above on this contract.

_____ The Bidder or Offeror, is unable to meet the DBE utilization goal stated above. However, we are committed to a minimum of _____% DBE utilization on this contract, and include documentation demonstrating good faith efforts.

SMALL BUSINESS PARTICIPATION:

This Contract does not have a Small Business Element (SBE) set-aside.

IRS Number: _____

Signature and Title

(This form must be completed and submitted with the Proposal.)

**BIDDER'S LIST COLLECTION FORM
(Bidder's Information)**

The sponsor is required by CFR Title 49, Subtitle A, Part 26, Subpart A, Section 26.11 to collect the following information from the bidder. As such, it is the responsibility of the bidder to complete the following information as a condition of submitting a proposal for this project. The sponsor will consider incomplete information to be an irregular proposal.

Airport Name: Oswego County Airport AIP No. _____

Project Name: Taxiway "B" & "D" Rehabilitation

Bidder's Information

Firm Name	Firm Street Address, City, State, Zip Code, Phone No.	DBE/Non DBE Status	Age of Firm	Annual Gross Receipts
	_____ _____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M

(This form must be completed and submitted with the Proposal.)

**BIDDER'S LIST COLLECTION FORM
(Subcontractor's Information)**

The sponsor is required by CFR Title 49, Subtitle A, Part 26, Subpart A, Section 26.11 to collect the following information from each subcontractor submitting a quote, bid or proposal to the bidder.

As such, it is the responsibility of the bidder to complete the following information as a condition of submitting a proposal for this project. The sponsor will consider incomplete information to be an irregular proposal.

Please note that the information requested below must be filled out for each quote received by the bidder, regardless of DBE status. For example, if the bidder requests quotes from three contractors for electrical work, the information requested below must filled out for the three subcontractors. **It is important to note that providing the information does not commit the bidder to using any one of the three subcontractors in the work.**

Airport Name: Oswego County Airport AIP No. _____

Project Name: Taxiway "B" & "D" Rehabilitation

Subcontractor's Information

Firm Name	Firm Street Address, City, State, Zip Code, Phone No.	DBE/Non DBE Status	Age of Firm	Annual Gross Receipts
	_____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M
	_____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M
	_____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M

Firm Name	Firm Street Address, City, State, Zip Code, Phone No.	DBE/Non DBE Status	Age of Firm	Annual Gross Receipts
	_____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M
	_____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M
	_____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M
	_____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M
	_____ _____ _____ _____	<input type="checkbox"/> DBE <input type="checkbox"/> Non-DBE	<input type="checkbox"/> Less than 1 year <input type="checkbox"/> 1-3 years <input type="checkbox"/> 4-7 years <input type="checkbox"/> 8-10 years <input type="checkbox"/> More than 10 yrs.	<input type="checkbox"/> Less than \$500K <input type="checkbox"/> \$500K - \$1M <input type="checkbox"/> \$1-\$2M <input type="checkbox"/> \$2-\$5M <input type="checkbox"/> More than \$5M

(Copy this form and submit with your original proposal if more space is needed.)
(This form must be completed and submitted with the Proposal.)

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) CERTIFICATION

Project Location: _____

Project Name: _____

Contractor's Official Name: _____

Contact Person: _____ Telephone: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Certification Statement:

I certify that I have read the Construction Safety and Phasing Plan (CSPP) included in the Contract Documents and if awarded this Contract, I will abide by its requirements as written.

I certify that I have read the Safety Plan Compliance Document (SPCD) included in the Contract Documents and if awarded this Contract, I will abide by its requirements as written;

I certify that I will provide the information required in the SPCD prior to the start of construction work, if awarded this Contract, and that I will provide any additional information requested by the Owner.

Printed Name of Signer

Signature

Title

Date

PREVENTION OF SEXUAL HARASSMENT

Section 201-g of the New York State Labor Law requires employers to adopt a sexual harassment prevention policy, make such policy available to its employees, and provide sexual harassment training to its employees, consistent with model policies, guidance, and regulations developed by the New York State Department of Labor. (<https://www.ny.gov/combating-sexual-harassment-workplace/employers>)

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section two hundred one-g of the labor law.

Such certification is consistent with the requirements of New York State Finance Law Section 139-L, which provides that **a bid shall not be considered for award nor shall any award be made to a bidder who has not completed this certification**; provided, however, that if the bidder cannot make the foregoing certification, such bidder shall so state at the time of bid submission and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor.

By signing below, this bid shall be deemed to have been authorized by the board of directors of such bidder, and such authorization shall be deemed to include the signing and submission of such bid and the inclusion therein of such statement as the act and deed of the corporation.

Under penalty of perjury, by signing below, I submit this bid on behalf of the firm, and certify that the firm has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees.

Firm Name: _____ Date: _____

Signature of Authorized Person: _____

Printed Name and Title
of Authorized Person: _____

(This form must be completed and submitted with the Proposal.)

END OF PROPOSAL

CONTRACT FORM

THIS AGREEMENT is dated as of the ____ day of _____ in the year 20__ by and between Oswego County, a New York municipal corporation, having an address at 46 East Bridge Street, Oswego, New York 13126 (hereinafter called Owner) and _____ having an address at _____ (hereinafter called Contractor).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

Contractor shall perform, construct and complete all Work as specified and indicated in the Taxiway "B" & "D" Rehabilitation Contract.

ARTICLE 2 - CONTRACT TIMES

- 2.1 **Contract Time.** The Work shall be substantially complete within the Contract Time as stated in General Provisions Section 80-08 "Failure to Complete on Time", and accepted in accordance with General Provisions Section 50-15 "Final Acceptance". In addition, intermediate stages or sequences of the Work shall be substantially completed and accepted as in accordance with General Provisions Section 80-08.
- 2.2 **Damages for Delay in Completion.** If the Work is uncompleted after the Contract Time, including all extensions and adjustments in accordance with General Provisions Section 80-07 "Determination and Extension of Contract Time", the sum stipulated in General Provisions Section 80-08 "Failure to Complete on Time" will be deducted from any money due or to become due the Contractor or their surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the Contract Time provided in this Contract.

ARTICLE 3 - CONTRACT PRICE

- 3.1 The Owner will pay Contractor for completion of the Work in accordance with the Contract for the Total Bid in the amount of \$_____, hereby identified as the Contract Price, as shown in the Contractor's Proposal, with discrepancies corrected in accordance with General Provisions Section 30-01 "Consideration of Proposals" if applicable.
- 3.2 When unit bid price items are included in the Contract Price, the quantities of various units contained in the Proposal are estimated and payment to the Contractor will be made only for the actual quantities of units that are incorporated in the Work or materials furnished in accordance with the plans and specifications, as determined by the Engineer in accordance with General Provisions Section 90, "Measurement and Payment".

ARTICLE 4 - PAYMENT PROCEDURES

- 4.1 **Partial Payments.** Partial payments will be made at least once per month based on the Engineer's estimate in accordance with General Provisions Section 90, "Measurement and Payment". Progress payments will be made in accordance with General Provision Section 90-06, "Partial

Payments”.

- 4.2 **Retainage.** From the total of the amount determined to be payable on a partial payment, the amount specified in General Provisions Section 90-06, “Partial Payments”, will be deducted and retained by the Owner until the final payment is made.
- 4.3 **Final Payment:** Final payment will be made in accordance with General Provisions Section 90-09, “Acceptance and Final Payment”.
- 4.4 **Withholding of Payments:** Payment, or partial payment, will be withheld by the Owner because of claims made or liens filed in connection with the Contract in accordance with General Provisions Section 90-13, “Lien Law”.

ARTICLE 5 - CONTRACTOR'S REPRESENTATIONS

In executing this Agreement, Contractor makes the following representations:

- 5.1 Contractor has examined and carefully studied the Contract including Addenda.
- 5.2 Contractor has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.
- 5.3 Contractor is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.
- 5.4 Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Contract. Contractor acknowledges that such reports and drawings are not part of the Contract and may not be complete for Contractor's purposes. Contractor acknowledges that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract with respect to Underground Facilities at or contiguous to the site. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract.
- 5.5 Contractor is aware of the general nature of work to be performed by Owner and others at the site that relates to the Work as indicated in the Contract.
- 5.6 Contractor has correlated the information known to Contractor, information and observations obtained from visits to the site, reports and drawings identified in the Contract and all additional examinations, investigations, explorations, tests, studies and data with the Contract.
- 5.7 Contractor has given Design Engineer written notice of all conflicts, errors, ambiguities or discrepancies that Contractor has discovered in the Contract and the written resolution thereof by the Design Engineer is acceptable to Contractor, and the Contract is generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- 5.8 If this Project utilizes multiple prime contracts, the Contractor has examined the Contract for all prime contracts and has acquired sufficient knowledge of the required work of the other prime contractors to the extent that Contractor clearly understands his own obligations and responsibilities

relative to the other prime contracts.

ARTICLE 6 - CONTRACT

The Contract which comprises the entire Agreement between Owner and Contractor concerning the Work consists of the following:

- 6.1 The Proposal with discrepancies corrected.
- 6.2 This Contract Form.
- 6.3 The Contractor’s Performance Bond and Payment Bond.
- 6.4 The Contractor’s Certificates of Insurance.
- 6.5 The Notice of Award and Notice to Proceed.
- 6.6 The General Provisions and the Technical Specifications, which are a part of the Contract.
- 6.7 The Contract Drawings as listed in the Table of Contents.
- 6.8 Addenda listed below:

<u>Addendum No.</u>	<u>Date</u>
—	_____
—	_____
—	_____

- 6.9 There are no documents other than those listed above in this Article 6. The Contract may only be modified by Supplement Agreement.

ARTICLE 7 - MISCELLANEOUS

- 7.1 Terms used in this Agreement shall have the meanings in the General Provision Section 10, “Definition of Terms”.
- 7.2 No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment no assignment will release or discharge the assignor from any duty or responsibility under the Contract.
- 7.3 Owner and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract.
- 7.4 Any provision or part of the Contract held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner or Contractor, who agree that the Contract shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to

expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed copies of this Agreement. This Agreement will be effective on the day and year first above written.

OWNER

(SEAL)

CONTRACTOR:

(Company Name)

(SEAL)

(Signature)

(Printed Name)

(Printed Title)

(ACKNOWLEDGMENT OF OFFICER OF OWNER)

STATE OF _____ }
COUNTY OF OSWEGO } SS:

On the _____ day of _____ in the year 2024, before me, the undersigned, a Notary Public in and for said State, personally appeared , personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

(ACKNOWLEDGMENT OF CONTRACTOR, IF A CORPORATION)

STATE OF _____ }
COUNTY OF _____ } SS:

On the _____ day of _____ in the year 20__, before me, the undersigned, a Notary Public in and for said State, personally appeared _____ to me known, who, being by me duly sworn, did depose and say that he/she/they reside(s) at _____, that he/she/they is(are) the _____ of _____, the corporation described in and which executed the above instrument; and that he/she/they know(s) the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she/they signed his/her/their name(s) thereto by like authority.

Notary Public

(ACKNOWLEDGMENT OF CONTRACTOR, IF OTHER THAN A CORPORATION)

STATE OF _____ }
COUNTY OF _____ } SS:

On the _____ day of _____ in the year 20___, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is(are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

(CERTIFICATE OF OWNER'S ATTORNEY)

I, the undersigned, _____, the duly authorized and acting legal representative of the Owner, do hereby certify as follows:

I have examined the foregoing Contract and surety bond and the manner of execution thereof, and I am of the opinion that each of the aforesaid Agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said Agreements on behalf of the respective parties named therein; and that the foregoing Agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

Owner's Attorney

Date

END OF CONTRACT FORM

Part 1 – General Contract Provisions

Section 10 Definition of Terms

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

Paragraph Number	Term	Definition
10-01	AASHTO	The American Association of State Highway and Transportation Officials.
10-02	Access Road	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	Advertisement	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	Airport	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-05	Airport Improvement Program (AIP)	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	Air Operations Area (AOA)	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
10-07	Apron	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	ASTM International (ASTM)	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	Award	The Owner's notice to the successful bidder of the acceptance of the submitted bid.
10-10	Bidder	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

Paragraph Number	Term	Definition
10-11	Building Area	An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.
10-12	Calendar Day	Every day shown on the calendar.
10-13	Certificate of Analysis (COA)	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	Certificate of Compliance (COC)	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	Change Order	A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.
10-16	Contract	<p>A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment.</p> <p>The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.</p>
10-17	Contract Item (Pay Item)	A specific unit of work for which a price is provided in the contract.
10-18	Contract Time	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	Contractor	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	Contractors Quality Control (QC) Facilities	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).

Paragraph Number	Term	Definition
10-21	Contractor Quality Control Program (CQCP)	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	Control Strip	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.
10-23	Construction Safety and Phasing Plan (CSPP)	The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
10-24	Drainage System	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
10-25	Engineer	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, of the contract work and acting directly or through an authorized representative.
10-26	Equipment	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.
10-27	Extra Work	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.
10-28	FAA	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.
10-29	Federal Specifications	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.

Paragraph Number	Term	Definition
10-30	Force Account	<p>a. Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis.</p> <p>b. Owner Force Account - Work performed for the project by the Owner's employees.</p>
10-31	Intention of Terms	<p>Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner.</p> <p>Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.</p>
10-32	Lighting	<p>A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.</p>
10-33	Major and Minor Contract Items	<p>A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.</p>
10-34	Materials	<p>Any substance specified for use in the construction of the contract work.</p>
10-35	Modification of Standards (MOS)	<p>Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.</p>
10-36	Notice to Proceed (NTP)	<p>A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.</p>
10-37	Owner	<p>The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is Oswego County.</p>

Paragraph Number	Term	Definition
10-38	Passenger Facility Charge (PFC)	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	Pavement Structure	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.
10-40	Payment bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	Performance bond	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.
10-42	Plans	The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'
10-43	Project	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	Proposal	The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.
10-45	Proposal guaranty	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	Quality Assurance (QA)	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	Quality Control (QC)	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	Quality Assurance (QA) Inspector	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

Paragraph Number	Term	Definition
10-49	Quality Assurance (QA) Laboratory	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	Resident Project Representative (RPR)	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.
10-51	Runway	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	Runway Safety Area (RSA)	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	Safety Plan Compliance Document (SPCD)	Details how the Contractor will comply with the CSPP.
10-54	Specifications	A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.
10-55	Sponsor	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	Structures	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	Subgrade	The soil that forms the pavement foundation.
10-58	Superintendent	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.

Paragraph Number	Term	Definition
10-59	Supplemental Agreement	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%; (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	Surety	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	Taxilane	A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.
10-62	Taxiway	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.
10-63	Taxiway/Taxilane Safety Area (TSA)	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.
10-64	Work	The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.
10-65	Working day	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	Owner Defined terms	The following terms are included in this contract:
	Contract Drawings	Plans.
	Subcontractor	The subcontractor refers any individual, firm, or corporation to whom the contractor, with approval of the Owner, sublets any part of work.

Paragraph Number	Term	Definition
	Time and Materials Work	An item or items of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Engineer to be necessary to complete the work within the intended scope of the contract as previously modified and an agreed price cannot be agreed upon. The Contractor shall perform this work and the Owner agrees to pay the Contractor based upon the work performed by the Contractor's employees and subcontractors, and for materials and equipment used in the construction (along with the Contractor's allowed overhead and profit).

END OF SECTION 10

Section 20 Proposal Requirements and Conditions

20-01 Advertisement (Notice to Bidders). See the Advertisement located in the front of these Contract Documents.

20-02 Qualification of bidders. Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

In addition, each bidder who receives a written request shall furnish the following to the Owner:

- a. A list of the categories of work to be performed by the bidder's work force and a list of work to be subcontracted out (See Section 80-01).
- b. A list of construction projects completed in the past five years. The list shall include the project name, completion date, total contract value, value of bidder's portion of the work, engineer and owner contact information (names and phone numbers).
- c. A list of construction projects in progress and under contract including the project name, percent complete, estimated completion date, total contract value, value of bidder's portion of the work, engineer and owner contact information (names and phone numbers).
- d. A Schedule of Values showing the following information:
 1. For each lump sum bid item: Provide a breakdown of values for major products, assemblies or operations, indicating separate amounts for (a) purchased materials, (b) labor, and (c) construction equipment, which total to the lump sum price bid for each item.
 2. For each unit price bid item: Provide a breakdown of values for the unit price allocated to (a) purchased materials, (b) labor, and (c) construction equipment which total to the unit price bid for each item.

The Schedule of Values will be reviewed by the Engineer. Any additional detail or justification for cost distribution shall be provided by the apparent low bidder upon request. The Schedule of Values shall serve as a basis for computing progress payments

during construction for installed portions of lump sum items, and to assist the Engineer in determining if change order costs are reasonable.

Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current “bidder’s list” of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

20-03 Contents of proposal forms. The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.

Mobilization, if included in this proposal, is specified in Item C-105.

A prebid conference is required on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements. The location, date and time are stated in the Advertisement.

20-04 Issuance of proposal forms. The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

- a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.
- b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.
- c. Documented record of Contractor default under previous contracts with the Owner.
- d. Documented record of unsatisfactory work on previous contracts with the Owner.

20-05 Interpretation of estimated proposal quantities. An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

20-07 Preparation of proposal. The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

Prices should be written in whole dollars and cents. The extended total amount of each item should not be rounded.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. Proposals shall be considered irregular for the following reasons:

- a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.
- b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.
- c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.
- d. If the proposal contains unit prices that are obviously unbalanced.
- e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.
- f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner.

20-11 Delivery of proposal. Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened. No faxed or emailed proposals will be accepted. The official time shall be kept locally by the Owner.

20-12 Withdrawal or revision of proposals. A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by fax or by email before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. A bidder shall be considered disqualified for any of the following reasons:

- a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.
- b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.
- c. If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms*, of this section.

20-15 Discrepancies and Omissions. A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than 7 calendar days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

END OF SECTION 20

Section 30 Award and Execution of Contract

30-01 Consideration of proposals. After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern. Where discrepancies in the summation of the products occur, the Owner will make the necessary corrections and the corrected values will be used in the Owner's consideration of proposals.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

- a. If the proposal is irregular as specified in Section 20, paragraph 20-09, *Irregular Proposals*.
- b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 Award of contract. The award of a contract, if it is to be awarded, shall be made within 45 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

The Owner reserves the right to award only the Base Bid, to award any Alternate Bid (if Alternates are an option), or to award either the Base Bid or the Alternate Bid plus Add-On Bids (if Add-On bids are an option). Where discrepancies occur that affect the bid total(s) as described in the subsection titled CONSIDERATION OF PROPOSALS, the contract amount awarded will reflect the corrected values.

Where alternate bids and/or add-on bids are included in the proposal, the lowest qualified bidder will be determined by comparison of the combination of Base Bid, or Alternate Bid, plus Add-On bids which are chosen by the Owner.

30-03 Cancellation of award. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract*.

30-04 Return of proposal guaranty. All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals*. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds*.

30-05 Requirements of contract bonds. At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the

surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

The successful bidder shall submit in triplicate, a "Performance Bond" guaranteeing the performance of the work equal to one hundred percent (100%) of the amount of the Contract awarded, and a "Labor and Material Payment Bond" guaranteeing the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work equal to one hundred percent (100%) of the amount of the Contract awarded.

30-06 Execution of contract. The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds*, of this section, within 15 calendar days from the date mailed or otherwise delivered to the successful bidder.

The Contractor shall also furnish the required insurance certificates in accordance with the subsection titled RESPONSIBILITY FOR DAMAGE CLAIMS of Sections 70 and 200. The successful bidder shall recognize that the proposal included in the contract for execution may differ from the proposal which was submitted with their bid. The proposal included in the contract for execution will include corrections to discrepancies which were discovered during the Owners consideration of proposals, and will contain only the pages from the successful bidder's proposal which cover the bids which were awarded. As a result, the proposal pages in the contract to be executed may contain pages which are not consecutively numbered due to the intentional omission of those proposal pages which cover bids that were not awarded.

49 CFR Part 26 provides that each contract the owner signs with a contractor (and each subcontract the prime contractor signs with a subcontractor) shall include the following assurance:

"The contractor, sub-recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of Department of Transportation (DOT) assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate."

30-07 Approval of contract. Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

30-08 Failure to execute contract. Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract*, of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

END OF SECTION 30

Section 40 Scope of Work

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

However, if the Contractor elects to waive the limitations on work that increase or decrease the originally awarded contract or any major contract item by more than 25 percent, the supplemental agreement shall be subject to the same wage determination as was included in the originally awarded contract.

All supplemental agreements shall require consent of the Contractor's surety and separate performance and payment bonds.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance

with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

40-05 Maintenance of traffic. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

b. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (<http://mutcd.fhwa.dot.gov/>), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.

40-06 Removal of existing structures. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

- a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,
- b. Remove such material from the site, upon written approval of the RPR; or
- c. Use such material for the Contractor's own temporary construction on site; or,
- d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use. Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site. Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used. It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 Final cleanup. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

Contractor shall leave the premises broom-clean and everything in perfect order and repair. Upon neglect or refusal of Contractor to keep the premises clean, the RPR shall have the authority to have such work performed, and the cost of the same shall be charged to the Contractor in default and collected from any monies which have or may become due on this Contract. The RPR shall issue no certificates of payment on the Contract until premises are clean, in good order, and all claims properly resolved.

END OF SECTION 40

Section 50 Control of Work

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

50-02 Conformity with plans and specifications. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If

any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions. See Special Provisions section to the General Provisions.

50-05 Cooperation of Contractor. The Contractor shall be supplied with five hard copies or an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): five (5) full size copies of signed and sealed surveys, five (5) copies of the notes as well as pdf copies of both.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

Refer to Technical Specification item C-107 Project Survey and Stakeout for additional information.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

50-10 Removal of unacceptable and unauthorized work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work*.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

50-11 Load restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such

inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

END OF SECTION 50

Section 60 Control of Materials

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program and Addendum*, that is in effect on the date of advertisement.

All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

The Contractor shall employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with Item C-100 Contractor Quality Control Program (CQCP).

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Manufacturer's certificates of compliance shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not materially comply with these specifications shall be removed, when directed by the RPR, and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

- a. Conformance to the specified performance, testing, quality or dimensional requirements; and,
- b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

- a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.
- b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.
- c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. The Engineer/RPR field office, if required, shall be as indicated in C-105, Mobilization.

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

60-07 Unacceptable materials. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

Section 70 Legal Regulations and Responsibility to Public

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans and is indicated as follows:

<u>Utility</u>	<u>Location (Sheet No.)</u>	<u>Person to Contact</u>	<u>Phone No.</u>
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“Not Applicable”

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others,

unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05, *Maintenance of Traffic*, and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is described in the Construction Safety and Phasing Plan, Appendix A to Section 70.

During the work of this Contract, the Owner will make such arrangements to coordinate aircraft movements and Airport operations as necessary to conform to the construction procedures outlined in the Construction Safety and Phasing Plan, and as shown on the Contract Drawings. The Contractor shall give adequate notice to the RPR, so as to afford time to coordinate construction with the Owner.

70-09 Use of explosives. The use of explosives is not permitted on this project.

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

The Contractor shall indemnify the Owner for any and all costs for the repair or replacement of the Owner's property including, but not limited to, buildings and roads, which arise from or in any manner grow out of any act or neglect on or about the Project site by the Contractor and anyone for whom the Contractor is legally liable.

70-11 Responsibility for damage claims. The Contractor shall indemnify, defend and hold harmless the Engineer/RPR and the Owner and their respective representatives, directors, officers, agents, and employees from all suits, actions, damages, costs, expenses or claims, of any character, (including attorney's fees), and liability (including statutory liability) brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct or arising out of or related to any negligence of the Contractor or anyone for whom the Contractor is legally liable in performing or safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any and all environmental impairment; or because of any act or omission, neglect, or misconduct of said Contractor or anyone for whom the Contractor is legally liable of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

As a material part of the consideration to be rendered by the Owner, the Contractor hereby waives all claims against the Owner for damages to the goods, wares, and merchandise in, upon, or about the Project, and the Contractor will hold the Owner exempt and harmless from any damage and injury to any such person or to the goods, wares, or merchandise of any such person, arising from the use of the Project site by the Contractor or from failure of the Contractor to keep the Project site in good condition and repair as provided in this Section.

70-12 Third party beneficiary clause. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety

and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Opening sections of work to traffic shall be as described in the CSPP.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities

during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

70-15.1 FAA facilities and cable runs. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the airport Owner and RPR a minimum of seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

d. Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.

e. If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 No waiver of legal rights. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

The Contractor shall perform all testing, removal of contaminated material, transportation, treatment, remediation, and disposal of contaminated materials which are the result of a spill or release caused by the Contractor, and he shall provide and properly place materials to restore the property to its original condition, all to the Owner's satisfaction and at the Contractor's expense. Refer to the subsection 70-10 titled PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE of this section.

A. Air Pollution

1. No burning of combustible waste shall be permitted.
2. Alternatives to Burning Land Cleared Material.
 - a. All spoil material from clearing and grubbing operations shall be disposed of in accordance with the Technical Specifications, unless otherwise directed.
 - b. Wood may be salvaged for firewood or commercial use or it may be chipped and disposed of for use as mulch.
 - c. Logs, brush, etc. may be removed to an authorized disposal area or disposed of to the general public without charge.
3. Dust Control.
 - a. Common construction operations which may cause excessive dust include:
 - 1) Quarry, drilling and rock crushing.
 - 2) Clearing, grubbing and stripping.
 - 3) Excavation and placement of embankment.
 - 4) Cement and aggregate handling.
 - 5) Cement or lime stabilization.
 - 6) Blasting.
 - 7) Use of haul roads.
 - 8) Sandblasting or grinding.
 - b. Other construction operations which may cause air pollution are:
 - 1) Volatiles escaping from asphalt and cut back materials.
 - 2) Use of herbicides or fertilizers.
 - 3) Smoke from asphalt plants or heater/planers.
 - c. Control of Dust and Other Air Pollutants shall be the responsibility of the Contractor and may include the following control methods:
 - 1) Drilling apparatus equipped with water or chemical dust controlling systems.
 - 2) Exposing the minimum area of land.
 - 3) Applying temporary mulch with or without seeding.
 - 4) Use of water sprinkling trucks.
 - 5) Use of covered haul trucks.
 - 6) Use of stabilizing agents in solution.

- 7) Use of dust palliative and penetration asphalt on temporary roads.
- 8) Use of wood chips in traffic or work areas.
- 9) Use of vacuum equipped sandblasting systems.
- 10) Use of plastic sheet coverings.
- 11) Restricting the application rate of herbicides to recommended dosage. Materials should be covered and protected from the elements. Application, equipment and empty containers shall not be rinsed and discharged to a stream, etc. or allowed to enter the groundwater.
- 12) Use dust control measures at bituminous mixing plants, and quarry operations.
- 13) Delay operations until climate or wind conditions dissipate or inhibit the potential pollutants in a manner satisfactory to the RPR.

B. Water Pollution

1. The Contractor shall use suitable precautions to minimize water pollution during the progress of the work. Erosion control devices or methods may consist of berms, dikes, dams, drains, sediment basins, fiber mats, woven plastic filter cloths, gravel, mulches, quick growing grasses, sod, bituminous spray or other control devices.
2. The amount of surface area of erodible earth at any one time shall not exceed the area allowed by permit.
3. Pollutants such as fuels, lubricants, bitumens, raw sewage and other harmful materials shall not be discharged into or near rivers, streams, and impoundments or into natural or man-made channels leading thereto. Wash water or waste from concrete mixing and curing operations should not be allowed to enter streams, etc.

In the event of conflict between these requirements and pollution control laws, rules or regulations or other Federal, State or local agencies, the more restrictive laws, rules, or regulations shall apply.

70-20 Archaeological and historical findings. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work*, and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements.

The Contractor, at his own expense, shall procure and maintain, until final acceptance by the Owner of the work covered by the Contract, comprehensive liability insurance for damages imposed by law of the kinds and in the amounts hereinafter provided, written by a financially solvent insurance company authorized to do such business and write such coverage in the place where the Project is located, covering all operations under the Contract, whether performed by the Contractor or by its Subcontractor(s). Before commencing the work, the Contractor shall furnish to the Owner three (3) certificates of insurance, in satisfactory form to the Owner, showing that the Contractor has complied with the requirements of this Section. The policies and certificates shall provide that the policies shall not be changed or canceled until thirty (30) days after written notice thereof has been given to each of the Additional Insureds listed below. Property damage insurance shall include coverage for explosion, collapse, and underground operations (X C U hazards).

A. The kinds and amounts of insurance are as follows:

1. General Liability insurance policies shall be Commercial General Liability Insurance (including premises operations, independent contractors, products/completed operations, explosion, collapse and underground hazard, broad form property damage, and blanket contractual liability coverages) and shall be written on an Occurrence basis with the following minimum limits:

Each Occurrence \$1,000,000

General Aggregate \$3,000,000

As an alternative to the above limits for General Aggregate and Each Occurrence, Contractor may elect to provide Excess Liability Insurance. Excess Liability coverage shall likewise be written on an Occurrence basis. If the Contractor so elects, then the sum of the General Liability Each Occurrence limit and the Excess Liability Each Occurrence limit shall total at least \$1,000,000. The sum of the General Liability General Aggregate limit and the Excess Liability General Aggregate limit shall total at least \$3,000,000.

2. Automobile Liability policies shall cover "All Owned", "Scheduled", "Hired" and "Non-Owned" autos. The minimum Combined Single Limit shall be \$1,000,000.

As an alternative to the above limit for Automobile Liability, Contractor may elect to provide Excess Liability Insurance. Excess Liability coverage shall be written on an Occurrence basis. If the Contractor so elects, then the sum of the Combined Single Limit and the Excess Liability Each Occurrence limit shall total at least \$1,000,000.

3. Policy or policies covering the obligations of the Contractor in accordance with the provisions of any applicable Worker's Compensation or Disability Benefits Law.
4. If applicable, the Contractor and its Subcontractor(s) engaged in work involving "hazardous substances," as defined in Section 3 of PL 1993, c. 139 (C.13:1K-8), or "hazardous waste," as defined in Section 1 of PL 1976, c. 99 (C.13:1E-38), shall procure and maintain pollution liability insurance, also known as "environmental impairment liability insurance."

B. Contractor's insurance shall be primary over all other collectible insurance.

C. Anti-subrogation applies to General Liability and to Automobile Liability insurance coverages.

D. The Certificate Holder shall be Oswego County, 46 East Bridge Street, Oswego, New York 13126.

- E. The following shall be named as Additional Insureds: Federal Aviation Administration; C&S Engineers, Inc.; and the New York State Department of Transportation.
- F. The General Liability policies shall provide coverage for liability for damages imposed by law upon the Contractor and its Subcontractor(s) with respect to all work performed by any of them under the Contract. The insurance company providing General Liability insurance coverage acknowledges that the Contractor has agreed in this Contract to defend, hold harmless, and indemnify the Owner, the Engineer, the RPR, and their respective directors, officers, representatives and employees as set forth in this Section.
- G. The Contractor's policies shall provide coverage for contractual liability imposed by contract, including this Contract, and completed operations liability for damages imposed by law arising between the date of the certification of completion of the work and the date of the expiration of the Contractor's guarantee.
- H. Contractor's policy shall provide coverage for liability arising out of the acts or omissions of its Subcontractors.
- I. Each Subcontractor employed on the Project site by the Contractor shall provide comprehensive liability insurance in accordance with the above-described requirements of the Contractor. Such insurance requirements shall be submitted to the RPR as part of the Subcontractor approval process.

END OF SECTION 70

ATTACHMENT “A”

TO

SECTION 70-08

**CONSTRUCTION SAFETY AND
PHASING PLAN (CSPP)**

FOR THE CONSTRUCTION OF

TAXIWAY “B” & “D” REHABILITATION

AT

**OSWEGO COUNTY AIRPORT (FZY)
FULTON, NEW YORK**



FAA AIP NO.: 3-36-0031-056-2022 (D)

**BID DOCUMENTS
FEBRUARY 27, 2024**

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 - b. Runway Object Free Area (ROFA)
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 - d. Taxiway Object Free Area (TOFA)
 - e. Obstacle Free Zone (OFZ)
 - f. Runway Approach/Departure Surfaces
- 3.19 Other Limitations on Construction
 - a. Prohibitions
 - b. Restrictions

APPENDICES:

APPENDIX 1 – General Plan and Construction Safety Drawings

APPENDIX 2 – Construction Project Daily Safety Inspection Checklist

APPENDIX 3 – Contractor’s Safety Plan Compliance Document (SPCD)

APPENDIX 4 – Spoil Deposition Release Form

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

1.0 PURPOSE.

Aviation safety is the primary consideration at airports, especially during construction. The Airport Owner's Construction Safety and Phasing Plan (CSPP) and the Contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard.

The CSPP sets forth benchmarks and requirements for the project to help ensure the highest levels of safety, security and efficiency at the airport at the time of construction. Requirements for this CSPP were developed from FAA Advisory Circular (AC) 150/5370-2 Operational Safety on Airports During Construction, latest edition.

The CSPP is a standalone document, written to correspond with the safety and security requirements set forth in the AC, the airport safety and security requirements, and local codes and requirements. The CSPP is to be used by all personnel involved in the project. The CSPP covers the actions of not only the construction personnel and equipment, but also the action of inspection personnel and airport staff.

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

The Contractor shall submit a Safety Plan Compliance Document (SPCD) to the Airport Owner describing how the Contractor will comply with the requirements set forth in this CSPP. The SPCD must be submitted to the Airport Owner prior to issuance of Notice to Proceed.

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

2.0 SCOPE OF PROJECT AND CSPP.

The proposed project generally includes rehabilitation of asphalt pavements along Taxiways "B" & "D".

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

- a.** Identify Affected Areas
- b.** Describe Current Operations
- c.** Allow for Temporary Changes to Operations
- d.** Take Required Measures to Revise Operations
- e.** Manage Safety Risk

3.0 PLAN REQUIREMENTS.

3.1 COORDINATION. The following items shall be coordinated as required:

All communications between the Contractor and airport users shall be coordinated through the Airport Manager and the Resident Project Representative (RPR). Airport Operations contact: Brandon Schwerdt, phone: 315-591-9130, email: Brandon.Schwerdt@OswegoCounty.com.

- a. Pre-construction Meeting.** A preconstruction meeting will be conducted to discuss operational safety, testing, quality control, quality acceptance, security, safety, labor requirements, environmental factors, and other issues. All parties affected by the construction will be asked to attend including, but not limited to, the Airport Owner, tenants, contractor, subcontractors and RPR.

At the preconstruction meeting, the Contractor shall submit a plan of operation and schedule of work to the RPR for approval. The Contractor's plan of operation shall indicate, in detail, the amount of construction planned and the number of shifts and/or overtime operations proposed for the project. The schedule of work shall clearly indicate the sequence of work to be performed. The Contractor shall conform, at all times, to the requirements of these provisions and with current safety practices, rules, regulations and security requirements of Airport Owner. The preconstruction meeting will be held prior to issuance of a Notice to Proceed.

- b. Contractor Progress Meetings.** A minimum of one progress meeting to discuss scheduling and coordination shall be held each week unless otherwise directed by the Airport Owner, throughout the duration of the Contract, between the Airport Owner, Contractor, RPR and any other interested parties at a time and place to be designated by the RPR. These meetings shall include a detailed discussion of construction phasing and safety with regard to the Contractor's compliance with the requirements stipulated in the Contract Documents.

In attendance at these meetings shall be a Contractor's representative with the authority to make decisions concerning the scheduling and coordination of work. Progress meetings shall be facilitated by the RPR. Operational safety shall be a standing agenda item during progress meetings throughout the construction project.

- c. Scope or Schedule Changes.** Changes in the Scope of Work or Project Schedule shall be governed by Section 40 and Section 80 of the Contract Documents. Any proposed change that results in a deviation from the established CSPP as expressed by the Contract Documents must be submitted to the FAA and Airport Owner for review and approval. FAA review and approval can be expected to take sixty business days.
- d. FAA ATO Coordination.** Early coordination with Federal Aviation Administration (FAA) Air Traffic Organization (ATO) required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart.

No adjustments to NAVAID, encroachment on facility critical areas, or facility shutdowns are anticipated during construction, so ATO coordination will not be necessary.

- e. **Pre-Paving Meeting.** A pre-paving meeting will be held to discuss the status of preliminary submittals, the RPR's inspection of the plant and laboratory, test section requirements, paving plan requirements, and production requirements.
- f. **Payment.** The cost of complying with the requirements of this section, including but not limited to scheduling; providing flag people; construction, maintenance and removal of temporary access roads and staging areas; providing, placing, relocating, maintaining and removing temporary barricades; protection of aircraft and vehicular traffic; installation, maintenance and removal of temporary airfield markings; maintenance of airport lighting circuits; installation, maintenance, and removal of temporary wiring and airfield lighting facilities; cleaning of paved surfaces; restoration of surfaces disturbed as a result of the Contractor's operations; providing, maintaining, and removing warning signs, hazard markings, providing padlocks for access gates; providing a guard at access gates; and all security requirements shall be included under Technical Specification Item C-106, Safety, Security and Maintenance of Traffic.

3.2 PHASING.

a. Phase Elements (Work Areas)

1. **Work Area Descriptions:** The work of the project has been divided into two (2) primary areas in order to coordinate construction in a way that will minimize interference with Airport operations:

Work Area "A": Includes Taxiway "B" work and Taxiway "D" work outside of the Taxiway "A" taxiway object free area. During this phase of work, temporary barricades shall be placed at the Taxiway "B" intersection with both the Terminal Apron and Runway 15-33, and at the Taxiway "D" intersection with Taxiway "A" and Runway 6-24. Sections of Taxiway "D" and Taxiway "B" in its entirety will be closed during work in this area.

Work Area "B": Includes Taxiway "D" work within the Taxiway "A" taxiway object free area. During this phase of work, temporary barricades shall be placed at the Taxiway "A" intersection with the Terminal Apron, Runway 15-33 and the EAA Taxiway, and at the Taxiway "D" intersection with Taxiway "A" and Taxiway "B". Taxiway "A" and a section of Taxiway "D" will be closed during work in this area.

2. **Construction Safety Requirements**

The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No active runway or taxiway shall be crossed, entered, or obstructed at any time. The Contractor shall plan and coordinate his/her work in such a manner as to insure safety and a minimum of hindrance to airport operations. All Contractor equipment and material stockpiles shall be stored at locations determined during construction or as shown on the Construction Safety Drawings (Appendix 1). No equipment will be allowed to park within the approach area of an active runway at any time.

During the work under this Contract, the Airport Owner will make such arrangements to coordinate aircraft movements and Airport operations as necessary to conform to the construction procedures as outlined below and as shown on the Contract Drawings. The Contractor shall give adequate notice to the RPR, so as to afford time to coordinate construction with the Airport Owner. No work shall proceed in any area without prior approval.

The Contractor shall always confine construction operations to the Contractor work area and designated haul routes. Contractor personnel, equipment, stored materials, subcontractors and suppliers will not be allowed on any other area within the Air Operations Area and within the Airport boundaries without prior approval of the Airport Owner or RPR.

The RPR will perform a visual site assessment before the Contractor occupies the Contractor work area. The Contractor shall be held responsible for all repairs and cleanup costs incurred as a result of the Contractor's construction operations. Restoration shall be the complete return of all work areas to the original conditions.

Temporary cables in grass areas shall be marked with stakes and flagging. Temporary cables in paved areas shall be marked with barricades.

Staging Areas: One staging area has been identified for the project. The staging area is located in the gravel parking lot off of Whitaker Road / Route 176, adjacent to the T-Hangars.

Access Routes: One (1) access route to the project work areas has been established for this project. Access to Work Area A and B shall be from Route 176, through the gravel parking lot / staging area and along the EAA Taxiway, where extreme care is to be taken when crossing the asphalt surfaces. All surfaces are to be cleaned of dirt and debris at the end of each work shift.

Construction signage shall be installed as approved by the RPR to clearly designate the construction access route. The Contractor shall post a Gate Guard or keep the gate closed and locked at all times.

Work Area "A": Work in area A shall be started first. During work in this area, Taxiway D between Taxiway A and Runway 6-24 and Taxiway B in its entirety will be closed to aircraft. Access to the project area will be from the staging area located in the gravel parking lot adjacent to T-Hangars along the EAA Taxiway and across the EAA Taxiway, Taxiway D and Taxiway A intersection.

At the start of work in Area A, the Contractor shall perform the following:

- Verify with the Airport Owner that a NOTAM has been issued closing Taxiway D between Taxiway A and Runway 6-24, and that Taxiway B is closed in its entirety
- Provide temporary barricades as shown on the contract documents.
- Provide temporary taxiway closed markings as shown on the contract documents.
- Cover or disconnect Taxiway B and Taxiway D edge lights located within the work area limits (approximately 79 lights)
- Provide gate guard at staging area access point and flag person at the EAA Taxiway, Taxiway D and Taxiway A intersection to direct construction equipment to and from work area A
- Cover or remove guidance signs (approximately 13 signs)

At the conclusion of construction operations in Area A, the Contractor shall perform the following:

- Test and activate airfield lighting circuits.
- Restore and reenergize equipment that was temporarily disconnected.
- Remove barricades, temporary jumpers and closed runway markings, as indicated on the Construction Safety Drawings.
- Remove covers on edge lights / signs.
- Clean all paved surfaces in accordance with Item C-106, Safety, Security and Maintenance of Traffic.
- Coordinate cancellation of the NOTAMs with the Airport Owner and RPR.

Work Area "B": Work in area B can be performed concurrently with the work in Area A. During work in this area, Taxiway A in its entirety will be closed to aircraft traffic. Work in this area will need to be closely coordinated with the Airport Owner. Taxiway A shutdown will only be permitted on a temporary basis, contractor to provide a minimum of two (2) weeks notice prior to scheduling work in this area.

At the start of work in Area B, the Contractor shall perform the following:

- Verify with the Airport Owner that a NOTAM has been issued closing Taxiway A is closed in its entirety
- Provide temporary barricades as shown on the contract documents.
- Provide temporary taxiway closed markings as shown on the contract documents.
- Cover or remove Taxiway A edge lights located within the work area limits (approximately 30 lights)
- Provide gate guard at staging area access point and flag person at the EAA Taxiway, Taxiway D and Taxiway A intersection to direct construction equipment to and from work area B
- Cover or remove guidance signs (approximately 5 signs)

At the conclusion of construction operations in Area B, the Contractor shall perform the following:

- Test and activate airfield lighting circuits.
- Restore and reenergize equipment that was temporarily disconnected.
- Remove barricades, temporary jumpers and closed runway markings, as indicated on the Construction Safety Drawings.
- Remove covers on edge lights / signs.
-
- Clean all paved surfaces in accordance with Item C-106, Safety, Security and Maintenance of Traffic.
- Coordinate cancellation of the NOTAMs with the Airport Owner and RPR.

- b. Construction Safety Drawings.** Drawings specifically indicating operational safety procedures and methods in affected areas (i.e., construction safety drawings) have been developed for each construction phase. Such drawings are included in the CSPP as referenced attachments and are included in the contract drawing package.

3.3 AREAS AND OPERATIONS AFFECTED BY THE CONSTRUCTION ACTIVITY.

Contractor, subcontractor, and supplier employees or any other unauthorized persons shall be restricted from entering an active airport operating area without previous permission from the Airport Owner and the Aircraft Control Tower.

In an emergency situation, the Airport Owner or other designated airport representative may order the Contractor to suspend operations; move personnel, equipment, and materials to a safe location; and stand by until aircraft use is completed.

The Contractor shall cooperate with the airport users through the RPR, in coordination with airport operations, in scheduling the operations to provide adequate clearance for safe aircraft parking, fueling, maintenance, loading or unloading, maneuvering, taxing operations, or other aircraft operations.

a. Identification of Affected Areas

The following is a summary of impacts to the Airport Operations Areas resulting from the proposed construction safety and work phasing requirements:

Table 3.3A Construction Effect on Airport Operations		
Project	Taxiway “B” & “D” Rehabilitation	
Scope of Work	Taxiway “B” & “D” Paving	
Work Area	WORK AREA A	
Operational Requirements	Normal (Existing)	Anticipated (During Construction)
RW 6-24 Average Aircraft Operations	Carrier: 0/Day	Carrier: 0/Day
	GA: 11/Day	GA 11/Day
	Military: 0/Day	Military: 0/Day
RW 15-33 Average Aircraft Operations	Carrier: 0/Day	Carrier: 0/Day
	GA: 45/Day	GA: 45/Day
	Military: 0/Day	Military: 0/Day
Runway 6-24 & 15-33 ARC	A-I	A-I
RW 6 Approach Visibility Minimums	VFR	VFR
RW 24 Approach Visibility Minimums	500-1 mile	500-1 mile
RW 15 Approach Visibility Minimums	300-1 mile	300-1 mile
RW 33 Approach Visibility Minimums	400-1 mile	400-1 mile
Runway 33 Declared Distances (No other Runway ends have declared distances)	TORA: 5,196	TORA: 5,196
	TODA: 5,196	TODA: 5,196
	ASDA: 5,196	ASDA: 5,196
	LDA: 4,781	LDA: 4,781
Runway 33 Approach Procedures	ILS/LOC/RNAV (GPS)	ILS/ LOC/ RNAV (GPS)
Runway 15 Approach Procedures	RNAV-LPV (GPS)	RNAV-LPV (GPS)
Runway 24 Approach Procedures	RNAV-LNAV (GPS)	RNAV-LNAV (GPS)
Runway 33 NAVAIDs	ILS/DME	ILS/DME
	PAPI	PAPI
	REIL	REIL
Runway 15 NAVAIDs	REIL	REIL
Runway 6 NAVAIDs	REIL	REIL
Runway 24 NAVAIDs	REIL	REIL
Taxiway ADG	II	II
Special Conditions (Work area A)		Taxiway “B” Closed & section of Taxiway “D” closed

Table 3.3B Construction Effect on Airport Operations		
Project	Taxiway “B” & “D” Rehabilitation	
Scope of Work	Taxiway “D” Paving	
Work Area	WORK AREA B	
Operational Requirements	Normal (Existing)	Anticipated (During Construction)
RW 6-24 Average Aircraft Operations	Carrier: 0/Day	Carrier: 0/Day
	GA: 11/Day	GA 11/Day
	Military: 0/Day	Military: 0/Day
RW 15-33 Average Aircraft Operations	Carrier: 0/Day	Carrier: 0/Day
	GA: 45/Day	GA: 45/Day
	Military: 0/Day	Military: 0/Day
Runway 6-24 & 15-33 ARC	A-I	A-I
RW 6 Approach Visibility Minimums	VFR	VFR
RW 24 Approach Visibility Minimums	500-1 mile	500-1 mile
RW 15 Approach Visibility Minimums	300-1 mile	300-1 mile
RW 33 Approach Visibility Minimums	400-1 mile	400-1 mile
Runway 33 Declared Distances (No other Runway ends have declared distances)	TORA: 5,196	TORA: 5,196
	TODA: 5,196	TODA: 5,196
	ASDA: 5,196	ASDA: 5,196
	LDA: 4,781	LDA: 4,781
Runway 33 Approach Procedures	ILS/LOC/RNAV (GPS)	ILS/ LOC/ RNAV (GPS)
Runway 15 Approach Procedures	RNAV-LPV (GPS)	RNAV-LPV (GPS)
Runway 24 Approach Procedures	RNAV-LNAV (GPS)	RNAV-LNAV (GPS)
Runway 33 NAVAIDs	ILS/DME	ILS/DME
	PAPI	PAPI
	REIL	REIL
Runway 15 NAVAIDs	REIL	REIL
Runway 6 NAVAIDs	REIL	REIL
Runway 24 NAVAIDs	REIL	REIL
Taxiway ADG	II	II
Special Conditions (Work area B)		Taxiway “A” Closed & section of Taxiway “D” closed

b. Mitigation of effects.

This CSPP has established specific requirements and operational procedures necessary to maintain the safety and efficiency of airport operations during the construction of this project.

All coordination pertaining to airport operations during construction will go through the Airport Owner's Representative and the Airport Operations Manager. Any required NOTAM's to be issued will be sent through the Airport Owner's Representative and issued by Airport Operations.

- 1. Temporary Changes to runway and/or taxiway operations:** Any affected Airport Operations Areas identified in the previous section for reduced access or identified as being closed entirely to aircraft traffic, will be barricaded by the use of low profile, lighted barricades placed as shown in the exhibits provided in Appendix 1. In addition, required NOTAM's shall be issued on the various temporary changes to aircraft access through the affected areas.
- 2. Detours for ARFF and other airport vehicles:** The project work site shall remain open to all ARFF vehicles in emergency situations. The Contractor is required to maintain access in and around the project work area for all ARFF vehicles. Proper routing of this traffic will be effectively communicated to all supervisory personnel involved in the construction project.
- 3. Maintenance of essential utilities:** Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the Airport Owner and FAA shall locate all of their underground utilities. It is the Contractor's responsibility to have the locations of cabling and other underground utilities marked prior to beginning excavation. Any locations provided by the Airport Owner or FAA are approximate locations and the Contractor shall verify all locations prior to beginning excavations. When an underground cable or utility is damaged due to the Contractor's negligence the Contractor shall immediately repair the affected cable or utility at his/her own expense. Full coordination between airport staff, field inspectors, and construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation.
- 4. Temporary Changes to air traffic control procedures:** Changes to air traffic control procedures have been coordinated with airport ATO. Any additional requests for changes must be made to the Airport Owner, through the RPR, in writing. These requested changes will be reviewed by the RPR, Airport Owner and ATO. If these changes are acceptable to all the aforementioned parties, the RPR will request a modification to the CSPP previously turned into the FAA. The Contractor shall plan on a minimum 90 days for this process to be completed. No deviation to the original CSPP shall be made without final FAA approval.

3.4 NAVIGATION AID (NAVAID) PROTECTION.

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs are not anticipated in this project.

3.5 CONTRACTOR ACCESS.

This section of the CSPP details the areas to which the Contractor must have access, and how Contractor personnel will access those project work areas.

a. Location of stockpiled construction materials.

The Contractor shall store material and equipment and schedule his operations for work to be done so that no unauthorized interference to normal Airport operations will result there from. Construction operations shall not be conducted in a manner to cause interference with Airport Operations. Stockpiled materials and equipment storage are not permitted within the Runway Safety Area/ Taxiway Safety Area (RSA/TSA), Obstacle Free Zone (OFZ) or Object Free Area (OFA) of an operational runway or taxiway. Stockpiled construction materials must be located inside the Contractor staging area as shown on the Construction Safety Drawings (Appendix 1) unless otherwise approved by the RPR.

Stockpiled material shall be constrained in a manner to prevent movement resulting from either aircraft jet blast or wind conditions in excess of ten miles per hour. In addition, stockpiled material shall have silt fence located around the material to prevent Foreign Object Debris (FOD) from moving onto the airfield pavements or polluting watercourses.

Open trenches exceeding 3 inches in depth and 5 inches in width or stockpiled material are not permitted within the limits of safety areas of operational runways or taxiways. Stockpiled material shall not be permitted within the protected areas of the runways, or allowed to penetrate into any of the protected airspace.

Spoil and Disposal Areas: Spoil shall be disposed of offsite by the Contractor unless otherwise shown or specified. The Contractor shall submit the "Spoils Deposition Release Form" for any spoils which are transported from the project site. A copy of the form can be found in Appendix 4. No direct payment will be made for spoiling and disposal operations. The cost of spoiling material on site, or of spoiling material off-site, shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

b. Vehicle and pedestrian operations. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the Air Operations Area (AOA).

The Airport Owner will coordinate requirements for vehicle operations with the affected airport tenants. Specific vehicle and pedestrian requirements for this project are as follows:

All construction vehicles and personnel shall be restricted to the immediate work areas specified by the contract for this project. These areas include the haul routes into the work area, the designated Contractor staging area and the apron area under construction. Use of alternate haul routes or staging areas by the Contractor shall not be permitted without prior notification and approval by the Airport Owner's Representative.

1. Construction Site Parking:

The Contractor's personal vehicle parking area shall be in the Contractor's staging area, as shown on the Construction Safety Drawings (Appendix 1). Contractor personal vehicles will not be allowed inside the airport fence Air Operations Area (AOA) or secured area.

A staging area, as indicated on the Contract Drawings, will be provided where the Contractor may set up a field office and store equipment and materials. The Contractor shall make his own arrangements

for, and bear all costs of required utilities. The Contractor shall use and maintain the site in accordance with requirements of the Airport Owner. Upon completion of work, the Contractor's staging area shall be removed and the area cleaned and restored to original or better condition.

2. Construction Equipment Parking:

The Contractor's equipment storage area shall be in the Contractor staging area as shown on the Construction Safety Drawings (Appendix 1). The Contractor's equipment and construction vehicles shall be restricted to the construction site or storage areas during construction and parked in the equipment storage area during non-working periods. **Maximum allowable equipment height in the staging area shall be 25 feet. Maximum allowable equipment height in the work areas shall be 25 feet.**

Contractor must service all construction vehicles within the limits of the project work area or the Contractor's Staging Area. Parked construction vehicles must be outside the OFA and never in the safety area of an active runway or taxiway. Inactive equipment must not be parked on closed taxiways or runways. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees shall also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT, as applicable, to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids.

3. Access and Haul Roads:

The Contractor shall clear, construct and maintain haul routes as required for the prosecution of the work. The haul routes and access points shall only be in the locations approved by the RPR and the Airport Owner or as shown on the Construction Safety Drawings (Appendix 1).

Access or haul routes used by Contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Construction traffic must remain on the designated haul routes, never straying from the approved paths. Haul and access routes shall be clearly delineated with temporary marking and signage by the Contractor. Signage and marking placement shall be reviewed and approved by the RPR and Airport Owner prior to being put into service. The Contractor shall fully describe the appropriate access routes to all his/her employees, subcontractors and material delivery personnel.

The Contractor shall be responsible for maintaining existing haul routes. At the completion of the project, these areas shall be returned to their original lines and grades and shall be restored to a condition equal to or better than original. All non-paved areas that are disturbed by Contractor's haul roads, staging area, etc., located outside of the seeding limits shown on the plans shall be re-seeded and restored to their original or better condition by the Contractor at no additional cost to the Airport Owner.

The Contractor shall coordinate haul routes, closures and schedules with other projects which may be underway during the same time period as this contract.

The Contractor shall control and coordinate the material (supplies) that are hauled to and from work area. Delivery of equipment and materials to the area of work shall be by way of the access route shown on the Construction Safety Drawings (Appendix 1) or designated by the Airport Owner or RPR.

The Contractor shall maintain all haul routes and work areas in a dust free condition at all times. The Contractor shall control dust from the construction operations by vacuum type sweeping, watering or

other methods as approved by the RPR. Contractor shall have equipment (in operating condition) on site, at all times, to control dust. If the Contractor fails to comply with this requirement, construction will be suspended until a plan for controlling the dust is approved by the RPR. Landside haul routes, boulevards and drives shall be kept clean by use of a vacuum sweeper on a daily basis as required. Application of water on dirt or gravel haul routes must be provided as often as necessary. Haul roads in any airport traffic areas must be especially monitored for dust and debris to prevent any potential Foreign Object Debris (FOD) situations.

Portions of the project area(s) shall be bounded by the low profile barricades identifying Contractor personnel and vehicle area operation limits. The locations of any barricaded project limits, haul routes, Contractor Staging Areas, and associated safety and security details are also provided graphically in the attached exhibits.

4. Marking and Lighting of Vehicles:

When any vehicle or piece of equipment, other than one that has prior approval from the Airport Owner, must operate on an airport, it shall be escorted and properly identified.

The Contractor shall limit access within the airport security fence to authorized vehicles. All authorized vehicles shall have a vehicle dash board placard permit issued by the Airport Owner or an identification sign on both sides of the vehicle containing the Contractor's company name. Private vehicles of the Contractor's personnel must be parked outside the airport security fence and will not be allowed within the airport security fence at any time.

All vehicles operating on the airport and in the general vicinity of the safety area or in aircraft movement areas must be marked with flashing yellow/amber beacons or orange and white flags during daylight hours. During hours of darkness or low visibility they shall be marked with at least flashing yellow/amber beacons.

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

5. Description of Proper Vehicle Operations:

The Contractor shall be required to follow guidance on the additional identification and control of construction equipment per the Airport's Security Plan. No Contractor's vehicle or pedestrian crossing of active runways or taxiways will be allowed at any time during the work of this Contract, unless otherwise specified. No deviation from the pedestrian and vehicle routes to and from the Project Areas will be allowed unless specific permission has been granted by the Airport Owner.

The ground movement of aircraft shall have the right-of-way at all times, and the Contractor's vehicles and equipment shall yield to aircraft at all times.

6. Required Escorts:

All construction-related activity taking place within any airport defined movement area requires the presence of an authorized Airport escort having radio communication with the FAA control tower or UNICOM unless prior approval is obtained from Airport Operations. Spotters and/or flaggers having radio or telephone contact with the Airport may be used with the approval of the on shift Airport Operations Manager.

At no time shall active taxiways or taxilanes be crossed by construction equipment without notification and proper approval/clearance from radio-trained gate guards or Airport Operations.

7. Training Requirements for Vehicle Drivers:

Any employees the Contractor would request to be given permission by Airport Operations to drive on the AOA shall complete airport badging and driver training per the Airport's requirements. These employees then must have an airfield driving experience with Airport Operations and if Airport Operations is satisfied of the employee's competency, that employee may be granted permission from Airport Operations to drive on the AOA. Passing the AOA driver training does not give the Contractor's employees the ability to drive on the AOA.

8. Situational Awareness:

Aircraft traffic will continue to use existing runways, aprons, and taxiways of the Airport during the time that work under a contract is being performed. The Contractor shall, at all time, conduct the work as to create no hindrance, hazard, or obstacle to aircraft using the Airport.

Vehicle drivers must confirm by personnel observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time.

9. Two-way Radio Communication Procedures:

Two-way radio communications are required between Contractors and Airport Aeronautical Advisory Stations (UNICOM/CTAF). Vehicular traffic located in or crossing an active movement area shall have a working two-way radio or be directed by a flag person in radio contact with and monitoring Airport Aeronautical advisory Stations (UNICOM/CTAF) frequency 123.000 Mhz. Prior to proceeding into the active movement area, all drivers shall confirm through personal observation that no aircraft is approaching the vehicle position. Construction personnel may operate in movement areas without two-way radio communication provided a NOTAM is issued closing the area, and provided that the area is properly marked to prevent incursions.

The Contractor shall comply with proper radio usage, including read back requirements and proper phraseology including the International Phonetic Alphabet.

10. Maintenance of the Secured Area of the Airport.

Airport Owner and contractors must also maintain a high level of security during construction when access points are created in the security fencing to permit construction vehicle access. Temporary gates shall be equipped and/or manned by construction personnel to prevent unauthorized access by vehicles, animals or people. Procedures conforming to Airport security protocols should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle. Access shall be made available at all times to all airport emergency vehicles traveling to operations areas within the proximity of the construction work zone.

c. Security. In general, security in the construction area is the responsibility of the Contractor.

The Contractor shall be responsible for maintaining security at all access gates used during the project and will be held liable by the Airport Owner for any breach of security. No gate shall be left open. The Contractor shall be required to post a guard at the gate to open and close the gate for personnel and

equipment. No gate shall be left open. Guard shall be responsible for ensuring that no unauthorized persons or vehicles enter the secure area. Airport Owner and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates shall be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people. Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit “piggybacking” behind another person or vehicle.

The Contractor shall be required to maintain security and comply with the Airport Security Plan and the Transportation Security Administration Security Rules and Regulations throughout the duration of the project. The Contractor and the Surety shall indemnify and save harmless the Airport Owner, RPR and third party or political subdivision from any and all breaches of security and shall indemnify the Airport Owner for any fines, expenses and damages which it may be obliged to pay by reason of any breach of security resulting from the Contractor's actions at any time during the prosecution of the work. Such breaches of security are subject to fines by the Transportation Security Administration of up to ten thousand dollars (\$10,000) per incident.

3.6 WILDLIFE MANAGEMENT.

Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports.

- a. Trash.** Food scraps from construction personnel activity must be collected and disposed of at a proper facility.
- b. Standing water.** Water shall not be allowed to collect and pool for more than any single 24-hour period. Temporary grading may be required to promote drainage during daily operations as well as between work phases.
- c. Tall grass and seeds.** The use of millet seed in turfing and seeding operations shall not be permitted.
- d. Poorly maintained fencing and gates.** The Contractor shall maintain a constant secure perimeter to the airfield, including continuous security perimeter fencing and gates (if applicable).
- e. Disruption of existing wildlife habitat.** Not applicable to this project.

Contractor shall take immediate remedial action to remove wildlife attractants should any occurrence be noted. Contractor shall immediately report to the RPR and Airport Owner should any wildlife congregation be noted, and in particular if mammals enter the airport through the construction gate.

3.7 FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT.

Special care and measures shall be taken to prevent Foreign Object Debris (FOD) damage when working in an airport environment. Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. The Contractor shall be responsible for implementing an approved FOD Management Plan prior to the start of construction activities. The FOD Management Plan will have procedures for prevention, regular cleanup, and containment of construction material and debris. The Contractor will ensure all vehicles related to the construction project using paved surfaces in the AOA shall be free of any debris that could create a FOD hazard. Special attention will be given to the cleaning of cracks and pavement joints. All taxiways, aprons, and runways must remain clean. Waste containers with attached lids shall be required on construction sites.

Special attention should be given to securing lightweight construction material (concrete insulating blankets, tarps, insulation, etc.). Specific securing procedures and/or chainlink enclosures may be required.

Contractors will provide their own equipment for vehicle and equipment washing and clean up.

Immediate access to a power sweeper is required when construction occurs on any pavement area inside the AOA, unless an appropriate alternative has been approved by the Airport Owner's Representative and Airport Operations Manager.

3.8 HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT.

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel, hydraulic fluid, or other chemical fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. To that end, the Contractor is required to develop a spill prevention plan and response procedures for vehicle operations prior to the start of construction activities. This includes maintenance of appropriate MSDS data and appropriate prevention and response equipment on-site.

Fueling Procedures and Spill Recovery Procedures shall be in accordance with New York State Fire Code, latest edition, and the National Fire Protection Association standard procedures for spill response, latest edition. If fueling is to take place in the staging area, it must be away from catch basins. Contractor must have spill containment kits on site.

In the event of a fuel spill or the spill of other hazardous materials, the Contractor shall immediately notify the Airport Owner and the RPR, the New York State Department of Environmental Conservation, the Environmental Protection Agency, the Airport Owner and the RPR.

Contractor shall abide by the specific requirements contained in the Technical Specifications of this contract.

3.9 NOTIFICATION OF CONSTRUCTION ACTIVITY.

The following is information and procedures for immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport.

- a. Maintenance of a list of Responsible Representatives/ Point of contact.** A list of responsible representatives and points of contact shall be created by the RPR, the Airport and the Contractor prior to the start of construction. This list shall be compiled as part of the project pre-construction meeting agenda. Procedures will be established to contact all parties, including after regular work hours. Updates will be made to the list throughout the project duration by the RPR. Contractor points of contact shall be incorporated into the contractor's SPCD.
- b. Notices to Airman (NOTAM).** Only the Airport Owner may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway or taxiway. The Airport Owner must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The Airport Owner must file and maintain a list of authorized representatives with the FSS. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the Airport Owner. See Section 3.14 regarding issuing NOTAMs for partially closed runways versus runways with displaced thresholds.

Any NOTAMs for planned airfield closures for this project must be coordinated through the airport manager and the airports duly appointed construction management representative. Reference Section 3.2 for planned closures for this project, which require issuance of a NOTAM.

- c. **Emergency Notification Procedures.** In the event of an aircraft emergency, severe weather conditions, or any issue as determined by the Airport that may affect aircraft operations, the Contractor's personnel and/or equipment may be required to immediately vacate the area(s) affected. Points of contact for the various parties involved with the project shall be identified and shared at the pre-construction meeting among the various parties. Emergency points of contact shall be incorporated into the contractor's SPCD.
- d. **Coordination with ARFF Personnel.** The Contractor shall coordinate, through the duly appointed airport representative, with ARFF personnel, mutual aid providers and other emergency services if construction requires the following:
- The deactivation and subsequent reactivation of water lines or fire hydrants, or
 - The re-routing, blocking and restoration of emergency access routes, or
 - The use of hazardous materials on the airfield.

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

e. **Notification to the FAA.**

1. **Part 77.** Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e. cranes, graders, other equipment) on airports. FAA Form 7460-1, Notice of Proposed Construction or Alteration, is used for this purpose and submitted to the appropriated FAA Airports Regional or District Office. All 7460-1 forms for this project has been prepared by the Engineer.
2. **Part 157.** It is not anticipated that Part 157 notifications will be required for this project. With some exceptions, Title 14CFR Part 157, Notice of Construction, Alteration, Activation, and Deactivation of Airports, requires that the Airport Owner notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, Notice of Landing Area Proposal, to the nearest FAA Airports Regional or District Office.
3. **NAVAIDS.** For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDS, contact: 866-432-2622.
 - i. **Airport owned/FAA maintained.** If construction operations require a shutdown of more than 24 hours, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown.
 - ii. **FAA owned.** The Airport Owner must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDS. (Impacts to FAA equipment covered by a Reimbursable Agreement (RA) do not have to be reported by the Airport Owner). Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, through the RPR, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated

utility outages and cable cuts that could impact FAA NAVAIDs. In addition, provide seven days' notice to schedule the actual shutdown.

- f. Accidents.** The Contractor shall provide at the site such equipment and medical facilities as are necessary to supply first aid service to anyone who may be injured in connection with the work. The Contractor must promptly report in writing to the RPR all accidents whatsoever arising out of, or in connection with, the performance for the work, whether on or adjacent to the site which caused death, personal injury or property damages, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the RPR and the Airport Owner.

If any claim is made by anyone against the Contractor or any Subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the RPR giving full details of the claims.

3.10 INSPECTION REQUIREMENTS.

- a. Daily (or more frequent) inspections.** Inspections shall be conducted by the Contractor at least daily, but more frequently if necessary, to ensure conformance with the CSPP. A sample checklist is provided in Appendix 2 of this document. In addition to Contractor's required inspections, airport operations will inspect the construction site three (3) times a day to ensure compliance with the CSPP and the SPCD. The Airport Owner's Representative will have full-time inspectors monitoring activity throughout construction. Promptly take all actions necessary to prevent or remedy any unsafe or potentially unsafe conditions as soon as they are discovered.
- b. Final inspections.** A final inspection with the Airport Owner's Representative, Airport and Contractor will take place prior to allowing airport operations.

3.11 UNDERGROUND UTILITIES.

Special attention shall be given to preventing unscheduled interruption of utility services and facilities. Where required due to construction purposes, the FAA shall locate all of their underground cables. The Contractor shall locate and/or arrange for the location of all the underground cables. When an underground cable is damaged due to the Contractor's negligence the Contractor shall immediately repair the cable affected at his/her own expense. Full coordination between airport staff, field inspectors, and construction personnel will be exercised to ensure that all airport power and control cables are fully protected prior to any excavation. Locations of cabling will be marked prior to beginning excavation.

Prior to opening an excavation, effort shall be made to determine whether underground installation: i.e., sewer, water, fuel, electric lines, etc., will be encountered, and if so, where such underground installations are located. When the excavation approaches the approximate locations of such an installation, the exact locations shall be determined by careful hand probing or hand digging, and/or use of a vacuum truck, and when it is uncovered, adequate protection shall be provided for the existing installation. All known owners of underground facilities in the area concerned shall be advised of proposed work at least 48 hours prior to the start of actual excavation.

The information concerning underground utilities was compiled from information and sketches furnished by or obtained from utility companies and the Airport. The Airport Owner and the RPR do not guarantee their accuracy. The Contractor is advised to determine the exact locations from the available sources of information or provide his own means of detection. The only case in which the RPR will consider redesign or relocation of a proposed facility in the project is when an existing utility is located within the construction limits. In this case, the RPR will work with the Airport Owner to determine the appropriate

action to resolve the conflict. If such relocation is impossible, the RPR will consider re-design or relocation of the proposed facilities. In both cases, Contractor shall be responsible for all underground utilities and shall not be separately compensated for delays or extra cost.

Note that most utility location services do not include locating FAA and Airport Owner facilities, and most will not locate services within the AOA.

3.12 PENALTIES.

Failure on the part of the Contractor to adhere to prescribed requirements may have consequences that jeopardize the health, safety or lives of customers and employees at the airport. The Airport may issue warnings on the first offense based upon the circumstances of the incident. Individuals involved in non-compliance violations may be required to surrender their Airport ID badges and/or be prohibited from working at the airport, pending an investigation of the matter.

Penalties for violations related to airport safety and security procedures will be established by the Airport.

Note: project shutdown or misdemeanor citations may be issued on a first offense. When construction operations are suspended, activity shall not resume until all deficiencies are rectified.

3.13 SPECIAL CONDITIONS.

In the event of an aircraft emergency, the Contractor's personnel and/or equipment may be required to immediately vacate the area. The Contractor will receive notification from airport operations when special conditions require the construction site to be vacated. In any event, extreme care should be exercised should construction personnel identify any ARFF (Airport Rescue and Fire-Fighting) or other emergency or rescue vehicle moving toward the Runway with emergency lights displayed. This will generally mean that an emergency situation is imminent.

Special conditions that could require suspension of the construction work include the following: aircraft in distress, aircraft accident, security breach, VIP operation, vehicle/pedestrian deviation, severe weather, or failing to abide by this Construction Safety and Phasing Plan and/or the Safety Plan Compliance Document.

3.14 RUNWAY AND TAXIWAY VISUAL AIDS.

This topic includes marking, lighting, signs, and visual NAVAIDs. Those areas where aircraft will be operating shall be clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, the Contractor shall inspect and verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs and visual NAVAIDs remain in place and operational.

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

Marking and lighting for a temporary threshold is not required.

Closed runway markings are not required.

- b. **Markings.** Markings must be in compliance with the standards of AC 150/5340-1, Standards for Airport Markings, current edition, and the drawings and technical specifications of this project.

1. Closed Runways and Taxiways.

- (a) **Permanently Closed Runways.** For permanently closed runways, the threshold marking, runway designation marking, and touchdown zone markings will be removed, and flat yellow closed runway markings (X's) will be placed at each end and at 1,000-foot (300 m) intervals.
- (b) **Temporarily Closed Runways.** For temporarily closed runways, a lighted X will be placed at each end of the runway directly on or as near as practicable to the runway designation numbers. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, the lighted X will be located farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway will be marked with a flat yellow X.
- (c) **Partially Closed Runways and Displaced Thresholds.** When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, the markings will comply with AC 150/5340-1. An X will not be used on a partially closed runway or a runway with a displaced threshold. Because of the temporary nature of the threshold relocation or displacement due to construction, it will not be necessary to re-adjust the existing runway centerline markings to meet standard spacing for a runway with a visual approach.
- (1). **Partially Closed Runways.** Pavement markings for temporary closed portions of the runway will consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing. Markings prior to the moved threshold will be obliterated or covered. Existing touchdown zone markings beyond the moved threshold may remain in place. Aiming point markings will be obliterated.
- (2). **Displaced Thresholds.** Pavement markings for a displaced threshold will consist of a runway threshold bar, runway designation, and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. Markings prior to the displaced threshold will be obliterated. Existing touchdown zone markings beyond the displaced threshold may remain in place. Aiming point markings will be obliterated.
- (d). **Permanently Closed Taxiways.** Permanently closed taxiways will be either be removed, or if pavement will remain, an X will be placed at the entrance to both ends of the closed section. Taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway will be obliterated.
- (e). **Temporarily Closed Taxiways.** . Barricades will be placed outside the safety area of intersecting taxiways. For runway/taxiway intersections, an X will be placed at the entrance to the closed taxiway from the runway. Taxiway centerline markings, including runway leadoff lines and taxiway to taxiway turns, leading to the closed section, will be obliterated if the taxiway will be closed for an extended period. Runway lead-off lines for high speed exits will always be obliterated, regardless of the duration of the closure.
- c. **Lighting and visual NAVAIDs.** This paragraph refers to standard runway and taxiway lighting systems. When runway and taxiway lighting fixtures need to be disconnected, disconnect the associated isolation transformers. Alternately, the light fixture may be covered in such a way as to prevent light leakage. Lamp shall not be removed from energized fixtures. Amu above ground temporary wiring shall be secure, identified, and placed in conduit to prevent electrocution and fire ignition sources. At towered airports certificated under Part 139, holding position signs shall be illuminated on open taxiways crossing to closed or inactive runways. If the holding position sign is

installed on the runway circuit for the closed runway, a temporary jumper shall be installed to the taxiway circuit to provide power to the holding position sign for nighttime operations.

- (1). **Permanently Closed Runways and Taxiways.** For runways and taxiways that have been permanently closed, the associated lighting circuits shall be disconnected.
- (2). **Temporarily Closed Runways and New Runways Not Yet Open to Air Traffic.** A lighted X shall be used, both at night and during the day, placed at each end of the runway on or near the runway designation numbers facing the approach. (Note: the lighted X must be illuminated at all times that it is on a runway.) For runways that have been temporarily closed, but for an extended period, and for those with pilot controlled lighting, the lighting circuits shall be disconnected or switches secured to prevent inadvertent activation. Stop bars shall be activated, if available.
- (3). **Partially Closed Runways and Displaced Thresholds.** When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing and landing or taking off in either direction. A displaced threshold, by contrast, is put in place to ensure obstacle clearance by landing aircraft. The pavement prior to the displaced threshold is available for takeoff in the direction of the displacement, and for landing and takeoff in the opposite direction. Misunderstanding this difference and issuance of a subsequently inaccurate NOTAM can result in a hazardous situation. For both partially closed runways and displaced thresholds, approach lighting systems at the affected end must be placed out of service.
 - (a) Partially Closed Runways. Runway edge and threshold lights shall be disconnected on that part of the runway at and behind the threshold (that is, the portion of the runway that is closed).
 - (b) Temporary Displaced Thresholds. Edge lighting in the area of the displacement shall emit red light in the direction of approach and yellow light (white for visual runways) in the opposite direction. If the displacement is 700 feet or less, centerline lights shall be blanked out in the direction of approach or the centerline lights shall be placed out of service. If the displacement is over 700 feet, the centerline lights shall be placed out of service.
 - (c) Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.
 - (d). A temporary threshold on an unlighted runway will be marked by retroreflective, elevated markers. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. At certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR Part 139.309). At non-certificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible.
 - (e). Temporary threshold lights and runway end lights and related visual NAVAIDs will be installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 inch (7.6 cm) above ground. (The standard above ground height for airport lighting fixtures is 14 inches (35 cm)). When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage.

- (f). Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-30. Battery powered, solar, or portable lights that meet the criteria in AC 150/5345-50 may be used. These systems are for visual flight rules (VFR) aircraft operations.
- (g). When runway thresholds are temporarily displaced, yellow lenses (caution zone) on runway edge lights shall be reconfigured, as necessary.
- (h). Visual Glide Slope Indicator (VGSI), such as Visual Approach Slope Indicator (VASI) and Precision Approach Path Indicator (PAPI); other airport lights, such as Runway End Identifier Lights (REIL); and approach lights will be relocated to identify the temporary threshold. The VGSI or any equipment that would give misleading indications to pilots as to the new threshold location may be disabled. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway.

(4). Temporarily Closed Taxiways. If possible, the taxiway lighting circuits will be deactivated. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), the closed portion shall be temporarily disconnected and a temporary jumper will be installed to keep the remaining circuit active. An alternative is to cover the light fixtures in the closed area in a way as to prevent light leakage.

d. Signs. Signs must be in conformance with AC 150/5345-44, Specification for Runway and Taxiway Signs and AC 150/5340-18, Standard for Airport Sign Systems, current edition.

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

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

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

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

(3). Takeoff Run Available (TORA) signs (Recommended): Where a runway has been shortened for takeoff, install orange TORA signs well before the hold lines, such as on a parallel taxiway prior to a turn to a runway hold position.

- e. Testing of Airport Lighting Circuits.** The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor shall provide such temporary lights and cables as required to maintain use of existing airfield lighting circuits. Temporary above ground lighting cables, if approved, shall be installed in conduit, and delineated with stakes and flagging. The test equipment for insulation resistance shall be an insulation resistance tester (1,000V megger) with a digital readout. The instrument shall provide a 500 volt test for insulation resistance with a meter range of 0 to 500 megohms.

Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

Test Requirements Prior to Construction.

- i. Test all circuits within the work area for continuity and insulation resistance to ground, at the electrical building, in the presence of the RPR.
- ii. Provide a copy of the test results to the RPR.
- iii. Check that all circuits are properly connected in accordance with applicable wiring diagrams.

Test Requirements During Construction. Circuit testing during construction shall be as directed and witnessed by the RPR when the Contractor is working on existing circuitry or excavating adjacent to or near existing circuitry. Circuit testing during construction will not be required during the times when the Contractor's operations do not effect existing airfield lighting circuitry. It is the intent of this section to ensure that airfield lighting circuitry remains operational throughout the duration of the Contract.

- i. Test all circuits within the work area for continuity and insulation resistance to ground at the electrical building, prior to energizing any circuit.
- ii. Insure that all circuits within the work area are operational, prior to the Contractor leaving the project at the end of the work day. Specific times for circuit checks will be determined by the RPR relative to the Contractor's work hours each day.
- iii. Segment test new non-grounded series circuits during installation. Length of cable segment tested shall not have more than five (5) splices, light units and/or electrical equipment between the ends being tested. Insulation resistance to ground shall be not less than 500 megohms.
- iv. Insure that the insulation resistance to ground of each segment of new non-grounded conductors of multiple conductor circuits is not less than 500 megohms.

- v. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes or equipment. The fall-of-potential ground impedance test shall be utilized, as described by ANSI/IEEE Standard 81, to verify this requirement. Ground rods testing higher than 25 ohms shall have a minimum extension of two feet of ground rod added, driven to the proper elevation and re-tested. Extensions shall be attached by exothermic methods and re-testing performed until the tests show 25 ohms resistance or less. Tests shall not be performed within 72 hours after a rain storm has ended or when standing water is present around the ground rod.
- vi. Insure that all circuits are properly connected in accordance with applicable wiring diagrams.
- vii. The Contractor shall test all circuits within the work area for continuity after backfilling cable trenches. The reading shall be logged and provided to the RPR prior to payment of cable items.
- viii. Provide a copy of all test results to the RPR on a daily basis.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

- i. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.
- ii. That all affected circuits (existing and new) are free from unspecified grounds.
- iii. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than 50 megohms. Verify continuity of all series airfield lighting circuits prior to energization. The Contractor shall be responsible for maintaining an insulation resistance of 50 megohms minimum, with isolation transformers connected, in new circuits and new segments of existing circuits through the end of the contract warranty period.
- iv. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.
- v. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.
- vi. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.
- vii. That all original lighting power and control circuits are continuous and insulation resistance to ground is not lower than before construction.
- viii. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved “repair” procedures for items that have failed testing other than complete replacement.

3.15 MARKING AND SIGNS FOR ACCESS ROUTES.

Location of haul routes on the airport site shall be as specified in the project drawing set and as provided graphically in the attached exhibits, reference Appendix 1. It shall be the Contractor’s responsibility to coordinate off-site haul routes with the appropriate owner who has jurisdiction over the affected route. The haul routes, to the extent possible, shall be marked and signed in accordance with FAA airfield signage requirements, the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or state highway specifications, as applicable.

3.16 HAZARD MARKING, LIGHTING AND SIGNING.

- a. **Purpose.** Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft, and prevent construction personnel from entering areas open to aircraft. The CSPP specifies prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting is also be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also included are markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.
- b. **Equipment.**
 - (1). **Barricades.** Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. Gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. Barricades intended to exclude pedestrians must be continuously linked.
 - (2). **Lights.** Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.
 - (3). **Supplement Barricades with Signs (for example) As Necessary.** Examples are “No Entry” and “No Vehicles.”
 - (4). **Air Operations Area – General.** Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all

construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway/taxilane safety area, or apron must be no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground.

- (5). **Air Operations Area – Runway/Taxiway Intersections.** Use highly reflective barricades with lights to close taxiways leading to closed runways. Close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.
- (6). **Air Operations Area – Other.** Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.
- (7). **Maintenance.** The contractor is required to maintain the hazard markings, lighting and signing and to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person’s information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

3.17 WORK ZONE LIGHTING FOR NIGHTTIME CONSTRUCTION. Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. All support equipment, except haul trucks, should be equipped with artificial illumination to safely illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways. The Owner and the ATCT shall approve the location of and aiming of lighting equipment before it is used.

3.18 PROTECTION OF AIRFIELD AREAS.

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

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

Runway	Aircraft Design Group	RSA Distance from		RSA Width	RSA Length from End of Runway
		RSA	Holdline		
6-24	A-I	60 ft.	250 ft.	120 ft.	240 ft.
15-33	A-I	60 ft.	250 ft.	120 ft.	240 ft.

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

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

Open trenches or excavations are not permitted within the RSA while the runway is open. The Contractor must backfill trenches before the runway is opened. Coverings are not allowed in runway safety areas. There shall be no stockpiled materials or equipment stored within the limits of the RSA.

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

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

- b. Runway Object Free Area (ROFA).** Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

Runway	Aircraft Design Group	ROFA Distance from Centerline	ROFA Width	ROFA Length from End of Runway
6-24	A-I	125 ft.	250 ft.	240 ft.
15-33	A-I	125 ft.	250 ft.	240 ft.

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

Taxiway	Aircraft Design Group	TSA Distance from Centerline	TSA Width
All	TDG-II	39.5 ft.	79 ft.

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

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

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

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

- d. Taxiway Object Free Area (TOFA).** Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway/taxilane object free area during normal operations. Thus the restrictions are more

stringent. No construction equipment may be parked within the TOFA while the taxiway/taxilane is open for aircraft operations.

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

1. Taxiing speed is limited to 10 mph.
2. Appropriate NOTAMs are issued.
3. Marking and lighting meeting the provisions above are implemented.
4. Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its main landing gear at the edge of the pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.
5. Flaggers furnished by the contractor must be used to direct and control construction equipment and personnel to a pre-established setback distance for safe passage of aircraft, and airline and/or airport personnel.

Taxiway	Aircraft Design Group	TOFA Distance from Centerline	TOFA Width
All	TDG-II	65.5 ft.	131 ft.

Taxilane	Aircraft Design Group	TLOFA Distance from Centerline	TLOFA Width
All	TDG-II	57.5 ft.	115 ft.

- e. **Obstacle Free Zone (OFZ).** Construction personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. The OFZ is a defined volume of airspace centered about and above the runway centerline.
- f. **Runway approach/departure surfaces.** All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

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

Runway End	Aircraft Approach Category	Airplane Design Group	Minimum Safety Area Behind Threshold	Minimum Unobstructed Approach Slope
6 & 24	A	I	240 feet	20:1 to 200 feet behind threshold
15 & 33	A	I	240 feet	34:1 to 200 feet behind threshold

3.19 OTHER LIMITATIONS ON CONSTRUCTION.

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

1. No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.
2. No use of open flame welding or torches unless fire safety precautions are provided and the Airport Owner has approved their use.
3. No use of electrical blasting caps or explosives of any kind on or within 1,000 ft (300 m) of the airport property.
4. No use of flare plots within the AOA.

b. Restrictions.

1. Construction suspension required during specific airport operations: As described above.
2. Areas that cannot be worked on simultaneously: As described above.
3. Day or night construction restrictions: Not Applicable
4. Seasonal Construction Restrictions: Not Applicable

APPENDIX 1

LOCATION MAP

(Sheet GI001 of the Contract Drawings)

GENERAL PLAN

(Sheet GC101 of the Contract Drawings)

CONSTRUCTION SAFETY DRAWINGS

(Sheet GC102 of the Contract Drawings)

CONSTRUCTION SAFETY DETAILS

(Sheet GC501 of the Contract Drawings)

APPENDIX 2

CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

Construction Project Daily Safety Inspection Checklist

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety Area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovers holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the Contractor may use to aid in identifying and correcting potentially hazardous conditions.

Potentially Hazardous Conditions

Item	Action Required	or	None
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.			<input type="checkbox"/>
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.			<input type="checkbox"/>
Runway resurfacing projects resulting in lips exceeding 3 inches from pavement edges and ends.			<input type="checkbox"/>
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.			<input type="checkbox"/>
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.			<input type="checkbox"/>
Tall and especially relatively low visibility units (that is, equipment with slim profiles) –cranes, drills, and similar objects—located in critical areas, such as OFZ and approach zones.			<input type="checkbox"/>
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on an apron, open taxiway, or open taxi lane or in related safety, approach, or departure area.			<input type="checkbox"/>

Item	Action Required	or	None
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.			<input type="checkbox"/>
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.			<input type="checkbox"/>
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.			<input type="checkbox"/>
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.			
Obliterated or faded temporary markings on active operational areas.			<input type="checkbox"/>
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.			<input type="checkbox"/>
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.			<input type="checkbox"/>
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.			<input type="checkbox"/>
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.			

Item	Action Required	or	None
Lack of radio communications with construction vehicles in airport movement areas.			<input type="checkbox"/>
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.			<input type="checkbox"/>
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.			<input type="checkbox"/>
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.			<input type="checkbox"/>
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).			
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.			<input type="checkbox"/>
Failure to control dust. Consider limiting the amount of area from which the Contractor is allowed to strip turf.			<input type="checkbox"/>
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.			<input type="checkbox"/>
Site burning, which can cause possible obscuration.			<input type="checkbox"/>
Construction work taking place outside of designated work areas and out of phase.			<input type="checkbox"/>

APPENDIX 3

CONTRACTORS SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

(The SPCD Certification is located in the Proposal Section)

SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

Project Location: Oswego County Airport

Project Name: Taxiway "B" & "D" Replacement

General Statement:

The Construction Safety and Phasing Plan (CSPP), identified as Attachment "A" to Section 70-08, has been prepared in accordance with FAA Advisory Circular 150/5370-2G, *Operational Safety on Airports During Construction and the requirements of the Airport Owner*. The CSPP has been submitted to the FAA for review and comment. Any comments from the FAA which were received prior to bid opening have been incorporated into the CSPP.

In the event that the FAA transmits comments which require that the CSPP be revised after bid opening, I understand that I am obligated to abide by the conditions and statements contained in the revised CSPP. I further understand that I will be given the opportunity to evaluate the revised CSPP as it relates to my contract and request appropriate compensation in accordance with the provisions of the contract.

Supplemental Information:

Where the CSPP covers a subject and no additional information is needed, the statement below reads, "No supplemental information required". Where additional information is required by the Contractor, the information shall be provided in the spaces below.

The section numbers below correspond with the section numbers in the CSPP.

3.1 Coordination

Statement: [Explain how you will distribute information and details of meetings to employees and subcontractors.]

3.2 Phasing

Statement: [List the number of days each Work Area will take. State the time day work will start and finish for each work area.]

3.3 Areas and operations affected by the construction activity

Statement: Information is provided in the CSPP. No supplemental information is required.

3.4 Protection of NAVAIDs

Statement: Information is provided in the CSPP. No supplemental information is required.

3.5 Contractor Access

Security Statement: [Explain how you will maintain integrity of the airport security fence at the access gate, e.g.: Gate guards, closed and locked gates, temporary fencing, etc.]

Training Statement: [List individuals who will receive driver training (for certificated airports and as requested.)]

Communication Statement: [Identify types of radios, if any, you will use to communicate with drivers and personnel. Identify who will be monitoring radios. Identify a contact person and phone number if ATCT cannot reach the contractor’s designated person by radio.]

Escort Statement: [Identify who will escort material delivery vehicles.]

3.6 Wildlife Management

Statement: [Identify who will be monitoring wildlife in the construction area. Identify who will be monitoring wildlife at the construction gate.]

3.7 Foreign Object Debris (FOD) Management

Statement: [Identify who will be preparing a FOD Management Plan. (Plan must be approved prior to the start of construction activities.)]

3.8 Hazardous material (HAZMAT) management

Statement: [Identify who will be preparing a Spill Prevention Plan. (Plan must be approved prior to the start of construction activities.)]

3.9 Notification of construction activities. Provide the following:

Key Personnel Statement: [Identify your key personnel points of contact with phone numbers.]

Emergency Contacts Statement: [Identify your emergency contacts with 24 hour phone numbers.]

Equipment Statement: [Part 77: Identify equipment you will be using that is taller than 25 feet, including on-site batch plants. Identify the maximum height it will be extended to during construction for each Work Area and the expected duration. Identify when during the day it will be used.]

3.10 Inspection requirements.

Statement: [Identify the person who will be responsible for daily inspections to ensure conformance with the CSPP. Describe additional inspections you will employ, if any, to ensure conformance.]

3.11 Underground utilities.

Statement: [Discuss proposed methods of identifying and protecting underground utilities.]

3.12 Penalties

Statement: Information is provided in the CSPP. No supplemental information is required.

3.13 Special conditions.

Statement: [Identify who will be responsible for moving equipment and personnel from the work area and vacating the area in the event of a special condition listed in the CSPP.]

3.14 Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.15 Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.16 Hazard marking and lighting.

Statement: [Identify who will be responsible for maintaining hazard marking and lighting. Include a 24 hour phone number.]

3.17 Protection of taxiway and runway safety areas. Include object free areas, obstacle free zones, approach/departure surfaces and safety areas as required. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:

Equipment and methods for maintaining Taxiway/Taxilane Safety Area standards.

Statement: Information is provided in the CSPP. No supplemental information is required.

Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.

Statement: Information is provided in the CSPP. No supplemental information is required.

3.18 Other limitations on construction.

Other limitations are identified in the CSPP and do not require an entry in this document.

APPENDIX 4
SPOIL DEPOSITION RELEASE FORM

SPOILS DEPOSITION RELEASE FORM

To: Oswego County, New York (AIRPORT OWNER), and

C&S Engineers, Inc., 499 Col. Eileen Collins Blvd., Syracuse, New York 13212 (RPR).

Project: Taxiway "B" & "D" Rehabilitation

This SPOILS DEPOSITION RELEASE FORM is being forwarded to the above referenced AIRPORT OWNER and RPR to satisfy the Contract Documents governing the above referenced project. Pursuant to the Contract Documents, LANDOWNER has granted permission to CONTRACTOR to deposit spoils at LANDOWNER'S property located at _____ (give specific location).

Further, CONTRACTOR hereby agrees to the greatest extent of the law, to release, indemnify, hold harmless, and defend the AIRPORT OWNER and RPR from any and all damage, liability, or cost (including reasonable attorney's fees and cost of defense) to the extent caused by or arising out of the deposition of the spoils on LANDOWNER'S property.

CONTRACTOR:

LANDOWNER:

Signature

Signature

Written Name & Title

Written Name & Title

Company Name

Company Name

Mailing Address (Street Name and Number)

Mailing Address (Street Name and Number)

City, State, Zip Code

City, State, Zip Code

Daytime Phone Number (Include Area Code)

Daytime Phone Number (Include Area Code)

Date

Date

Section 80 Execution and Progress

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within one day of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner. Two NTPs will be issued, one for administrative NTP and one for Construction NTP.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

80-03.1 Requirements.

- A.** Nomenclature and Definitions
- B.** Schedule Personnel
- C.** Software Compatibility Requirements
- D.** Preconstruction Schedule Meeting
- E.** Baseline Schedule Development
- F.** Progress Schedule Update
- G.** Schedule for Submittals

80-03.1.A Nomenclature and Definitions

Actual Start date- At the task level, the Actual Start date represents the point in time that meaningful work actually started on a task.

Actual Finish date - At the task level, the Actual Finish date represents the point in time that work actually ended on a task.; At the Project level, the Actual Finish date represents the point in time that the Contractor completes all Work in accordance with the time standards described in the CSPP.

Baseline Progress Schedule - The Progress Schedule submitted by the Contractor and accepted by the RPR that shows the plan to complete the construction contract work. The Baseline Schedule represents the Contractor's plan at the time of Contract Award for completing the Project.

Bid Date – The date that bids will be publically opened and read aloud.

Constraint - A schedule restriction imposed on the Start or Finish date(s) of a task that modifies or overrides a task's relationships.

Critical Task – A task on the critical path.

Critical Path – In the Progress Schedule, the critical path shall be those tasks being on the longest path. In a project network diagram, the series of tasks determines the earliest completion of the project.

Critical Delay - An event, action, or other factor that delays the critical path of the Progress Schedule and extends the time needed for completion of the construction project.

Critical Path Method (CPM) – A network analysis technique used to predict Project duration by analyzing which sequence of tasks (which path) has the least amount of scheduling flexibility (the least amount of float or slack). A scheduling technique utilizing tasks, durations, and interrelationships/dependencies (logic), such that all tasks are interrelated with logic ties from the beginning of the project to the completion of the project. Early dates are calculated by means of a forward pass using a specified start date. Late dates are calculated by means of a backward pass starting from a specified completion date (usually the forward pass's calculated project early finish date).

Duration, Original - The original estimated number of Working Days (not including holidays or other nonworking periods) in which the work task associated with the task is expected to be performed. (The number of calendar days may be different based on the calendar assigned to the

task.) For certain tasks such as concrete curing, or others approved by the RPR, the calendar shall reflect no non-working days.

Duration, Remaining - The estimated time, expressed in Working Days (not including holidays or other nonworking periods), needed to complete a task that has started but has not finished

Early Dates – The earliest date a task can start or finish based upon logic and durations. They are calculated by the software application when scheduling the project. Progress Schedules.

Final Baseline Progress Schedule @ Award - The original plan against which the Contractor's progress is measured. The Final Baseline Progress Schedule @ Award represents the original plan at the award of the Contract, of what is expected to happen. Once the Final Baseline Progress Schedule @ Award is accepted by the RPR it is saved and used as a basis to compare against Progress Schedules Updates. (See also Section 80-3 of the FAA's General Provisions.)

Fragnet – A subdivision of a project network diagram usually representing some portion of the project.

Late Dates – The latest a task can start or finish without delaying the time standards contained in the CSPP.

Longest Path - The sequence of tasks through the Progress Schedule network that establishes the Milestones contained in the CSPP.

Look-Ahead Schedule – Commonly a one or two week time segment generated from the accepted Progress Schedule that forecasts the work planned for the one or two week period following the Status Date, and includes any major materials to be delivered anticipated shifts in Work Areas.

Milestone – A task with zero duration that typically represents a significant event, usually the beginning and end of the project, milestones set forth in the contract proposal, construction stages, a major work package, or the contract interim time-related clauses.

Notice to Proceed– The actual date the Contractor starts fieldwork of a contract pay item, which is entered as a Start milestone task in the schedule. Contractually no work may start until after the Contract is awarded by the Owner, and the Contractor has received a written Notice to Proceed.

Open End - The condition that exists when a task has either no predecessor or no successor, or when a task's only predecessor relationship is a finish-to-finish relationship or only successor relationship is a start-to-start relationship.

Predecessor – A task that is defined by Schedule logic to precede another task. A predecessor may control the Start Date or Finish Date of its successor.

Progress Schedule – Also referred to as the Project's Schedule.

Progress Schedule Update – Changes to the Progress Schedule that reflect the status of tasks that have commenced or have been completed, including the following items: (a) Actual Start date and or Actual Finish date as appropriate; (b) Remaining Duration for tasks commenced and not complete; and (c) Suspend or Resume dates for tasks commenced and not complete.

Progress Schedule Revision – Revisions to the Progress Schedule ensures it accurately reflects the current means and methods of how the Project is anticipated to progress, including modifications made to any of the following items: (a) changes in logic connections between tasks; (b) changes in constraints; (c) changes to task descriptions; (d) task additions or deletions; (e) changes in calendar assignments.

Project Scheduler – The person that is responsible for developing and maintaining the Progress Schedule.

Recovery Schedule – A schedule depicting the plan for recovery of significant time lost on the project. This separate CPM schedule submission shall provide the resolution and include appropriate changes in network logic, task and calendar adjustments.

Relationships - The interdependence among tasks relationships link a task to its predecessors and successors. Relationships are defined as:

- **Finish to Start** - The successor task can start only when the current task finishes.
- **Finish to Finish** – The finish of the successor task depends on the finish of the current task.
- **Start to Start** – The start of the successor task depends on the start of the current task.
- **Start to Finish** – The successor task cannot finish until the current task starts.

Slack (Float), Free - The amount a task can slip without delaying the immediate successor task. Free Float is the property of a task and not the network path. The Owner owns the Project's Free Slack (Float).

Slack (Float) Suppression - Utilization of zero free slack (float) constraints which allows a task to start as late as possible by using all of its' available free slack (float). This technique allows tasks to appear more critical than if the task's total float was based on early dates. Assigning zero free float prevents true sharing of total float between the Owner and the Contractor. Utilization of overly generous task durations and overly restrictive calendar non-working periods are also considered to cause slack (float) suppression.

Slack (Float), Total - The amount of time a task (or chain of tasks) can be delayed from its early start without delaying the contract completion date. Float is a mathematical calculation and can change as the project progresses and changes are made to the project plan. Total Slack (Float) is calculated and reported for each task in a network, however, Total Float is an attribute of a network path and not associated with any one specific task along that path. The Owner owns the Project's Total Slack (Float).

Status Date – The date used to update a project. The Status Date is used as the starting point to calculate the schedule.

Task- A discrete, identifiable task or event that usually has an expected duration, has a definable Start Date and/or Finish Date, and can be used to plan, schedule, and monitor a project.

Work Breakdown Structure (WBS) - A deliverable-oriented grouping of project elements, which organizes and defines the total scope of the project. Each descending level represents an increasingly detailed definition of project components or work packages.

Work Package - A deliverable that is a group of related tasks within a project at the lowest level of the work breakdown structure.

Work Day - A calendar day scheduled for active prosecution of contract work by the Contractor or the Contractor's representative. (See Section 10-65 of the FAA's General Provisions.)

80-03.1.B Scheduling Personnel. The Contractor shall designate a Project scheduler to have all scheduling responsibilities for the Work. The Project scheduler must have had previous scheduling responsibilities on similar projects of similar size and complexities.

80-03-1.C Software Compatibility Requirements. The Owner uses Microsoft Project 2016 to schedule and monitor its construction program. All schedules submitted shall be in a format compatible with this program and version.

80-03.1.D Preconstruction Schedule Coordination. The Contractor shall contact the RPR after notification they are the low bidder, but no later than two (2) Work Days following Contract award to coordinate schedule development. The purpose of this will be to discuss essential matters pertaining to the satisfactory scheduling of project tasks, and to resolve any known questions regarding interpretation of the contract requirements for this work. The Project Scheduler shall be prepared to discuss the following:

- The proposed hierarchal Work Breakdown Structure (WBS) for the Progress Schedules.
- The proposed Project calendars.
- The factors that the Contractor determines to control the completion of the project and any milestone task completion dates contained therein.
- File naming Procedures for submissions.

80-03.1.E Baseline Schedule Development. The Contractor shall prepare, furnish, and maintain a computer-generated Progress Schedule using the Critical Path Method on Microsoft Project scheduling software. The Contractor and the Owner shall use the Progress Schedule to manage the Work. No Work other than installation of the Engineer's Field Office, mobilization, procurement and administrative tasks, will be permitted to start until the RPR in writing has approved the Baseline Progress Schedule.

The purpose of the Progress Schedule, and scheduling provisions in the Contract, shall be to:

- Ensure that the Contractor and the Owner have a detailed plan to complete the Project in accordance with time standards contained in the CSPP;
- Provide a means of monitoring the progress of Work;
- Aid in communication and coordination of tasks among all affected parties;
- Analyze the effect of changed conditions on the time standards contained in the CSPP;
- Analyze the impact of proposed Contract Amendments.
- Establish a standard methodology for time adjustment analysis based on the principles of the Critical Path Method of scheduling, to analyze delays and resolve construction disputes concerning time;
- Determine appropriate extensions or reductions of Contract Time.

In scheduling and executing the work, the Contractor shall:

- Sequence the Work to commensurate with the Contractor's abilities, resources and the Contract Documents. The scheduling of tasks is the responsibility of the Contractor.
- Ensure that Progress Schedules prepared by the Project Scheduler for submission to the Owner are in compliance with the Contract. The intent should be that Schedule submissions are timely, complete, accurate, and in compliance with the Contract.
- Communicate all Contract changes, and decisions or actions taken by the Contractor and all subcontractors, fabricators, etc., that effect the Progress Schedule to the Project Scheduler in a timely manner to allow appropriate development, maintenance, and update of the Progress Schedule.

- Include all Work contained in the Contract and all Work directed in writing by the RPR. Work tasks directed by the RPR to be added to the Contract shall be included in the next Monthly Progress Schedule submission.
- Assure that Progress Schedule Updates reflect the actual dates that work tasks started and were completed in the field.
- Break a schedule task into multiple tasks to reflect a discontinuity in the work if a work task is suspended in the field and restarted at a later date, and the break between when the Work was suspended to when it was resumed is significant compared to the original task duration.
- Ensure the Progress Schedule contains all Work constraints and Milestones defined in the Contract including the CSPP.
- Schedule the Work using such procedures and staging or phasing as required by the Contract. Work designated as part of separate stages may be performed concurrently with other stages where allowed by the Contract or where approved by the RPR. Failure by the Contractor to include any element of Work required by the Contract in the accepted Progress Schedule does not relieve the Contractor from its responsibility to perform such Work.

The schedule shall be developed utilizing the following elements:

- **Work Breakdown Structure (WBS)** - A multi-level hierarchal WBS shall be incorporated that provides a deliverable-oriented grouping of tasks and defines the total scope of the project. The Contractor shall develop a detailed project specific WBS for the RPR's review and approval prior to the development of the Baseline Schedule. The RPR shall make the final determination on the number of levels of the WBS, and how the tasks shall be grouped to represent the deliverables of the project. A minimum WBS shall consist of the following Levels (X)
 - PRECONSTRUCTION (1)
 - GENERAL(2)
 - SHOP DRAWING AND SUBMITTALS (2)
 - PROCUREMENT/FABRICATION/DELIVERY(2)
 - CONSTRUCTION (1)
 - WORK PHASE (2)
 - CONSTRUCTION COMPONENT (3) (earthwork, drainage, paving, etc.)
 - POST CONSTRUCTION(1)
 - PUNCHLIST (2)
 - DEMOBILIZATION (2)
 - PROJECT DOCUMENTATION (2)
- **Task ID** - Include a unique identification number for each task. Task ID numbers shall not be changed, or reassigned for the duration of the contract.
- **Task** - Clearly and uniquely define each task with a description of the work that is readily identifiable to inspection staff and the progress of each task can be measured.
- **Milestone Tasks** – To the extent not specifically addressed in the CSPP, this term include tasks for all Contract milestones that define significant contractual events such as Contract Award, Notice to Proceed, Contractor Start Work, Substantial Completion, Contract Completion, and

coordination points with outside entities such as utilities, the FAA, Time-Related Contract Provisions, etc.

- **Task Durations** – Define the Original Duration of each task in units of whole work days. With the exception of submittal/procurement tasks, durations shall not exceed 15 work days unless approved by the RPR. Durations for RPR submittal reviews shall meet the requirements set forth in the contract documents. If requested by the RPR, the Contractor shall justify the reasonableness of planned task time durations.
- **Relationships** - Clearly assign predecessors and successors relationships to each task, and assign appropriate logic ties between tasks (Finish to Start, Start to Start, Finish to Finish, etc.). Open-ended tasks are not permitted, with the exception of the first and last tasks in the schedule. Do not include inappropriate logic ties with Milestone Tasks (For a finish milestone task: a predecessor shall only be assigned a Finish to Finish logic tie, a successor shall only be assigned a Finish to Start or Finish to Finish logic tie. For a start milestone: a predecessor shall only be assigned a Finish to Start or Start to Start logic tie, a successor shall only be assigned with a Start to Start logic tie). Lag time may not exceed 10 days. The Contractor shall assign the “Contract Award Date” task as a predecessor to all Review and Approval type tasks to be performed by the RPR.
- **Task Constraint Dates** – The Contractor shall not have any constrained tasks, with the exception of contractual dates, unless the RPR accepts such constraints in writing.
- **Task Dates** – With the exception of contract Milestone dates, “Actual Start” and “Actual Finish” dates and “Start” and “Finish” dates, task dates shall be calculated by the Project scheduler tool within the scheduling software.
- **Calendars** – Notwithstanding the Contractor’s assigned risk for delays due to weather (See Section Nos. 80-6 and 80-7 of the FAA’s General Provisions), use clearly defined calendars that account for expected seasonal weather conditions (including winter shutdown periods) and environmental permit requirements, for the planning and scheduling of tasks. Do not incorporate a task with a description of “Winter Shutdown” that requires constraints rather utilize non-working periods utilizing a Base Calendar.

80-03-1.F Progress Schedule Update

In addition to the detailed schedule requirements for the submission of the Baseline Progress Schedule, the Contractor shall complete the following additional requirements for Monthly Progress Schedule submissions:

Durations – The Original Duration shall not be changed without prior written justification by the Contractor, and written approval by the RPR. The Contractor shall edit the Remaining Duration to reflect progress made on work tasks, and shall not use Duration percentage. If a proposed change to Original Duration is due to additional or changed work to the Contract, the Contractor shall instead add a task to reflect this additional work. The Contractor shall not use zero durations for Task Dependent tasks.

Started and Finished dates – For each task where work was begun during the Monthly reporting period, the Contractor shall check the box adjacent to Started and enter the date the work began. For each task where work was completed during the Monthly reporting period.

If the Contractor fails to submit the required Progress Schedule updates and revisions, the Contractor waives its rights to adjustments of time and related compensation for delays that accrue during the period in which the progress schedule has not been submitted in accordance with the detailed CPM scheduling requirements.

The Owner will have no liability for any subsequent Contractor time related disputes which occurred during the period of time in which the Contractor failed to submit monthly progress schedule updates and revisions in a timely manner.

80-03.1.G Schedule for Submittals.

Progress Schedule submissions will only be considered complete when all documents and data have been provided to the RPR. When preparing a formal submission of the Progress Schedule, the Contractor shall make a pdf of the current Progress Schedule and name it according to the file naming convention determined at the Preconstruction Scheduling Meeting.

- A.** Submittals shall be uploaded to a designated location on the Project FTP Site as directed by the RPR with sufficient time to allow for review.
- B.** Allow five (5) calendar days for review and turnaround of Progress Schedule submittals.
- C.** Monthly submission of updated Progress Schedule shall be completed prior to processing of monthly pay requisition.
- D.** Immediate Rejection of Progress Schedule submissions. The following deficiencies in a Contractor's Progress Schedule submission shall be grounds for the immediate rejection by the RPR, without further review, analysis and/or comments.
 - Failure of the Project Scheduler to "schedule" the Project, as of the status date.
 - Any tasks without predecessors or tasks without successors, appearing in the Schedule with the exception of the first and last task in the schedule.
 - Any task constraints appearing in the Schedule that have not been approved in writing by the RPR, or that are not specifically allowed by this specification.
 - Any Tasks with Actual Dates > Status Date
 - Any Milestone Tasks with invalid relationships
 - Failure to have a clearly defined Critical Path from the Status Date to the last task in the schedule, using the Longest Path method. This would reflect logic errors in the project schedule.
 - If any of these deficiencies are found, the Contractor's submission shall be considered deficient, and RPR will notify the Contractor immediately.

No direct payment will be made for the coordinated construction schedule. The cost of creating, revising, maintaining, updating, etc. the coordinated construction schedule shall be included in the price of the bid for the various items of the Contract.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the

necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) and as listed below, cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows:

See Attachment "A" to Section 70-08 - Construction Safety and Phasing Plan (CSPP) at the end of Section 70.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

If the Contractor requests changes to the CSPP and the requested changes are acceptable to the Owner, the Engineer, and the RPR, the Engineer will request a modification to the CSPP from the FAA. The Contractor shall plan on a minimum of 90 days for this process to be completed. No deviation to the original CSPP shall be made without FAA approval.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

80-06 Temporary suspension of the work. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The number of calendar days shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

80-07.1 Contract time based on calendar days. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

80-07.2 Project Phases

- a. Phase I (Preconstruction activities): Begins at the Administrative Notice To Proceed (NTP) and ends at the start of Phase II. Phase I includes:
 - Subcontractor approvals
 - Construction submittal and shop drawing review
 - Material and equipment procurement and delivery to the site.
 - Concrete pre casting
 - Construction survey – Must be coordinated with airport operations a minimum of 2 weeks prior to starting Phase II work.
 - Utility investigation and stakeout
 - The Contractor shall complete all subcontractor approvals prior to the end of Phase 1.
- b. Phase II (Construction by Contractor): Begins at the end of Phase I and ends at the start of Phase III. Phase II includes:
 - All on-site construction work, civil, site and electrical
- c. Phase III (Project closeout): Begins at the end of Phase II and ends at the final completion and acceptance of the project. Phase III includes:
 - Final acceptance and project closeout
 - Submittal of all closeout documents
 - Final application for payment

Phase III ends upon issuance of a final acceptance letter from Oswego County

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

Item Description	Liquidated Damages Cost	Allowed Duration
Phase I (preconstruction activities)		
Phase II (construction) total	\$2,000 per day	45 Calendar Days
Phase III (project closeout)		
Total Project (Phase I, II, III)	\$500 per day	180 Calendar Days

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Owner of any of its rights under the contract.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

- a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or
- b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or
- c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
- d. Discontinues the execution of the work, or
- e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or
- f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
- g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or
- h. Makes an assignment for the benefit of creditors, or
- i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 Termination for national emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

Section 90 Measurement and Payment

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term “lump sum” when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, “lump sum” work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Measurement and Payment Terms

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term “ton” will mean the short ton consisting of 2,000 pounds (907 kg) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles

Term	Description
	shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	<p>Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.</p> <p>Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted.</p> <p>In the event inspection reveals the scales have been “overweighing” (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%.</p> <p>In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded.</p> <p>Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them.</p>

Term	Description
	<p>Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.</p> <p>All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.</p>
Rental Equipment	<p>Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 <i>Payment for Extra Work</i>.</p>
Pay Quantities	<p>When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.</p>

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the “basis of payment” subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 Compensation for altered quantities. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities*, will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items*, the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR’s order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR’s order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

Payment for extra work for "agreed prices" and for "time and materials" work shall be based on the following:

- 1. Agreed Price/Time and Materials Work.** All agreed price and time and materials work shall be approved by the Owner and the FAA prior to proceeding with the work. The Engineer and Contractor shall be responsible for tracking the number of employees, number of hours and classification of each employee, numbers of hours that equipment is utilized and materials utilized for the extra work that is paid utilizing time and materials work.
 - a. Miscellaneous.** No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.
 - b. Comparison of Record.** The Contractor and the Engineer shall compare records of the cost of agreed price/time and materials work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.
 - c. Statement.** No payment will be made for work performed on an agreed price/time and materials basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such agreed price/time and materials work detailed as follows:
 - (1)** Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.
 - (2)** Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
 - (a)** Contractor Owned Equipment Trucks and Plant.- Contractor shall be reimbursed for its ownership costs and for its operating costs for self owned equipment at the rates listed in the Rental Rate Blue Book published by Dataquest, Inc. applied in the following manner as modified by the "Rate Adjustment Table":
 - (i)** Ownership Costs -- It is mutually understood that the rates for ownership costs reimburse the Contractor for all non-operating costs of owning the equipment, truck or plant including depreciation on the original purchase, insurance, applicable taxes, interest on investment, storage, overhead, repairs, moving the equipment onto and away from the project or work site, and profit. Reimbursement will be made for the hours of actual use as described below.
 - (ii)** Less than 8 hours of actual use, the product of the actual number of hours used or fraction thereof multiplied by the hourly rate, or the daily rate, whichever is less.
 - (iii)** Between 8 hours and 40 hours of actual use, the product of the actual number of hours used divided by 8 multiplied by the daily rate, or the weekly rate, whichever is less.

- (iv) Between 40 and 176 hours of actual use, the product of the actual number of hours used divided by 40 multiplied by the weekly rate, or the monthly rate, whichever is less.
 - (v) Over 176 hours of actual use, the product of the actual number of hours used divided by 176 multiplied by the monthly rate.
 - (vi) Operating Costs -- The rate for operating costs includes fuel, lubricants, other operating expendables, and preventative and field maintenance. Operating cost does not include the operator's wages. The Contractor shall be reimbursed the product of the number of hours of actual use multiplied by the Estimated Operating Cost/Hour.
 - (vii) The rates used shall be those in effect at the time the agreed price/time and materials work is done as reflected in the then current publication of the Rental Rate Blue Book. When agreed price/time and materials type analysis are used to establish agreed prices in accordance with paragraph A above, the rates used shall be those in effect when the agreed price is developed by the Contractor.
 - (viii) In the event that a rate is not established in the Rental Rate Blue Book for a particular piece of equipment, truck or plant, the Engineer shall establish rates for ownership costs and operating costs for that piece of equipment, truck or plant that is consistent with its cost and expected life.
 - (ix) The geographic Regional Adjustment Factor shown in the map at the beginning of each section of the Rental Rate Blue Book shall not be applied to the equipment rates subsequently listed in each section, and shall not be used as a basis for payment.
- (b) Rented Equipment, Trucks and Plant –
- (i) In the event that the Contractor does not own a specific type of equipment and must obtain it by rental, it shall be paid the actual rental rate for the equipment for the time that the equipment is used to accomplish the work or is required by the Engineer to be present, not to exceed the adjusted rental rate in the Rental Rate Blue Book, plus the reasonable cost of moving the equipment onto and away from the project site.
 - (ii) The Contractor shall also be reimbursed for the operating cost of the equipment unless reflected in the rental price. Such operating cost shall be determined in the same manner as specified for Contractor Owned Equipment above.
 - (iii) In the event that area practice dictates the rental of equipment with an operator or fully fueled and maintained equipment, truck or plants, payment will be made on the basis of an invoice for the rental of the equipment with an operator, fully fueled and/or maintained equipment, trucks or plants including all costs incidental to its use, including costs of moving to and from the site, provided the rated is substantiated by area practice.
- (c) Maximum Amount Payable -- The maximum amount of reimbursement for the ownership costs of Contractor owned or the rental cost of rented equipment, trucks or plant is limited to the original purchase price of the equipment, truck or plant for any agreed price/time and materials work as listed in the Green Guide for Construction Equipment published by the Dataquest, Inc. In the specific event when the ownership or rental reimbursement is limited by the original purchase price, the Contractor

shall, nevertheless, be reimbursed for the operating Cost/Hour for each hour of actual use.

- (3) Quantities of materials, prices, and extensions.
- (4) Transportation of materials.
- (5) Overhead and Profit. If any of the work is performed by a subcontractor, the Contractor shall be paid the actual and reasonable cost of such subcontracted work computed as outlined in a through d above, or on such other basis as may be approved by the Owner. Subcontractor profit and overhead shall be paid as outlined in this section, plus an additional allowance of five percent (5%) of materials and direct labor to cover the Contractor's profit, superintendence, administration, insurance and other overhead. For the purposes of computing overhead and profit, only one level or tier of subcontractors will be allowed.

Overhead shall be defined to include, but not be limited to:

- premium on bonds;
- premium on insurance required by workman's compensation insurance, public liability and property damage insurance, unemployment insurance, social security tax, and other payroll taxes and such reasonable charges that are paid by the Contractor pursuant to written agreement with his/her employee;
- all salary and expenses of executive officers, supervising officers or supervising employees;
- all clerical or stenographic employees;
- all charges for minor equipment, such as small tools, including shovels, picks, axes, saws, bars, sledges, lanterns, jacks, cables, pails, wrenches, etc. and other miscellaneous supplies and services;
- all drafting room accessories such as paper, tracing cloth, blueprinting, etc.

Overhead and profit cost shall be computed at 15 percent of the following:

- Total Direct Labor Cost (actual hours worked multiplied by the basic hourly wage rate) plus supplemental benefits payments, payroll taxes, insurance payments and other labor related fringe benefit payments as defined in 'a' above, but not including the overtime additive payments. Overhead and profit shall not be paid on the premium portion of overtime.
- Total Cost of Materials as defined in (3) and (4) above.

90-06 Partial payments. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

a. From the total of the amount determined to be payable on a partial payment, percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-03. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

No partial payments will be made for work items lacking approved submittals, or lacking acceptable manufacturer's material certifications.

Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Airport Sponsor. This clause applies to both DBE and non-DBE subcontractors.

Contractors shall include in their subcontracts language providing that Contractors and subcontractors will use appropriate alternative dispute resolution mechanisms to resolve payment disputes.

The Contractor will not be reimbursed for work performed by subcontractors unless and until the Contractor ensures that the subcontractors are promptly paid for the work they have performed.

The same requirement for prompt payment shall be applied to all tier subcontractors.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other

sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

- a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.
- b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.
- c. The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.
- d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.
- e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments*, the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

- a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.
- b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.
- c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.
- d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation*, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes*, or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

i. The Owner and Engineer will perform a warranty inspection with the Contractor approximately three (3) months before the end of the one year warranty period.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

c. Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.

d. Complete all punch list items identified during the Final Inspection.

e. Provide complete release of all claims for labor and material arising out of the Contract.

f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

g. When applicable per state requirements, return copies of sales tax completion forms.

h. Manufacturer's certifications for all items incorporated in the work.

i. All required record drawings, as-built drawings or as-constructed drawings.

j. Project Operation and Maintenance (O&M) Manual(s). The Contractor shall prepare a project O&M Manual for the Owner. The O&M Manual shall consist of approved certification submittals, approved shop and setting drawing submittals, approved catalogue data submittals, circuit test results in accordance with Item L-108, and O&M Manuals for equipment installed that have operating procedures and/or maintenance requirements associated with them. The O&M manual shall be neatly bound in a properly sized 3-ring binder and tabbed by specification section. The O&M Manual shall be submitted to the Engineer prior to final payment to facilitate project closeout.

k. Security for Construction Warranty.

l. Equipment commissioning documentation submitted, if required.

m. Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706) from the Prime Contractor.

n. Contractor's Affidavit of Release of Liens (AIA Document G706A) from the Prime Contractor.

o. Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706) from each subcontractor.

p. Contractor's Affidavit of Release of Liens (AIA Document G706A) from each subcontractor.

q. Consent of Surety to Final Payment (AIA Document G707) from the Prime Contractor.

r. Prime Contractor's Certification (New York State Labor Law Section 220-a).

s. Subcontractor's Certification (New York State Labor Law Section 220-a).

END OF SECTION 90

Special Provisions to the General Provisions

SP 20-16 Addenda and interpretation. No interpretation of the meaning of the Contract Documents, Contract Drawings or other portions of the Contract will be made orally. Every request for such interpretation must be in writing and addressed to C&S Engineers, Inc., Syracuse, New York 13212, and to be given consideration must be received at the above address at least seven (7) days prior to the date fixed for opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda, which, when issued, will be sent by certified mail with return receipt requested to all holders of Contract Documents at the respective addresses furnished for such purposes, not later than twenty-four (24) hours prior to the date fixed for the opening of bids. Failure of any Bidder to receive or retrieve any such addenda or interpretation shall not relieve said Bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract.

SP 20-17 Sales tax exemption. The Owner is exempt from payment of Sales and Compensating Use Taxes of the State of New York and of cities and counties on all materials and supplies sold to the Owner pursuant to the provisions of this Contract. These taxes are not to be included in bids. This exemption does not, however, apply to tools, machinery, equipment or other property leased by or to the Contractor or a Subcontractor to materials and supplies of any kind which will not be incorporated into the completed project, and the Contractor and his Subcontractors shall be responsible for and pay any and all applicable taxes including Sales and Compensating Use Taxes on such leased tools, machinery, equipment or other property or on such unincorporated materials and supplies, and the provisions set forth below will not be applicable to such tools, machinery, equipment, property and unincorporated materials and supplies.

The Contractor agrees to sell, free of encumbrances, and the Owner agrees to purchase all of the materials and supplies (except as above set forth) required, necessary or proper for or incidental to the construction of the Project covered by this agreement. Title to all materials and supplies to be sold by the Contractor to the Owner, pursuant to the provisions of the Contract, shall immediately vest in and become the sole property of the Owner upon delivery of such materials and supplies to the Project site. The Contractor shall mark or otherwise identify all such materials and supplies as the property of the Owner. The Contractor, at the request of the Owner, shall furnish to the Owner such confirmatory bills of sale and other instruments as may be required by it, properly executed, acknowledged and delivered, confirming to the Owner, title to such materials and supplies free of encumbrances.

In the event that after title has passed to the Owner any of such materials and supplies are rejected as being defective or otherwise unsatisfactory, title to all such materials and supplies shall upon such rejection revert in the Contractor.

The sum paid under this Agreement shall be deemed to be in full consideration for the performance by the Contractor of all his duties and obligations under this Agreement in connection with said sale.

The Contractor agrees to construct the Project and to furnish and perform all work and labor required, necessary or proper for or incidental thereto, except that the materials and supplies sold to the Owner under the preceding paragraph shall be furnished by the Owner to the Contractor for use in the performance of said work and labor, and the sum paid pursuant to this Agreement shall be deemed to be in full consideration for the performances by the Contractor of all his duties and obligations under this Agreement in connection with said work and labor.

The purchase by the Contractor of the materials and supplies sold hereunder will be a purchase or procurement for resale to the Owner (an organization described in subdivision (a) of Sec. 1116 of the Tax Law of the State of New York) and therefore not subject to the New York State Sales or Compensating Use or any such taxes of cities and counties. The sale of such materials and supplies by the Contractor to the Owner will not be subject to the aforesaid Sales and Compensating Use Taxes.

The purchase by Subcontractors of materials and supplies to be sold hereunder will also be a purchase or procurement for resale to the Contractor (either directly or through other Subcontractors), and ultimately to the Owner, and therefore not subject to the aforesaid Sales and Compensating Use Taxes, provided that the Subcontract Agreements provide for the resale of such materials and supplies prior to and separate and apart from the incorporation of such materials and supplies into the permanent construction and that such Subcontract Agreements are in a form similar to this Contract with respect to the separation of the sale of materials and supplies from the work and labor to be provided.

If as a result of such sale of materials and supplies (1) any claim is made against the Contractor or any Subcontractor by the State of New York or any city or county for Sales or Compensating Use Taxes on the aforementioned materials and supplies or (2) any claim is made against the Contractor or any Subcontractor by a materialman or a Subcontractor on account of a claim against such materialman or Subcontractor by the State of New York or any city or county for Sales or Compensation Use Taxes on the aforementioned materials and supplies, then, if the Contractor and Subcontractor have complied with the provisions of this Contract relating thereto, the Owner will reimburse the Contractor or any Subcontractor, as the case may be, for an amount equal to the amount of such tax required to be paid in accordance with the requirements of law, provided that:

- A.
 1. The Subcontract Agreements in connection with this Contract, provide for the resale of such materials and supplies, prior to and separate and apart from the incorporation of such materials and supplies into the permanent construction.
 2. Such Subcontract Agreements are in a form similar to this Contract with respect to the separation of the sale of materials and supplies from the other work and labor to be provided, and
 3. Such separation is actually followed in practice, including the separation of payments for materials and supplies from the payments for other work and labor, and
- B. The Contractor and his Subcontractors and materialmen complete New York State Sales Tax Form ST120.1. (Contractor Exempt Purchase Certificate), and furnish such certificate to all persons, firms or corporations from which they purchase materials and supplies for the performance of the work covered by this Contract, and
- C. The Contractor and all Subcontractors maintain and keep, for a period of six (6) years after the date of final payment for the sale, or, if a claim for Sales or Compensating Use Tax is pending or threatened at the end of such six (6) year period, until such claim is finally settled, records, which in the judgment of the Department of Taxation and Finance, adequately show (1) all materials and supplies purchased by them for resale, pursuant to the provisions of this Contract and (2) all materials and supplies sold to the Owner pursuant to the provisions of this Contract, and
- D. The Owner is afforded the opportunity, before any payment of tax is made, to contest said claim in the manner and to the extent that the Owner may choose and to settle or satisfy said claims, and such attorney as the Owner may designate is authorized to act for the purpose of contesting, settling and satisfying said claim, and

- E. The Contractor and Subcontractor give immediate notice to the Owner of any such claim, cooperate with the Owner and its designated attorney in contesting said claim and furnish promptly to the Owner and said attorney all information and documents necessary or convenient for contesting said claim, said information and documents to be preserved for six (6) years after date of final payment for the sale, or if such a claim is pending or threatened at the end of such six (6) years, until such claim is finally settled. If the Owner elects to contest any such claim, it will bear the expense of such contest.

Nothing in this Article is intended or shall be construed as relieving the Contractor from his obligations under this Agreement and the Contractor shall have the full continuing responsibility to install the materials and supplies purchased in accordance with the provisions of this Contract, to protect the same, to maintain them in proper condition and to forthwith repair, replace and make good any damage thereto without cost to the Owner until such time as the work covered by the Contract is fully accepted by the Owner.

SP 30-09 Conformed Contract Documents. Conformed Contract Documents sent to the successful bidder for execution will consist of the original contract documents with a copy of the successful bidder's Proposal section inserted. In addition, the Form of Contract will be edited to include a contract date, the Contractor's name and address, the contract parts that are being awarded: Total Bid; Total Base Bid; Total Base Bid plus Add-On No. 1; Total Alternate No. 1 Bid plus Add-On No. 1; etc., the total contract amount awarded, the list of Addenda and dates, the contractor's company name on the signature page, a copy of the Contractor's Performance Bond, Labor and Material Payment Bond and Insurance Certificates will be inserted. The original completed and signed Proposal will be kept on file with the Owner or Engineer.

The Conformed Contracts Documents may incorporate changes to the General Provisions and the Technical Specifications which were made by addendum. If changes are so included, the addendum cover sheets will be included in the Conformed Contract Documents before the Table of Contents, otherwise the full addendum will be included before the Table of Contents.

The cover of the Contract Documents will be labeled "Conformed Contract".

SP 30-10 Issued for Construction Contract Documents. Issued for Construction (IFC) Contract Documents will be distributed prior to the start of construction. The IFC contract documents consist of the Conformed Contract Documents and the Contract Drawings. The IFC Contract Documents will include a copy of the executed Form of Contract. The original filled out and signed Form of Contract will be kept on file with the Owner or Engineer. The IFC Construction Drawings will incorporate any changes made by addendum during the bidding process.

The cover of the Contract Documents will be labeled "Conformed Contract" and "Issued for Construction". The title sheet of the Contract Drawings will be labeled "Issued for Construction".

SP 50-18 Removal of water. The Contractor shall at all times during construction, provide and maintain proper and satisfactory means and devices for the removal of all water entering the excavations, and shall remove all such water as fast as it may collect, in such manner as shall not interfere with the prosecution of the work or the proper placing of materials or other work.

Removal of water includes the construction and removal of cofferdams, sheeting and bracing, the furnishing of materials and labor necessary therefore, the excavation and maintenance of ditches and

sluiceways and the furnishing and operation of pumps, wellpoints and appliances needed to maintain thorough drainage of the work in a satisfactory manner.

Water shall not be allowed to rise over or come in contact with any masonry, concrete or mortar, until at least twenty-four (24) hours after placement and no stream of water shall be allowed to flow over such work until such time as the RPR may permit.

Unless otherwise specified, all excavations which extend down to or below the static groundwater elevations at the sites of structures shall be dewatered by lowering and maintaining the groundwater beneath such excavations at an elevation not less than that specified herein at all times when work thereon is in progress, during subgrade preparation and the placing of the structure or other materials thereon.

Where the presence of fine granular subsurface materials and a high groundwater table may cause the upward flow of water into the excavation with a resulting quick condition, the Contractor shall install and operate a suitable dewatering system to prevent the upward flow of water during construction.

When the water table is within the capillary rise of silt/clay subsurface material, the Contractor shall select and operate his equipment in a manner to prevent the deterioration of the working surface due to the upward flow of water during construction.

The effluent pumped from the dewatering system shall be examined periodically by qualified personnel to determine if the system is operating satisfactorily without the removal of fines.

Unless otherwise directed by the RPR or shown on the Contract Documents, the water level shall not be permitted to rise until construction in the immediate area is completed and the excavation backfilled to the original grade or proposed grade.

Where well points are used, the groundwater shall be lowered and maintained continuously (day and night) at a level not less than two (2) feet below the bottom of the excavation. Excavation will not be permitted at a level lower than two (2) feet above the water level as indicated by the observation wells.

The wellpoint system shall be designed or installed by or under the supervision of an organization whose principal business is wellpointing and has at least five (5) consecutive years of similar experience and can furnish a representative list of satisfactory similar operations. Wellpoint headers, points and other pertinent equipment shall not be placed within the limits of the excavation in such a manner or location as to interfere with the laying of pipe or trenching operations or with the excavation for and/or construction of other structures. Standby gasoline or diesel powered equipment shall be provided so that in the event of failure of the operating equipment, the standby equipment can be readily connected to the dewatering system. The standby equipment shall be maintained in good order and actuated regularly not less than twice a week when directed.

Wellpoints shall be installed in the center of a sand wick drain which shall be placed by means of a sanding shell or other approved means to provide a sand core not less than ten (10) inches in diameter.

Detached observation wells of similar construction to the wellpoints shall be installed at intervals of not less than fifty (50) feet along the opposite side of the trench from the header pipe and line of wellpoints, or around the excavation for a structure or as shown on the Contract Drawings, to a depth of at least five (5) feet below the proposed excavation. In addition, one wellpoint in every fifty (50) feet shall be fitted with a tee, plug and valve so that the wellpoint can be converted for use as an observation well. Observation wells shall be not less than one and one-half (1 1/2) inch in diameter.

Water pumped or drained from excavations, or any sewers, drains, or water courses encountered in the work, shall be disposed of in a suitable manner without injury to adjacent property, the work under construction, or to pavements, roads and drives. No water shall be discharged to sanitary sewers. Sanitary sewage shall be pumped to sanitary sewers or shall be disposed of by an approved method.

Any damage caused by improper handling of water shall be repaired by the Contractor at his/her own expense.

SP 50-19 Sheeting and bracing. The Contractor shall furnish, place and maintain such sheeting, bracing and shoring as required to support the sides and ends of excavations in such a manner as to prevent any movement which would in any way damage the pipe, sewers, masonry or other work, diminish the width necessary, otherwise damage or delay the work, or endanger existing structures, pipes or pavements, or to occasion a hazard to persons engaged on the project or to the general public.

Sheeting and bracing or other trench protection shall be utilized as required for the safety of employees exposed to the hazard of falling or sliding material from any trench or excavation in conformance with the provisions of Industrial Code Rule 23 as amended, and OSHA. Sheeting and bracing must be designed by, signed and stamped by a Professional Engineer licensed to practice in the State in which the project is located.

The Contractor shall be responsible for the adequacy of all trench support systems used and for all damage to persons or property resulting from improper quality, strength, placing, maintenance and removal.

All material used for sheeting and bracing shall be sound and free from defects which might impair its strength or effectiveness.

All timber sheeting and bracing shall be sound and straight, free from cracks, shakes and large or loose knots.

All steel sheeting and bracing shall be sound and straight, free from bends, twists or splits, having square and undamaged ends.

Sheeting shall be driven vertically from the original ground surface as the excavation progresses. Sufficient toe support shall be sustained so as to maintain pressure against the original ground at all times.

Timber sheeting shall be driven so that edges are tight together and steel sheeting driven with the individual members interlocking. All bracing shall be of such design and strength as to maintain the sheeting in its proper position.

The Contractor shall be solely responsible for the adequacy of all sheeting and bracing.

In general, all sheeting and bracing, whether of steel, timber or other material, used to support the sides of trenches or other open excavations, shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a pipe, sewer or structure shall be withdrawn, unless otherwise directed, before more than 6 inches of earth is placed above the top of the pipe, sewer or structure and before any bracing is removed. The voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The Contractor shall be responsible for the adequate shoring and/or bracing of any existing utilities encountered during the excavation. Such utilities shall be braced or shored in a manner acceptable to the local jurisdictional agency having authority over the utility encountered. It shall be the responsibility of the Contractor to prevent damage to or displacement of utilities, and to work with and request the concurrence of the utility's company representative in this matter.

SP 60-09 Shop and setting drawings and catalogue data. All materials and equipment used in the work shall be submitted to the RPR, unless otherwise directed. The RPR will forward the submittals to Engineer for their review and approval prior to ordering the equipment. All information required for the Engineer's review of each particular pay item shall be sent as one submittal. In addition, if the pay item interfaces with other pay items (as in the case of electrical equipment), then the submittals covering the interfacing pay items shall be sent at the same time. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Drawings and data shall be submitted sufficiently in advance of the work to permit proper review, including time for necessary revisions and re-submittals. The Contractor is solely responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

Shop and setting drawings shall present complete and accurate information relative to all working dimensions, equipment weight assembly and sectional view, all the necessary details, pertaining to coordinating the work of the Contract, lists of materials and finishes, parts lists and the description thereof, lists of spare parts and tools where such parts or tools are required, no-scale control diagrams for control wiring and control piping, and any other items of information that are required to demonstrate detail compliance with the Plans and Specifications. Each drawing shall be dated and shall show the name of the Project, Contract Number and the name of the manufacturer of the equipment covered by the drawing or drawings. The Engineer will not review any drawings that are not properly identified or that do not contain complete data on the work or that have not been checked, stamped and signed by the Contractor for compliance with the Contract Documents.

The Engineer's review of the Contractor's Shop Drawings signifies only that such drawings appear to be in substantial conformity with the Contract Drawings and Contract Documents. Such review does not indicate approval of every detail of the drawings nor of the work methods of the Contractor which are indicated thereon. Regardless of the corrections made in or made of such drawings by the Engineer, the Contractor will nevertheless be responsible for the accuracy of such drawings, for their conformity to the Plans and Specifications and for the proper fitting and construction of the work.

No work covered by shop and setting drawings shall be done until the drawings have been reviewed and found acceptable by the Engineer. No payment shall be made on any item for which submittals are not received and found acceptable by the Engineer.

SP 60-10 Electrical shop drawings. Drawings for electrical equipment shall show physical dimensions and installation details and shall include elementary and connection diagrams for each control assembly and the interconnection diagrams for all equipment. The drawings shall show clearly the coordination of control work, shall identify the components external to electrical equipment and shall define the contact arrangement and control action of the primary and final control elements.

Where standard electrical control equipment having complex internal wiring is required, such as control panels, generator transfer panels, electric or electronic instruments and similar items, the detail shop wiring diagrams for such equipment will not be required, and, if submitted, will in general not be reviewed. The submittal for each such item of equipment shall, however, include an elementary diagram of the input and output elements which require connections to external equipment, and/or a complete step by step description of the control action of the equipment being submitted. In the event that any questions arise as to the type of information to be presented on the submittal, the supplier shall direct inquiries to the RPR through the Prime Contractor in advance of the preparation of his/her submittal.

SP 60-11 Substitute items. If in the Engineer's sole judgment an item of material or equipment proposed by the Contractor does not qualify as an "or-equal" item, it will be considered a substitute item. The Contractor shall submit sufficient information as provided below to allow the Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. The procedure for review by the Engineer will include the following and as the Engineer may decide is appropriate under the circumstances. Requests for review of substitute items of material or equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall first make a written application through the RPR to the Engineer for acceptance thereof, certifying that the substitute will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified and be suited to the same use as that specified. The application will state the extent, if any, to which the evaluation and acceptance of the substitute will prejudice the Contractor's achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents or Contract Drawings (or in the provisions of any other direct contract with the Owner for work on the Project) to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. If the substitute item requires modifications to any existing features or to any proposed work, the application shall also include details of proposed modifications necessary to accommodate the substitute item. Such details shall include scaled layouts, dimensions and other pertinent information to enable the Engineer to accurately assess the entire application. If the substitute item and proposed modifications are approved, the Contractor, at no additional cost to the Owner, shall do all work necessary to make such modifications and absorb all costs of any related changes imposed on other Contractor's. All variations of the substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the substitute. The Engineer may require the Contractor to furnish additional data about the substitute.

- A. Engineer's Evaluation.** The Engineer will be the sole judge of acceptability. No substitute will be ordered, installed or utilized without the Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. The Engineer will record time required by the Engineer and the Engineer's Consultants in evaluating substitutes proposed or submitted by the Contractor and in making changes in the Contract Documents or Contract Drawings (or in the provisions of any other direct contract with Owner for work on the Project) occasioned thereby. The Engineer's charges shall be at the same rates the Engineer charges for such services to the Owner.
- B. Contractor's Expense.** All data to be provided by the Contractor in support of any substitute item will be at the Contractor's expense. In order to aid the Engineer in determining the equality of an or substitute item (when compared to the item actually specified), the Contractor shall arrange for the performance of any tests requested by the Engineer. The Engineer shall determine

the nature, extent, tester and degree of supervision of such tests. Certified test results shall be mailed directly to the Engineer for all tests requested. All costs of such tests, including engineering costs, shall be borne by the Contractor. The Owner may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute. Whether or not the Engineer accepts a substitute item so proposed or submitted by the Contractor, the Contractor shall reimburse the Owner for the charges of the Engineer and the Engineer's Consultants for evaluating each such substitute item. The costs for evaluating substitute items shall be deducted from the Owner's payment to the Contractor.

SP 60-12 Submittal procedure. The following procedure has been established for the submittal and processing of shop and setting drawings, working drawings, and catalogue data. Departures from this procedure may result in delay and misunderstandings.

- A. All information required for the Engineer's review of each particular pay item shall be sent as one submittal to the RPR with an attached submittal cover sheet. In addition, if the pay item interfaces with other pay items (as in the case of electrical equipment), then the submittals covering the interfacing pay items shall be sent at the same time.
- B. In submitting certifications, drawings, catalog data, and similar items for review, one (1) electronic copy shall be submitted to Doc Express. Access to Doc Express will be provided by the RPR upon award of the Contract. The submittal will be reviewed by the Engineer, stamped and signed. The submittal bearing the reviewed stamp and signature will be reloaded back to Doc Express by the Engineer. It will be the Contractor's responsibility to check Doc Express for updated submittals.

The Contractor shall provide one (1) hard copy of each of the stamped and signed submittals for inclusion in the O&M Manual prior to contract closeout.

The RPR shall be responsible for printing sufficient copies of each submittal for their own records. The Contractor shall be responsible for printing sufficient copies of each submittal for their own records and distributing to each of the other prime or subcontractors whose work is to be correlated with such submittals.

- C. Submittals will be stamped by the Engineer as follows:
 - 1. "Approved", if no change or rejection is made.
 - 2. "Approved as Noted", if minor changes or additions are made, but re-submittal is not considered necessary. All copies will bear the corrective marks.
 - 3. "Revise and Resubmit", if the changes requested are extensive. In this case, re-submittal after correction is necessary and the same number of copies shall be included in the re-submittal as in the first submittal.
 - 4. "Rejected", if it is considered that the data submitted cannot with reasonable revision meet the requirements of the Plans and Specifications.
 - 5. "Submit Specified Item", if the data submitted is not clear, complete, or for other reasons cannot be examined by the Engineer to establish compliance with the Plans and Specifications.
- D. Unless otherwise approved in specific cases, all submittals must be transmitted by the Prime Contractor, not by the Subcontractors or vendors.

Any changes in re-submittals, other than those indicated as requested, must be specifically brought to the attention of the RPR. Changes or additions shall not be made in, or to, any fabricated item, part or material without having a re-review.

SP 70-22 Additional sanitary, health, and safety provisions.

New York State Labor Law requires for every contract for the construction, reconstruction, maintenance and/or repair of public work to which the State or a municipality is a party, where the total cost of all work to be performed under the contract is at least \$250,000, all laborers, workers and mechanics employed performing work of the contract on the work site be certified as having successfully completed an OSHA 10-hour Construction Safety course. This requirement applies to the contractor, subcontractors and other persons.

SP 70-23 Federal Contract Provisions for procurement and contracting under AIP.

The Contractor is required to insert these contract provision in each lower tier contract (e.g. subcontract or sub-agreement).

The Contractor is required (including all subcontractors) to incorporate these contract provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services.

The Contractor shall be responsible for compliance with these contract provisions by any subcontractor, lower-tier subcontractor or service provider.

A1 ACCESS TO RECORDS AND REPORTS

ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

A2 AFFIRMATIVE ACTION REQUIREMENT

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetables

Goals for minority participation for each trade:	3.8%
Goals for female participation in each trade:	6.9%

These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.
4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is Oswego County, New York.

A3 BREACH OF CONTRACT TERMS**BREACH OF CONTRACT TERMS**

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by the deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

A4 BUY AMERICAN PREFERENCE

BUY AMERICAN PREFERENCE

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws (Per Executive Order 14005 “Made in America Laws” means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to “Buy America” or “Buy American,” that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.), U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA’s Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA’s Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

Certificate of Compliance with FAA Buy American Preference – Construction Projects

NOTE: Certification is included in the PROPOSAL.

A5 CIVIL RIGHTS – GENERAL

GENERAL CIVIL RIGHTS PROVISIONS

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

A6 CIVIL RIGHTS – TITLE VI ASSURANCE

Title VI Solicitation Notice:

The Sponsor, 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 for any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and no 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.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- 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);
- 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);
- 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);
- 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 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 et seq.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-259) (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);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 USC § 12101, et seq) (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) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;

- The Federal Aviation Administration’s Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (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);
- 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 Guidelines for Contract Provisions for Obligated Sponsors and Airport Improvement Program Projects Issued on November 18, 2022 Page 22take reasonable steps to ensure that LEP persons have meaningful access to your programs [70 Fed. Reg. 74087 (2005)];
- 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).

Compliance with Nondiscrimination Requirements:

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) 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. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, 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. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract 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 the 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 the Contractor of the contractor’s obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The 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 sponsor or the Federal Aviation

Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the sponsor 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 a Contractor's noncompliance with the non-discrimination provisions of this contract, the sponsor 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 the Contractor under the contract until the Contractor complies; and/or
 - b. Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The 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. The Contractor will take action with respect to any subcontract or procurement as the sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

A7 CLEAN AIR AND WATER POLLUTION CONTROL

CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 740-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceeds \$150,000.

A8 CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such

laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of \$29 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

A9 COPELAND “ANTI-KICKBACK” ACT

COPELAND “ANTI-KICKBACK” ACT

Contractor must comply with the requirements of the Copeland “Anti-Kickback” Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

A10 DAVIS-BACON REQUIREMENTS

DAVIS-BACON REQUIREMENTS

1. Minimum Wages.

- (i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

- (ii)
 - (A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - (1) The work to be performed by the classification requested is not performed by a classification in the wage determination;
 - (2) The classification is utilized in the area by the construction industry; and
 - (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
 - (B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an

authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program

2. Withholding.

The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

- (i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
- (ii) (A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

- (B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;
 - (2) That each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;
 - (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- (C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.
- (D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.
- (E) A pay application can not be deemed acceptable until all Contractor and subcontractor are submitted and approved by the Owner representative for the work period of the pay application.
- (iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

4. Apprentices and Trainees.

- (i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and

individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (ii) Trainees. Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate

that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (iii) Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

- (i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).
- (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).
- (iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC § 1001.

A11 DEBARMENT AND SUSPENSION

CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a "covered transaction", must verify each lower tier participant of a "covered transaction" under the project is not presently debarred or otherwise disqualified from participation in this federally assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: <http://www.sam.gov>.
2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

A12 DISADVANTAGED BUSINESS ENTERPRISE

Solicitation Language (Solicitations that include a Project Goal)

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

As a condition of bid responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein and must provide written confirmation of participation from each of the DBE firms the Bidder or Offeror lists in its

commitment. **SEE THE CONTRACTORS DBE PLAN FORM AND DBE LETTER OF INTENT FORM IN THE PROPOSAL SECTION.**

- 1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
- 2) A description of the work that each DBE firm will perform;
- 3) The dollar amount of the participation of each DBE firm listed under (1)
- 4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal
- 5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
- 6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26.

Solicitation Language (Race/Gender Neutral Means)

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the Owner to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

Prime Contracts (Projects Covered by a DBE Program)

DISADVANTAGED BUSINESS ENTERPRISES

Contract Assurance (§ 26.13) –

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- 1) Withholding monthly progress payments;
- 2) Assessing sanctions;
- 3) Liquidated damages; and/or
- 4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (§26.29) – The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 7 days from the receipt of each payment the prime contractor receives from the Owner. The prime contractor agrees further to return retainage payments to each subcontractor within 7 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the Owner. This clause applies to both DBE and non-DBE subcontractors.

The Monthly Payment Report, found later in this section, is required to be submitted on a monthly basis throughout the entirety of the project. A progress payment will not be deemed complete and able to be processed until the reports are submitted. This report monitors the payments by providing a running tally of actual DBE attainments and compares this to the commitments.

The Monthly Payment Report, found later in this section, is required to be submitted along with a Disadvantaged Business Enterprise DBE Participation Summary for each DBE subcontractor on a monthly basis Subcontractor's Prompt Payment Certification throughout the entirety of the project. A progress payment will not be deemed complete and able to be processed until the reports are submitted. This report monitors the payments by providing a running tally of actual DBE attainments and compares this to the commitments.

The prime contractor is responsible for issuing the Subcontractor's Prompt Payment Certification to all subcontractors under this contract, and is required to ensure that all subcontractors issue the certificate to each of their subcontractors. Each subcontractor, DBE and non-DBE firms, are required to complete the Subcontractor's Prompt Payment Certification, found later in this section or electronically. A completed copy of this form shall be submitted to the Owner's representative, the Prime Contractor and the Contractor you are working for at least 7 days prior to an application for payment. This form is to be submitted with each payment application by every subcontractor, DBE and non-DBE firms until each subcontractor's work is complete and they have been paid in full and state so on their final Subcontractor's Prompt Payment Certification. Each Subcontractor's Prompt Payment Certificate must be received by the Owner's representative or the progress payment will not be deemed complete and able to be processed.

Monitoring Responsibilities (§26.37) – The prime contractor agrees to carry out all appropriate mechanisms to ensure compliance with 49 CFR Part 26 program requirements by all program participants, including monitoring of payments.

This project requires the following method to be utilized in tracking payments:

The Monthly Payment Report, found later in this section, is required to be submitted on a monthly basis throughout the entirety of the project. This report monitors the payments by providing a running tally of actual DBE attainments and compares this to the commitments. This report is submitted monthly throughout the entirety of the project.

The Disadvantaged Business Enterprise (DBE) Participation Summary Form, must be completed and signed by the DBE firm and Prime Contractor upon completion of the project. The intent of this form is to confirm total payments made to DBE firms.

or

Each sub-contractor, supplier must electronically acknowledge payments from the prime prior to the submission of the next pay application.

The following language in this section was taken from various sections of 49 CFR Part 26 titled Participation by Disadvantaged Business Enterprises in Department of Transportation

Financial Assistance Programs. They are not intended to be all encompassing, nor a comprehensive reiteration of the regulation.

- A. The Sponsor has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the U.S. Department of Transportation (DOT), 49 CFR Part 26. The Sponsor has received, or will receive, Federal financial assistance from the Department of Transportation, and as a condition of receiving this assistance, the Sponsor has signed an assurance that it will comply with 49 CFR Part 26.

It is the policy of the Sponsor to ensure that DBEs as defined in part 26, have an equal opportunity to receive and participate in DOT–assisted contracts. It is also the policy of the Sponsor:

1. To ensure nondiscrimination in the award and administration of DOT – assisted contracts;
 2. To create a level playing field on which DBEs can compete fairly for DOT-assisted contracts;
 3. To ensure that the DBE Program is narrowly tailored in accordance with applicable law;
 4. To ensure that only firms that fully meet 49 CFR Part 26 eligibility standards are permitted to participate as DBEs;
 5. To help remove barriers to the participation of DBEs in DOT assisted contracts;
 6. To promote the use of DBEs in all types of federally-assisted contracts and procurement activities;
 7. To assist the development of firms that can compete successfully in the market place outside the DBE Program; and
 8. To make appropriate use of the flexibility afforded to recipients of Federal financial assistance in establishing and providing opportunities for DBEs.
- B. The obligation of the bidder is to make good faith efforts. The bidder can demonstrate that it has done so either by meeting the contract goal or documenting good faith efforts. Examples of good faith efforts are found in Appendix A to Part 26. Determination whether the bidder has made a good faith effort will be made by the Sponsor’s DBE Liaison Officer. The Contractor’s DBE Plan must be acceptable to the Sponsor before entering into a contract with the bidder.

Guidance pertaining to good faith efforts is provided in Appendix A to 49 CFR Part 26. In general, the bidder must demonstrate that they have taken all necessary and reasonable steps to achieve the identified DBE goal. The bidder should adequately document all such efforts, including contacts of DBE firms that are not interested.

Good Faith Efforts:

Bidder must demonstrate that they made good faith efforts to achieve participation with DBE firms. This requires that the bidder show that it took all necessary and reasonable steps to secure participation by certified DBE firms. Mere pro forma efforts will not be considered as a good faith effort.

Such actions constituting evidence of good faith efforts include but are not limited to:

- Soliciting DBE participation through all reasonable and available means. This may include but not limited to phone, emails, social media, public advertisements, outreach to known certified DBE firms.
 - Researching the state’s DBE directories to obtain a list of certified DBE firms.
 - Selecting portions of work that increases the likelihood that DBE firms will be available to participate.
 - Providing DBE firms with sufficient information and time to review the project plans and specifications.
 - Documenting all contacts with DBE firms. This includes name, address, phone number, date of contact and record of conversation/negotiation.
- C. Within 5 days of being informed by the Airport that it is not responsive because it has not documented sufficient good faith efforts, a bidder may request administrative reconsideration. Bidder/offerors should make this request in writing to the Sponsor’s reconsideration official. The reconsideration official will not have played any role in the original determination that the bidder did not document sufficient good faith efforts.

As part of this reconsideration, the bidder/offeror will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so. The bidder/offeror will have the opportunity to meet in person with the reconsideration official to discuss the issue of whether it met the goal or made adequate good faith efforts to do. We will send the bidder/offeror a written decision on reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. The result of the reconsideration process is not administratively appealable to the Department of Transportation.

- D. Termination of DBE Subcontracts (49 CFR § 26.53(f))** – The prime contractor must not terminate a DBE subcontractor listed in response to the Contractor’s DBE Plan and DBE Letter of Intent Forms (or an approved substitute DBE firm) without prior written consent of the Owner. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent the Owner. Unless the Owner consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

The Owner may provide such written consent only if the Owner agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR §26.53.

Before transmitting to the Owner its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to the Owner, of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise the Owner and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Owner should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), the Owner may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to preaward deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

The Airport will require a contractor to make good faith efforts to replace a DBE that is terminated or has otherwise failed to complete its work on a contract with another certified DBE. These good faith efforts shall be directed at finding another DBE to perform at least the same amount of work under the contract as the DBE that was terminated, to the extent needed to meet the contract goal that we established for the procurement. The good faith efforts shall be documented by the contractor. If we request documentation from the contractor under this provision, the contractor shall submit the documentation to us within 7 days, which may be extended for an additional 7 days if necessary at the request of the contractor, and the recipient shall provide a written determination to the contractor stating whether or not good faith efforts have been demonstrated.

As stated in Contract Assurance § 26.13, failure by the contractor to carry out the requirements of this part is a material breach of the contract and may result in the termination of the contract or such other remedies set forth in that section that we deem appropriate if the prime contractor fails to comply with the requirements of this section.

If the contractor fails or refuses to comply in the time specified, our contracting office will issue an order stopping all or part of payment/work until satisfactory action has been taken. If the contractor still fails to comply, the contracting officer may issue a termination for default proceeding.

- E. The sponsor will require the contractor to maintain records and documents of payments to DBEs for three years following the performance of the contract. These records will be made available for inspection upon request by any authorized representative of the Sponsor or DOT. This reporting requirement also extends to any certified DBE subcontractor.
- F. Fostering Small Business Participation (49 CFR Part 26, §26.39).

The Sponsor has determined that an SBE program is not feasible for this Contract.

A13 DISTRACTED DRIVING

TEXTING WHEN DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers,

including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding \$10,000 that involve driving a motor vehicle in performance of work activities associated with the project.

A14 PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].

A15 DRUG FREE WORKPLACE REQUIREMENTS

The Drug-Free Workplace Act of 1988 requires some Federal contractors and all Federal grantees to agree that they will provide drug-free workplaces as a condition of receiving a contract or grant from a Federal agency. The Act does not apply to contractors, subcontractors, or subgrantees, although the Federal grantee's workplace may be where the contractors, subcontractors, or subgrantees are working.

A16 EQUAL EMPLOYEMENT OPPORTUNITY (EEO)

EQUAL OPPORTUNITY CLAUSE

During the performance of this contract, the Contractor agrees as follows:

- (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identify, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff, or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired

about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

- (4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under this section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor .
- (6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (8) The Contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS**

1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
 - b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
 - c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
 - d. "Minority" includes:
 - (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
 - (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
 3. If the Contractor is participating (pursuant to 41 CFR part 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
 4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should

reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

- d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's work force.

- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.
 - l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
 - m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.
11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR part 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

A17 FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

SOLICITATION CLAUSE

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

A18 LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

NOTE: Certification is included in the PROPOSAL.

A19 PROHIBITION of SEGREGATED FACILITIES

PROHIBITION OF SEGREGATED FACILITIES

- (a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.
- (b) “Segregated facilities,” as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.
- (c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

A20 OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

CONTRACT CLAUSE

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor’s compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

A21 PROCUREMENT OF RECOVERED MATERIALS

PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory

provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

- 1) The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or
- 2) The contractor has procured \$10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

- a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;
- b) Fails to meet reasonable contract performance requirements; or
- c) Is only available at an unreasonable price.

A22 RIGHT TO INVENTIONS

RIGHTS TO INVENTIONS

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 CFR § 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

A23 SEISMIC SAFETY (Section not applicable.)

A24 TAX DELINQUENCY AND FELONY CONVICTIONS

NOTE: Certification is included in the PROPOSAL.

A25 TERMINATION OF CONTRACT

TERMINATION FOR CONVENIENCE (CONSTRUCTION & EQUIPMENT CONTRACTS)

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as

explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

- 1) completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
- 2) documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
- 3) reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
- 4) reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

TERMINATION FOR DEFAULT (CONSTRUCTION)

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes conditions, rights, and remedies associated with Owner termination of this contract due to default of the Contractor.

TERMINATION FOR DEFAULT (EQUIPMENT)

The Owner may, by written notice of default to the Contractor, terminate all or part of this Contract if the Contractor:

1. Fails to commence the Work under the Contract within the time specified in the Notice- to-Proceed;
2. Fails to make adequate progress as to endanger performance of this Contract in accordance with its terms;
3. Fails to make delivery of the equipment within the time specified in the Contract, including any Owner approved extensions;
4. Fails to comply with material provisions of the Contract;
5. Submits certifications made under the Contract and as part of their proposal that include false or fraudulent statements; or

6. Becomes insolvent or declares bankruptcy.

If one or more of the stated events occur, the Owner will give notice in writing to the Contractor and Surety of its intent to terminate the contract for cause. At the Owner's discretion, the notice may allow the Contractor and Surety an opportunity to cure the breach or default.

If within 10 days of the receipt of notice, the Contractor or Surety fails to remedy the breach or default to the satisfaction of the Owner, the Owner has authority to acquire equipment by other procurement action. The Contractor will be liable to the Owner for any excess costs the Owner incurs for acquiring such similar equipment.

Payment for completed equipment delivered to and accepted by the Owner shall be at the Contract price. The Owner may withhold from amounts otherwise due the Contractor for such completed equipment, such sum as the Owner determines to be necessary to protect the Owner against loss because of Contractor default.

Owner will not terminate the Contractor's right to proceed with the Work under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such acceptable causes include: acts of God, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, and severe weather events that substantially exceed normal conditions for the location.

If, after termination of the Contractor's right to proceed, the Owner determines that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the Owner issued the termination for the convenience the Owner.

The rights and remedies of the Owner in this clause are in addition to any other rights and remedies provided by law or under this contract.

A26 TRADE RESTRICTION CERTIFICATION

NOTE: Certification is included in the PROPOSAL.

A27 VETERAN'S PREFERENCE

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 USC § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

A28 DOMESTIC PREFERENCES FOR PROCUREMENTS

CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

SP 70-24 New York State Department of Transportation (NYSDOT) standard clauses for New York state contracts. The following verbiage is included verbatim from Appendix A, Standard Clauses for New York State Contracts, dated January 2014 as required by New York State Department of Transportation grant assurances:

STANDARD CLAUSES FOR NYS CONTRACTS

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "the contract" or "this contract") agree to be bound by the following clauses which are hereby made a part of the contract (the word "Contractor" herein refers to any party other than the State, whether a contractor, licensor, licensee, lessor, lessee or any other party):

1. **EXECUTORY CLAUSE.** In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.
2. **NON-ASSIGNMENT CLAUSE.** In accordance with Section 138 of the State Finance Law, this contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or otherwise disposed of without the State's previous written consent, and attempts to do so are null and void. Notwithstanding the foregoing, such prior written consent of an assignment of a contract let pursuant to Article XI of the State Finance Law may be waived at the discretion of the contracting agency and with the concurrence of the State Comptroller where the original contract was subject to the State Comptroller's approval, where the assignment is due to a reorganization, merger or consolidation of the Contractor's business entity or enterprise. The State retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with the State. The Contractor may, however, assign its right to receive payments without the State's prior written consent unless this contract concerns Certificates of Participation pursuant to Article 5-A of the State Finance Law.
3. **COMPTROLLER'S APPROVAL.** In accordance with Section 112 of the State Finance Law (or, if this contract is with the State University or City University of New York, Section 355 or Section 6218 of the Education Law), if this contract exceeds \$50,000 (or the minimum thresholds agreed to by the Office of the State Comptroller for certain S.U.N.Y. and C.U.N.Y. contracts), or if this is an amendment for any amount to a contract which, as so amended, exceeds said statutory amount, or if, by this contract, the State agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds \$10,000, it shall not be valid, effective or binding upon the State until it has been approved by the State Comptroller and filed in his office. Comptroller's approval of contracts let by the Office of General Services is required when such contracts exceed \$85,000 (State Finance Law Section 163.6-a). However, such pre-approval shall not be required for any contract established as a centralized contract through the Office of General Services or for a purchase order or other transaction issued under such centralized contract.

4. **WORKERS' COMPENSATION BENEFITS.** In accordance with Section 142 of the State Finance Law, this contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the Workers' Compensation Law.
5. **NON-DISCRIMINATION REQUIREMENTS.** To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex (including gender identity or expression), national origin, sexual orientation, military status, age, disability, predisposing genetic characteristics, marital status or domestic violence victim status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of \$50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.
6. **WAGE AND HOURS PROVISIONS.** If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the State of any State approved sums due and owing for work done upon the project. **SEE "SPECIAL NOTE" REGARDING PREVAILING WAGE RATES FOLLOWING THIS SECTION.**
7. **NON-COLLUSIVE BIDDING CERTIFICATION.** In accordance with Section 139-d of the State Finance Law, if this contract was awarded based upon the submission of bids, Contractor affirms, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to the State a non-collusive bidding certification on Contractor's behalf.
8. **INTERNATIONAL BOYCOTT PROHIBITION.** In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds \$5,000, the

Contractor agrees, as a material condition of the contract, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2NYCRR 105.4).

- 9. SET-OFF RIGHTS.** The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State with regard to this contract, any other contract with any State department or agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by the State agency, its representatives, or the State Comptroller.
- 10. RECORDS.** The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, "the Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the agency or agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The State shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform an appropriate State official, in writing, that said records should not be disclosed; and (ii) said records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the State's right to discovery in any pending or future litigation.

11. IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.

- a) Identification Number(s). Every invoice or New York State Claim for Payment submitted to a New York State agency by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following:
- (i) the payee's Federal employer identification number,
 - (ii) the payee's Federal social security number, and/or
 - (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System.

Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

(b) Privacy Notification.

(1) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law.

(2) The personal information is requested by the purchasing unit of the agency contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN. In accordance with Section 312 of the Executive Law and 5 NYCRR 143, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of \$25,000.00, whereby a contracting agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the contracting agency; or (ii) a written agreement in excess of \$100,000.00 whereby a contracting agency is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of \$100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this agreement the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:

- (a) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State contracts and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;
- (b) at the request of the contracting agency, the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein; and

- (c) the Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

Contractor will include the provisions of "a", "b", and "c" above, in every subcontract over \$25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State shall consider compliance by a contractor or subcontractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this section. The contracting agency shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, the contracting agency shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

- 13. CONFLICTING TERMS.** In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Appendix A, the terms of this Appendix A shall control.
- 14. GOVERNING LAW.** This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.
- 15. LATE PAYMENT.** Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.
- 16. NO ARBITRATION.** Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized), but must, instead, be heard in a court of competent jurisdiction of the State of New York.
- 17. SERVICE OF PROCESS.** In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.
- 18. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS.** The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of Section 165 of the State Finance Law, (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the contractor to establish to meet with the approval of the State.

In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in §165 State Finance Law. Any such use must meet with the approval of the State; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

19. **MACBRIDE FAIR EMPLOYMENT PRINCIPLES.** In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.
20. **OMNIBUS PROCUREMENT ACT OF 1992.** It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development
Division for Small Business
Albany, New York 12245
Telephone: 518-292-5100
Fax: 518-292-5884
email: opa@esd.ny.gov

A directory of certified minority and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
633 Third Avenue
New York, NY 10017
212-803-2414
email: mwbecertification@esd.ny.gov
<https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp>

The Omnibus Procurement Act of 1992 requires that by signing this bid proposal or contract, as applicable, Contractors certify that whenever the total bid amount is greater than \$1 million:

- (a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the State;
- (b) The Contractor has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;

- (c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the State upon request; and
- (d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

21. RECIPROCITY AND SANCTIONS PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 15, 2002, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii. Contact NYS Department of Economic Development for a current list of jurisdictions subject to this provision.

22. COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH AND NOTIFICATION ACT. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa; State Technology Law Section 208).

23. COMPLIANCE WITH CONSULTANT DISCLOSURE LAW. If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental, health, and mental health services, accounting, auditing, paralegal, legal or similar services, then, in accordance with Section 163 (4-g) of the State Finance Law (as amended by Chapter 10 of the Laws of 2006), the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to the agency that awarded the contract, the Department of Civil Service and the State Comptroller.

24. PROCUREMENT LOBBYING. To the extent this agreement is a "procurement contract" as defined by State Finance Law Sections 139-j and 139-k, by signing this agreement the contractor certifies and affirms that all disclosures made in accordance with State Finance Law Sections 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement.

25. CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS.

To the extent this agreement is a contract as defined by Tax Law Section 5-a, if the contractor fails to make the certification required by Tax Law Section 5-a or if during the term of the contract, the Department of Taxation and Finance or the covered agency, as defined by Tax Law 5-a, discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by

providing written notification to the Contractor in accordance with the terms of the agreement, if the covered agency determines that such action is in the best interest of the State.

26. **IRAN DIVESTMENT ACT.** By entering into this Agreement, Contractor certifies in accordance with State Finance Law §165-a that it is not on the “Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012” (“Prohibited Entities List”) posted at: <http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf>

Contractor further certifies that it will not utilize on this Contract any subcontractor that is identified on the Prohibited Entities List. Contractor agrees that should it seek to renew or extend this Contract, it must provide the same certification at the time the Contract is renewed or extended. Contractor also agrees that any proposed Assignee of this Contract will be required to certify that it is not on the Prohibited Entities List before the contract assignment will be approved by the State.

During the term of the Contract, should the state agency receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, the state agency will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Act within 90 days after the determination of such violation, then the state agency shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

The state agency reserves the right to reject any bid, request for assignment, renewal or extension for an entity that appears on the Prohibited Entities List prior to the award, assignment, renewal or extension of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities list after contract award.

SP 70-25 NYSDOT terms and conditions. The following verbiage is included verbatim as required by a New York State Department of Transportation grant assurance:

TERMS AND CONDITIONS (ADDENDUM NO. 1):

1. The Grantee agrees to incorporate or cause to be incorporated into any contract for construction work, or furnishing of any materials, supplies, or equipment or professional consulting services of any kind in connection with the Project, clauses under which the Contractor:
 - a. Agrees to procure and maintain insurance of the kinds and in the amounts specified.
 - b. Agrees that he will comply with the requirements of the State Labor Law and particularly Sections 220 and 220-4 thereof as amended, and as set forth in Appendix A hereof.
 - c. Agrees that during the performance of this contract, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, sex, color or national origin and will comply with the Non-Discrimination provisions set forth in Appendix A hereof.
 - d. Agrees that he will cause all persons employed upon the work including his subcontractors, agents, officers and employees, to comply with all applicable laws in the jurisdiction in which the work is performed.

- e. Agrees not to assign, transfer, convey, sublet or otherwise dispose of this agreement or any part thereof, or of its right, title or interest therein or its power to execute such agreement to any person, company or corporation without the previous consent in writing of the Grantee and the Commissioner of Transportation.
- f. Agrees that in accordance with its status as an independent contractor, it will conduct itself with such status that it will neither hold itself out as nor claim to be an officer or employee of the State by reason hereof, and that it will not by reason hereof, make any claim demand of application to or for any right or privilege applicable to an officer or employee of the State, including, but not limited to, Workmen's Compensation coverage, Unemployment Insurance Benefits, Social Security coverage or Retirement membership or Credit.
- g. Agrees that this agreement may be canceled or terminated by the Grantee if any work under this agreement is in conflict with the provisions of Section 74 of the Public Officers Law.
- h. Agrees that any patentable result arising out of this Agreement, as well as all information, designs, specification, know-how, data, and findings, shall be made available without cost to the State or its licenses for public use.
- i. Agrees that for construction work he will furnish a performance bond in an amount at least equal to 100 percent of this contract price as security for the faithful performance of his contract and also a labor and material bond in an amount equal to 100 percent of his contract price as security for the payment of all persons performing labor on the project under his contract and furnishing materials in connection with his contract. The performance bond and the labor and material bond may be in one or in separate instruments in accordance with law.
- j. Agrees that the Commissioner and the State Comptroller reserve the right to audit and inspect the work of the contractor and any and all records thereof through representatives of the State, as well as through officers and employees of the State, as they shall determine.
- k. Agrees that the State shall not be obligated or liable hereunder to any party other than the Grantee.
- l. Agrees that if any provision of this Agreement is held invalid, the remainder of this Agreement shall not be affected thereby if such remainder would then continue to conform to the terms and requirements of the applicable law.
- m. Agrees that by execution of the Agreement the Contractor represents that it has not paid and, also, agrees not to pay, any bonus or commission for the purpose of obtaining an approval of this agreement.
- n. Agrees that all project documents requiring formal approval by a Federal Agency will be submitted to the Commissioner for his prior approval and forwarding to the Federal Agency for its formal approval.
- 2. The Grantee agrees to give full opportunity for free, open and competitive bidding for each contract to be let by it calling for construction or the furnishing of any materials,

supplies, or equipment to be paid for with Project funds in accordance with the requirements of Section 103 of the General Municipal Law, the State Finance Law and any other applicable State Laws, Regulations or any requirements or opinions of the State comptroller.

3. The Grantee agrees that contracts for professional or consulting services may be negotiated, but they must be in writing and must state the maximum compensation or reimbursement to be paid. Negotiations must be adequately documented to show consultants considered, proposals received, reasons for selecting the proposed consultant, and the unit basis or other detailed explanation in support of the amount of compensation to be paid.

SP-70-26 Labor affidavits, New York State Laws of 1988. The following outlines the certification and reporting procedures required by the Office of the State Comptroller to implement Chapter 698, Laws of 1988 (Labor Affidavits) for all public improvement contracts let (bid opening date) after March 1, 1989. **COPIES OF AFFIDAVITS FOLLOW THE END OF THIS SECTION.**

- A. The prime contractor must provide each subcontractor with a copy of the schedule of wages and supplements specified in the contract before the subcontractor's work is started.
- B. The prime contractor must immediately obtain the subcontractor's certification. Such certification must be maintained by the prime contractor until the final payment is requested. The prime contractor's and subcontractor's certification forms are on the following three (3) pages.
- C. If revised schedules of wages and supplements are issued, the prime contractor must provide each subcontractor with such revised schedules and obtain a revised subcontractor's certification.
- D. The prime contractor must submit a labor affidavit in support of the payment of wages to its own employees.
- E. The subcontractor's certification (s) and the prime contractor's affidavit must be submitted to the State Comptroller's Office with the prime contractor's final payment request. Failure to obtain and provide the required certifications will delay the contractor's final payment.

NOTE: The term subcontractor applies to both subcontractors of the contractor and subcontractors of a subcontractor.

SP 90-12 Security for construction warranty. The Contractor shall upon final acceptance of the work, furnish a bond to the Owner in a penal sum equal to five percent (5%) of the amount of the Contract price, executed by a surety company authorized by the Department of Insurance of the State of to execute such a bond in this State, and which bond shall be approved as to form and manner of execution by the Owner's attorney. This bond shall be conditioned for the faithful performance by the said Contractor of the conditions and stipulations of the subsection titled ACCEPTANCE AND FINAL PAYMENT of this section, thereof relating to maintenance and repair, for a period of one (1) year from the date of the final acceptance of the work. In default of the filing of such bond, a sum of money equal to said five percent (5%) may be retained out of any monies due to the Contractor and be held for one (1) year, or until the bond above described is filed.

For Contractors who have elected to set up an escrow account, they may elect to maintain the escrow account for a period of one (1) year from the date of final acceptance of the work in lieu of providing a bond for security of guarantee as described above.

SP 90-13 Lien law. If, at any time before or within thirty (30) days after the work of this Contract has been completed and accepted by the Owner, any person or persons claiming to have performed any labor or furnished any material toward the performance or completion of this Contract shall file with the RPR and with the financial officer of the Owner, or other officer or person charged with the custody and disbursement of the Owner's funds applicable to this Contract under which the claim is made, such notice as is prescribed in the Act of Legislature of the State of New York passed February 17, 1909, entitled an "Act in Relation to Liens", and the acts amendatory thereof or supplementary thereto, then and in every such case the party of the first part shall retain (anything herein contained to the contrary thereof notwithstanding) from the monies under its control and due or to grow due under this Agreement, as much of such monies as shall be sufficient to pay, satisfy and discharge the amount in such notice claimed to be due to the person or persons filing such lien, together with the reasonable cost of any actions brought to enforce such claim or the lien creating by the filing of such notice. The monies so retained shall be retained by the party of the first part until the lien thereon created by the said act and filing of said notice shall be discharged pursuant to the provisions of said act or acts.

CONTRACTOR'S DBE PLAN

(Submit this form and attach one DBE Letter of Intent Form for each DBE subcontractor, supplier or manufacturer.)

Airport Name: Oswego County Airport

Project Name: Taxiway "B"& "D" Rehabilitation

FAA AIP Project No: _____

Total Awarded Contract Amount: \$ _____

Name of Bidder's Firm: _____

Street Address: _____

City: _____ State: _____ Zip: _____

Printed name of signer: _____

Printed title of signer: _____

DBE UTILIZATION SUMMARY

	<u>DBE Contract Amount</u>		<u>DBE Value</u>	<u>Contract %</u>
DBE Prime Contractor	\$ _____	x 1.00 =	\$ _____	_____ %
DBE Subcontractors	\$ _____	x 1.00 =	\$ _____	_____ %
DBE Suppliers *	\$ _____	x 0.60 =	\$ _____	_____ %
DBE Brokers **	\$ _____	x 1.00 =	\$ _____	_____ %
DBE Manufacturers	\$ _____	x 1.00 =	\$ _____	_____ %
Total Proposed DBE Participation ***			\$ _____	_____ %
Established DBE Goal			\$ _____	_____ %

* Applicable only to regular dealers.

** Applicable only to the amount of fees or commissions charged for assistance in the procurement of material and supplies, or fees and transportation charges for delivery of material and supplies.

*** If the total proposed DBE participation is less than the established DBE goal, bidder must provide written documentation of the good faith efforts as required by 49 CFR Part 26.

Affirmation:

The undersigned hereby assures that the information included herein is true and correct, and that the DBE firm(s) listed on the attached DBE Letter of Intent Forms have agreed to perform a commercially useful function in the work items noted for each firm. The undersigned further understands that no changes to this plan may be made without prior approval from the Civil Rights Staff of the Federal Aviation Administration.

By: _____
 (Signature of Bidder's representative) (Title)

MONTHLY PAYMENT REPORT

Name of Contractor's Firm: _____

Project Name/Location: Taxiway "B" & "D" Rehabilitation Project / Oswego County Airport

FAA AIP Project No.: _____

Subcontractor/DBE Supplier Name*	DBE Y/N	Subcontractor Contract Amount	Pay App #	Payment Period Date (From-To)	Amount Invoiced To Date	Amount Paid To Date	Current Retainage Amount	Total Retainage	Previous Payment Amount	Previous Payment Date	Total Payment Amount to Date

***ALL Subcontractors Must Be Listed – ONLY DBE Suppliers Must Be Listed**

Signature of Contractor's Representative

Print Contractor's Representative

Date

SUBCONTRACTOR'S PROMPT PAYMENT CERTIFICATION

NOTE: Each Contractor shall provide a copy of this form to each of their Subcontractors (DBE and non-DBE) that are working on or has worked on this project. This certification applies to all tier Subcontractors. A completed copy of this form shall be submitted to the Sponsor's representative, the Prime Contractor and the Contractor you are working for at least 7 days prior to an application for payment. Any Subcontractor failing to submit a copy of this form shall be cause for the Sponsor's representative to delay the payment application. Reference Section 70-21, Item 12 for information on 49 CFR §26.29 with regard to Prompt Payment.

Should a Subcontractor indicate that they have not received payment for work they performed in which their Contractor has received payment, the Sponsor shall withhold the delinquent amount indicated unless the Contractor received written approval from the Sponsor of the Contractor's written request justifying withholding payment from the Subcontractor.

=====
Project Title: Taxiway "B" & "D" Rehabilitation

Airport Name: Oswego County Airport

AIP No.: _____

Company Name: _____

Company Address: _____

_____ Contact Phone No.: _____

Contractor's Name you subcontract to: _____
=====

- 1. Have you performed work on this project within the last 30 days? Yes ___ No ___
- 2. Has the work you performed within the last 30 days been completed and accepted by the RPR?
Yes ___ No ___ Not sure ___
- 3. Have you been paid by the contractor you subcontracted with for the work you performed?
Yes ___ No ___
- 4. Estimated value of work performed in which you did not receive payment: \$ _____
- 5. Have you completed all work that you are required to perform on this contact? Yes ___ No ___

Written Name of Subcontractor's Rep. _____

Signature: _____ Date: _____

**DISADVANTAGED BUSINESS ENTERPRISE
DBE PARTICIPATION SUMMARY**
(Submit one form for each DBE Firm.)

Airport Name Oswego County Airport

Contractor Name: _____
Address: _____
City: _____ State: _____ Zip: _____

DBE Firm DBE Firm: _____
Address: _____
City: _____ State: _____ Zip: _____

DBE Contact Person Name: _____ Phone: _____

DBE Certification Agency: _____ **Expiration Date:** _____

Each DBE Firm shall submit evidence (such as a photocopy) of their certification status.

**DBE Commitments/Awards
-Breakdown By
Ethnicity & Gender**

- | | |
|--|--|
| <input type="checkbox"/> Black American | <input type="checkbox"/> Asian-Pacific American |
| <input type="checkbox"/> Hispanic American | <input type="checkbox"/> Non-Minority Women |
| <input type="checkbox"/> Native American | <input type="checkbox"/> Other (i.e. not of any group listed here) |
| <input type="checkbox"/> Subcontinent Asian American | |

Classification:

- | | |
|---|-----------------------------------|
| <input type="checkbox"/> Prime Contractor | <input type="checkbox"/> Supplier |
| <input type="checkbox"/> Manufacturer | <input type="checkbox"/> Broker |
| <input type="checkbox"/> Subcontractor | |

Work items performed by DBE	Description	NAICS	Quantity	Amount Paid to DBE

The Contractor utilized the above-named DBE Firm for the work items described above.
The actual participation is as follows:

Total amount paid to DBE Firm: \$ _____ Percent of Contractor's total contract: _____ %

Affirmation:

The above-named DBE Firm affirms that it has performed the work items described above and has been paid the amount stated above.

By: _____
(Signature) (Title)

Equal Employment Opportunity is **THE LAW**

Private Employers, State and Local Governments, Educational Institutions, Employment Agencies and Labor Organizations

Applicants to and employees of most private employers, state and local governments, educational institutions, Employment agencies, and labor organizations are protected under Federal law from discrimination on the following bases.

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Title VII of the Civil Rights Act of 1964, as amended, protects applicants and employees from discrimination in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment, on the basis of race, color, religion, sex (including pregnancy), or national origin. Religious discrimination includes failing to reasonably accommodate an employee's religious practices where the accommodation does not impose undue hardship.

DISABILITIES

Title I and Title V of the Americans with Disabilities Act of 1990, as amended, protect qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who's is an applicant or employee, barring undue hardship.

AGE

The Age Discrimination in Employment Act of 1967, as amended, protects applicants and employees 40 years of age or older from discrimination based on age in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment.

SEX (WAGES)

In addition to sex discrimination prohibited by Title VII of the Civil Rights Act, as amended, the Equal Pay Act of 1963, as amended, prohibits sex discrimination in payment of wages to women and men performing substantially equal work jobs that require equal skill, effort, and responsibility, under similar working conditions, in the same establishment.

GENETICS

Title II of the Genetic Information Nondiscrimination Act of 2008 protects applicants and employees from discrimination based on genetic information in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. GINA also restricts employers' acquisition of genetic information and strictly limits disclosure of genetic information. Genetic information includes information about genetic tests of applicants, employees, or their family members; the manifestation of diseases or disorders in family members (family medical history); and requests for or receipt of genetic services by applicants, employees, or their family members.

RETALIATION

All of these Federal laws prohibit covered entities from retaliating against a person who files a charge of discrimination, participates in a discrimination proceeding, or otherwise opposes an unlawful employment practice.

WHAT TO DO IF YOU BELIEVE DISCRIMINATION HAS OCCURRED

There are strict time limits for filing charges of employment discrimination. To preserve the ability of EEOC to act on your behalf and to protect your right to file a private lawsuit, should you ultimately need to, you should contact EEOC promptly when discrimination is suspected:

The U.S. Equal Employment Opportunity Commission (EEOC), 1-800-669-4000 (toll-free) or 1-800-669-6820 (toll-free TTY number for individuals with hearing impairments). EEOC field office information is available at www.eeoc.gov or in most telephone directories in the U.S. Government or Federal Government section. Additional information about EEOC, including information about charge filing, is available at www.eeoc.gov.

Employers Holding Federal Contracts or Subcontracts

Applicants to and employees of companies with a Federal government contract or subcontract, are protected under Federal law from discrimination on the following bases.

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Executive Order 11246, as amended, prohibits job discrimination on the basis of race, color, religion, sex or national origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment.

INDIVIDUALS WITH DISABILITIES

Section 503 of the Rehabilitation Act of 1973, as amended, protects qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified employee, barring undue hardship. Section 503 also requires that Federal contractors take affirmative action to employ and advance in employment qualified individuals with disabilities at all levels of employment, including the executive level.

DISABLED, RECENTLY SEPARATED, OTHER PROTECTED, AND ARMED FORCES SERVICE MEDAL VETERANS

The Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, 38 U.S.C. 4212, prohibits job discrimination and requires affirmative action to employ and advance in employment disabled veterans, recently separated veterans (within

three years of discharge or release from active duty), other protected veterans (veterans who served during a war or in a campaign or expedition for which a campaign badge has been authorized), and Armed Forces service medal veterans (veterans who, while on active duty, participated in a U.S. military operation for which an Armed Forces service medal was awarded).

RETALIATION

Retaliation is prohibited against a person who files a complaint of discrimination, participates in an OFCCP proceeding, or otherwise opposes discrimination under these Federal laws.

Any person who believes a contractor has violated its nondiscrimination or affirmative action obligations under the authorities above should contact immediately:

The Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 20210, 1-800-397-6251 (toll-free) or (202) 693-1337 (TTY). OFCCP may also be contacted by e-mail at OFCCP-Public@dol.gov, or by calling an OFCCP regional or district office, listed in most telephone directories under U.S. Government, Department of Labor.

Programs or Activities Receiving Federal Financial Assistance

RACE, COLOR, NATIONAL ORIGIN, SEX

In addition to the protections of Title VII of the Civil Rights Act of 1964, as amended, Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination on the basis of race, color or national origin in programs or activities receiving Federal financial assistance. Employment discrimination is covered by Title VI if the primary objective of the financial assistance is provision of employment, or where employment discrimination causes or may cause discrimination in providing services under such programs. Title IX of the Education Amendments of 1972 prohibits employment discrimination on the basis of sex in educational programs or activities which receive Federal financial assistance.

INDIVIDUALS WITH DISABILITIES

Section 504 of the Rehabilitation Act of 1973, as amended, prohibits employment discrimination on the basis of disability in any program or activity which receives Federal financial assistance. Discrimination is prohibited in all aspects of employment against persons with disabilities who, with or without reasonable accommodation, can perform the essential functions of the job.

If you believe you have been discriminated against in a program of any institution which receives Federal financial assistance, you should immediately contact the Federal agency providing such assistance.

FEDERAL WAGE RATES

Superseded General Decision Number: NY20230038

State: New York

Construction Types: Heavy and Highway

County: Oswego County in New York.

HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number Publication Date
0 01/05/2024

	Rates	Fringes
BOILERMAKER.....	\$ 35.23	26.61

BRNY0002-007 07/01/2022

OSWEGO CHAPTER

	Rates	Fringes
BRICKLAYER.....	\$ 34.15	19.71
PLASTERER.....	\$ 34.15	19.71
TILE FINISHER.....	\$ 26.46	19.64
TILE SETTER.....	\$ 32.92	20.42

BRNY0002-017 06/01/2018

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 37.23	19.51+a

FOOTNOTE:

a. Paid Holidays: Memorial Day, July the 4th, Labor Day, Thanksgiving Day (provided the employee is employed one day before and one day after the holiday).

CARP0277-003 07/01/2022

	Rates	Fringes
CARPENTER		
Carpenters.....	\$ 34.88	25.30
Piledrivers.....	\$ 34.88	25.30

ELEC0043-008 06/01/2023

	Rates	Fringes
ELECTRICIAN		
Cable Splicing.....	\$ 46.20	30.43
Electricians.....	\$ 44.00	3%+30.17

ELEC1249-003 05/01/2023

	Rates	Fringes
ELECTRICIAN (LINE CONSTRUCTION: LIGHTING AND TRAFFIC SIGNAL Including any and all Fiber Optic Cable necessary for Traffic Signal Systems, Traffic Monitoring systems and Road Weather information systems)		
Flagman.....	\$ 29.59	7%+35.40
Groundman (Truck Driver)....	\$ 39.46	7%+35.40
Groundman Truck Driver (tractor trailer unit).....	\$ 41.92	7%+35.40
Lineman & Technician.....	\$ 49.32	7%+35.40
Mechanic.....	\$ 39.46	7%+35.40

FOOTNOTE:

a. New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, plus President's Day, Good Friday, Decoration Day, Election Day for the President of the United States and Election Day for the Governor of the State of New York, provided the employee works the day before or the day after the holiday.

 ELEC1249-004 05/01/2023

	Rates	Fringes
ELECTRICIAN (Line Construction)		
Overhead and underground distribution and maintenance work and all overhead and underground transmission line work including any and all fiber optic ground wire, fiber optic shield wire or any other like product by any other name manufactured for the dual purpose of ground fault protection and fiber optic capabilities :		
Flagman.....	\$ 34.44	7%+35.40
Groundman digging machine operator.....	\$ 51.66	7%+35.40
Groundman truck driver (tractor trailer unit).....	\$ 48.79	7%+35.40
Groundman Truck driver.....	\$ 45.92	7%+35.40
Lineman and Technician.....	\$ 57.40	7%+38.40
Mechanic.....	\$ 45.92	7%+35.40
Substation:		
Cable Splicer.....	\$ 63.14	7%+38.40
Flagman.....	\$ 34.44	7%+35.40
Ground man truck driver....	\$ 45.92	7%+35.40
Groundman digging machine operator.....	\$ 51.66	7%+35.40
Groundman truck driver (tractor trailer unit).....	\$ 48.79	7%+35.40
Lineman & Technician.....	\$ 57.40	7%+38.40
Mechanic.....	\$ 45.92	7%+35.40
Switching structures; railroad catenary installation and maintenance, third rail type underground fluid or gas filled transmission conduit and cable installations (including any and all fiber optic ground product by any other name manufactured for the dual purpose of ground fault protection and fiber optic capabilities), pipetype cable installation and maintenance jobs or projects, and maintenance bonding of rails; Pipetype		

cable installation		
Cable Splicer.....	\$ 64.59	7%+38.40
Flagman.....	\$ 35.23	7%+35.40
Groundman Digging Machine		
Operator.....	\$ 52.85	7%+35.40
Groundman Truck Driver		
(tractor-trailer unit).....	\$ 49.91	7%+35.40
Groundman Truck Driver.....	\$ 46.98	7%+35.40
Lineman & Technician.....	\$ 58.72	7%+38.40
Mechanic.....	\$ 46.98	7%+35.40

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, Good Friday, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Election Day for the President of the United States and Election Day for the Governor of New York State, provided the employee works two days before or two days after the holiday.

 ELEC1249-008 01/01/2022

	Rates	Fringes
ELECTRICIAN (Line Construction)		
TELEPHONE, CATV FIBEROPTICS CABLE AND EQUIPMENT		
Cable splicer.....	\$ 36.28	3%+5.14
Groundman.....	\$ 18.25	3%+5.14
Installer Repairman-Teledata		
Lineman/Technician-Equipment Operator.....	\$ 34.43	3%+5.14
Tree Trimmer.....	\$ 28.25	3%+10.23

a. New Year's Day, President's Day, Good Friday, Decoration Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day.

 ELEV0062-002 01/01/2023

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 53.69	37.335+a+b

FOOTNOTE:

a. Vacation: 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.
 b. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

 ENGI0158-020 07/01/2022

	Rates	Fringes
Power equipment operators:		
GROUP 1.....	\$ 48.15	30.55
GROUP 2.....	\$ 47.27	30.55

GROUP 3.....	\$ 43.99	30.55
GROUP 4.....	\$ 52.15	30.55
GROUP 5.....	\$ 51.15	30.55
GROUP 6.....	\$ 50.15	30.55
GROUP 7.....	\$ 49.50	30.55

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Asphalt Curb Machine, Self Propelled, Slipform, Automated Concrete Spreader (CMI Type), Automatic Fine Grader, Backhoe (Except Tractor Mounted, Rubber Tired), Backhoe Excavator Full Swing (CAT 212 or similar type), Back Filling Machine, Belt Placer (CMI Type), Blacktop Plant (Automated), Boom truck , Cableway, Caisson Auger, Central Mix Concrete Plant (Automated), Concrete Curb Machine, Self Propelled, Slipform, Concrete Pump, Crane, Cherry Picker, Derricks (steel erection), Dragline, Overhead Crane (Gantry or Straddle type), Pile Driver, Truck Crane, Directional Drilling Machine, Dredge, Dual Drum Paver, Excavator (All Purpose Hydraulically Operated) (Gradall or Similar), Front End Loader (4 cu. yd. and Over), Head Tower (Sauerman or Equal), Hoist (Two or Three Drum), Holland Loader, Maintenance Engineer, Mine Hoist, Mucking Machine or Mole Pavement Breaker(SP) Wertgen; PB-4 and similar type, Power Grader, Profiler (over 105 H.P.) Quad 9, Quarry Master (or equivalent), Scraper, Fireman, Fork Lift, Form Tamper, Grout Pump, Guniting Machine, Hammers (Hydraulic self-propelled), Hydra-Spiker, ride-on, Hydraulic Pump (jacking system), Hydro-Blaster (Water), Mulching Machine, Oiler, Parapet Concrete or Pavement, Shovel, Side Boom, Slip Form Paver, Tractor Drawn, BeltType Loader, Truck or Trailer Mounted Log , Chipper (Self Feeder), Tug Operator (Manned Rented Equipment Excluded), Tunnel Shovel

GROUP 2: Asphalt Paver, Backhoe (Tractor Mounted, Rubber Tired), Bituminous Recycler Machine, Bituminous Spreader and Mixer, Blacktop Plant (NonAutomated), Blast or Rotary Drill (Truck or Tractor Mounted), Boring Machine, Cage Hoist, Central Mix Plant (NonAutomated) and All Concrete Batching Plants, Cherry Picker (5 tons capacity and under), Concrete Paver (Over 16S), Crawler Drill, Self-contained, Crusher, Diesel Power Unit, Drill Rigs, Tractor Mounted, Front End Loader (Under 4 cu. yd.), Greaseman/Lubrication Engineer, HiPressure Boiler (15 lbs. and over), Hoist (One Drum), Hydro-Axe, Kolman Plant Loader and Similar Type Loaders, L.C.M. Work Boat Operator, Locomotive Mixer (for stabilized base selfpropelled), Monorail Machine, Plant Engineer, Profiler (105 H.P. and under), Grinder, Post Hole Digger and Post Driver, Power Broom (towed), Power Heaterman, Power Sweeper, Revinus Widener, Roller (Grade and Fill), Scarifier, ride-on, Shell Winder, Skid steer loader (Bobcat or similar), Span-Saw, ride-on, Steam Cleaner, Pug Mill, Pump Crete Ready Mix Concrete Plant Refrigeration Equipment (for soil stabilization)Road Widener, Roller (all above subgrade), Sea Mule, Self-contained Ride-on Rock Drill, Excluding Air-Track Type Drill, Skidder, Tractor with Dozer and/or Pusher, Trencher. Tugger Hoist, Vermeer saw (ride on, any size or type), Winch, Winch Cat

GROUP 3: A Frame Winch Hoist on Truck , Articulated Heavy Hauler, Aggregate Plant, Asphalt or Concrete Grooving, Machine (ride on), Ballast Regulator, Ride-on Boiler (used in conjunction with production), Bituminous Heater,

self-propelled, Boat (powered), Cement and Bin Operator, Compressors, Dust Collectors, Generators, Pumps, Welding Machines, Light Plants, Heaters (hands-off equipment), Concrete Pavement Spreader and Finisher, Concrete Paver or Mixer (16S and under), Concrete Saw (self-propelled), Conveyor, Deck Hand, Directional Drill Machine Locator, Drill, (Core), Drill, (Well,) Farm Tractor with accessories, Fine Grade Machine, Tamper, ride-on, Tie Extractor, ride-on, Tie Handler, ride-on, Tie Inserter, ride-on, Tie Spacer, ride-on, Tire Repair, Track Liner, ride-on, Tractor, Tractor (with towed accessories), Vibratory Compactor, Vibro Tamp, Well Point

GROUP 4: Tower Cranes

GROUP 5: Cranes 50 tons and over

GROUP 6: Cranes 49 tons and below

GROUP 7: Master Mechanic

FOOTNOTE:

a. New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day provided the employee has worked the working day before and the working day after the holiday.

IRON0060-007 07/01/2023

	Rates	Fringes
IRONWORKER		
Structural, Ornamental, Reinforcing, Pre-cast Concret Erector, Machinery Mover & Rigger, Fence Erector, Stone Derrickman, Welder, Sheeter, Sheeter Bucker-up.....	\$ 33.00	30.83

LAB00633-001 07/01/2021

	Rates	Fringes
LABORER		
Hazardous Waste Removal, Asbestos and Toxic.....	\$ 33.46	23.30
Nuclear Site or Related Work.....	\$ 30.96	23.30

LAB00633-002 07/01/2022

	Rates	Fringes
LABORER		
GROUP 1.....	\$ 32.45	23.90+a
GROUP 2.....	\$ 32.65	23.90+a
GROUP 3.....	\$ 32.85	23.90+a
GROUP 4.....	\$ 33.05	23.90+a

LABORER CLASSIFICATIONS

GROUP 1: Laborers, flaggers, outboard and hand boats.

GROUP 2: Bull float; chain saw, concrete aggregate bin, concrete bootman, gin buggy, hand or machine vibrator, jackhammer, mason tender, mortar mixer, pavement breaker, handlers of all steel mesh; small generators for laborers tools; installation of bridge drainage pipe, pipelayers, vibrator type rollers; tamper, drill doctor, tail or screw operator on asphalt paver, water pump (1-1/2" and singlediaphram); nozzle (asphalt, gunnite, seeding and sandblasting); laborers on chain link fence erection; rock splitter and power unit; pusher type concrete saw and all other gas, electric, oil and air tool operators; wrecking laborers.

GROUP 3: All rock or drill machine operator (except quarry master and similar type); acetylene torch operator, asphalt raker, powderman.

GROUP 4: Blaster, form setters, stone or granite curb setters.

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has worked the working day before and the working day after the holiday.

PAIN0004-023 05/01/2022

TOWNSHIPS OF AMBOY, CONSTANTIA, ONEIDA LAKE AND WILLIAMSTOWN

	Rates	Fringes
PAINTER (Bridges).....	\$ 41.06	29.59

PAIN0004-029 05/01/2022

EXCLUDING the TOWNSHIPS of AMBOY, CONSTANTIA, ONEIDA LAKE and WILLIAMSTOWN

	Rates	Fringes
Painters:		
Brush & Roll.....	\$ 25.44	25.56
Metalizing.....	\$ 25.44	25.56
Over \$100,000 Contracts.....	\$ 25.58	21.61
Paperhanging, Vinyl & Tapers.....	\$ 25.44	25.56
Under \$100,000 Contracts....	\$ 24.39	21.61

PAIN0677-002 05/01/2023

	Rates	Fringes
GLAZIER.....	\$ 26.80	24.19

PLUM0073-001 05/01/2019

	Rates	Fringes
Plumber, Pipefitter, Steamfitter		

Heating, plumbing, air conditioning, refrigeration and pipefitting.....\$ 32.90 23.61
 HVAC and REFRIGERATION SERVICE: On all HVAC and refrigeration service work; all heating, plumbing, air conditioning, refrigeration; all servicing and Pipefitting work in all schools, hospitals, health related facilities and extended care facilities, including nursing homes AND where the total plumbing contract does not exceed 250,000.00, the heating contract does not exceed 250,000.00, and the refrigeration contract does not exceed 250,000.00 and the total Plumbing, Heating and Refrigeration does not exceed 750,000.00.\$ 28.19 21.91

 ROOF0195-001 06/01/2023

	Rates	Fringes
ROOFER.....	\$ 32.25	25.51

 SFNY0669-001 04/01/2023

	Rates	Fringes
SPRINKLER FITTER.....	\$ 42.73	26.47

 SHEE0058-005 05/01/2022

	Rates	Fringes
Sheet Metal Worker (Incl. HVAC Duct) Projects over \$10 million...	\$ 33.89	22.46
Projects with sheetmetal work contracts totaling \$10 million or less.....	\$ 32.89	22.46

 SUNY1996-003 01/12/1996

	Rates	Fringes
FLOOR LAYER: Carpet.....	\$ 15.22 **	2.09

 WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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 ** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.20) or 13658

(\$12.90). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

STATE WAGE RATES

SPECIAL NOTE
NEW YORK STATE DEPARTMENT OF LABOR
PREVAILING WAGE RATES

Wage rate amendments and supplements are available on the NYSDOL web site at:

WWW.LABOR.STATE.NY.US

All changes or clarification of labor classifications and applicability of prevailing wage rates shall be obtained in writing from the Office of the Director, NYSDOL Bureau of Public Work.

The NYSDOL prevailing wage rate schedule for this contract has been determined and is available on the internet. The prevailing wage rate schedule is accessed by visiting the NYSDOL web site, navigating to the appropriate web page, and entering the Prevailing Rate Case No. (PRC#). The PRC# is provided on the following page on NYSDOL Form PW-200.



Kathy Hochul, Governor

Roberta Reardon, Commissioner

Oswego County
Tyler Long, Senior Project Engineer
C&S Engineers, Inc.
499 Col. Eileen Collins Blvd.
Syracuse NY 13212

Schedule Year 2023 through 2024
Date Requested 11/27/2023
PRC# 2023013810

Location Oswego County Airport
Project ID#
Project Type Milling/Paving and full depth reconstruction of asphalt taxiway pavement, airfield lighting and signage replacement.

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2023 through June 2024. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12226

PRIME CONTRACTOR'S CERTIFICATION

NEW YORK STATE LABOR LAW, SECTION 220-a

1. That I am an officer of _____ and am duly authorized to make this affidavit on behalf of the prime contractor on public contract No. _____.
2. That I fully comprehend the terms and provisions of Section 220-a of the Labor Law.
3. That, except as herein stated, there are no amounts due and owing to or on behalf of laborers employed on the project by the contractor. (Set forth any unpaid wages and supplements, if none, so state).

NAME	AMOUNT

4. That the contractor hereby files every verified statement required to be obtained by the contractor from the subcontractors.
5. That, upon information and belief, except as stated herein, all laborers (exclusive of executive or supervisory employees) employed on the project have been paid the prevailing wages and supplements for their services through _____, the last day worked on the project by their subcontractor. (Set forth any unpaid wages and supplements, if none, so state and utilize clause 5A (below)).

NAME	AMOUNT

(5A) That the contractor has no knowledge of amounts owing to or on behalf of any laborers of its subcontractors.

PRIME CONTRACTOR'S CERTIFICATION
NEW YORK STATE LABOR LAW, SECTION 220-a

(continued)

6. In the event it is determined by the Commissioner of Labor that the wages or supplements or both of any such subcontractors have not been paid or provided pursuant to the appropriate schedule of wages and supplements, then the contractor shall be responsible for payment of such wages and supplements pursuant to the provision of Section 223 of the Labor Law.

SIGNATURE

PRINT NAME

TITLE

ACKNOWLEDGMENT:

STATE OF NEW YORK

COUNTY OF

} SS:

On the _____ day of _____ in the year 20__, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

If this affidavit is verified by an oath administered by a notary public in a foreign country other than Canada, it must be accompanied by a certificate authenticating the authority of the notary who administers the oath. (See CPLR Section 2309 (c); Real Property Law, Section 311, 312).

SUBCONTRACTOR'S CERTIFICATION
NEW YORK STATE LABOR LAW, SECTION 220-a

1. That I am an officer of _____ a subcontractor on public contract No. _____ and I am duly authorized to make this affidavit on behalf of the firm.
2. That I make this affidavit in order to comply with the provisions of Section 220-a of the Labor Law.
3. That on _____ we received from _____, the prime contractor, a copy of the initial/revised schedule of wages and supplements Prevailing Rate Case Number (PRC) _____ specified in the public improvement contract.
4. That I have reviewed such schedule(s), and agree to pay the applicable prevailing wages and to pay or provide the supplements specified therein.

SIGNATURE

PRINT NAME

TITLE

ACKNOWLEDGMENT:

STATE OF NEW YORK }
COUNTY OF } **SS:**

On the _____ day of _____ in the year 20__, before me, the undersigned, a Notary Public in and for said State, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

If this affidavit is verified by an oath administered by a notary public in a foreign country other than Canada, it must be accompanied by a certificate authenticating the authority of the notary who administers the oath. (See CPLR Section 2309 (c); Real Property Law, Section 311, 312).

END OF SPECIAL PROVISIONS

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 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 Contractor. The Contractor shall coordinate with the Airport and the 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 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 RPR prior to the 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.

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 paragraph 100-8.
- (3) Performance of tests for the 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 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 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 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 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 RPR. All items of material and equipment are subject to inspection and/or observation by the 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 RPR at the site for the same purpose.

Inspection and/or observations by the 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 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 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 partial payments:

- a. With first pay request, 25% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.
- b. When 25% or more of the original contract is earned, an additional 25%.
- c. When 50% or more of the original contract is earned, an additional 20%.
- d. When 75% or more of the original contract is earned, an additional 20%.
- e. After final inspection and acceptance of project, the final 10%.

BASIS OF PAYMENT

100-14 Payment will be made under:

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

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

Item C-102 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control

DESCRIPTION

102-1. 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. Control measures shall also be in accordance with the Storm Water Pollution Prevention Plan (SWPPP) included hereafter as Attachment "A".

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.

MATERIALS

102-2.1 Grass. Grass that will not compete with the grasses sown later for permanent cover per Item T-901 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 Storm Drain Inlet Protection. Storm drain inlet protection shall be provided and installed as shown on the details and plans.

102-2.5 Compost Filter Sock. Compost filter sock shall be 12-inches in diameter and be provided and installed as shown on the plans and details. Materials shall meet the requirements of Table 5.1 and Table 5.2 of the NYSDEC Standards and Specifications for Erosion and Sediment Control – Blue Book.

102-2.6 Dry Swale/ Bio retention soil. Permeable soil shall be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35% to 60% sand, by volume). The clay content for these soils should be less than 25% by volume. Soils should fall within the SM, or ML classifications of the Unified Soil Classification System (USCS). A permeability of at least 1.0 ft per day (0.5 in/hr) is required. The soil shall be free of stones, stumps, roots, or other woody material over 1" in diameter, and shall be free of brush and seeds from noxious weeds. Placement of the permeable soil should be in lifts of 12" to 18", loosely compacted. Permeable soil shall have the characteristics shown in the following table:

Parameter	Value
pH	5.2 to 7.0
Organic Matter	1.5 to 4.0%
Magnesium	35 lbs per acre, minimum
Phosphorus	75 lbs per acre, minimum
Potassium	85 lbs per acre, minimum
Soluble Salts	500 ppm
Clay	10% to 25%
Silt	30% to 55%
Sand	35% to 60%

102-2.7 Other. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project.

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.

A Storm Water Pollution Prevention Plan (SWPPP) is included as part of this specification. Refer to Attachment A.

The RPR 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.

METHOD OF MEASUREMENT

102-4.1 Temporary and permanent erosion and pollution control work required will be performed as scheduled or directed by the RPR. Completed and accepted work will be measured as follows:

a. Measures and practices required for compliance with this specification for protection of construction areas shall be measured on a lump sum basis. Measures and practices shall include, but not be limited to, air pollution prevention, concrete washouts, water pollution prevention, temporary seeding, temporary mulching, construction road stabilization, dust control, protecting vegetation, and erosion and sediment control practices required due to the Contractor's means and methods of construction, and for borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites.

b. Installation and removal of storm drain inlet protection will be measure per each.

c. Installation and removal of compost filter sock will be measured per linear foot.

d. Installation of dry swales will be measured by the linear foot.

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 Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the RPR and measured as provided in paragraph 102-4.1 will be paid for under:

Item C-102-5.1	Compliance with Air and Water Pollution, Soil Erosion and Siltation Control – per Lump Sum
Item C-102-5.2	Installation and removal of Storm Drain Inlet Protection – per each
Item C-102-5.3	Installation and removal of Compost Filter Sock – per linear foot
Item C-102-5.4	Installation of Dry Swale – per linear foot

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

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

ATTACHMENT “A”
TO
ITEM C-102 TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND
SILTATION CONTROL

STORM WATER POLLUTION PREVENTION PLAN
(SWPPP)

FOR THE CONSTRUCTION OF
TAXIWAY B&D REHABILITATION

AT
OSWEGO COUNTY AIRPORT (FZY)
OSWEGO COUNTY
FULTON, NEW YORK

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1.0 INTRODUCTION.

The Clean Water Act states that storm water discharges associated with an industrial activity from a point source, including through a separate municipal storm water sewer system, is unlawful unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. In New York State, the New York State Department of Environmental Conservation (NYSDEC) administers the NPDES through the State Pollution Discharge Elimination System (SPDES) program. According to the SPDES General Permit, construction sites or common plans of development that result in disturbance of one or more acres are subject to permitting requirements.

This plan outlines the manner in which to reduce the potential of storm water runoff pollution during construction activities and assigns responsibilities to ensure that the contractor and his subcontractors implement the requirements of the Storm Water Pollution Prevention Plan (SWPPP). The SWPPP was developed based on the NYSDEC Stormwater Discharge Associated with Construction Activities (SPDES) General Permit #GP-0-20-001, effective January 29, 2020.

GP-0-20-001 is a five (5) year general permit for discharges of stormwater to surface waters of the State from construction activities as defined in 40 CFR 122.26(b)(14)(x) and (b)(15)(i - ii). Pursuant to Section 402 of the Clean Water Act (CWA), stormwater discharges from certain construction activities (including discharges through a municipal separate storm sewer system) are unlawful unless they are authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. New York administers the approved SPDES program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70. An owner or operator of a construction activity must operate under an effective individual SPDES permit, which addresses the stormwater discharges, or obtain coverage under GP-0-20-001.

2.0 NOTICE OF INTENT REQUIREMENTS.

To obtain coverage under a general permit, a Notice of Intent (NOI) must be submitted by the owner at least 5 60 days prior to commencement of construction activities. Contractor shall not begin work on any portion of this project that requires implementation of SWPPP procedures until after the time period has elapsed following NYSDEC's receipt of the NOI.

3.0 STORM WATER POLLUTION PREVENTION PLAN.

This Storm Water Pollution Prevention Plan (SWPPP) was developed to set guidelines during construction activities to minimize erosion and sediment laden runoff. A copy of this SWPPP shall be retained at the construction site throughout the duration of this project.

The Contractor shall meet all conditions of this SWPPP and all conditions within the NYSDEC Stormwater Discharge Associated with Construction Activities (SPDES) General Permit #GP-0-20-001. The contractor shall be responsible for implementation of SWPPP procedures including being responsible for any subcontractors who are performing work that requires implementation of SWPPP procedures.

During the course of the project and upon approval by the Owner, the Contractor shall amend the plan whenever there is a change in construction operations, or site conditions which may have an effect on the potential for the discharge of pollutants.

3.1 Site Description.

- A. This project generally includes the rehabilitation of Taxiway "D" between Runway 6-24 and Taxiway "A" and reconstruction of Taxiway "B". Pavement rehabilitation includes partial variable depth asphalt removal by cold milling, hot-mix asphalt overlay and pavement repairs. Also included in the project are pavement markings and turf restoration adjacent to the runway edges. The runway and turf surfaces will be re-graded as necessary to improve drainage while maintaining FAA allowable surface grades.

B. Below is a description of the intended sequence of major construction activities which involve soil disturbance:

- Install temporary erosion and sediment controls.
- Excavate and grade site.
- Mill and excavate existing taxiway asphalt pavement.
- Excavation and subbase preparation for new full depth asphalt pavement areas.
- Install pavement underdrain pipe at edge of pavement.
- Install utilities including taxiway edge lights and signage.
- Install new aggregate base course at new full depth asphalt pavement areas.
- Install permanent stormwater controls (dry swales).
- Pave taxiway with asphalt pavement.
- Seed and mulch (hydroseed) all areas disturbed from construction activities.
- After stabilization, remove temporary erosion and sediment controls.

C. The total project area is approximately 3.8 acres of which approximately 1.4 acres will undergo an asphalt mill and overlay (not considered disturbance) and 2.4 acres are expected to be disturbed from grading operations during construction.

D. The existing soil is primarily SM – silty sand which is expected to be poorly drained, moisture sensitive, sand-silt, highly variable and cohesive. The existing soils are classified as Hydrologic Soil Group (HSG) Type D. The runoff coefficient utilized for pavement is 0.90 and for turf is 0.25. The runoff coefficient within the grading area limits will not change as a result of this project. See Appendix B for more detail.

E. A location plan, general plan, grading plans, and soil erosion and sediment control details have been included in Appendix A. The location plan shows the project location while the general plan identifies the overall project site. Project grading plans have been included to indicate grading limits, drainage patterns, grade slopes, location of erosion and sediment controls and storm water discharge locations. The soil erosion and sediment control details have been included to identify controls to be utilized on this project.

F. The storm water runoff from this project will be discharged into the roadside swale along Route 176 via an existing storm drainage system, culverts and swales. Runoff ultimately discharges into Lake Ontario via the Oswego River. Review of the existing topography reveals that this drainage area before development discharges across this same general area and therefore, the drainage patterns have not been altered.

G. The present owner is: Oswego County, New York

The contact person for the project is: Brandon Schwerdt
 Oswego County Airport (FZY)
 40 Airport Drive
 Fulton NY 13069
 Office 315-591-9130

3.2 Erosion and Sediment Control Practices. The following control practices have been incorporated into the Contract Documents. The Contractor shall be required to construct and maintain the erosion and sediment controls in accordance with this document and the associated Contract Documents for this project. If the total area of disturbed soil at any one time is greater than five acres, then the portion of the site in excess of five acres shall be temporarily or permanently stabilized. Written permission may be obtained from the NYSDEC in advance of construction to allow land disturbance greater than five acres.

A. Temporary Structural Measures. Temporary structural measures have been incorporated into the Contract Documents. The quantities required to complete the work have been estimated, however, there is no guarantee of the actual quantities used during construction. Other measures may be ordered

by the Engineer, Owner or NYSDEC which are not listed below. Temporary structural measures not covered by contract items will be paid for in accordance with Section 90-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK. The temporary structural measures included in this contract are as follows:

1. Dust Control.
 - Dust resulting from land-disturbing activities shall be controlled to prevent surface and air movement of dust from disturbed soil surfaces.
 - Dust control measures shall be employed on construction roads, access points and other disturbed areas subject to dust movement.
 - On non-driving areas, measures such as vegetative cover, mulch or sprayed adhesives shall be employed.
 - On driving areas, water shall be applied by sprinkling until the surface is wet.
 - Dust control measures shall be applied constantly through dry weather until all disturbed areas are stabilized.
2. Compost Filter Sock (CFS)
 - Compost filter sock shall be installed to intercept sediment laden runoff from small drainage areas of disturbed soils. The CFS also reduces runoff velocity and effects deposition of transported sediment load.
 - Compost filter sock shall be maintained to prevent sediment bypass.
 - Compost filter sock shall be removed when bulges develop, and the sock shall be repaired or replaced when needed.
3. Storm Drain Inlet Protection.
 - A storm drain inlet protection shall be installed around inlets. The purpose is to prevent sediment-laden water from entering inlets to a storm drain system.
 - Inspect the structure after every storm event.
 - Clean the structure when sediment accumulates.
 - Remove sediment when and dispose at a protected location in a manner that will prevent sediment from entering storm drains, ditches or watercourses.
 - Replace any damaged device, check for proper anchoring and secure as necessary.

B. Vegetative Measures.

1. Mulching.
 - Mulching is used to provide initial erosion control while seeding. Mulch can be used alone for temporary stabilization in non-growing months.
 - Apply mulch directly after seeding.
 - Anchor mulch where needed.
 - Re-apply mulch as needed.
2. Seeding.
 - Immediately after completion of grading operations, topsoil shall be replaced and all areas disturbed from grading operations shall be seeded and mulched in an effort to stabilize the site.
 - Temporary stabilization measures (including topsoil, seed and mulch) shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after construction activity has ceased.
 - Repair areas where soil erosion occurs.
 - Re-apply seed and mulch after repairs, and in areas where grass does not begin to grow.
 - Where construction activity will resume on a portion of the site within 21 days from when activities ceased, (e.g. the total time period that construction activity is temporarily ceased is less than 21 days) then stabilization measures do not have to be initiated on that portion of the site by the 14th day after construction activity temporarily ceased.

- Where snow cover precludes the initiation of stabilization measures by the 14th day after construction activity, the area shall be stabilized as soon as possible. Measures shall be taken to eliminate erosion and siltation while the area is covered with snow.

3. Protecting Vegetation.

- The Contractor shall make every effort to protect trees, shrubs, ground cover and any other vegetation adjacent to the work areas. The purpose of preserving existing vegetation where obtainable is to reduce soil erosion and enhance water quality.
- Mark trees and other valuable vegetation to be protected with suitable barriers.
- Place barriers far enough away to avoid contact with tall construction equipment.
- Avoid hauling over or unnecessarily excavating the root system.
- Avoid spills of oil, gas and other contaminants near the root system.

4. Topsoiling.

- Topsoil is required to provide acceptable plant cover growing conditions.
- Topsoil placed on slopes greater than 5% shall be promptly fertilized, seeded, mulched and “tracked” with suitable equipment.

C. Permanent Structural Measures (Note Used)

3.3 Water Quality & Quantity Controls. Post-construction storm water management practices have been developed with the intention of reducing the risk of increased runoff velocity, erosion and point source discharges once the project has been completed. This project is a redevelopment project with no net increase in impervious cover. Per Section 9.3.2.B.II of the NYSDEC Stormwater Management Design Manual (SMDM) a minimum of 25% of the water quality volume (WQv) from the disturbed impervious area will be captured and treated by the implementation of standard practices (dry swales) or reduced by application of green infrastructure techniques. As this is a redevelopment project and there is no change to site hydrology or drainage patterns that will result in an increase in discharge rate or velocity from the project site, water quantity controls for CPv, 10 year, and 100 year storm are not required per Section 9.3.2.A, I and II of the NYSDEC SWDM. Hydraulic calculations are included in Appendix B of this plan.

A. Open Channels

1. Dry Swale (O-1) - The dry swale will be excavated to a depth of 1.0 feet (minimum) and width of 3.0 feet. The excavated trench will be lined with filter fabric and then backfilled with a permeable media consisting of crushed stone material to within 3 inches of proposed finished grade. The crushed stone backfill will be covered with filter fabric to allow water to infiltrate the dry swale without carrying sediments. Porous backfill material shall be placed on the top of the dry swale to a uniform depth of 3 inches. The entire disturbed area surrounding the dry swale will be seeded and mulched. The dry swale will act as a filtering device to eliminate sediments from discharging from the site.

- B. Grass Filter Strips will be located between the edge of pavement and dry swales, providing pretreatment for the dry swales.

3.4 Storm Water Management. The best approach to storm water management for construction activities is through the use of a self-designed Storm Water Pollution Prevention Plan (SWPPP). The development of the SWPPP through the use of Best Management Practices (BMP) is to prevent erosion and pollutants from the construction materials mixing with storm water runoff and being discharged from the project site. BMP's should be designed to prevent, or at least control, the pollution of storm water before it has a chance to affect receiving waters. Using BMP's in this way improves the discharge water quality.

Specific requirements for management of storm water and maintaining water quality include, but are not limited to:

- A. There shall be no increase in turbidity that will cause a substantial visible contrast to natural condition;
- B. There shall be no suspended, colloidal, and settleable solids that will cause deposition or impair the waters for their best usages, and;
- C. There shall be no residue from oil and floating substances, visible oil film, globules or grease. In addition, local ordinances may affect these Best Management Practices. Any conditions or specific local ordinances are to be included in the development of the BMP's for the project.

The following steps will help ensure proper handling of construction wastes:

- A. Contractor shall designate a waste collection area onsite.
- B. An adequate number of containers with lids or covers shall be placed in the collection area.
- C. When required, containers shall be located in a covered area.
- D. Waste collection shall be coordinated when containers are full. If a container does overflow, cleanup shall be performed immediately.

The following steps will help ensure proper handling of hazardous construction products and materials:

- A. Check with local waste management authorities to determine what the requirements are for disposing of hazardous materials.
- B. Use all of the product before disposing of the container
- C. Do not remove the original product label from the container as it contains important information.
- D. Surplus products will not be mixed together prior to disposal unless specifically recommended by the manufacturer.
- E. The manufacturer's recommended disposal methods, printed on the label, shall be followed.
- F. Contaminated soils may be encountered onsite during earthmoving activities or during the cleanup of a spill or leak of a hazardous product. A sample of the contaminated material will require laboratory analysis. Disposal methods will be determined following the review of the analytical results. The excavated material shall be stored in a roll-off. The roll-off shall be covered to prevent precipitation from entering it.
- G. Residual concrete remaining in concrete mixing trucks may be emptied or washed onsite. Excess concrete and wash water shall be disposed of in a manner that prevents contact between these materials and storm water which will be discharged from the site. Dikes shall be constructed around the area to contain these materials until they harden, at which time they may be incorporated into the fill on site, or disposed of off-site. Excess concrete, or concrete that does not meet the project specifications shall be handled in a similar manner.

On a construction site, the material storage area can become a major source of risk due to possible mishandling of materials or accidental spills. The following steps will help ensure proper material management:

- A. Pesticides will be handled as infrequently as possible. All applicable Federal, State, and local regulations shall be observed when using, handling, or disposing of these materials.
- B. Oil, gasoline, and lubricants shall be handled carefully to minimize their exposure to stormwater.
- C. Equipment shall be available to contain and clean up petroleum spills in fuel storage areas, and shall be on board maintenance and fueling vehicles.
- D. Petroleum products shall be stored in covered areas. Dikes shall be constructed around fuel vehicle storage areas to contain spills.
- E. The application of fertilizers shall be limited to the area specified and the minimum recommended application rate.
- F. Soil erosion and sediment control practices will reduce the amount of fertilizers that can leave the site in runoff.
- G. Use of detergents onsite shall be limited to only that which is essential to perform the work. Wash water containing detergents shall not be discharged to the storm sewer system.

- H. Equipment shall be available to contain and clean up spills of hazardous materials in the areas where these materials are stored or used. Spills shall be cleaned up immediately. Materials shall be stored in a dry covered area.
- I. Store and handle material to prevent spills. Keep materials in tightly seal containers in a well ventilated area.
- J. All containers shall be clearly labeled.
- K. Exposure to storm water contact shall be reduced if there is a spill.
- L. Cleanup procedures shall be clearly posted.
- M. Personnel responsible for responding to a spill of toxic or hazardous materials shall be identified and properly trained, or a private firm that specializes in spill cleanup shall be identified.

3.5 Other Requirements.

- A. Any discharges other than storm water must be in compliance with the appropriate SPDES permit (other than this permit).
- B. No solid materials, including building materials, shall be discharged to waters of the United States, except as authorized by a federal or state law.
- C. All construction activities shall be in compliance with all federal, state and local laws as required.
- D. The contractor shall be responsible to insure that the plan has been approved by local officials and any other authorizing agency.

3.6 Inspections. Inspections are important for visually evaluating potential storm water runoff pollution sources at the facility. All projects should be inspected periodically to ensure contaminants are not present in the storm water exiting a project site. On projects which apply for coverage under the SPDES General Permit, qualified professionals of the Owner shall inspect and evaluate the site. Qualified professionals are persons knowledgeable in the principles and practices of erosion and sediment control such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or a soil scientist.

The Owner shall have a qualified professional conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the erosion and sediment controls described in the SWPPP have been installed or implemented. Following the commencement of construction, site inspections shall occur at least once every seven calendar days as well as within 24 hours of the end of a rain storm where the total rainfall is 0.5 inches or greater. Where portions of the construction area have been finally stabilized, the inspection of such portions shall be conducted at least once every month, until the entire site is finally stabilized. A copy of the erosion and sediment control inspection checklist has been included in Appendix C.

The Owner shall prepare a written summary of the project status with respect to compliance with the Permit at a minimum frequency of every three months during which coverage under the Permit exists. The summary should address the status of achieving each component of the SWPPP.

The Owner shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis.

Each inspection shall, at the minimum, include the following:

- On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period.
- Indicate on a site map all areas that have undergone temporary or permanent stabilization.
- Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period.
- Inspect all soil erosion and sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume.

- Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (silt fencing) and containment systems (sediment basins).
- Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching.
- Document any excessive deposition of sediment or ponding water along barriers or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water.
- Discharge locations shall be inspected to ensure erosion control measures are effective in preventing significant impacts to receiving waters.
- Location where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

The process for conducting the evaluation shall follow these steps:

- Review the Storm Water Pollution Prevention Plan and draw up a list of any items of concern.
- List all specified control measures and areas covered in the plan.
- Conduct inspections to determine whether all storm water pollution prevention measures are accurately identified in the plan, are in place, and working properly.
- Document findings and inspections in a site log book.
- Modify SWPPP as appropriate. (Note: The plan shall be modified by the contractor and site inspector within 7 days of the inspection).

3.7 Maintenance. The contractor is required to inspect and maintain all soil erosion and sediment controls throughout the duration of the project and until final stabilization of the site. "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform, perennial vegetative cover with a density of 80% has been obtained.

Maintenance shall include, but not be limited to, repair or replacement of any existing controls, removal of sediment and any other measures deemed necessary, which would reduce soil erosion and sediment runoff. Sediment shall be removed from sediment traps or sediment ponds whenever their capacity has been reduced by fifty percent from the design capacity. Refer to Section 3.2 for maintenance of individual controls.

3.8 Contractors. The Contractor must sign a SWPPP certification form before undertaking any construction activity at the site which requires implementation of the soil erosion and sediment control practices. This certification states that the Contractor has thoroughly read and understands all components of the SWPPP. The Contractor is responsible for any and all subcontractors working on the project. A copy of the Contractor's Certification Form has been included in Appendix D.

4.0 RECORD RETENTION.

A copy of the SWPPP shall be retained at the job site throughout the duration of the project. The Owner shall retain copies of the SWPPP, all reports, and records of data used to complete Notice of Intent, for three years from the date the site is finally stabilized.

5.0 NOTICE OF TERMINATION REQUIREMENTS.

Prior to filing a Notice of Termination (NOT) the Owner shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone "Final Stabilization" using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls have been removed. In addition, the qualified professional must certify that the permanent structure(s) have been constructed as described in the SWPPP.

When the project is completed and the site has been stabilized, the Owner must submit a NOT. A copy of the NOT form has been included in Appendix E. The NOT shall be submitted to the following address:

NYS DEC "Notice of Termination"
Division of Water
625 Broadway, 4th Floor
Albany, NY 12233-3505

APPENDIX A

LOCATION PLAN

(See Sheet GI001 of Contract Drawings)

GENERAL PLAN

(See Sheet GC101 of Contract Drawings)

GRADING PLANS

(See Sheets CG101 & CG102 of Contract Drawings)

SOIL EROSION & SEDIMENT CONTROL DETAILS

(See Sheet CG501 & CG502 of Contract Drawings)

APPENDIX B

STORM WATER MANAGEMENT CALCULATIONS

Oswego County Airport - Taxiway B & D Rehab Project

Project Classification: Redevelopment

Area calcs for SWPPP

Area (SF) Area (AC)

166,171 3.81 overall project area

104,850 2.41 overall disturbance

61,321 1.41 mill & overlay

29,695 0.68 full depth pavement replacement

Area (SF) Area (AC)

42,655 0.98 disturbed area

tributary to dry swale

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?..... **No**

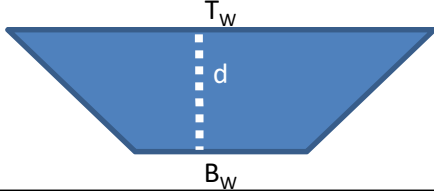
Design Point:	1		<i>Manually enter P, Total Area and Impervious Cover.</i>
P=	0.90	inch	

Breakdown of Subcatchments						
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft ³)	Description
1	0.60	0.17	28%	0.30	598	Dry Swale
2						
3						
4	Disturbed Redevelopment Area = 2.41 acres 25% = 0.60 acres Disturbed Redevelopment Impervious Area = 0.68 acres 25% = 0.17 acres					
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	0.60	0.17	28%	0.30	598	Subtotal 1
Total	0.60	0.17	28%	0.30	598	Initial WQv

Identify Runoff Reduction Techniques By Area			
Technique	Total Contributing Area	Contributing Impervious Area	Notes
	(Acre)	(Acre)	
Conservation of Natural Areas	0.00	0.00	minimum 10,000 sf
Riparian Buffers	0.00	0.00	maximum contributing length 75 feet to 150 feet
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	Up to 100 sf directly connected impervious area may be subtracted per tree
Total	0.00	0.00	

Recalculate WQv after application of Area Reduction Techniques					
	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Runoff Coefficient Rv	WQv (ft ³)
"<<Initial WQv"	0.60	0.17	28%	0.30	598
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	0.60	0.17	28%	0.30	598
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	0.60	0.17	28%	0.30	598
WQv reduced by Area Reduction techniques					0

Dry Swale Worksheet

Design Point:	1	Enter Site Data For Drainage Area to be Treated by Practice					
Catchment Number	Total Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (ft ³)	Precipitation (in)	Description
1	0.60	0.17	0.28	0.30	598.27	0.90	Dry Swale
Enter Impervious Area Reduced by Disconnection of Rooftops			28%	0.30	598	<<WQv after adjusting for Disconnected Rooftops	
Pretreatment Provided				Pretreatment Technique			
Pretreatment (10% of WQv)			60	ft ³			
Calculate Available Storage Capacity							
Bottom Width	3	ft	Design with a bottom width no greater than eight feet to avoid potential gullyng and channel braiding, but no less than two feet				
Side Slope (X:1)	4	Okay	Channels shall be designed with moderate side slopes (flatter than 3:1) for most conditions. 2:1 is the absolute maximum side slope				
Longitudinal Slope	1%	Okay	Maximum longitudinal slope shall be 4%				
Flow Depth	1	ft	Maximum ponding depth of one foot at the mid-point of the channel, and a maximum depth of 18" at the end point of the channel (for storage of the WQv)				
Top Width	11	ft					
Area	7.00	sf					
Minimum Length	77	ft					
Actual Length	78	ft					
End Point Depth check	1.00	Okay	A maximum depth of 18" at the end point of the channel (for storage of the WQv)				
Storage Capacity	606	ft ³					
Soil Group (HSG)			D				
Runoff Reduction							
Is the Dry Swale contributing flow to another practice?			No	Select Practice			
RRv	121	ft³	Runoff Reduction equals 40% in HSG A and B and 20% in HSG C and D up to the WQv				
Volume Treated	477	ft ³	This is the difference between the WQv calculated and the runoff reduction achieved in the swale				
Volume Directed	0	ft ³	This volume is directed another practice				
Volume V	Okay	Check to be sure that channel is long enough to store WQv					

APPENDIX C

WEEKLY SOIL EROSION AND SEDIMENT CONTROL INSPECTION CHECKLIST

II. CONSTRUCTION DURATION INSPECTIONS

A. DIRECTIONS:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

- (1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;
- (2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;
- (3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;
- (4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);
- (5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment with containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and
- (6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH (Attached)

Inspector (print name)

Date of Inspection

Qualified Professional (print name)

Qualified Professional Signature

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there residue from oil and floating substances, visible oil film, or globules or grease?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All disturbance is within the limits of the approved plans.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is construction site litter and debris appropriately managed?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is construction impacting the adjacent property?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is dust adequately controlled?

2. Temporary Stream Crossing
NOT USED

Runoff Control Practices

1. Excavation Dewatering

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clean water from upstream pool is being pumped to the downstream pool.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sediment laden water from work area is being discharged to a silt-trapping device.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader
NOT USED

3. Interceptor Dikes and Swales

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Installed per plan with minimum side slopes 2H:1V or flatter.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sediment-laden runoff directed to sediment trapping structure

Runoff Control Practices (continued)

4. Stone Check Dam
 NOT USED

5. Rock Outlet Protection
 NOT USED

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stockpiles are stabilized with vegetation and/or mulch.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sediment control is installed at the toe of the slope.

2. Revegetation

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Temporary seedings and mulch have been applied to idle areas.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Stabilized Construction Entrance

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stone is clean enough to effectively remove mud from vehicles.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Installed per standards and specifications?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does all traffic use the stabilized entrance to enter and leave site?
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is adequate drainage provided to prevent ponding at entrance?

2. Compost Filter Sock

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Joints constructed by wrapping the two ends together for continuous support.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Secured tight to the ground.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stable, sock is tight and without rips or frayed areas.

Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes	No	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Dandy Sack or Ultra-Drain Guard installed per plans & details.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Installed concrete blocks lengthwise so open ends face outward, not upward.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Placed wire screen between No. 3 crushed stone and concrete blocks.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drainage area is 1acre or less.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Excavated area is 900 cubic feet.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Excavated side slopes should be 2:1.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2" x 4" frame is constructed and structurally sound.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Posts 3-foot maximum spacing between posts.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation ____% of design capacity.

4. Temporary Sediment Trap
NOT USED

5. Temporary Sediment Basin
NOT USED

Notes: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.
Construction inspection checklists for post-development storm water management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

III. MONTHLY SUMMARY OF SITE INSPECTION ACTIVITIES

Name of Permitted Facility: _____

Today's Date: _____ Reporting Month: _____

Location: _____

Permit Identification #: _____

Name and Telephone Number of Site Inspector: _____

Date of Inspection	Regular Inspection/ Rainfall based Inspection	Name of Inspector	Items of Concern

Owner/Operator Certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law.”

Signature of Permittee or Duly Authorized Representative Name of Permittee or Duly Authorized Representative

Date: _____

Duly authorized representatives must have written authorization, submitted to DEC, to sign any permit documents.

APPENDIX D
CONTRACTOR'S CERTIFICATION FORM

CONTRACTOR'S EXECUTED SWPPP CERTIFICATION TO BE INSERTED

(A copy of the certification can be found in the Proposal Section of the conformed Contract Documents)

APPENDIX E

NOTICE OF INTENT (NOI)

FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER

THE SPDES GENERAL PERMIT

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.37

(Submission #: HQ1-10KR-SNK6K, version 1)

Details

Originally Started By John Frazee
Alternate Identifier Oswego County Airport Taxiway B & D Rehabilitation
Submission ID HQ1-10KR-SNK6K
Submission Reason New
Status Draft

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
Oswego County

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Schwerdt

Owner/Operator Contact Person First Name
Brandon

Owner/Operator Mailing Address
40 Airport Drive

City
Fulton

State
New York

Zip
13069

Phone
315-591-9130

Email
Brandon.Schwerdt@OswegoCounty.com

Federal Tax ID
EIN

If the owner/operator is an organization, provide the Federal Tax ID number, or Employer Identification Number (EIN), in the format xx-xxxxxxx. If the owner/operator is an individual and not an organization, enter "Not Applicable" or "N/A" and do not provide the individual's social security number.

Project Location

Project/Site Name
Oswego County Airport Taxiway B & D Rehabilitation

Street Address (Not P.O. Box)
40 Airport Drive

Side of Street

East

City/Town/Village (THAT ISSUES BUILDING PERMIT)

Fulton

State

NY

Zip

13069

DEC Region

7

The DEC Region must be provided. Please use the NYSDEC Stormwater Interactive Map (<https://gisservices.dec.ny.gov/gis/stormwater/>) to confirm which DEC Region this site is located in. To view the DEC Regions, click on "Other Useful Reference Layers" on the left side of the map, then click on "DEC Administrative Boundary." Zoom out as needed to see the Region boundaries.
For projects that span multiple Regions, please select a primary Region and then provide the additional Regions as a note in Question 39.

County

OSWEGO

Name of Nearest Cross Street

Whitaker Road

Distance to Nearest Cross Street (Feet)

1650

Project In Relation to Cross Street

East

Tax Map Numbers Section-Block-Parcel

219.00-05-06.16

Tax Map Numbers

219.00-05-06.16

If the project does not have tax map numbers (e.g. linear projects), enter "Not Applicable" or "N/A".

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:

- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates

43.35078903545149,-76.39055760827068

Project Details**2. What is the nature of this project?**

Redevelopment with no increase in impervious area

For the purposes of this eNOI, "New Construction" refers to any project that does not involve the disturbance of existing impervious area (i.e. 0 acres). If existing impervious area will be disturbed on the project site, it is considered redevelopment with either increase in impervious area or no increase in impervious area.

3. Select the predominant land use for both pre and post development conditions.**Pre-Development Existing Landuse**

Other: Airport Taxiway

Post-Development Future Land Use

Other: Airport Taxiway

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.

NONE PROVIDED

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage) within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)

3.8

Total Area to be Disturbed (acres)

2.4

Existing Impervious Area to be Disturbed (acres)

0.7

Future Impervious Area Within Disturbed Area (acres)

0.7

5. Do you plan to disturb more than 5 acres of soil at any one time?

No

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)

0

B (%)

0

C (%)

0

D (%)

100

7. Is this a phased project?

No

8. Enter the planned start and end dates of the disturbance activities.**Start Date**

04/01/2025

End Date

07/01/2025

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Oswego River

Drainage ditches and storm sewer systems are not considered surface waterbodies. Please identify the surface waterbody that they discharge to. If the nearest surface waterbody is unnamed, provide a description of the waterbody, such as, "Unnamed tributary to Niagara River."

9a. Type of waterbody identified in question 9?

River Off Site

Other Waterbody Type Off Site Description

NONE PROVIDED

9b. If "wetland" was selected in 9A, how was the wetland identified?

NONE PROVIDED

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?

No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?

No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?

No

Please use the DEC Stormwater Interactive Map (<https://gisservices.dec.ny.gov/gis/stormwater/>) to confirm if this site is located in one of the watersheds of an AA or AA-S classified water. To view the watershed areas, click on "Permit Related Layers" on the left side of the map, then click on "Class AA AAS Watersheds."

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as D (provided the map unit name is inclusive of slopes greater than 25%), E or F on the USDA Soil Survey?

NONE PROVIDED

If Yes, what is the acreage to be disturbed?

NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?

No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?

Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?

Oswego County

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?

No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?

No

19. Is this property owned by a state authority, state agency, federal government or local government?

Yes

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)

No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?

Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?

Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?

Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

Professional Engineer (P.E.)

SWPPP Preparer

C&S Engineers, Inc.

Contact Name (Last, First)

Frazee, John

Mailing Address

499 Col. Eileen Collins Blvd.

City

Syracuse

State

NY

Zip

13212

Phone

315-455-2000

Email

jfrazee@cscos.com

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

- 1) Click on the link below to download a blank certification form
- 2) The certified SWPPP preparer should sign this form
- 3) Scan the signed form
- 4) Upload the scanned document

[Download SWPPP Preparer Certification Form](#)

Please upload the SWPPP Preparer Certification

App F - Preparer swpppcert.pdf - 01/15/2024 10:56 AM

Comment

NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?

Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

Dust Control
Silt Fence
Storm Drain Inlet Protection

Biotechnical

None

Vegetative Measures

Protecting Vegetation
Seeding
Topsoiling
Mulching

Permanent Structural

Land Grading

Other

NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

Preservation of Undisturbed Area
Reduction of Clearing and Grading

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)

.014

29. Post-construction SMP Identification

Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques (Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)

.003

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?

No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)

0.002

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

Yes

If Yes, go to question 33.

Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs

Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)

.011

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).

0.014

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?

Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)

NONE PROVIDED

CPv Provided (acre-feet)

NONE PROVIDED

36a. The need to provide channel protection has been waived because:

Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)

NONE PROVIDED

Post-Development (CFS)

NONE PROVIDED

Total Extreme Flood Control Criteria (Qf)**Pre-Development (CFS)**

NONE PROVIDED

Post-Development (CFS)

NONE PROVIDED

37a. The need to meet the Qp and Qf criteria has been waived because:

Downstream analysis reveals that the Qp and Qf controls are not required.

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?

Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance

Oswego County

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.

This project includes mill and overlay of Taxiway D and full depth asphalt reconstruction of Taxiway B. This project is a redevelopment project with no increase in impervious area. The 3.8 acre total project area includes 2.4 acres of disturbance from grading operations of which 0.7 acres are existing impervious. The remaining area consists of 1.4 acres of asphalt to be milled and overlaid (not disturbance). Per Section 9.3.2.B.II of the NYSDEC SMDM a minimum of 25% of the WQv from the disturbed impervious area will be treated by dry swales, which discharge to existing catch basins. Grass filter strips will provide pretreatment for the dry swales. There will be no change to site hydrology that will result in an increase in discharge rate/velocity from the project site. Therefore, water quantity controls for CPv, 10 yr, and 100 yr storm are not required per Section 9.3.2.A, I and II of the NYSDEC SWDM. The site is limited by Hydrologic Soil Group D soils per the USDA Web Soil Survey.

Post-Construction SMP Identification**Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs**

Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)

NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)

NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)

NONE PROVIDED

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)

NONE PROVIDED

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)

NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)

NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)

NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)

NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
NONE PROVIDED

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRV Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Swale (O-1)
0.7

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)

NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)

NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)

NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic

NONE PROVIDED

Total Contributing Impervious Area for Wet Vault

NONE PROVIDED

Total Contributing Impervious Area for Media Filter

NONE PROVIDED

"Other" Alternative SMP?

NONE PROVIDED

Total Contributing Impervious Area for "Other"

NONE PROVIDED

Provide the name and manufacturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP

NONE PROVIDED

Name of Alternative SMP

NONE PROVIDED

Other Permits**40. Identify other DEC permits, existing and new, that are required for this project/facility.**

None

If SPDES Multi-Sector GP, then give permit ID

NONE PROVIDED

If Other, then identify

NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?

No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth

NONE PROVIDED

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.

NONE PROVIDED

MS4 SWPPP Acceptance**43. Is this project subject to the requirements of a regulated, traditional land use control MS4?**

No

If No, skip question 44**44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?**

NONE PROVIDED

MS4 SWPPP Acceptance Form Download

Download form from the link below. Complete, sign, and upload.

[MS4 SWPPP Acceptance Form](#)

MS4 Acceptance Form Upload

NONE PROVIDED

Comment

NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.

[Owner/Operator Certification Form \(PDF, 45KB\)](#)

Upload Owner/Operator Certification Form

NONE PROVIDED

Comment

NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
1/15/2024 10:56 AM	App F - Preparer swpppcert.pdf	Attachment	John Frazee

APPENDIX F
NOTICE OF TERMINATION (NOT)
FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER
THE SPDES GENERAL PERMIT



New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

(NOTE: Submit completed form to address above)

**NOTICE OF TERMINATION for Storm Water Discharges Authorized
under the SPDES General Permit for Construction Activity**

Please indicate your permit identification number: NYR _____

I. Owner or Operator Information

- 1. Owner/Operator Name:
- 2. Street Address:
- 3. City/State/Zip:
- 4. Contact Person: 4a. Telephone:
- 5. Contact Person E-Mail:

II. Project Site Information

- 5. Project Site Name:
- 6. Street Address:
- 7. City/Zip:
- 8. County:

III. Reason for Termination

- 9a. All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.
*Date final stabilization completed (month/year): _____
- 9b. Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR _____
(Note: Permit coverage cannot be terminated by owner identified in I.1 above until new owner/operator obtains coverage under the general permit)
- 9c. Other (Explain on Page 2)

IV. Final Site Information

- 10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? yes no (If no, go to question 10f.)
- 10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? yes no (If no, explain on Page 2)
- 10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

**NOTICE OF TERMINATION for Storm Water Discharges Authorized under the
SPDES General Permit for Construction Activity – continued**

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? yes no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

- Post-construction storm water management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.
- Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).
- For post-construction stormwater management practice(s) that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator’s deed of record.
- For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? yes no
(If Yes, complete section VI – “MS4 Acceptance” statement)

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance – MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked-transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:

Date:

**NOTICE OF TERMINATION for Storm Water Discharges Authorized under the
SPDES General Permit for Construction Activity – continued**

VII. Qualified Inspector Certification – Final Stabilization

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

VIII. Qualified Inspector Certification – Post-construction Stormwater Management Practice(s)

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

(NYS DEC Notice of Termination – January 2015)

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 4 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 Engineer/RPR field office and equipment. The Contractor shall provide dedicated space for the use of the field RPR and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. The Contractor shall furnish water, sanitary facilities, heat, air conditioning, and electricity in accordance with local building codes.

105-4.1 Field Office. The Contractor shall supply for the RPR’s use, a building or mobile trailer which shall be erected at the location shown on the Contract Drawings and shall be separate from any building used by the Contractor. The field office, equipment and all appurtenances shall be onsite, installed and operational at least 7 days prior to commencement of construction, and shall remain in place for a period of 30 days after the date of final acceptance of the project. The Contractor shall maintain all facilities and furnished equipment in good working condition.

The field office shall have a minimum ceiling height of 7 feet and shall be provided with six weather proof windows and two weatherproof doors, each equipped with adequate locking devices. Each window shall have a minimum area of 8 square feet, shall be screened and of a type that will open and close to provide adequate ventilation.

The field office shall have a minimum of 325 square feet of floor space. The field office shall be partitioned to provide two rooms with an adjoining door. The smaller room shall be not less than 95 square feet in floor area and shall contain two windows.

Lighting shall consist of electric non-glare type luminaries that provide a minimum level of 93 foot-candles at desk height level.

Heating and cooling units shall be capable of maintaining an ambient air temperature of 70 degrees F, +/- 5 degrees.

Hot and cold running water shall be provided. The water may be provided from a municipal water line, or from potable bottled water. Potable bottled water shall utilize a dispensing unit capable of providing hot and cold water.

The field office shall have a separately enclosed room, properly ventilated and complying with applicable sanitary codes with a flush-type toilet. The Contractor shall provide all lavatory amenities, necessary paper and soap products, and hot and cold running water.

The Contractor shall provide a parking area for 5 vehicles. The area shall be 45 feet wide by 18 feet long, and shall be paved, crushed stone, gravel or bank-run material. A sidewalk shall be constructed of the same material connecting the parking area to the door of the field office.

Steps shall be installed at each door to the field office and shall include a hand rail. Steps shall meet the requirements of all applicable building, safety, and health regulations and laws. Portable steps, when used, shall be set level and shall be suitably anchored to the ground to prevent movement.

The office shall be cleaned at least once weekly, and at other times as directed by the RPR.

The Contractor may furnish equivalent facilities in an existing building provided such facilities and buildings are located conveniently near to the construction, and provided the building and location is acceptable to the RPR. The Airport may have space available on the airport to lease at an agreed price.

The field office and site shall be maintained in good condition and appearance by the Contractor for the designated period, after which the field office, utilities and appurtenances shall be removed and the site restored to a condition equal to or better than original condition. The Contractor shall be responsible, until use and occupancy of the field office is relinquished by the RPR, for any and all damage, direct or indirect, of whatever nature, occurring to the property of the Owner and RPR, including the property of other employees of the RPR assigned to the field office, which is kept in the field office. The responsibility of property shall include only those items used by appropriate personnel in the performance of project related work activities. Such property shall be replaced within 30 days of the reported damages and shall include any loss caused by, but not limited to, fire, theft, vandalism, and malicious mischief.

The RPR shall provide the Contractor with a detailed list of items, with corresponding dollar values, belonging to the RPR, and the RPR's personnel. The list shall be updated at least every three months, but not more than once a month. The Contractor shall not be responsible for items kept in the RPR's field office that are not on this list.

105-4.2 Field Office Equipment:

- A. Desks and chairs.** The Contractor shall provide 1 office desk that is at least 2-1/2 feet by 5 feet each and 2 office chairs.
- B.** The Contractor shall provide 1 drafting tables which are approximately 3 feet by 6 feet and 1 stool.
- C. Network access, additional equipment and appurtenances.** The Contractor shall provide following items in the field office:
 - a. A secured wired or wireless network with ability for printing and scanning documents and access to high speed internet for multiple computers and/or devices available from the start of the project for the project duration. Internet Access shall be obtained through one of the following methods* (in order of preference):
 - 1. Cable Modem
 - 2. Wireless Broadband Access Card
 - 3. Satellite Modem
 - ii. *A minimum download speed of 25 Mbps is required for the accepted internet connection. Connection type shall be approved by the RPR.
 - b. Router meeting minimum requirements of IEEE 802.11n standards
- D. Printer paper and ink cartridges.** The Contractor shall provide a supply of 8-1/2 x 11 inch and 11 x 17 inch printer paper and spare printer ink cartridges in the field office. The supply shall be replenished as needed throughout the duration of the project.

- E. Digital camera.** The digital camera shall be a minimum 3.0 megapixel camera with 3x optical zoom and 3x digital zoom. The camera shall have a rechargeable battery pack and a 120v wall charger. The camera shall have a built in flash which is capable of being turned off. The camera shall have 16MB minimum storage capacity with a USB port and cable for downloading photographs. The camera shall be capable of time and date overlays.
- F. Refrigerator.** The Contractor shall provide a standard electric cold storage type refrigerator providing a minimum storage space of 3 cubic feet.
- G. Fire resistant cabinets.** The Contractor shall provide two fire resistant cabinets. Each cabinet shall be 4 drawer, legal size with lock and 2 keys, meeting the requirements for “Insulating Filing Devised, Class 350-1 Hour (D)” of ANSI/UL 72 or the Class D rating of Underwriters Laboratories specification for insulated filing devices.
- H. Bookcase.** The Contractor shall provide 1 self-standing 3 shelf metal bookcase. The bookcase shall be approximately 4 feet high by 4 feet wide by 1 foot deep.
- I. First aid kit.** The Contractor shall provide a first aid kit properly stocked with appropriate first aid supplies.
- J. Fire extinguishers.** The Contractor shall provide one fire extinguisher per room. The fire extinguisher shall be a non-toxic dry chemical, fire extinguisher meeting Underwriters Laboratories, Inc., approval for Class A, Class B and Class C fires with a minimum rating of 2A:10B:10C.
- K. Tack boards.** The Contractor shall provide a cork tack board mounted on a wall. The tack board shall be a minimum of 2 feet high by 4 feet wide.
- L. Waste paper baskets.** The Contractor shall provide a metal waste basket in each room.
- M. SWPPP Mailbox.** The Contractor shall provide and install a standard mailbox. The mailbox shall be installed at a location to be determined during construction. The mailbox shall be labeled “SWPPP”.
- N. Airport communication system.** The Contractor shall obtain, for use by the RPR, one hand held airport maintenance base radio transceiver which operate on frequencies of:

UNICOM: 123.000 MHz

The transceivers shall be ICOM A6, as manufactured by ICOM America, Inc., or equal. Each radio shall come equipped with two battery packs, one standard 120V wall charger and one 12V (cigarette lighter) charger. When work has been completed work on the project, the RPR will return the radios, battery packs, wall chargers, and 12V chargers to the Contractor.

METHOD OF MEASUREMENT

105-5.1 Measurement for payment of mobilization will be made on a lump sum basis. Measurement for partial payment of mobilization will be made based percentage of work completed in accordance with the schedule shown in Section 6.1.

105-5.2 Measurement for payment for the field office, and for field office equipment will be made on lump sum bases. Measurements for partial payment of each item may be made at the discretion of the RPR as the work progresses based on contract time or percent of work completed. The Airport may have space available on the airport property to lease at an agreed price.

BASIS OF PAYMENT

105-6.1 Payment for mobilization will be made on a lump sum basis. Based upon the contract lump sum price for “Mobilization” partial payments will be allowed as follows:

- a. With first pay request, 25%.
- b. When 25% or more of the original contract is earned, an additional 25%.
- c. When 50% or more of the original contract is earned, an additional 40%.

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 10%.

105-6.2 The lump sum prices bid for the field office, and for field office equipment shall include all utility charges, equipment, materials, labor and incidentals necessary to complete this item. If space is leased from the Airport, it will still be paid under the field office item number. Partial payments of the lump sum price bid may be made at the discretion of the RPR as the work progresses based on contract time or percent of work completed. No payment shall be made for items omitted by the Owner or not properly maintained by the Contractor throughout the duration of the project.

Payment will be made under:

- Item C-105-6.1 Mobilization (4% max.) – per lump sum
- Item C-105-6.2 Field Office – per lump sum
- Item C-105-6.3 Field Office Equipment – 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 C-106 Safety, Security and Maintenance of Traffic

DESCRIPTION

106-1.1 General. This work shall consist of maintaining aircraft and vehicular traffic and protecting the public from damage to person and property within the limits of and for the duration of the Contract, and as specified in the Construction Safety and Phasing Plan, Appendix A to Section 70.

Contractor is responsible for maintenance and repair of these items, regardless of cause of damage, until the project is accepted.

The following items are specifically included without limiting the generality implied by these Specifications and the Contract Drawings. Contractor is responsible for maintenance and repair of these items, regardless of cause of damage, until the project is accepted.

- Restoration of all surfaces disturbed as a result of the Contractor's Operations which are not otherwise paid for.
- Maintenance and repair of existing access roads, including dust control measures.
- Maintenance and repair of existing security fencing and access gates (Contractor entry points only).
- Providing gate guards and flaggers.
- Installation, maintenance, repair and removal of temporary barricades, barricade lights, barricade flags, warning signs, hazard markings, temporary construction signage and taxiway closure markings.
- Installation, maintenance, repair and removal of temporary lights and lighting circuits. Temporary above ground lighting cables shall be delineated with stakes and flagging in turf areas and barricades in paved areas.
- Identification and mark out of existing utilities by private utility locating service. Protection of existing utilities.
- Testing and maintenance of existing and new lighting circuitry.
- Cleaning and maintenance of all paved areas.
- Restoration of staging area.
- Temporary airfield pavement markings, removal and placement, associated with construction work phasing. All markings shall be in accordance with item P-620.
- Temporary light and sign covers associated with construction work phasing.
- Security requirements.
- All CSPP requirements.

METHOD OF MEASUREMENT

106-2.1 Measurement for payment of safety, security and maintenance of traffic will be made on a lump sum basis. Measurements for partial payment may be made at the discretion of the RPR as the work progresses based on contract time or percent of work completed.

BASIS OF PAYMENT

106-3.1 The lump sum price bid for safety, security and maintenance of traffic shall include all equipment, materials, labor and incidentals necessary to adequately and safely maintain and protect traffic.

In the event the contract completion date is extended, no additional payment will be made for safety, security and maintenance of traffic.

Partial payments of the lump sum price bid may be made for this item at the discretion of the RPR as the work progresses based on contract time or work completed, less any deductions for unsatisfactory safety, security and maintenance of traffic.

No payment will be made under safety, security and maintenance of traffic for each calendar day during which there are substantial deficiencies in compliance with the Specification requirements of any subsection of this Section as determined by the RPR.

The amount of such calendar day non-payment will be determined by dividing the lump sum amount bid for safety, security and maintenance of traffic by the number of calendar days between the date the Contractor commences work and the date of completion as designated in this proposal, without regard to any extension of time.

If the Contractor fails to maintain and protect traffic adequately and safely for a period of 24 hours, the Owner shall correct the adverse conditions by any means it deems appropriate and shall deduct the cost of the corrective work from any monies due the Contractor. The cost of this work shall be in addition to the liquidated damages and non-payment for safety, security and maintenance of traffic listed above.

However, where major nonconformance with the requirements of this Specification is noted by the RPR and prompt Contractor compliance is deemed not to be obtainable, all contract work may be stopped by direct order of the RPR regardless of whether corrections are made by the Owner as stated in the paragraph above.

Payment will be made under:

C-106-3.1 Safety, Security and Maintenance of Traffic - per lump sum

END OF ITEM C-106

Item C-107 Project Survey and Stakeout

DESCRIPTION

107-1.1 Project survey and stakeout shall be completed in accordance with this specification. The Contractor shall do all necessary surveying required to construct all elements of the Project. Project survey and stakeout shall be performed by competently qualified personnel acceptable to the Engineer. The survey and stakeout shall be progressed in advance of construction operations such that the layout does not impede the construction schedule. All survey work shall be provided under the direction of a Licensed Surveyor licensed in the State in which the project is located.

EQUIPMENT & MATERIALS

107-2.1 General. All instruments, equipment, stakes and any other material necessary to perform the work satisfactorily shall be provided by the Contractor. It shall be the Contractor's responsibility to maintain these stakes in their proper position and location at all times.

107-2.2 Equipment.

1. Surveying Equipment. Upon request, the Contractor shall make available to the RPR, a rod, level, and tripod. The rod shall be telescoping rod, 15 feet in length with hundredth of a foot graduations. The level shall be self-leveling and have documentation demonstrating it has been calibrated within twelve months of the project's commencement.
2. GPS Inspection Units.
 - a. GPS units provided for a single contract shall be of the same model and manufacturer; and shall include, and be licensed to operate, the same versions of GPS planning software, data collection software, navigation software, stakeout software and post processing software. All software provided (including firmware) shall be the most current available from the manufacturer at the time of delivery of the GPS units. GPS inspection units should be of the same manufacturer as those used by the Contractor. GPS units shall not be more than 2 years old from the date of manufacturing to the time of delivery. To verify the age of the GPS units, the Contractor shall provide a dated copy of the manufacturer's receipt(s) for the purchase, lease or rental of the units.
 - b. GPS units shall include both standard USB cable and Bluetooth wireless technology for data transfer.
 - c. Data shall be capable of being copied onto or from a removable industry standard data storage card (e.g.: secure digital SD Card). Each GPS Unit shall include 2 data storage cards, each with a minimum capacity of 4 GB each.
 - d. GPS units shall include the ability to import/export and display point and alignment data which is in XML format, and also import graphics files which are in DGN or DXF format.
 - e. GPS units shall have an internal, or modular, rechargeable battery system capable of operating a minimum of 8 hours (may include interchangeable batteries), and shall include a battery charger.

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- f. GPS units shall include a hard or soft shell carry case, and all appropriate operation manuals.
3. Survey Grade GPS Inspection Units.
- a. The Contractor shall make available upon request, the RPR with one GPS Inspection Unit for use during the course of the project. GPS units shall be equipped to receive Global Positioning System (GPS), GLONASS and GNSS position data.
 - b. GPS units shall be equipped to receive, and be capable of utilizing, Real Time Kinematics (RTK) correctional data (current version of RTCM format) through internet protocol as provided from the Continuously Operating Reference System (CORS) Network. This shall include all necessary communication devices, repeaters and systems, data service plans and communications to meet the minimum required accuracy and not exceed a 2 second latency at the rover. Whichever communication method is utilized by the Contractor to broadcast the CORS RTK correctional data, the Contractor shall ensure that the RTK data shall be available at all locations across the entire contract site during all hours of construction and inspection operations.
 - c. GPS units shall include the capability to “localize” both the horizontal and vertical control to local project monumentation (also known as calibrate), while utilizing RTK corrections from a reference network.
 - d. GPS units shall include either an integrated or modular communication device capable of receiving RTK correctional data to satisfy the requirement of using CORS RTK corrections.
 - e. GPS units shall have the ability to display the number of satellites tracked at any one time, and indicate the accuracy quality of each measurement relative to the strength of signals, and the GDOP (Geometric Dilution of Precision).
 - f. GPS Unit shall include dual frequency receivers.
 - g. Minimum Required Kinematic Accuracy relative to primary project control (CORS):
Horizontal: 0.033 ft. + 1.0 ppm; Vertical: 0.065 ft. + 1.0 ppm
 - h. All necessary hardware and software shall be included (including communication drivers) to connect the GPS unit to a Tablet PC and communicate/exchange positional data with CADD software.
 - i. The data controller shall permit the user to program and store multiple configurations (also known as user preferences) prior to the actual field measurements. Configurations shall be capable of being stored and recalled in the field.
 - j. GPS units shall include one fixed height rover rod of 6.56 feet in length, one attachable bipod which is compatible with the rover rod, and one topo shoe.
 - k. A GPS unit set up to operate as a base station shall include all necessary additional cables, hardware, fasteners or accessories necessary to install it in a fixed semi-permanent location, will not be considered as a rover unit, and therefore will not require a rover rod, a bi-pod, or a topo shoe

107-2.3 Materials. Stakes used for construction layout shall be sound hardwood stakes having minimum dimensions of 1 inch by 1 inch by 4 feet in length.

CONSTRUCTION METHODS

170-3.1 General. This work shall consist of providing all necessary survey work to establish, spatially position, and verify the locations of existing and proposed features and measure quantities of items in accordance with the contract documents or as directed by the RPR. This work includes but is not limited to the establishment, reestablishment or localization of primary and secondary control, the stakeout or layout of proposed features, the initialization, calibration and navigation of automated equipment operations, the location or verification of existing or of constructed features, the verification of geospatial data for proposed construction work and the coordination and sharing of survey data with the RPR.

The Contractor shall be responsible for trimming trees, brush and other objects from survey lines in advance of all survey work to permit accurate and unimpeded work by the survey crews.

107-3.2 Layout and stakeout. The exact position of all work shall be established from control points, baseline points or other points of similar nature which are shown on the Contract Drawings. Any error, apparent discrepancy or absence in or of data shown or required for accurately accomplishing the stakeout survey shall be referred to the Engineer for interpretation or furnishing when such is observed or required. Stakes shall be clearly and legibly marked based on computations and measurements made by the Contractor. Markings shall include centerline station, offset and cut or fill marks. If markings become faded or blurred, they shall be restored by the Contractor, if requested by the Engineer. Contractor shall locate and place all cut, fill, slope, fine grade or other stakes and points for the proper progress of the work. All control points shall be properly guarded and flagged for easy identification. Reference points, baselines, stakes and benchmarks for borrow pits shall be established by the Contractor. Permanent survey marker locations shall be established and referenced by the Contractor.

The Contractor shall be responsible for the accuracy of his work and shall maintain all reference points, stakes, etc., throughout the life of the Contract. Damaged or destroyed points, benchmarks or stakes, or any reference points made inaccessible by the progress of the construction, shall be replaced or transferred by the Contractor. Any of the above points which may be destroyed or damaged shall be transferred by the Contractor before they are damaged or destroyed. All control points shall be referenced by ties to acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to the Engineer immediately. All stakeout survey work shall be referenced to the centerlines shown on the Contract Drawings indicating station and offset. All computations necessary to establish the exact position of the work from control points shall be made by the Contractor. All computations, survey notes and other records necessary to accomplish the work shall be neatly made, and shall be made available to the Engineer upon request.

The Engineer may check all or any portion of the stakeout survey work or notes made by the Contractor. Any necessary correction to the work shall be made immediately by the Contractor. Such checking by the Engineer shall not relieve the Contractor of any responsibilities for the accuracy or completeness of his work.

Upon completion of all grading and paving work, the Contractor shall re-establish baseline points, control points, and centerline points at 100 foot stations. The baseline points, control points, and centerline points to be established shall be the same as those used to develop design quantities.

Existing markers, stakes, iron pins, and survey monuments which have a high probability of being disturbed during construction shall be properly tied into fixed reference points before being disturbed and accurately reset in their proper position upon completion of the work.

107-3.3 Verification of Existing Grades. This project was developed using a 3D CADD program. The 3D CADD program created 3D surface files of the existing surfaces, finished surfaces and other various surfaces required to complete the design.

Some volumetric quantities were calculated by comparing surface files of the applicable design surfaces and generating Triangle Volume Reports.

Existing grades on the surface files, 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, a Licensed Surveyor 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. For this purpose, the RPR will provide the Contractor with a 3D CADD file of the topographic survey. Surveyor 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 surface files. Surveyor'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 Surveyor 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 0.02 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 Surveyor's verification identifies discrepancies in the topographic map, Contractor shall notify 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 surface files. 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.

The Contractor's survey shall not exceed the following:

- Error of horizontal closure in feet shall not exceed 1 foot/5,000 feet
- Error of vertical closure in feet shall not exceed $(0.05 \text{ feet}) * (\text{bench run length in miles})^{1/2}$

A point data file of the Contractor's verification of original ground surface shall be provided in electronic format along with a printed hard copy. The point data shall be supplied in one ASCII file containing point number, northing, easting, elevation and descriptor. The data shall be left justified columns separated by commas with decimal points, but no slashes, colons and/or other separators.

107-3.4 Traditional Survey Stakeout. The Contractor shall field locate all features to be constructed from survey control points which are identified on the Plans. Any error, apparent discrepancy or absence in the data shown or required to appropriately accomplish the stakeout survey shall be referred to the RPR immediately for interpretation when such is observed or required.

The Contractor shall place two offset stakes or references points along the center line at maximum intervals of 50 feet and at such intermediate locations as required to determine location and direction. From computations and measurements made by the Contractor, these stakes shall be clearly and legibly marked with the center line station number, offset and cut or fill from which the establishment of the centerline location and elevation can be determined. If markings become illegible for any reason the markings shall be restored by the Contractor. The Contractor shall locate and place all cut, fill, slope, fine grade, or other stakes and points for the proper progress of the work with a maximum station spacing of 50 feet. All control points shall be properly protected and flagged for easy identification.

The Contractor shall be responsible for the accuracy of the work and shall maintain all applicable reference points, stakes, etc. Damaged or destroyed reference points or bench marks made inaccessible by the progress of the construction shall be replaced or transferred by the Contractor. All control points shall be referenced by ties (4 minimum) to specific points on acceptable objects and recorded. Any alterations or revisions in the ties shall be so noted and the information furnished to the RPR. All stakeout survey work related to control shall be referenced to the control line shown in the contract documents. Computations and survey notes necessary to establish the position of the work from control points, shall be made and maintained in a neat, legible and acceptable format by the Contractor.

Computations, survey notes and other survey information shall be made available to the RPR within 3 work days from the request. The RPR may check all or any portion of the stakeout survey work or notes made by the Contractor. Such checking by the RPR shall not relieve the Contractor of any responsibilities for the accuracy or completeness of the work.

107-3.5 Automated Stakeout and Automated Machine Guidance Operations. Should the Contractor choose automated methods for the establishment, layout, measurement, equipment guidance or verification of work to be constructed, they shall submit their proposed automated methods including quality control measures as part of their contract control plan for acceptance by the RPR. AMG shall be in accordance with Item P-670, Automated Machine Guidance. When utilizing these methods, all horizontal and vertical survey control, roadway alignment control and existing terrain data shall be shared/exchanged electronically and kept current between the Contractor and the RPR. All original version files of electronic contract data shall be maintained and stored by the RPR.

Prior to beginning field operations, the Contractor and RPR shall mutually determine acceptable uses of and procedures for the technology being used, and how data can be exchanged for use in stakeout, automated machine operations, positional verification, quantity measurements and calculations. All record copies of survey and stakeout data shall be stored and shared in RPR accepted standard formats, and shall be derived primarily from the original electronic data, when provided by the RPR.

Automated survey operations have a high reliance on accurate control networks from which to make measurements, establish positions, and verify geospatial locations of features. Therefore, a strong contract control network in the field which is consistent with the project control used during the design of the contract is essential to the successful use of these technologies with the proposed digital terrain model and alignments. Consistent and well-designed site calibration (localization) for all automated machine guidance, is required to ensure the quality of the contract deliverables. The Contractor shall document which local horizontal and vertical control will be used for calibration during construction operations and how that calibration or adjustment will be maintained along the entire contract length. Continued incorporation of CORS Network is essential to maintaining the integrity of positional locations and elevations of features.

The RPR may perform quality assurance verifications of feature positions at any time during the contract. Dimensional tolerances shall hold a higher order of precedence than positional tolerances, but both may require verification. Quality assurance activities by the RPR will not relieve the Contractor of any responsibilities for the quality control of the accuracy or completeness of the work.

107-3.6 GPS Inspection Unit. The Contractor shall furnish, configure, install, maintain and remove the GPS unit. Contractor shall ensure the GPS unit is fully operational and training has been provided before construction begins.

All projects shall utilize the CORS as the spatial reference datum network from which RTK corrections are derived. The Contractor shall choose which communication technique and devices will be used which will insure the consistent and reliable delivery of RTK correctional data from the CORS to the GPS unit. When geographic location or lack of a reliable communications network prohibits the use of the CORS, the RPR may approve the use of a Survey Grade GPS Inspection unit as a base station in place of the CORS. The Contractor shall semi-permanently mount the base station in a stable and secure location where it shall not be disturbed by construction activities nor be easily damaged by vandalism and where it shall be capable of providing radio signal coverage over the entire contract area. If the base station cannot broadcast a signal that covers the entire site, the Contractor shall provide adequate repeater radios or other communications. A GPS unit installed as a base station for inspection operations shall only be moved with the approval of the RPR.

The GPS unit shall be maintained and remain in service a maximum of one week after the RPR requests its removal in writing. The Contractor shall maintain the GPS unit and software in good working

condition and shall provide replacement due to breakdown, damage, or theft within 2 work days. The Contractor shall retain ownership of the GPS unit at the end of the contract.

107-3.7 GPS Training Provisions. For all GPS units, the RPR and/or their representatives shall be provided with a training session for GPS localization/calibration of the contract site. For all Survey Grade GPS units, the RPR and/or their representatives shall be provided with a minimum of two separate training sessions on the use and operation of the GPS units. One of these two sessions shall occur within one week of delivery of GPS units to the site. The second of the two classes shall occur upon the request of the RPR. One additional training session shall be provided during each additional contract year that the GPS units are in service. All training shall be performed by a manufacturer-verified trainer who is approved by the RPR. The training shall occur at the RPR's Field Office or at a location agreed to by the RPR.

107-3.8 Survey Reference Points.

1. Existing horizontal and vertical control points for the Project are those designated on drawings or as determined from investigation of the existing conditions.
2. Locate and protect control points prior to starting Site Work and preserve permanent reference points during construction.
 - a. Make no changes or relocations without prior approval of the RPR.
 - b. Report to RPR when reference point is lost, destroyed or requires relocation because of necessary changes in grades or locations.
 - c. Replace Project control points, which may be lost or destroyed. Airport control points shall be replaced in accordance with their requirements.
 - d. Existing property corners, markers, stakes, iron pins, and survey monuments defining property lines which have a high probability of being disturbed during construction shall be properly tied into fixed reference points before being disturbed. If disturbed, they shall be accurately reset in their proper position upon completion of the work.

107-3.9 Project Layout Requirements.

1. Establish a sufficient number of permanent bench marks on Site, as may be required, referenced to data established by survey control points. Record locations of benchmarks with horizontal and vertical data on Project Record Documents.
2. From established control points, layout all Work by establishing all lines and grades at Site necessary to control Work. Contractor shall be responsible for all measurements that may be required for execution of Work to location and limit marks prescribed in appropriate Specification Sections or on Contract Drawings.
3. Furnish, at contractor expense, all such stakes, steel pins, equipment, tools and material and labor that may be required in laying out Work control points.
4. Establish lines and levels. Locate and layout by instrumentation and similar appropriate means:
 - a. Verify property, grades, lines, levels and dimensions indicated.
 - b. Site Improvements
 - 1) Provide stakes for grading, fill and topsoil placement.
 - 2) Layout utility slopes and invert elevations.
 - 3) Layout limits of pavement demolition and proposed pavement.

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4. Verify and coordinate in field all existing and proposed underground components including civil, structural, utilities and other components prior to initiation of the Work. Advise RPR and/or FAA of any conflicts or discrepancies.

107-3.10 Documents.

1. Submit name, address and contact information of Surveyor to RPR.
2. On request of the RPR, submit documentation to certify accuracy of construction survey and stakeout work and compliance with Contract Documents.
3. Submit certificate signed by licensed surveyor certifying that elevations and locations of improvements are in conformance with Contract Documents. Should any work be in non-conformance with Contract Documents, Contractor shall identify all such non-conformance in the certificate.
4. Standards and Availability: Data and other measurements shall be recorded in accordance with standard and approved methods. All field notes, sketches, recordings, and computations in establishing above horizontal and vertical control points shall be available at all times during progress of Work for ready examination by RPR.
5. Maintain complete and accurate record data on underground utilities and obstructions, new and existing, encountered in execution of Work. Record data on Project Record Documents.
6. On completion of major site improvements, prepare certified survey showing dimensions, locations, angles, and elevations of construction.

107-3.11 Computer Aided Drafting & Design (CADD) and 3D Surface files. This project was developed using three-dimensional design software (Bently Microstation, InRoads). After award and upon request, the successful bidder will be provided CADD files developed from CAD, and 3D surface files for use. The surface files will be provided for the existing grade, finished grade, and other applicable design surface models. In addition, survey control for the project will be provided in electronic format and the alignments will be provided in XML format. The files may be used for survey and stakeout of the project, but may not be manipulated. A single CADD file will be provided as well, including 2D and 3D information.

The following 3D surfaces will be provided:

<u>SURFACE</u>	<u>DESCRIPTION</u>
Overall Project Site Existing Grade	3D surface of project site overall existing grade elevations per topographic survey prior to construction.
Proposed Finished Grade	3D surface representation of the project site overall proposed finished grade elevations per project design. This surface includes pavement and turf grades.

The following 2D CADD files will be provided:

<u>FILE</u>	<u>DESCRIPTION</u>
Existing Base Map	Existing topographic features, limits of pavement, physical features, existing contours, equipment, structures, lights, signs, known utilities, fence, pipes, and conduits, buildings, etc.
Proposed	Proposed work including alignments, survey data, limits of demolition, limits of pavement, physical features, proposed contours, equipment, structures, pavement marking, lights, signs, utilities, pipes, and conduits.

Unless otherwise shown on the Plans, the Contractor shall assume that the origin of proposed CAD symbols is at the center of the location of the feature. CAD symbols which are not at the center of origin include the following:

<u>Symbol</u>	<u>Origin</u>
Guidance Signs	Longitudinal center at end of sign closest to pavement edge.

The files were developed for the design and depiction of various 2D features (existing and proposed) and 3D features of existing, proposed, and subgrade surfaces. The surface files are depicted on the Contract Drawings in the form of contours, profiles, typical sections, spot elevations, tables, and other details. The surface file of the existing surface is the database of points from the design topographic survey. The surface files of the other surfaces are the database of points for the surfaces used to design the project.

The Owner allows use of the CADD and surface files in the performance of its work and services on the project with the following terms and conditions:

1. That the Owner does not warrant or guarantee the information and data in the CADD and surface files and any accompanying documentation as a substitute for the sound judgment of the Contractor.
2. That the Contractor desires to make use of the CADD and surface files in conjunction with the Work to be provided to the Owner for the subject project.
3. That the Contractor has no rights to the information and data contained in the CADD and surface files or any translated or converted form of these files. The transfer shall not be considered to convey any proprietary interest in the information and data in the CADD and surface files or any translated or converted form of these files or subsequent version thereof.
4. That the information and data contained in the CADD and surface files or in any translated or converted form of these files shall not be used by the Contractor on any other project.
5. That the Contractor may not copy, distribute, sell, rent, sublicense or lease the CADD and surface files or any translated or converted form of these files or any accompanying documentation.
6. That no information or data contained in the CADD and surface files or any translated or converted form of these files shall be transferred in any electronic form without written permission of the Owner.
7. That after completion of the Work by the Contractor as part of this project, the Contractor shall remove the information and data contained in the CADD and surface files, or any translated or converted form of these files, from all of its electronic data processing systems. No electronic copies of the information and data contained in the CADD and surface files or any translated or converted form of these files shall be retained by the Contractor.
8. That the Contractor shall take all steps reasonably necessary to protect the CADD and surface files, or any translated or converted form of these files, from theft or use in a manner inconsistent with these terms and conditions.
9. That the Owner may terminate these terms and conditions at any time and the Contractor shall immediately remove the CADD and surface files, or any translated or converted form of these files, from their electronic data processing systems upon demand of the Owner.
10. That the Owner retains all rights not expressly granted. Nothing in these terms and conditions constitutes a waiver of the Owner's rights under any federal or state law.

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11. That the Owner excludes any and all implied warranties, including warranties of merchantability and fitness for a particular purpose, and limits the Contractor's remedy to return of the CADD and surface files and documentation to the Owner for replacement.
 12. That the Owner makes no warranty or representation, either express or implied, with respect to the CADD and surface files or accompanying documentation, including their quality, performance, merchantability, or fitness for a particular purpose. The CADD and surface files and documentation are provided "as is" and the Contractor assumes the entire risk as to their quality and performance.
 13. That the Owner shall not be liable for any direct, indirect, special, incidental, or consequential damages arising out of the use of, inability to use, or any defect in the CADD and surface files or any translated or converted form of these files or any accompanying documentation.
 14. That the Contractor shall indemnify and hold harmless the Owner, its officials and employees, and the RPR for any injury to the person or property of third parties arising out of the use of or any defect in the CADD and surface files or any translated or converted form of these files or any accompanying documentation.
 15. That the Contractor shall indemnify and hold harmless the Owner, its officials and employees, and the RPR for any injury arising out of any infringement of the copyright law.
 16. That the warranty and remedies set forth in these terms and conditions are exclusive and in lieu of all others, oral or written, express or implied.
 17. That nothing contained in these terms and conditions shall be construed to represent or warrant that the Contractor has the right to reproduce or copy any or converted form of these files and the Contractor acknowledges that it has no right to reproduce and include copyright or trade secret notices, or patent rights on any copies, in whole or in part, in any form. All copies of each CADD and surface file remain the property of the Owner and any rights involving the copyright law as modified in 17 U.S.C. §101 et. seq. remain with the Owner.

The above listed terms and conditions are hereby accepted by the Contractor upon execution of the construction contract and transfer of the CAD files upon request.

METHOD OF MEASUREMENT

107-4.1 Measurement for payment of project survey and stakeout will be made on a lump sum basis. Measurement for partial payments, at the discretion of the Engineer, will be in proportion to the total amount of contract work completed.

BASIS OF PAYMENT

107-5.1 The lump sum price bid shall include the cost of furnishing all labor, equipment, instruments and all other material necessary to satisfactorily complete the project surveying and stakeout.

Partial payments of the lump sum price bid may be made for this item as the work progresses, at the discretion of the Engineer.

Payment will be made under:

Item C-107-1 Project Survey and Stakeout – per lump sum

END OF ITEM 107

Item C-110 Method of Estimating Percentage of Material Within Specification Limits (PWL)

110-1 General. When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (\bar{X}) and sample standard deviation (S_n) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index, Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

It is the intent of this section to inform the Contractor that, in order to consistently offset the Contractor's risk for material evaluated, production quality (using population average and population standard deviation) must be maintained at the acceptable quality specified or higher. In all cases, it is the responsibility of the Contractor to produce at quality levels that will meet the specified acceptance criteria when sampled and tested at the frequencies specified.

110-2 Method for computing PWL. The computational sequence for computing PWL is as follows:

- a. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.
- b. Locate the random sampling position within the subplot in accordance with the requirements of the specification.
- c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.
- d. Find the sample average (\bar{X}) for all subplot test values within the lot by using the following formula:

$$\bar{X} = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

Where: \bar{X} = Sample average of all subplot test values within a lot

x_1, x_2, \dots, x_n = Individual subplot test values

n = Number of subplot test values

- e. Find the sample standard deviation (S_n) by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \dots + d_n^2)/(n-1)]^{1/2}$$

Where: S_n = Sample standard deviation of the number of subplot test values in the set

d_1, d_2, \dots, d_n = Deviations of the individual subplot test values x_1, x_2, \dots from the average value X

that is: $d_1 = (x_1 - X), d_2 = (x_2 - X) \dots d_n = (x_n - X)$

n = Number of subplot test values

f. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

$$Q_L = (X - L) / S_n$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L , using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

g. For double-sided specification limits (i.e., L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$Q_L = (X - L) / S_n$$

and

$$Q_U = (U - X) / S_n$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with Q_L and Q_U , using the column appropriate to the total number (n) of measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U . Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where: P_L = percent within lower specification limit

P_U = percent within upper specification limit

METHOD OF MEASUREMENT

110-3.1 No measurement will be made for direct payment of estimating percentage of material within specification limits. The cost shall be considered a subsidiary obligation in the completion of the work.

BASIS OF PAYMENT

110-4.1 No payment will be made separately or directly for estimating percentage of material within specification limits on any part of the work. All estimating percentage of material within specification

limits shall be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract unit price for the pay items involved.

EXAMPLE OF PWL CALCULATION

Project: Example Project

Test Item: Item P-401, Lot A.

A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

$$A-1 = 96.60$$

$$A-2 = 97.55$$

$$A-3 = 99.30$$

$$A-4 = 98.35$$

$$n = 4$$

2. Calculate average density for the lot.

$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

$$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$$

$$X = 97.95\% \text{ density}$$

3. Calculate the standard deviation for the lot.

$$S_n = [((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2) / (4 - 1)]^{1/2}$$

$$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$$

$$S_n = 1.15$$

4. Calculate the Lower Quality Index Q_L for the lot. ($L=96.3$)

$$Q_L = (X - L) / S_n$$

$$Q_L = (97.95 - 96.30) / 1.15$$

$$Q_L = 1.4348$$

5. Determine PWL by entering Table 1 with $Q_L=1.44$ and $n=4$.

$$PWL = 98$$

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

$$A-1 = 5.00$$

$$A-2 = 3.74$$

$$A-3 = 2.30$$

$$A-4 = 3.25$$

2. Calculate the average air voids for the lot.

$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

$$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$$

$$X = 3.57\%$$

3. Calculate the standard deviation S_n for the lot.

$$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$$

$$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$$

$$S_n = 1.12$$

4. Calculate the Lower Quality Index Q_L for the lot. ($L = 2.0$)

$$Q_L = (X - L) / S_n$$

$$Q_L = (3.57 - 2.00) / 1.12$$

$$Q_L = 1.3992$$

5. Determine P_L by entering Table 1 with $Q_L = 1.41$ and $n = 4$.

$$P_L = 97$$

6. Calculate the Upper Quality Index Q_U for the lot. ($U = 5.0$)

$$Q_U = (U - X) / S_n$$

$$Q_U = (5.00 - 3.57) / 1.12$$

$$Q_U = 1.2702$$

7. Determine P_U by entering Table 1 with $Q_U = 1.29$ and $n = 4$.

$$P_U = 93$$

8. Calculate Air Voids PWL

$$PWL = (P_L + P_U) - 100$$

$$PWL = (97 + 93) - 100 = 90$$

EXAMPLE OF OUTLIER CALCULATION (REFERENCE ASTM E178)

Project: Example Project

Test Item: Item P-401, Lot A.

A. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A arranged in descending order.

$$A-3 = 99.30$$

$$A-4 = 98.35$$

$$A-2 = 97.55$$

$$A-1 = 96.60$$

2. From ASTM E178, Table 1, for $n=4$ an upper 5% significance level, the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

- a. For measurements greater than the average:

If (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-3, check if $(99.30 - 97.95) / 1.15$ is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

b. For measurements less than the average:

If $(\text{average} - \text{measurement}) / (\text{standard deviation})$ is less than test criterion, then the measurement is not considered an outlier.

For A-1, check if $(97.95 - 96.60) / 1.15$ is greater than 1.463.

Since 1.435 is less than 1.463, the value is not an outlier.

Note: In this example, a measurement would be considered an outlier if the density were:

Greater than $(97.95 + 1.463 \times 1.15) = 99.63\%$

OR

less than $(97.95 - 1.463 \times 1.15) = 96.27\%$.

Table 1. Table for Estimating Percent of Lot Within Limits (PWL)

Percent Within Limits (PL and PU)	Positive Values of Q (QL and QU)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161

Percent Within Limits (P _L and P _U)	Positive Values of Q (Q _L and Q _U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Percent Within Limits (P _L and P _U)	Negative Values of Q (Q _L and Q _U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

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 E178

Standard Practice for Dealing with Outlying Observations

END OF ITEM C-110

Item P-101 Preparation/Removal of Existing Pavements

DESCRIPTION

101-1 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.

EQUIPMENT AND MATERIALS

101-2.1 Equipment. 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.

101-2.2 Bituminous concrete pavement. Materials for bituminous concrete pavement shall be in accordance with Item P-401, Asphalt Mix Pavement.

101-2.3 Emulsified asphalt. The emulsified asphalt shall conform to the requirements of ASTM D 977 or ASTM D 2397.

101-2.4 Herbicide. Herbicide shall be a commercially produced product made specifically for killing plants and their root systems. Herbicides shall be packaged in standard sealed containers marked with the name of the material, the name of the manufacturer, the net quantity contained therein and shall be in accordance with the provisions of the Federal and State Rules and Regulations in effect at the time of delivery.

101-2.5 Tack coat. Tack coat shall be in accordance with Item P-603, Emulsified Asphalt Tack Coat.

101-2.6 Surface treatment. Not used.

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. This paragraph covers removal of existing pavement for the following purposes: reducing the limits of existing pavement; removal of existing pavement necessary to abut new pavement to existing, and; removal of existing pavement which is being reconstructed. For pavement removal associated with pavement repairs, see paragraph 101-3.4.

a. Concrete pavement removal. Section not used.

b. Asphalt pavement removal.

Asphalt pavement to be removed shall be saw cut to the full depth of the asphalt pavement around the perimeter of the area to be removed if there will be no new pavement installed abutting the cut, or if new Portland cement concrete pavement will be installed abutting the cut. If there will be new asphalt pavement installed adjacent to the cut, the pavement shall be cut to the depth of the new adjacent layer/lift such that the joint for each layer/lift of pavement replacement is offset 1 foot from the joint in the

preceding layer/lift. All material shall be disposed of in accordance with paragraph 101-3.11. Every effort should be made by the Contactor to recycle or re-use the material in other projects.

c. Repair or removal of Base, Subbase, and/or Subgrade.

All failed granular material including 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. The quantity of granular material excavated shall be included and paid for as Unclassified Excavation in Item P-152, Excavation, Subgrade and Embankment.

101-3.2 Preparation of joints and cracks. Preparation of joints and cracks are necessary in areas that are being milled and in areas which are not being overlaid. In areas being milled, preparation shall occur after milling operations.

Existing vegetation within the limits of work shall be treated with an herbicide. The herbicide shall be applied to the vegetation prior to other preparation of joint and crack operations. Application of herbicide shall be in accordance with the manufacturer's printed instructions and the provisions of Federal and State regulations in effect at the time of work. Preparation of joint and crack operations shall not proceed until the herbicide manufacturer's instructions indicate that the treated vegetation may be removed.

a. Preparation of Joints in Flexible Pavement.

(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 (2 mm) from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry. Allow sufficient time to dry out joints prior to sealing.

(2) Cleaning prior to sealing. Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Clean joints by sandblasting, or other method approved by the RPR, on each joint face with nozzle held at an angle and not more than three inches (75 mm) from face. Following sandblasting, clean joints with air free of oil and water. Joint surfaces will be surface-dry prior to installation of sealant.

b. Preparation of Cracks in Flexible Pavement.

(1) Preparation of Crack. Widen crack which are greater than 1/4 inch wide and less than 1 inch wide with router or random crack saw by removing a minimum of 1/16 inch (2 mm) from each side of crack. Routing or sawing shall be accomplished with a commercial router or random crack saw that can produce a vertical sided groove with minimal edge spalling. The groove width and depth shall be as shown on the Contract Drawings. A joint or crack that is routed or sawed should have a constant width from beginning to end. The widest portion of the joint or crack to be routed or sawed shall determine the routing width for the particular joint or crack.

Routed joints and cracks shall be cleaned in accordance with the requirements of Item P-605. Routed joints and cracks shall be kept clean until the sealing operations are completed.

Routed joints and cracks shall be sealed with a joint sealer in accordance with the requirements of Item P-605. Sealing shall not proceed until the routed joints and cracks are accepted by the RPR. To insure that space will be available for expansion of the asphalt, the joint or crack shall not be filled completely to the surface. Joint sealing shall not be performed when the ambient air temperature is below 40 degrees F, when the pavement temperature is below 50 degrees F, or when the pavement is wet.

Sealant which has been damaged, sunk below the surface, or has not bonded properly to the joint or crack shall be removed. The joint or crack shall be re-cleaned and re-sealed in accordance with the

specifications at the Contractor's expense. Immediately before sealing, joints will be blown out with a hot air lance combined with oil and water-free compressed air.

(2) **Removal of Existing 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.

Remove all vegetation, joint and crack sealer, and debris from joints and cracks to a minimum depth of 1 inch (25 mm). Remove all joint sealant, vegetation and debris from all joints to the full depth of the joint. For surface treatment projects, fill all cracks greater than 1/4 inch (6 mm) wide) with a crack sealant per ASTM D6690. The crack sealant, preparation, and application shall be compatible with the surface treatment to be used. Underfill joints and cracks with the crack sealant a minimum of 1/8 inch (3 mm), not to exceed 1/4 inch (6 mm). Any excess joint or crack sealer shall be removed from the pavement surface. For overlay projects, cracks greater than 1/4 inch wide and joints shall be filled with a mixture of emulsified asphalt and aggregate.

Wider cracks (over 1 inch wide (25 mm)), and cracks with adjacent soft or sunken spots, shall be repaired or replaced in accordance with paragraph 101-3.4, unless otherwise directed by the RPR.

For cracks and joints which are to 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 (+0 to -3 mm) 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.

101-3.3 Removal of Foreign Substances/contaminates prior to overlay, seal-coat or remarking.

The majority of the rehabilitation area will be prepared by asphalt milling. In areas where milling does not prepare the surface, this section shall apply. No additional compensation will be granted for work described in this section, and the cost shall be incidental to the Contract.

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, rotary grinding, 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 (3 mm) 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 and asphaltic concrete pavement repair. Pavement repair operations shall not proceed until the herbicide manufacturer's instructions indicate that vegetation may be removed.

- a. Repair of PCC spalls with asphalt in areas to be overlaid.** Section not used.
- b. Full depth repair of PCC pavement.** Section not used.
- c. Partial depth repair of PCC pavement.** Section not used.
- d. Asphalt pavement repair.** Pavement repair shall be performed full depth or partial depth as designated on the plans. Additional pavement repair not shown where joints or cracks that are 1 1/2 inch wide or greater, are spalled, or where the surface is depressed adjacent to the joints and cracks shall also be repaired when so directed by the RPR.

(1) Full depth repair of AC pavement. The failed areas shall be removed as specified in paragraph 101-3.1b, and as shown on the plans. All failed material including surface, base course, subbase course, and subgrade shall be removed as directed by the RPR. Materials and methods of construction shall comply with the applicable sections of these specifications.

Full depth repair areas shall be removed by conventional excavating equipment or by milling. The method chosen by the Contractor shall not damage the existing pavement to remain.

Any excessive area that is removed due to the Contractor's choice of equipment, or replacement of damaged areas of existing pavement that are to remain, shall not be included in the measurement for payment. The Contractor shall repair the excess areas at no additional cost to the Owner. Prior to removal, Contractor shall saw cut vertical faces along all sides of the pavement repair area to a minimum depth of 2 inches. Removal of repair area may warrant using a deeper saw cut to avoid damage to remaining existing pavement.

Contractor shall compact the subgrade soil remaining in place in accordance with Item P-152. Placement and compaction of subbase and base courses shall be in accordance with their respective technical specification, P-154, P-208, P-209, etc.. The repair area shall be filled with bituminous concrete (Hot Mix Asphalt (HMA)) meeting the requirements of the technical specification as shown on the details. A bituminous tack coat shall be applied to the vertical faces of the repair area in accordance with Item P-603 prior to filling. The repair area shall be filled with bituminous concrete from the bottom in successive lifts not exceeding the thickness specified in the technical specification for HMA. The final lift shall be placed to a height above the surface elevation of the pavement such that when the asphalt is

compacted, the compacted mix shall be even with, or slightly above, the existing pavement. The bituminous concrete shall be compacted with a vibratory steel-wheel roller to the satisfaction of the RPR. The roller shall have a minimum unsprung weight of 10 Tons. On the final lift, the loose asphalt shall be “pinched-in” from the edges of the repair area. On pavements which will receive a HMA overlay, excess asphalt which is greater than 1/8 inch above the surface, and asphalt which is placed on top of existing pavement adjacent to the repair area, shall be removed by milling to obtain a repair area with a surface that is flush with the adjacent pavement surface. On pavements which will not receive a bituminous overlay, excess asphalt which is greater than 1/8 inch above the surface, and asphalt which is placed on top of existing pavement adjacent to the repair area shall be removed by diamond grinding in accordance with paragraph 101-3.4.d(3). Removal of existing pavement by excavation or milling, the application of tack coat, placement of bituminous concrete and milling/diamond grinding will be considered a necessary part of the work and its costs shall be considered by the Contractor and included in the contract price for the pay items of work involved.

(2) Partial depth repair of AC pavement. Partial depth repair areas shall be removed by milling. The milling equipment shall be a self-powered machine operating a rotary cutter or revolving cutting tool and shall be capable of milling to the depth shown on the plans.

Any excessive area that is milled due to the Contractor choice of equipment, or replacement of damaged areas of existing pavement that are to remain shall not be included in the measurement for payment. The Contractor shall repair the excess areas at no additional cost to the Owner. Prior to removal, Contractor shall saw cut vertical faces along all sides of the pavement repair area to a minimum depth of 2 inches.

Existing pavement and the milled surface shall be cleaned upon completion of removal operations. The milled surface and vertical faces of the saw cuts shall be cleaned of all loose and latent material that would cause a poor bond between existing and new pavements.

The repair area shall be filled with bituminous concrete (Hot Mix Asphalt (HMA)) meeting the requirements of the technical specification as shown on the details. A bituminous tack coat shall be applied to the milled surface and vertical faces of the repair area in accordance with Item P-603 prior to filling. The repair area shall be filled with bituminous concrete from the bottom in successive lifts not exceeding the thickness specified in the technical specification for HMA. The final lift shall be placed to a height above the surface elevation of the pavement such that when the asphalt is compacted, the compacted mix shall be even with, or slightly above, the existing pavement. The bituminous concrete shall be compacted with a vibratory steel-wheel roller to the satisfaction of the RPR. The roller shall have a minimum unsprung weight of 10 Tons. On the final lift, the loose asphalt shall be “pinched-in” from the edges of the repair area. On pavements which will receive a HMA overlay, excess asphalt which is greater than 1/8 inch above the surface, and asphalt which is placed on top of existing pavement adjacent to the repair area, shall be removed by milling to obtain a repair area with a surface that is flush with the adjacent pavement surface. On pavements which will not receive a bituminous overlay, excess asphalt which is greater than 1/8 inch above the surface, and asphalt which is placed on top of existing pavement adjacent to the repair area shall be removed by diamond grinding in accordance with paragraph 101-3.4.d(3). Removal of existing pavement by excavation or milling, the application of tack coat, placement of bituminous concrete and milling/diamond grinding will be considered a necessary part of the work and its costs shall be considered by the Contractor and included in the contract price for the pay items of work involved.

(3) 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 (0.9 m) wide. The saw blades shall be 1/8-inch (3-mm) wide with a

sufficient number of blades to create grooves between 0.090 and 0.130 inches (2 and 3.5 mm) wide; and peaks and ridges approximately 1/32 inch (1 mm) 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 of seal coat per Item P-608 to all areas that have been subject to grinding. No measurement for diamond grinding or application of seal coat will be made. The work covered by this section shall be considered as a subsidiary obligation of the Contractor and covered under the other contract items of work involved.

101-3.5 Cold milling.

Milling operations shall not proceed until the herbicide manufacturer's instructions indicate that vegetation may be removed.

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 underlying 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 of in accordance with paragraph 101-3.11. 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.

The milling machine shall have a minimum width of 7 feet (2 m) 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 (+0 mm and -6mm) 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 either windrow the millings or cuttings, or remove the millings or cuttings from the pavement and load them into a truck.

Prior to disturbing original grade, Contractor shall verify the accuracy of existing elevations by verifying spot elevations at the same locations where original field survey data was obtained in accordance with Section 50, Construction Layout and Stakes.

Should the Contractor elect to use Automated Machine Guidance (AMG), they shall do so in accordance with Item P-670, Automated Machine Guidance. The use of AMG shall be at no additional cost to the Owner.

Milled longitudinal or transverse vertical faces exceeding 1-1/2 inches in height that would be exposed to traffic shall be sloped or tapered by constructing temporary asphalt ramps, unless otherwise approved by the RPR. The maximum grade for temporary ramps shall not exceed 5 percent. The temporary ramp shall be removed prior to placement of tack coat or pavement courses. No payment will be made for placement or removal of temporary ramps.

a. Patching. Patching shall be performed in accordance with paragraph 101-3.4.

b. Profile milling. Profile milling of existing asphalt or concrete pavement shall be performed on areas indicated by the plans and details. The slope or grade of the milled surface shall be at the same slope as finished grade. The Contractor shall establish a starting reference by survey and utilize a stringline method for grade control. Adjacent passes of the milling equipment may take their reference from preceding passes using a short ski or shoe.

Contractor shall survey the milled surface and certify to RPR that all milled areas meets the grade tolerances of this section before the first lift of asphalt can be placed.

c. Milling to depth. Milling existing asphalt or concrete pavement shall be performed to the depths indicated on the plans. Separate measurement for payment will be made for the each different depth of milling indicated on the plans.

d. Milling to remove delaminated pavement. In areas where the milled surface leaves a thin layer of pavement which is delaminated, or has the potential to become delaminated, the RPR will order the contractor to mill the surface to remove the delaminated layer. Prior to removing the delaminated pavement, the limits of milling shall be boxed out to rectangular shapes. The outer limits shall be saw cut to a depth of 1 ½ inches to avoid further delamination due to the milling process. The Contractor shall mill the boxed out area to a depth of 1 ½ inches. The location of the limits of the delaminated pavement to be milled will be determined by the RPR.

e. Crack repair after milling. Cracks in the existing pavement after milling operations shall be prepared in accordance with Section 101-3.2.b.

f. 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. 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.

101-3.6. Section not used.

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 Section not used.

101-3.9 Section not used.

101-3.10 Removal of Pipe, Structures and other Buried Items.

a. Removal of Existing Pipe Material.

Remove the types of pipe as indicated on the plans. The pipe material shall be disposed of in accordance with paragraph 101-3.11. Trenches shall be backfilled with material equal to or better in quality than adjacent embankment, unless otherwise indicated on the plans. Trenches must be compacted in accordance with Item P-152, Excavation, Embankment and Subgrade.

b. Removal of Inlets/Manholes.

Where indicated on the plans or as directed by the RPR, inlets and/or manholes shall be removed and disposed of in accordance with paragraph 101-3.11. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment, unless otherwise noted on the plans. Backfill must be compacted in accordance with Item P-152, Excavation, Embankment and Subgrade.

101-3.11 Spoil. Spoil material generated from cold milling operations shall be disposed of off airport property. Every effort should be made by the Contactor to recycle or re-use the material in other projects.

Excess excavated material which cannot be incorporated in the work in accordance with Item P-152, Excavation, Subgrade and Embankment, and all other spoil material shall be disposed of off property at a location selected by the contactor.

Prior to placing spoil off airport property, Contractor shall submit a "Spoil Deposition and Release" to the RPR. A sample form is contained in the CSPP of these Specifications and shall be acceptable to the RPR prior to removing material from the work area.

No direct payment will be made for spoiling operations. The cost of spoiling material off-site shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

Method of Measurement

101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the square yard. Separate measurement will be made for each type and depth of pavement 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.

101-4.2 Preparation of Joints and cracks. Not used.

101-4.3 Removal of Foreign Substances/contaminates. Not used.

101-4.4 Concrete and asphalt concrete pavement repair. Not used.

101-4.5 Cold milling. Not used.

101-4.6 Removal of Pipe, Structures and other Buried Items. Not used.

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	Asphalt Pavement Removal (Type A) - per square yard
Item P 101-5.2	Asphalt Pavement Removal (Type B) - 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.
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ASTM International (ASTM)

ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
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END OF ITEM P-101

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, excluding stabilized layers of pavement (e.g. asphalt, concrete).

152-1.3 Unsuitable excavation. Unsuitable material shall be disposed of 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 for embankment construction outside of runway and taxiway safety areas, and outside of future paved areas, when approved by the RPR, provided the material is not needed for topsoil. Material excavated which is classified as unsuitable shall be paid for as Unclassified Excavation.

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.

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 approved 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. Undercutting shall be performed only when directed by the Engineer as follows:

(1) In Excavated Areas Under Proposed Pavement: Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades under proposed pavement (runways, taxiways, aprons, roads, shoulders), 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 directed by the RPR. 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 unclassified excavation. The excavated area shall be backfilled with Item P-160 Crushed Aggregate for Undercut Replacement and compacted to specified densities. Where rock cuts are made, 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.

(2) In Embankment Areas Under Proposed Pavement: Muck, peat, matted roots or other yielding materials unsuitable for embankment foundation shall be removed to the depths directed by the RPR. Undercut areas under proposed pavement, wherever possible, shall be graded to drain to underdrains, or weeps shall be constructed to daylight at locations as directed by the RPR. This excavated material shall be paid for at the contract unit price per cubic yard for unclassified excavation. The excavated area shall be refilled with suitable material obtained from the grading operations or borrow areas as directed by the RPR and compacted to specified densities. Where rock cuts are made, any pockets created in the rock surface shall be shaped to drain freely, or as directed by the RPR. Undercut areas, wherever possible, shall be graded to drain to underdrains, or weeps shall be constructed to daylight at locations as directed by the RPR. No payment will be made for refilling the undercut area as it is considered an incidental and necessary part of the work involved.

(3) In Excavated Areas within Runway Safety Areas and turf areas: Rock, shale, hardpan, loose rock, boulders or other materials unsatisfactory for subgrades beneath topsoil shall be removed to a minimum depth of 12 inches below final grade, or as directed by the RPR. Muck, peat, matted roots or other yielding materials shall be removed to the depth directed by the RPR. This excavated material shall be paid for at the contract unit price per cubic yard for unclassified excavation. The excavated area shall be refilled with suitable material obtained from the grading operations or borrow areas as directed by the RPR and compacted to specified densities. Where rock cuts are made, any pockets created in the rock surface shall be shaped to drain freely, or as directed by the RPR. Undercut areas, wherever possible, shall be graded to drain to underdrains, or weeps shall be constructed to daylight at locations as directed by the RPR. No payment will be made for refilling the undercut area as it is considered an incidental and necessary part of the work involved.

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, unless otherwise indicated on the plans. All existing foundations shall be excavated at least 2 feet (60 cm) 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. A topographic survey will be taken by the RPR after stripping of the borrow area has been completed and a topographic survey will be taken upon completion of the borrow operation, prior to restoration. 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. No separate measurement for payment will be made for stripping the borrow site, nor for restoration of the borrow site.

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 (300 mm) 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 (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. 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 $\pm 2\%$ 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 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. In no case shall less than 2 density tests be taken per lift.

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. 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 3 inches (75 mm) which shall be prepared for a seedbed in accordance with Item T-901.

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 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 (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 20 ton (18.1 metric ton) Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to standard manufacturers recommended tire pressure in the presence of the RPR.

Apply a minimum of 75% 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 (25 mm) or show permanent deformation greater than 1 inch (25 mm) 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 (300 mm) 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 D1557.

The material to be compacted shall be within $\pm 2\%$ 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 $\frac{3}{4}$ inch (19.0 mm) sieve, follow the methods in ASTM D1557 and the procedures in AASHTO T180 Annex for correction of maximum dry density and optimum moisture for oversized particles. Tests for moisture content and compaction will be taken at a minimum of 3,000 S.Y. of subgrade. In no case shall less than 2 density tests be taken. All quality assurance testing shall be done by the RPR.

The in-place field density shall be determined in accordance with 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 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 (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 +/- 1/2 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 be 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. 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. All available on-site topsoil shall be used prior to importing topsoil from offsite. The stripped topsoil will require to be screened and otherwise amended to meet the specifications of item T-905.

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 placement, amendment and screening shall be paid for as provided in Item T-905. Topsoil stripping shall be paid under Item P-152.

152-2.15 Spoil. All excess excavated material which cannot be incorporated in the work in accordance with Item P-152, Excavation, Subgrade and Embankment, shall be disposed of off property at a location selected by the contractor.

Prior to placing spoil off airport property, Contractor shall submit a "Spoil Deposition and Release" to the RPR. A sample form is contained in the CSPP of these Specifications and shall be acceptable to the RPR prior to removing material from the work area.

No direct payment will be made for spoiling operations. The cost of spoiling material off-site shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard shall be computed by comparison of digital terrain model (DTM) surfaces used for the computation of neat line design quantities. The surfaces shall be the original ground line established by field cross-sections and the final theoretical surface shown on the plans, subject to verification by the RPR.

Prior to determination of final quantities, the Engineer will field verify that the Contractor has met grading tolerances by means of field cross sections. Field cross sections will be taken randomly at intervals not exceeding 500 feet, however, a minimum of three sections will be taken for each baseline or centerline.

If the final grades are in tolerance and acceptable to the Engineer and Owner, then no adjustments will be made to the neat line quantities.

If the final grades are not in tolerance, but the deviation is acceptable to the Engineer and Owner, then adjustments will be made to the neat line quantities based on a final topographic survey or final cross sections.

If the final grades are not in tolerance and are not acceptable to the Engineer and Owner, then the Contractor shall regrade the areas that are out of tolerance. Upon completion of regrading operations, Engineer will field verify that the Contractor has met grading tolerances as stated above.

The quantity of unclassified excavation to be paid for shall be the number of cubic yards 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.

Payment will be made under:

Item P-152-4.1	Unclassified Excavation - per cubic yard
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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
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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))
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ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
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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))
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ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
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Advisory Circulars (AC)

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

FAARFIELD	– FAA Rigid and Flexible Iterative Elastic Layered Design
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U.S. Department of Transportation

FAA RD-76-66

Design and Construction of Airport Pavements on Expansive Soils

END OF ITEM P-152

Item P-153 Controlled Low-Strength Material (CLSM)

DESCRIPTION

153-1.1 This item shall consist of furnishing, transporting, and placing a controlled low-strength material (CLSM) as flowable backfill in trenches or at other locations shown on the plans or as directed by the Resident Project Representative (RPR).

MATERIALS

153-2.1 Materials.

a. Cement. Cement shall conform to the requirements of ASTM C 150 Type I or II.

b. Fly ash. Fly ash shall conform to ASTM C618, Class C or F.

c. Fine aggregate (sand). Fine aggregate shall conform to the requirements of ASTM C33 except for aggregate gradation. Any aggregate gradation which produces the specified performance characteristics of the CLSM and meets the following requirements, will be accepted.

Sieve Size	Percent Passing by weight
3/4 inch (19.0 mm)	100
No. 200 (75 µm)	0 - 12

d. Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use. Dyes and other methods of coloring the backfill material may be incorporated if desired.

MIX DESIGN

153-3.1 Proportions. The Contractor shall submit, to the RPR, a mix design including the proportions and source of aggregate, fly ash, cement, water, and approved admixtures. No CLSM mixture shall be produced for payment until the RPR has given written approval of the proportions. The proportions shall be prepared by a laboratory and shall remain in effect for the duration of the project. The proportions shall establish a single percentage or weight for aggregate, fly ash, cement, water, and any admixtures proposed. Laboratory costs are incidental to this item.

a. Compressive strength. CLSM shall be designed to achieve a 28-day compressive strength of 100 to 200 psi (690 to 1379 kPa) when tested in accordance with ASTM D4832, with no significant strength gain after 28 days.

b. Consistency. Design CLSM to achieve a consistency that will produce an approximate 8-inch (200 mm) diameter circular-type spread without segregation. CLSM consistency shall be determined per ASTM D6103.

CONSTRUCTION METHODS

153-4.1 Placement.

a. Placement. CLSM may be placed by any reasonable means from the mixing unit into the space to be filled. Agitation is required during transportation and waiting time. Placement shall be performed so structures or pipes are not displaced from their final position and intrusion of CLSM into unwanted areas is avoided. The material shall be brought up uniformly to the fill line shown on the plans or as directed by the RPR. Each placement of CLSM shall be as continuous an operation as possible. If CLSM is placed in more than one lift, the base lift shall be free of surface water and loose foreign material prior to placement of the next lift.

b. Contractor Quality Control. The Contractor shall collect all batch tickets to verify the CLSM delivered to the project conforms to the mix design. The Contractor shall verify daily that the CLSM is consistent with 153-3.1a and 153-3.1b. Adjustments shall be made as necessary to the proportions and materials as needed. The Contractor shall provide all batch tickets to the RPR.

c. Limitations of placement. CLSM shall not be placed on frozen ground. Mixing and placing may begin when the air or ground temperature is at least 35°F (2°C) and rising. Mixing and placement shall stop when the air temperature is 40°F (4°C) and falling or when the anticipated air or ground temperature will be 35°F (2°C) or less in the 24-hour period following proposed placement. At the time of placement, CLSM shall have a temperature of at least 40°F (4°C). Conduits, pipes, and any other item which has the ability to float, must be secured to prevent floatation prior to placement of CLSM.

153-4.2 Curing and protection

a. Curing. The air in contact with the CLSM shall be maintained at temperatures above freezing for a minimum of 72 hours. If the CLSM is subjected to temperatures below 32°F (0°C), the material may be rejected by the RPR if damage to the material is observed.

b. Protection. The CLSM shall not be subject to loads and shall remain undisturbed by construction activities for a period of 48 hours or until a compressive strength of 15 psi (105 kPa) is obtained. The Contractor shall be responsible for providing evidence to the RPR that the material has reached the desired strength. Acceptable evidence shall be based upon compressive tests made in accordance with paragraph 153-3.1a.

153-4.3 Quality Assurance (QA) Acceptance. CLSM QA acceptance shall be based upon batch tickets provided by the Contractor to the RPR to confirm that the delivered material conforms to the mix design.

METHOD OF MEASUREMENT

153-5.1 Measurement.

No separate measurement for payment shall be made for controlled low strength material (CLSM). CLSM shall be considered necessary and incidental to the work of this Contract.

BASIS OF PAYMENT

153-6.1 Payment.

No payment will be made separately or directly for controlled low strength material (CLSM). CLSM shall be considered necessary and incidental to the work of this Contract.

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 C33	Standard Specification for Concrete Aggregates
ASTM C150	Standard Specification for Portland Cement
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D4832	Standard Test Method for Preparation and Testing of Controlled Low-Strength Material (CLSM) Test Cylinders
ASTM D6103	Flow Consistency of Controlled Low Strength Material (CLSM)

END OF ITEM P-153

Item P-160 Crushed Aggregate for Undercut Replacement

DESCRIPTION

160-1.1 This item shall consist of a graded crushed aggregate material to be used as a replacement for subgrade undercut to bridge unstable subgrade material. Crushed aggregate shall be placed in accordance with these Specifications and shall conform to the dimensions shown on the Contract Drawings and as established by the RPR.

MATERIALS

160-2.1 Crushed aggregate. Crushed aggregate shall be free from coatings of clay, silt, organic material, or other objectionable materials. Aggregates shall contain no clay lumps or balls. The sodium sulfate soundness loss shall not exceed 12%, or the magnesium sulfate soundness loss shall not exceed 18%, after five cycles, when tested in accordance with ASTM C88. The aggregate shall have at least 90% by weight of particles with at least two fractured faces and 100% with at least one fractured face per ASTM D5821. 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.

Gradation, when tested in accordance with ASTM C117, shall be in accordance with ASTM C33 Size Number 2 Stone as shown in the table below.

TABLE 1. REQUIREMENTS FOR GRADATION OF NO. 2 CRUSHED AGGREGATE

<u>Sieve Size</u>	Design Range Percentage by Weight <u>Passing Sieves</u>
3 Inch	100
2-1/2 Inch	90-100
2 inch	35-70
1-1/2 Inch	0-15
3/4 Inch	0-5

Other commercially graded readily available materials may be accepted at the RPR's discretion provided the material performs as intended.

CONSTRUCTION METHODS

160-3.1 Placing. Crushed aggregate shall be placed in layers of uniform thickness. The maximum depth of a compacted layer shall be 12 inches unless otherwise directed by the RPR. In multi-layer construction, crushed aggregate shall be placed in approximately equal-depth layers. The surface of the compacted material shall be kept moist until covered with the next layer.

160-3.2 Compaction. Immediately upon completion of the spreading operations, crushed aggregate shall be thoroughly compacted such that the crushed aggregate locks together and becomes stable. Crushed

aggregate shall be compacted to the density of the adjacent subgrade, unless otherwise directed by the RPR. The type and weight of rollers shall be sufficient to compact the material to the required density.

METHOD OF MEASUREMENT

160-4.1 The quantity of crushed aggregate for undercut replacement will be determined by measurement of the number of cubic yards of material actually constructed and accepted by the RPR as complying with the plans and specifications.

BASIS OF PAYMENT

160-5. Payment shall be made at the contract unit price per cubic yard for crushed aggregate for undercut replacement. 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-160-5.1 - Crushed aggregate for undercut replacement – per cubic yard

END OF ITEM P-160

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 or crushed gravel 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 or crushed gravel 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
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.

In lieu of daily testing for Gradation Requirements, Contractor may elect to place aggregate in stockpiles prior to transporting to the project site. Construction and sampling of stockpiles shall be in accordance with ASTM D-75. The maximum stockpile size shall not exceed 4,000 c.y unless authorized by the RPR. Testing shall be in accordance with ASTM C117 and C136. A stockpile shall be considered acceptable for transportation to the project site when the samples tested meet the Gradation Requirements.

At least two weeks prior to the start of production, the Contractor shall inform the RPR of the methods which are proposed for providing aggregate to the project site so that arrangements can be made for sampling and testing aggregates.

209-2.4 Separation Geotextile. Separation geotextile shall be Class 2, 0.02 sec⁻¹ permittivity per ASTM D4491, Apparent opening size per ASTM D4751 with 0.60 mm maximum average roll value.

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 (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 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 (100 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 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. 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.

209-3.6 Weather limitations. Material shall not be placed unless the ambient air temperature is at least 40°F (4°C) 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 (75 mm), 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 (9 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 and -1/2 inch (12 mm) 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 yds. 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 D1557. The in-place field density shall be determined per ASTM D1553 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 (75 mm) in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch (12 mm) 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 (12 mm), the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches (75 mm), 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.

Contractor may check grade and crown by survey provided a survey is performed on the approved subgrade/subbase prior to placing base material. The survey shall be along centerline, or ridge lines at 50

foot intervals with elevations taken along sections at 50 foot intervals. In addition, elevations shall be taken at all grade breaks and vertical curves. Contractor shall survey the finished surface of the base course at the same locations that the survey was taken on the subgrade/subbase. Contractor shall provide an analysis of the difference in elevations between the two surveys to the RPR for approval.

Alternate methods of checking the fine grade may be used only when authorized by the RPR.

209-3.10 Removal of water. The Contractor is responsible for removal of water regardless of its source. Measures shall be taken to protect the excavation from surface water runoff as well as for dewatering the excavation from any water which has entered the excavation. The cost of the removal of water shall be considered as a subsidiary obligation of the Contractor and included in the contract price for the pay items of work involved.

METHOD OF MEASUREMENT

209-4.1 The quantity of crushed aggregate base course will be determined by measurement of the number of cubic 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.

209-4.2 Separation geotextile shall be measured by the number of square yards of materials placed and accepted by the RPR as complying with the plans and specifications excluding seam overlaps and edge anchoring.

BASIS OF PAYMENT

209-5.1 Payment shall be made at the contract unit price per cubic 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.

209-5.2 Payment shall be made at the contract unit price per square yard for separation geotextile. The price shall be full compensation for furnishing all labor, equipment, material, anchors, and incidentals necessary.

Payment will be made under:

Item P-209-5.1	Crushed Aggregate Base Course - per cubic yard
Item P-209-5.2	Separation geotextile - 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- μ m (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

END OF ITEM P-209

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, 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.

In areas where aggregates contain ferrous sulfides and iron oxides which can cause stains on exposed surfaces, the producers and aggregate suppliers shall minimize the inclusion of any ferrous sulfides or iron oxides in aggregate to be used in the project.

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 (27200 kg) 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
	For pavements designed for aircraft gross weights less than 60,000 pounds (27200 kg): Minimum 50% by weight of particles with at least two fractured faces and 65% with at least one fractured face ¹	
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

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).

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 ¹	15% maximum by weight of total aggregate	ASTM D1073

¹ The addition of natural sand to a mix containing all crushed coarse and fine aggregates will normally increase its workability and compactability. The addition of natural sand tends to decrease the stability of the mixture, therefore, it is recommended to not use natural sand. However, if natural sand is used, use the minimum amount necessary to achieve a workable mixture.

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) PG 64-22.

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, with the exception that asphalt content should be determined near the midpoint of the air voids range of 3.5%. 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 design criteria in Table 1 are target values necessary to meet the acceptance requirements contained in paragraph 401-6.2. 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.

- 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	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 T-324) 10mm @ 20,000 passes at 50°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. Gradation 1 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 μ m)	15-35
No. 50 (300 μ m)	9-25
No. 100 (150 μ m)	6-18
No. 200 (75 μ m)	3-6
Minimum Voids in Mineral Aggregate (VMA)¹	14.0
Asphalt Percent based on Weight of Total Mix:	
Stone or gravel	4.5-7.0
Recommended Minimum Construction Lift Thickness	3 inch
Recommended Maximum Construction Lift Thickness	5 inch

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

Table 2. Gradation 2 Aggregate - Asphalt Pavements

Sieve Size	Percentage by Weight Passing Sieve
1 inch (25.0 mm)	--
3/4 inch (19.0 mm)	100
1/2 inch (12.5 mm)	90-100
3/8 inch (9.5 mm)	72-88
No. 4 (4.75 mm)	53-73
No. 8 (2.36 mm)	38-60
No. 16 (1.18 mm)	26-48
No. 30 (600 μ m)	18-38
No. 50 (300 μ m)	11-27
No. 100 (150 μ m)	6-18
No. 200 (75 μ m)	3-6
Minimum Voids in Mineral Aggregate (VMA)¹	15.0
Asphalt Percent based on Weight of Total Mix:	
Stone or gravel	5.0-7.5
Recommended Minimum Construction Lift Thickness	2 inch
Recommended Maximum Construction Lift Thickness	3.75 inch

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

Table 2. Gradation 3 Aggregate - Asphalt Pavements

Sieve Size	Percentage by Weight Passing Sieve
1 inch (25.0 mm)	--
3/4 inch (19.0 mm)	--
1/2 inch (12.5 mm)	100
3/8 inch (9.5 mm)	90-100
No. 4 (4.75 mm)	58-78
No. 8 (2.36 mm)	40-60
No. 16 (1.18 mm)	28-48
No. 30 (600 µm)	18-38
No. 50 (300 µm)	11-27
No. 100 (150 µm)	6-18
No. 200 (75 µm)	3-6
Minimum Voids in Mineral Aggregate (VMA)¹	16.0
Asphalt Percent based on Weight of Total Mix:	
Stone or gravel	5.5-8.0
Recommended Minimum Construction Lift Thickness	1 1/2 inch
Recommended Maximum Construction Lift Thickness	2 1/2 inch

¹To 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. Full production shall not begin until an acceptable control strip has been constructed and accepted in writing by the RPR. The Contractor shall prepare and place a quantity of asphalt according to the JMF. The underlying grade or pavement structure upon which the control strip is to be constructed shall be the same as the remainder of the course represented by the control strip.

The Contractor will not be allowed to place the control strip until the Contractor quality control program (CQCP), showing conformance with the requirements of paragraph 401-5.1, has been accepted, in writing, by the RPR.

The control strip shall be at least 300 feet long. The control strip shall be placed in two lanes of the same width and depth to be used in production with a longitudinal cold joint. The cold joint must be cut back in accordance with paragraph 401-4.14 using the same procedure that will be used during production. The cold joint for the control strip will be an exposed construction joint at least four (4) hours old or when the

mat has cooled to less than 160°F (71°C). The equipment used in construction of the control strip shall be the same type, configuration and weight to be used on the project.

The control strip shall be evaluated for acceptance as a single lot. The control strip shall be divided into equal sublots. As a minimum, the control strip shall consist of three (3) sublots.

The control strip will be considered acceptable by the RPR if the gradation, asphalt content, and VMA are within the action limits specified in paragraph 401-5.5a; and Mat density, air voids, and joint density meet the requirements specified in paragraphs 401-6.2.

If the control strip is unacceptable, necessary adjustments to the JMF, plant operation, placing procedures, and/or rolling procedures shall be made and another control strip shall be placed. Unacceptable control strips shall be removed at the Contractor's expense.

Payment will only be made for an acceptable control strip in accordance with paragraph 401-8.1 using a lot pay factor equal to 100.

Separate control strips will be required for each plant used during production.

CONSTRUCTION METHODS

401-4.0 Prior to disturbing original grade, Contractor shall verify the accuracy of existing elevations by verifying spot elevations at the same locations where original field survey data was obtained in accordance with Section 50, Construction Layout and Stakes.

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	°C
3 inches (7.5 cm) or greater	40 ¹	4
Greater than 2 inches (50 mm) but less than 3 inches (7.5 cm)	45	7

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. The MTV shall be equipped with adequate covers of sufficient size to protect the material in the MTV under all conditions, and shall be free of petroleum oils, solvents, or other materials which adversely affect bituminous mixtures. When using a MTV, the bituminous paver shall be equipped with a manufactured hopper insert to provide a mass flow of material directly from the MTV to the slat conveyors of the paver. The mixture shall be delivered through the MTV to the paver at the correct laying temperature and free from lumps of cooled material.

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.

Pavers with a screed width greater than 17 feet shall have controls that operate from references on both sides of the paver. Additional screed sections shall be made by the same manufacturer as the main screed, they shall be vibratory and provided with heating units.

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.

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 (160°C) when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F (175°C) 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 (175°C) 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 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. The laydown plan shall include a sketch, directions of pulls, and thickness of each lift. Unless otherwise shown or noted, deliveries of asphalt material shall be scheduled so that spreading and rolling of all mixture prepared for one day's production can be completed during daylight hours.

If more than one plant will be used during production, the lot of material produced at one plant shall not be intermixed with material from another plant. Acceptance testing will be performed separately on material produced from each plant.

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 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 lift shall offset the longitudinal joint in the lift immediately below by at least one foot (30 cm); however, the joint in the surface top course shall be at the centerline of crowned pavements. The joint at the centerline of crowned pavements shall line up with previous lift centerline joints. Transverse joints in one lift shall line up with transverse joints in the previous lift, unless otherwise approved by the RPR. Transverse joints in adjacent lanes shall line up with each other extending across the full width of the pavement. Upon completion of paving operations, transverse joints shall be sawed and sealed in accordance with the Contract Drawings and as directed by the RPR. If approved by the RPR, transverse joints in one lift shall be offset by at least 10 feet from transverse joints in the previous lift and 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 (3 m) long.

Artificial means of cooling are not allowed.

The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose for the first lift of all runway and taxiway pavements. Successive lifts of bituminous mixture may be placed using a ski, or laser control, provided grades of the first lift of bituminous mixture meet the tolerances of paragraphs 401-6.2.d as verified by a survey. Contractor shall survey each lift of bituminous mixture and certify to RPR that every lot of each lift meets the grade tolerances of paragraph 401-6.2.d before the next lift can be placed. If grades are out of tolerance, the Contractor shall use reference lines for subsequent lifts. Corrective action in paragraph 401-5.3.h applies to the final lift of

surface course. However, for multiple lift construction, the Contractor shall make corrections to ensure the final lift of pavement is within the laydown thicknesses shown below.

Setting grade stakes and reference lines includes establishing all of the conditions necessary for the reference line to adequately serve for grade referencing. The factors include but are not limited to:

- a. Setting grade stakes away from the mat edge an additional distance to compensate for the extended distance of the wire from the stake. The reference line shall be mounted on sensor brackets every 25 feet on straight sections.
- b. Setting the reference line at an established height, or relative height above finished grade.
- c. Reference line shall be taut and anchored at both ends of the wire to reduce sagging. The reference line shall extend onto the existing pavement, or the previous mat, at least 50 feet prior to pullout, so that the paver begins running on automation.
- d. Additional anchors laid out in chords shall be used along curved sections to assist in keeping the reference line attached to the cross arm of the grade stake. Chord length will be dependent on the radius of the curve. The shorter radius curves shall use closer spacing of sensor brackets.
- e. Reference line shall be set as low as practical to help avoid disturbance by workers.

Should the Contractor elect to use Automated Machine Guidance (AMG), they shall do so in accordance with Item P-670, Automated Machine Guidance. The use of AMG shall be at no additional cost to the Owner.

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 all roller marks are eliminated, 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.

No lift shall be placed on top of previously placed bituminous mixture on the same day unless otherwise approved by the RPR.

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°F (80°C); or are irregular, damaged, uncompacted or otherwise defective shall be cut back with a pavement saw a maximum of 3 inches (75 mm) 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.

Cut back of all cold joints is required as specified above.

The Contractor may provide additional joint density QC by use of joint heaters at the Contractor's expense. Electrically powered infrared heating equipment should consist of one or more low-level radiant energy heaters to uniformly heat and soften the pavement joints. The heaters should be configured to uniformly heat an area up to 18 inches (0.5 m) in width and 3 inches (75 mm) in depth. Infrared equipment shall be thermostatically controlled to provide a uniform, consistent temperature increase throughout the layer being heated up to a maximum temperature range of 200 to 300°F (93 to 150°C).

Propane powered infrared heating equipment shall be attached to the paving machine and the output of infrared energy shall be in the one to six-micron range. Converters shall be arranged end to end directly over the joint to be heated in sufficient numbers to continuously produce, when in operation, a minimum of 240,000 BTU per hour. The joint heater shall be positioned not more than one inch (25 mm) above the pavement to be heated and in front of the paver screed and shall be fully adjustable. Heaters will be required to be in operation at all times.

The heaters shall be operated so they do not produce excessive heat when the units pass over new or previously paved material.

Upon completion of paving operations, all transverse paving joints, all joints between existing pavement and new pavement, and new joints in the final surface at locations shown on the Contract Drawings shall be sealed in accordance with the Contract Drawings and as directed by the RPR. Joint sealing shall be performed in accordance with Item P-605, Joint Sealing Filler. Cost for sealing joints in proposed pavement shall be paid for by the linear foot. Only those joints shown on the plans and details will be paid for. Joints required due to the Contractor's construction means and methods such as unplanned transverse paving joints shall not be measured for payment.

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 (0.9 m) wide. The saw blades shall be 1/8-inch (3-mm) wide with a sufficient number of blades to create grooves between 0.090 and 0.130 inches (2 and 3.5 mm) wide; and peaks and ridges approximately 1/32 inch (1 mm) 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. Lighting plans shall be reviewed with the Air Traffic Control Tower, if present, and revised based on their recommendations, prior to implementation. No additional payment will be made for lighting during nighttime construction. The cost of providing and maintaining lighting shall be borne by the Contractor at no additional cost to the Owner.

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. Printed plant tickets are acceptable for determining the asphalt content during production only if the JMF developed with asphalt content reported as a percent by weight of total mixture.

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. When asphalt content is determined by printed plant tickets, aggregate gradation shall be determined from hot bin samples on batch plants, or from the cold feed on drum mix or continuous mix plants, and tested in accordance with ASTM C 136 (dry sieve) using actual batch weights to determine the combined aggregate gradation of the mixture.

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 (3.7 m) “straightedge, a rolling inclinometer meeting the requirements of ASTM E2133 or rolling external reference device that can simulate a 12-foot (3.7m) 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 the FAA profile program, ProFAA, using the 12-foot straightedge simulation function.

The 12-foot straightedge shall be available to the RPR during all paving operations.

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 (15 m) 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 (6 m); and at the third points of paving lanes when widths of paving lanes are 20 ft (6 m) 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 (6 mm) 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 (12 mm) vertically and 0.1 feet (30 mm) 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 (12 mm) 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 1/2 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%

Sieve	Action Limit	Suspension Limit
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. The subplot size will be determined by the RPR daily based on the Contractor's expected production. When only one or two sublots are produced in a day's production, the sublots will be combined with the production lot from the next day. When one or two sublots are produced at the end of a project, the sublots will be combined with the production lot from the previous day's production.

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 subplot basis.

(1) Sampling. Material from each subplot 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. When absorptive aggregates are used, the sample of asphalt may be put in a covered metal tin and placed in an oven for not less than 60 minutes nor more than 90 minutes.

(2) Testing. Air voids will be determined for each subplot 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 subplot 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 (125 mm) 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 subplot for density measurement. The maximum allowable deficiency at any point will not be more than 1/4 inch (6 mm) 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 subplot 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 subplot. 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 (30 cm) 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 subplot sample by the TMD for that subplot.

(5) Joint density. One core centered over the longitudinal joint shall be taken for each subplot 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 (12 mm) vertically or 0.1 feet (30 mm) laterally.

Cross-sections of the pavement shall be taken at a minimum 50-foot (15-m) longitudinal spacing and at all longitudinal grade breaks, and at start and end of each lane placed. Minimum cross-section grade points shall include grade at centerline, \pm 10 feet of centerline, and edge of runway or taxiway pavement.

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

e. Profilograph roughness for QA Acceptance. The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Contractor, in the presence of the RPR shall perform a profilograph roughness test on the completed project with a profilograph meeting the requirements of ASTM E1274 or a Class I inertial profiler meeting ASTM E950. Data and results shall be provided within 48 hrs of profilograph roughness tests.

The pavement shall have an average profile index less than 15 inches per mile per 1/10 mile. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate "must grind" bumps and the Profile Index for the pavement using a 0.2-inch (5 mm) blanking band. The bump template must span one inch (25 mm) with an offset of 0.4 inches (10 mm). The profilograph must be calibrated prior to use and operated by a factory or State DOT approved, trained operator. Profilograms shall be recorded on a longitudinal scale of one inch (25 mm) equals 25 feet (7.5 m) and a vertical scale of one inch (25 mm) equals one inch (25 mm). Profilograph shall be performed one foot right and left of project centerline and 15 feet (4.5 m) right and left of project centerline. Any areas that

indicate “must grind” shall be corrected with diamond grinding per paragraph 401-4.16 or by removing and replacing full depth of surface course, as directed by the RPR. Where corrections are necessary, a second profilograph run shall be performed to verify that the corrections produced an average profile index of 15 inches per mile per 1/10 mile or less.

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%.

401-6.5 Leveling course. The leveling course is the first variable thickness lift placed to correct surface irregularities prior to placement of subsequent courses. The leveling course shall meet the aggregate gradation in Table 2, paragraph 401-3.3. The leveling course shall meet the requirements of paragraph 401-3.3, 401-6.2b for air voids, but shall not be subject to the density requirements of paragraph 401-6.2b

for mat density and 401-6.2c for joint density. The leveling course shall be compacted with the same effort used to achieve density of the control strip. The leveling course shall not be less than the minimum lift thickness associated with each gradation in Table 2, paragraph 401-3.3.

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 lots which do not meet grade in accordance with paragraph 401-6.2d after correction for over 25% of any subplot within the lot shall be reduced by 5%.

Table 6. Price adjustment schedule¹

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. The Contractor shall not receive payment for the areas subjected to profilograph testing when the profilograph average profile index is not in accordance with paragraph 401-6.2e. When the final average profile index for the entire length of pavement does not exceed 15 inches per mile per 1/10 mile, payment will be made at the adjusted contract unit price for the completed pavement.

Payment will be made under:

Item P-401-8.1	Asphalt Base Course, Gradation 1 - per ton
Item P-401-8.2	Asphalt Surface Course, Gradation 2 - 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 Duclilometer
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 Gyrotory 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 Inclinator 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

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 shown in Table 1, 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.

Table 1 Bituminous Material

Type and Grade	Specification	Application Temperatures	
		Deg. F	Deg. C
Emulsified Asphalt			
MS-1	ASTM D 977	70-160	20-70
HFMS-1	ASTM D 977	70-160	20-70
SS-1	ASTM D 977	70-160	20-70
SS-1h	ASTM D 977	70-160	20-70
CSS-1	ASTM D 2397	70-160	20-70
CSS-1h	ASTM D 2397	70-160	20-70

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 (10°C) or above; the temperature has not been below 35°F (2°C) 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 (13 km per hour) or seven (700) feet per minute (213 m 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 (3.7-m) 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 Emulsion Application Bar Rate 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 (L/square meter)	Emulsion Application Bar Rate, gal/SY (L/square meter)
New asphalt	0.02-0.05 (0.09-0.23)	0.03-0.07 (0.13-0.32)
Existing asphalt	0.04-0.07 (0.18-0.32)	0.06-0.11 (0.27-0.50)
Milled Surface	0.04-0.08 (0.18-0.36)	.06-0.12 (0.27-0.54)
Concrete	0.03-0.05 (0.13-0.23)	0.05-0.08 (0.23-0.36)

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 be measured by the gallon. Volume shall be corrected to the volume at 60°F (16°C) in accordance with Table IV-3. 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

603.5-1 Payment shall be made at the contract unit price per gallon of emulsified asphalt material. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-603-5.1	Emulsified Asphalt Tack Coat - per gallon
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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

**TABLE IV-3 TEMPERATURE-VOLUME
CORRECTIONS FOR EMULSIFIED ASPHALTS**

°C	°F	*M	°C	°F	*M	°C	°F	*M	°C	°F	*M	°C	°F	*M
10.0	50	1.00250	20.0	68	0.99800	30.0	86	0.99350	40.0	104	0.98900	50.0	122	0.98450
10.6	51	1.00225	20.6	69	0.99775	30.6	87	0.99325	40.6	105	0.98875	50.6	123	0.98425
11.1	52	1.00200	21.1	70	0.99750	31.1	88	0.99300	41.1	106	0.98850	51.1	124	0.98400
11.7	53	1.00175	21.7	71	0.99725	31.7	89	0.99275	41.7	107	0.98825	51.7	125	0.98375
12.2	54	1.00150	22.2	72	0.99700	32.2	90	0.99250	42.2	108	0.98800	52.2	126	0.98350
12.8	55	1.00125	22.8	73	0.99675	32.8	91	0.99225	42.8	109	0.98775	52.8	127	0.98325
13.3	56	1.00100	23.3	74	0.99650	33.3	92	0.99200	43.3	110	0.98750	53.3	128	0.98300
13.9	57	1.00075	23.9	75	0.99625	33.9	93	0.99175	43.9	111	0.98725	53.9	129	0.98275
14.4	58	1.00050	24.4	76	0.99600	34.4	94	0.99150	44.4	112	0.98700	54.4	130	0.98250
15.0	59	1.00025	25.0	77	0.99575	35.0	95	0.99125	45.0	113	0.98675	55.0	131	0.98225
15.6	60	1.00000	25.6	78	0.99550	35.6	96	0.99100	45.6	114	0.98650	55.6	132	0.98200
16.1	61	0.99975	26.1	79	0.99525	36.1	97	0.99075	46.1	115	0.98625	56.1	133	0.98175
16.7	62	0.99950	26.7	80	0.99500	36.7	98	0.99050	46.7	116	0.98600	56.7	134	0.98150
17.2	63	0.99925	27.2	81	0.99475	37.2	99	0.99025	47.2	117	0.98575	57.2	135	0.98125
17.8	64	0.99900	27.8	82	0.99450	37.8	100	0.99000	47.8	118	0.98550	57.8	136	0.98100
18.3	65	0.99875	28.3	83	0.99425	38.3	101	0.98975	48.3	119	0.98525	58.3	137	0.98075
18.9	66	0.99850	28.9	84	0.99400	38.9	102	0.98950	48.9	120	0.98500	58.9	138	0.98050
19.4	67	0.99825	29.4	85	0.99375	39.4	103	0.98925	49.4	121	0.98475	59.4	139	0.98025

<p align="center">TABLE IV-3 TEMPERATURE-VOLUME CORRECTIONS FOR EMULSIFIED ASPHALTS</p>														
°C	°F	*M	°C	°F	*M	°C	°F	*M	°C	°F	*M	°C	°F	*M
60.0	140	0.98000	68.3	155	0.97625	76.7	170	0.97250						
60.6	141	0.97975	68.9	156	0.97600	77.2	171	0.97225						
61.1	142	0.97950	69.4	157	0.97575	77.8	172	0.97200						
61.7	143	0.97925	70.0	158	0.97550	78.3	173	0.97175						
62.2	144	0.97900	70.6	159	0.97525	78.9	174	0.97150						
62.8	145	0.97875	71.1	160	0.97500	79.4	175	0.97125						
63.3	146	0.97850	71.7	161	0.97475	80.0	176	0.97100						
63.9	147	0.97825	72.2	162	0.97450	80.6	177	0.97075						
64.4	148	0.97800	72.8	163	0.97425	81.1	178	0.97050						
65.0	149	0.97775	73.3	164	0.97400	81.7	179	0.97025						
65.6	150	0.97750	73.9	165	0.97375	82.2	180	0.97000						
66.1	151	0.97725	74.4	166	0.97350	82.8	181	0.96975						
66.7	152	0.97700	75.0	167	0.97325	83.3	182	0.96950						
67.2	153	0.97675	75.6	168	0.97300	83.9	183	0.96925						
67.8	154	0.97650	76.1	169	0.97275	84.4	184	0.96900						

°C = Observed Temperature in Degrees Celsius.

°F = Temperature in Degrees Fahrenheit.

*M = Multiplier for correcting volumes to the basis of 15.6 °C (60°F).

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 the following types as indicated on the Contract Drawings:

ASTM D6690 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt 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. Not used.

605-2.3 Bond breaking tapes. Not used.

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 (10°C) 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, 30 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. The Contractor must demonstrate sandblasting equipment including the air compressor, 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 Resident Project Representative (RPR), that the method cleans the joint and does not damage the joint.

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. Not used.

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. All existing joint sealant in joints designated to be sealed shall be removed.

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 sandblasting, 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 1/2 inch (12 mm) 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 (75 mm) 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. Not used.

d. Bond-breaking tape. Not used.

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 (15 m) ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to 1/4 inch (6 mm) \pm 1/16 inch (2 mm) 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.

Backer rod and bond-breaking tape shall be compatible with the sealant.

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 be measured by the linear foot of sealant in place, completed, and accepted.

BASIS OF PAYMENT

605-5.1 Payment for joint sealing material shall be made at the contract unit price per linear foot. The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-605-5.1	Joint Sealing Filler – per linear foot
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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 D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt

END ITEM P-605

Item P-608 Emulsified Asphalt Seal Coat

DESCRIPTION

608-1.1 This item shall consist of the application of a emulsified asphalt surface treatment composed of an emulsion of natural and refined asphalt materials, water and a polymer additive, for taxiways and runways with the application of a suitable aggregate to maintain adequate surface friction; and airfield secondary and tertiary pavements including low-speed taxiways, shoulders, overruns, roads, parking areas, and other general applications with or without aggregate applied as designated on the plans. The terms seal coat, asphalt sealer, and asphalt material are interchangeable throughout this specification. The term emulsified asphalt means an emulsion of natural and refined asphalt materials.

MATERIALS

608-2.1 Aggregate. The aggregate material shall be a dry, clean, dust and dirt free, sound, durable, angular shaped manufactured specialty sand, such as that used as an abrasive, with a Mohs hardness of 6 to 8. The Contractor shall submit the specialty sand manufacturer's technical data and a manufacturer's Certificate of Analysis (COA) indicating that the specialty sand meets the requirements of the specification to the RPR prior to start of construction. The sand must be approved for use by the RPR and shall meet the following gradation limits when tested in accordance with ASTM C136 and ASTM C117:

Aggregate Material Gradation Requirements¹

Sieve Designation (square openings)	Individual Percentage Retained by Weight
No. 10 (2.00 mm)	0
No. 14 (1.41 mm)	0-4
No. 16 (1.18 mm)	0-8
No. 20 (850 μm)	0-35
No. 30 (600 μm)	20-50
No. 40 (425 μm)	10-45
No. 50 (300 μm)	0-20
No. 70 (212 μm)	0-5
No. 100 (150 μm)	0-2
No. 200 (75 μm)	0-2

¹ Locally available sand or abrasive material that is slightly outside of the gradation requirements may be approved by the RPR with concurrence by the seal coat manufacturer for the use of locally available sand or abrasive material. The RPR and manufacturer's field representative should verify acceptance during application of Control strips indicated under paragraph 608-3.2.

The Contractor shall provide a certification showing particle size analysis and properties of the material delivered for use on the project. The Contractor's certification may be subject to verification by testing the material delivered for use on the project.

608-2.2 Asphalt Emulsion. The asphalt emulsion shall meet the properties in the following table:

Concentrated Asphalt Emulsion Properties

Properties	Specification	Limits
Viscosity, Saybolt Furol at 77°F (25°C)	ASTM D7496	20 – 100 seconds
Residue by Distillation or Evaporation	ASTM D6997 or ASTM D6934	57% minimum
Sieve Test	ASTM D6933	0.1% maximum
24-hour Stability	ASTM D6930	1% maximum
5-day Settlement Test	ASTM D6930	5.0% maximum
Particle Charge ¹	ASTM D7402	Positive 6.5 maximum pH

¹ pH may be used in lieu of the particle charge test which is sometimes inconclusive in slow setting, asphalt emulsions.

The asphalt material base residue shall contain not less than 20% gilsonite, or uintaite and shall not contain any tall oil pitch or coal tar material and shall contain no less than one percent (1%) polymer.

Tests on Residue from Distillation or Evaporation

Properties	Specification	Limits
Viscosity at 275°F (135°C)	ASTM D4402	1750 cts maximum
Solubility in 1, 1, 1 trichloroethylene	ASTM D2042	97.5% minimum
Penetration	ASTM D5	50 dmm maximum
Asphaltenes	ASTM D2007	15% minimum
Saturates	ASTM D2007	15% maximum
Polar Compounds	ASTM D2007	25% minimum
Aromatics	ASTM D2007	15% minimum

The asphalt emulsion, when diluted in the volumetric proportion of one part concentrated asphalt material to one part hot water shall have the following properties:

One-to-One Dilution Emulsion Properties

Properties	Specification	Limits
In Ready-to-Apply Form, one part concentrate to one part water, by volume		
Viscosity, Saybolt Furol at 77°F (25°C)	ASTM D7496	5 – 50 seconds
Residue by Distillation or Evaporation	ASTM D6997 or ASTM D6934	28.5% minimum
Pumping Stability ¹		Pass

- ¹ Pumping stability is tested by pumping one pint (475 ml) of seal coat diluted one (1) part concentrate to one (1) part water, at 77°F (25°C), through a 1/4-inch (6 mm) gear pump operating 1750 rpm for 10 minutes with no significant separation or coagulation.

The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the emulsified asphalt delivered to the project. If the asphalt emulsion is diluted at other than the manufacturer's facility, the Contractor shall provide a supplemental COA from an independent laboratory verifying the asphalt emulsion properties.

The COA shall be provided to and approved by the RPR before the emulsified asphalt is applied. The furnishing of the vendor's certified test report 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.

The asphalt material storage and handling temperature shall be between 50°F - 160°F (10°C - 70°C) and the material shall be protected from freezing, or whenever outside temperature drops below 40°F (4°C) for prolonged time periods.

Contractor shall provide a list of airport pavement projects, exposed to similar climate conditions, where this product has been successfully applied within at least 5 years of the project.

608-2.3 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use. Water used in making and diluting the emulsion shall be potable, with a maximum hardness of 90ppm calcium and 15ppm magnesium; deleterious iron, sulfates, and phosphates maximum 7ppm, and less than 1ppm of organic byproducts. Water shall be a minimum of 140°F (60°C) prior to adding to emulsion.

608-2.4 Polymer. The polymer shall meet the properties in the following table:

Polymer Properties

Properties	Limits
Solids Content	47% to 65%, Percent by Weight
Weight	8.0 to 9.0 pounds/gallon (1.07 to 1.17 kg/L)
pH	3.0 to 8.0
Particle Charge	Nonionic/Cationic
Mechanical Stability	Excellent
Film Forming Temperature, °C	+5°C, minimum
Tg, °C	22°C, maximum

The manufacturer shall provide a copy of the Certificate of Analysis (COA) for the polymer used in the seal coat; and the Contractor shall include the COA with the emulsified asphalt COA when submitting to the RPR.

608-2.5 Seal Coat with Aggregate. Not used.

COMPOSITION AND APPLICATION RATE

608-3.1 Application Rate. The approximate amounts of materials per square yard (square meter) for the asphalt surface treatment shall be as provided in the table for the treatment area(s) at the specified dilution rate(s) as noted on the plans. The actual application rates will vary within the range specified to suit field conditions and will be recommended by the manufacturer's representative and approved by the RPR from the test area/sections evaluation.

Application Rate

Dilution Rate	Quantity of Emulsion gal/yd² (l/m²)	Quantity of Aggregate lb/yd² (kg/m²)
1:1	0.10-0.17 (0.45-0.77)	0.20-0.50 (0.11-0.27)

608-3.2 Control areas and control strips. Prior to full application, the control strip must be accepted by the RPR. The surface preparation, personnel, equipment, and method of operation used on the test area(s) and control strip(s) shall be the same as used on the remainder of the work.

A qualified manufacturer's representative shall be present in the field to assist the Contractor in applying control areas and/or control strips to determine the appropriate application rate of both emulsion and aggregate to be approved by the RPR.

A test area(s) and control strip(s) shall be applied for each differing asphalt pavement surface identified in the project. The test area(s) and control strip(s) shall be used to determine the material application rate(s) of both emulsion and sand prior to full production.

a. For taxiway, taxilane and apron surfaces. Prior to full application, the Contractor shall place test areas at varying application rates as recommended by the Contractor's manufacturer's representative to determine appropriate application rate(s). The test areas will be located on representative section(s) of the pavement to receive the asphalt surface treatment designated by the RPR.

b. For runway and high-speed exit taxiway surfaces. Prior to full application, the Contractor shall place a series of control strips a minimum of 300 feet (90 m) long by 12 feet (3.6 m) wide, or width of anticipated application, whichever is greater, at varying application rates as recommended by the manufacturer's representative and acceptable to the RPR to determine appropriate application rate(s). The control strips should be separated by a minimum of 200 feet between control strips. The area to be tested will be located on a representative section of the pavement to receive the asphalt surface treatment designated by the RPR. The control strips should be placed under similar field conditions as anticipated for the actual application. The skid resistance of the existing pavement shall be determined for each control strip with a continuous friction measuring equipment (CFME). The skid resistance of existing pavement can be immediately adjacent to the control strip or at the same location as the control strip if testing prior to application. The Contractor may begin testing the skid resistance of runway and high-speed exit taxiway control strips after application of the asphalt surface treatment has fully cured, generally 8 to 36 hours after application of the control strips depending on site and environmental conditions. Aircraft shall not be permitted on the runway or high speed exit taxiway control strips until such time as the Contractor validates that its surface friction meets the maintenance planning friction levels in AC 150/5320-12, Table 3-2 when tested at speeds of 40 and 60 mph (65 and 95 km/h) wet with approved CFME.

If the control strip should prove to be unsatisfactory, necessary adjustments to the application rate, placement operations, and equipment shall be made. Additional control strips shall be placed and additional skid resistance tests performed and evaluated. Full production shall not begin without the

RPR's approval of an appropriate application rate(s). Acceptable control strips shall be paid for in accordance with paragraph 608-8.1.

If operational conditions preclude placement of a control strip on the pavement to be sealed, it may be applied on a pavement with similar surface texture.

CONSTRUCTION METHODS

608-4.1 Worker safety. The Contractor shall obtain a Safety Data Sheet (SDS) for both the asphalt emulsion product and sand and require workmen to follow the manufacturer's recommended safety precautions.

608-4.2 Weather limitations. The asphalt emulsion shall be applied only when the existing pavement surface is dry and when the weather is not foggy, rainy, or when the wind velocity will prevent the uniform application of the material. No material shall be applied in strong winds that interfere with the uniform application of the material(s), or when dust or sand is blowing or when rain is anticipated within eight (8) hours of application completion. The atmospheric temperature and the pavement surface temperature shall both be at, or above 60°F (16°C) and rising. Seal coat shall not be applied when pavement temperatures are expected to exceed 130°F within the subsequent 72 hours if traffic will be opened on pavement within those 72 hours. During application, account for wind drift. Cover existing buildings, structures, runway edge lights, taxiway edge lights, informational signs, retro-reflective marking and in-pavement duct markers as necessary to protect against overspray before applying the emulsion. Should emulsion get on any light or marker fixture, promptly clean the fixture. If cleaning is not satisfactory to the RPR, the Contractor shall replace any light, sign or marker with equivalent equipment at no cost to the Owner.

608-4.3 Equipment and tools. The Contractor shall furnish all equipment, tools, and machinery necessary for the performance of the work.

a. Pressure distributor. 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 (13 km per hour) or seven hundred (700) feet per minute (213 m per minute). The equipment will be tested under pressure for leaks and to ensure proper set-up before use. The Contractor will provide verification of truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application per nozzle manufacturer, spray-bar height and pressure and pump speed appropriate for the viscosity and temperature of sealer material, 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 12-foot (3.7-m), minimum, spray bar with individual nozzle control. The distributor truck shall be capable of specific application rates in the range of 0.05 to 0.25 gallons per square yard (0.15 to 0.80 liters per square meter). These rates shall be computer-controlled rather than mechanical. 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.

The distributor truck shall effectively heat and mix the material to the required temperature prior to application in accordance with the manufacturer's recommendations.

The distributor shall be equipped with a hand sprayer to spray the emulsion in areas not accessible to the distributor truck.

b. Aggregate spreader. The asphalt distributor truck will be equipped with an aggregate spreader mounted to the distributor truck that can apply sand to the emulsion in a single pass operation without driving through wet emulsion. The aggregate spreader shall be equipped with a variable control system capable of uniformly distributing the sand at the specified rate at varying application widths and speeds. The aggregate spreader must be adjusted to produce an even and accurate application of specified aggregate. Prior to any seal coat application, the aggregate spreader will be calibrated onsite to ensure acceptable uniformity of spread. The RPR will observe the calibration and verify the results. The aggregate spreader will be re-calibrated each time the aggregate rate is changed either during the application of test strips or production. The Contractor may consult the seal coat manufacturer representative for procedure and guidance. The sander shall have a minimum hopper capacity of 3,000 pounds (1361 kg) of sand. Push-type hand sanders will be allowed for use around lights, signs and other obstructions, if necessary.

c. Power broom/blower. A power broom and/or blower shall be provided for removing loose material from the surface to be treated.

d. Equipment calibration. Asphalt distributors must be calibrated within the same construction season 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.

608-4.4 Preparation of asphalt pavement surfaces. Clean pavement surface immediately prior to placing the seal coat so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film. Remove oil or grease from the asphalt pavement by scrubbing with a detergent, washing thoroughly with clean water, and then treat these areas with a spot primer. Any additional surface preparation, such as crack repair, shall be in accordance with Item P-101, paragraph 101-3.6.

a. New asphalt pavement surfaces. Allow new asphalt pavement surfaces to cure so that there is no concentration of oils on the surface.

Perform a water-break-free test to confirm that the surface oils have degraded and dissipated. (Cast approximately one gallon (4 liters) of clean water out over the surface. The water should sheet out and wet the surface uniformly without crawling or showing oil rings.) If signs of crawling or oil rings are apparent on the pavement surface, additional time must be allowed for additional curing and retesting of the pavement surface prior to treatment.

608-4.5 Emulsion mixing. The application emulsion shall be obtained by blending asphalt material concentrate, water and polymer, if specified. Always add heated water to the asphalt material concentrate, never add asphalt material concentrate to heated water. Mix one part heated water to one part or two parts asphalt material concentrate, by volume.

Add 1% polymer, by volume, to the emulsion mix. If the polymer is added to the emulsion mix at the plant, submit weight scale tickets to the RPR. As an option, the polymer may be added to the emulsion mix at the job site provided the polymer is added slowly while the asphalt distributor truck circulating pump is running. The mix must be agitated for a minimum of 15 minutes or until the polymer is mixed to the satisfaction of the RPR.

608-4.6 Application of asphalt emulsion. The asphalt emulsion shall be applied using a pressure distributor upon the properly prepared, clean and dry surface at the application rate recommended by the manufacturer's representative and approved by the RPR from the test area/sections evaluation for each designated treatment area. The asphalt emulsion should be applied at a temperature between 130°F (54°C) and 160°F (70°C) or in accordance with the manufacturer's recommendation.

If low spots and depressions greater than 1/2 inch (12 mm) in depth in the pavement surface cause ponding or puddling of the applied materials, the pavement surface shall be lightly broomed with a broom or brush type squeegee until the pavement surface is free of any pools of excess material.

During all applications, the surfaces of adjacent structures shall be protected to prevent their being spattered or marred.

608-4.7 Application of aggregate material. Immediately following the application of the asphalt emulsion, friction sand at the rate recommended by the manufacturer's representative and approved by the RPR from the test area/sections evaluation for each designated application area, shall be spread uniformly over the asphalt emulsion in a single-pass operation simultaneous with the sealer application. The aggregate shall be spread to the same width of application as the asphalt material and shall not be applied in such thickness as to cause blanketing.

Sprinkling of additional aggregate material, and spraying additional asphalt material over areas that show up having insufficient cover or bitumen, shall be done by hand whenever necessary. In areas where hand work is necessitated, the sand shall be applied before the sealant begins to break.

Minimize aggregate from being broadcast and accumulating on the untreated pavement adjacent to an application pass. Prior to the next application pass, the Contractor shall clean areas of excess or loose aggregate and remove from project site.

QUALITY CONTROL (QC)

608-5.1 Manufacturer's representation. The manufacturer's representative knowledgeable of the material, procedures, and equipment described in the specification is responsible to assist the Contractor and RPR in determining the appropriate application rates of the emulsion and aggregate, as well as recommendations for proper preparation and start-up of seal coat application. Documentation of the manufacturer representative's experience and knowledge for applying the seal coat product shall be furnished to the RPR a minimum of 10 work days prior to placement of the control strips. The cost of the manufacturer's representative shall be included in the Contractor's bid price.

608-5.2 Contractor qualifications. The Contractor shall provide documentation to the RPR that the seal coat Contractor is qualified to apply the seal coat, including personnel, and equipment, and has made at least three (3) applications similar to this project in the past two (2) years.

MATERIAL ACCEPTANCE

608-6.1 Application rate. The rate of application of the asphalt emulsion shall be verified at least twice per day.

608-6.2 Friction tests. Friction tests in accordance with AC 150/5320-12, Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces, shall be performed on all runway and high-speed taxiways that received a seal coat. Each test includes performing friction tests at 40 mph and 60 mph (65 or 95 km/h) both wet, 15 feet (4.5 m) to each side of runway centerline with approved continuous friction measuring equipment (CFME). The Contractor shall coordinate testing with the RPR and provide the RPR a written report of friction test results. The RPR shall be present for testing.

METHOD OF MEASUREMENT

608-7.1 Asphalt surface treatment and friction testing. No measurement will be made for direct payment of asphalt surface treatment or friction testing, as the cost of furnishing, installing and testing shall be considered as a subsidiary obligation in the completion of the installation.

BASIS OF PAYMENT

608-8.1 No payment will be made separately or directly for asphalt surface treatment and friction testing on any part of the work. All asphalt surface treatment and friction testing shall be considered a necessary and incidental part of the work and its cost shall be considered by the Contractor and included in the contract unit price for the pay items involved.

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	Standard Test Method for Materials Finer than 75- μm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D5	Standard Test Method for Penetration of Asphalt Materials
ASTM D244	Standard Test Methods and Practices for Emulsified Asphalts
ASTM D2007	Standard Test Method for Characteristic Groups in Rubber Extender and Processing Oils and Other Petroleum-Derived Oils by the Clay-Gel Absorption Chromatographic Method
ASTM D2042	Standard Test Method for Solubility of Asphalt Materials in Trichloroethylene
ASTM D2995	Standard Practice for Estimating Application Rate of Bituminous Distributors
ASTM D4402	Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer
ASTM D5340	Standard Test Method for Airport Pavement Condition Index Surveys

Advisory Circulars (AC)

AC 150/5320-12	Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces
AC 150/5320-17	Airfield Pavement Surface Evaluation and Rating (PASER) Manuals
AC 150/5380-6	Guidelines and Procedures for Maintenance of Airport Pavements

END OF ITEM P-608

Item P-610 Concrete for Miscellaneous Structures

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

Refer to FAA Engineering Brief #106, "Guidance for the Implementation of Changes in Industry Cement Standard Specifications" located here:

https://www.faa.gov/sites/faa.gov/files/eb_106_cement_standards.pdf

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix. If expansion of either the coarse or fine aggregate exceeds 0.08% at 14 days, limit the alkali of the concrete to be less than or equal to 3.0 lb per cubic yard (1.8 kg per cubic meter), calculated in accordance with EB 106.

If the expansion is greater than 0.20%, the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch (37.5 mm)	467 or 4 and 67
1 inch (25 mm)	57
3/4 inch (19 mm)	67
1/2 inch (12.5 mm)	7

610-2.2.1 Coarse Aggregate susceptibility to durability (D) cracking. Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted.

Crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test requirements but must meet all other quality tests specified herein.

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of ASTM C150, Types I, IA, II, IIA, III, IIIA or V. The chemical requirements for all cement types specified should meet suitable criteria for deleterious activity. Low alkali cements shall be less than 0.6% equivalent alkalis. Total alkalis (Na₂O and K₂O) of the cement secured for the production of concrete shall be independently verified in accordance with ASTM C114 or ASTM C1365.

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than 15% and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit

complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM D1751.

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Reinforcing shall consist of reinforcing steel conforming to the requirements of ASTM A615, Grade 60. Epoxy coated reinforcing steel shall conform to the requirements of ASTM A775. Welded steel wire fabric shall conform to the requirements of ASTM A1064. The fabric shall be made of plain wire, and sizes as shown on the plans.

610-2.11 Materials for curing concrete. Curing materials shall conform to one of the following:

Materials for Curing

Clear or white Polyethylene Sheeting	ASTM C171
White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B	ASTM C309

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of 4000 psi in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard (280 kg per cubic meter). The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches (100 mm) as determined by ASTM C143.

In proportioning aggregates and mixing water, compensation shall be made for the weight of moisture in the aggregates, and shall be determined on a daily basis. The net mixing water shall be adjusted for the moisture contained in the aggregates, and for the moisture which they will absorb, in order to determine

the amount of water to be added at the mixer. The absorption of the coarse and fine aggregates shall be determined by ASTM C 127 and ASTM C 128.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F (4°C) without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F (10°C) nor more than 100°F (38°C). The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed. Embedded items shall be covered, or otherwise protected during placement of concrete, to prevent concrete from splashing onto the exposed portions. Contractor shall clean the exposed surfaces of embedded items of concrete prior to drying or hardening.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet (1.5 m). Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free

from running water, or on a properly consolidated soil foundation. The maximum interval between successive truckloads of concrete discharged onto previously placed fresh concrete shall not exceed 30 minutes at any one location.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance. Curing compound, if used, shall not cause discoloration of the concrete and shall be applied in accordance with manufacturer's directions. Curing compounds shall not be used on any surface against which additional concrete or other cementitious finishing materials are to be bonded, or on any surface which a waterproofing membrane is to be applied.

610-3.13 Cold weather placing. When concrete is placed at temperatures below 40°F (4°C), follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot weather placing. When concrete is placed in hot weather greater than 85°F (30 °C), follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 Quality Assurance sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The RPR will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 Defective work. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be considered incidental and no separate measurement shall be made.

BASIS OF PAYMENT

610-6.1 Concrete shall be considered incidental and no separate payment shall be made.

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 A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C260	Standard Specification for Air-Entraining Admixtures for Concrete
ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C311	Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete
ASTM C494	Standard Specification for Chemical Admixtures for Concrete
ASTM C618	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
ASTM C666	Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
ASTM C685	Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C989	Standard Specification for Slag Cement for Use in Concrete and Mortars
ASTM C1017	Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete
ASTM C1077	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM C1157	Standard Performance Specification for Hydraulic Cement
ASTM C1260	Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)
ASTM C1365	Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D1751	Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)
ASTM D1752	Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

American Concrete Institute (ACI)

ACI 305R	Hot Weather Concreting
ACI 306R	Cold Weather Concreting
ACI 308R	Guide to External Curing of Concrete
ACI 309R	Guide for Consolidation of Concrete

END OF ITEM P-610

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.

a. Paint. Paint shall be waterborne, Type I, II or III in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

Paint Color	Fed Std. No 595 Color Number
White	37925
Yellow	33538 or 33655
Black	37038

Waterborne or solvent base black paint should be used to outline a border at least 6 inches (150 mm) wide around markings on all light-colored pavements. Preformed thermoplastic markings shall have a non-reflectorized black border integral to the marking.

Application Rates for Paint and Glass Beads for Table 1

Paint ²		Glass Beads ³		
Type	Application Rate Maximum	Type I, Gradation A ¹ Minimum	Type III Minimum	Type IV ¹ Minimum
Waterborne Type I or II	115 ft ² /gal (2.8 m ² /l)	7 lb/gal (0.85 kg/l)	10 lb/gal (1.2 kg/l)	--
Waterborne Type III	90 ft ² /gal (2.2 m ² /l)	7 lb/gal (0.85 kg/l)	8 lb/gal (1.0 kg/l)	
Waterborne Type III	55 ft ² /gal (1.4 m ² /l)		6 lb/gal (.8 kg/l)	5 lb/gal (.7 kg/l)
Temporary Marking Waterborne Type I or II	230 ft ² /gal (5.6 m ² /l)	No beads	No beads	No beads

¹Glass bead application rate for Red and Pink paint shall be reduced by 2 lb/gal (0.24 kg/l) for Type I and Type IV beads.

²See paint type(s) specified below.

³See paragraph 620-2.2b.

Waterborne paint. Waterborne paint shall meet the requirements of Federal Specification TT-P-1952F, Type I, Type II, or Type III. 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. The acrylic resin used for Type III shall be 100% cross linking acrylic as evidenced by infrared peaks at wavelengths 1568, 1624, and 1672 cm-1 with intensities equal to those produced by an acrylic resin known to be 100% cross linking.

b. Reflective media. Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D Type III.

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 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 contaminants 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.

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. Existing pavement marking removal. Existing pavement markings shall be removed by water blasting, or by other methods approved by the RPR minimizing damage to the pavement surface. Removal operations shall not cause any damage to the pavement surface such as aggregate and/or bitumen stripping. This condition will present the possibility of aggregate separation, creating Foreign Object Debris damage to aircraft. A test section, on a pavement designated by the airport, will be required for approval by the RPR and Airport Operations prior to full production of pavement marking removal. The removal area may need to be larger than the area of the markings to eliminate ghost markings.

Markings which are shown to be removed shall be blocked out into rectangular shapes. Markings within the rectangular shapes shall be removed such that 90% of all paint is removed to the satisfaction of the RPR. Shotblasting shall not be used on grooved pavements. The remaining pavement area within the rectangular shape shall be treated with the same removal process such that the entire rectangular shape is uniform in appearance. After removal of markings on asphalt pavements, apply a surface treatment of seal coat in accordance with Item P-608, Emulsified Asphalt Seal Coat, to the 'blocked out' areas to eliminate 'ghost' markings.

Black paint may be used to temporarily cover existing markings which will be restored upon completion of construction only when approved by the RPR. Prior to repainting the original markings, the Contractor shall remove the black paint and the original markings as described above. The removal area may be limited to the existing markings only if there is no impact to the adjacent pavement surface. If the removal impacts the adjacent surface, the Contractor shall perform the removal process in the rectangular shapes prescribed above. Otherwise, black paint shall not be used to cover markings.

Payment for removal of existing markings will be made at the contract unit price for Area of Treatment for Paint Removal. If the condition of interim markings are flaking or in otherwise poor condition such that the permanent markings won't properly adhere, the contractor shall remove the faulty areas at his own expense. No separate measurement and payment will be made for marking removal for temporary markings associated with construction work phasing.

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 manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

d. Preparation of temporary markings prior to marking permanent markings. Prior to applying permanent markings over temporary markings, loose temporary 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.

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 permanent markings to the existing temporary markings. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

The cost of preparation of temporary markings prior to marking permanent markings will not be measured separately. The cost of preparation of temporary markings prior to application of permanent markings shall be included in the cost of Surface Preparation.

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. Markings shall be laid out by the Contractors surveyor and approved by the RPR prior to marking.

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 (12 mm) in 50 feet (15 m), and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	Tolerance
36 inch (910 mm) or less	±1/2 inch (12 mm)
greater than 36 inch to 6 feet (910 mm to 1.85 m)	±1 inch (25 mm)
greater than 6 feet to 60 feet (1.85 m to 18.3 m)	±2 inch (50 mm)
greater than 60 feet (18.3 m)	±3 inch (76 mm)

Pavement markings that do not meet the tolerances specified in the table above shall be removed and repainted at the Contractors cost.

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. The paint layer shall be uniform in thickness without overlaps and/or blotches and overspray 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. 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. 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. Not used.

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 surface preparation shall be measured by lump sum.

620-4.2 The quantity of markings shall be paid for shall be measured by the number of square feet of painting, including reflective media.

620-4.3 The quantity of temporary markings to be paid for shall be the number of square feet of painting performed in accordance with the specifications and accepted by the RPR. Temporary markings are used for the initial markings at the time of pavement opening, while waiting for the minimum 30-day pavement curing period.

NOTE: There is no separate measurement or payment for temporary markings or marking removal associated with construction work phasing. Temporary markings placement and removal are paid for under item C-106, Maintenance and Protection of Traffic, and are generally shown on the Construction Work Phasing Drawings.

BASIS OF PAYMENT

620-5.1 Payment for surface preparation shall be made at the contract price per lump sum. 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.

620-5.2 Payment for markings shall be made at the contract price for the number of square feet of painting. These prices 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.

620-5.3 Payment for temporary markings shall be made at the contract price for the number of square feet of painting. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item. 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.

Payment will be made under:

Item P-620-5.1	Surface Preparation - per lump sum
Item P-620-5.2	Airfield Pavement Markings - per square foot
Item P-620-5.3	Temporary Airfield Pavement Markings - 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
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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 P-670 Automated Machine Guidance

DESCRIPTION

670-1.1 The Contractor may elect to utilize automated machine guidance (AMG) to determine three-dimensional locations for earth work activities and material placement. AMG is the process of automatically adjusting the motion of a machine with an onboard computer that obtains its position from global positioning systems, robotic total stations, lasers, or combinations of these methods while referencing the Contractor's model developed for the project. This procedure can be used in operations such as earth excavation, material placement, grading, trimming, and/or paving.

CONSTRUCTION METHODS

670-2.1 Work Plan. Provide a work plan to the Engineer stating whether or not AMG will be used on the project at the preconstruction meeting or prior. Each Contractor using AMG will provide a work plan to indicate the items of work covered within the specifications, type of AMG procedure, anticipated accuracy of each operation, and any areas where AMG operations need to be supplemented with conventional staking. The work plan must identify the Contractor's past experience with AMG operations, description of AMG equipment, equipment calibration procedures, equipment calibration frequency, and a description of the control necessary to support the proposed AMG operation(s). The work plan must designate a primary AMG contact. The Engineer reserves the right to request additional information or clarification prior to review of the work plan.

670-2.2 Survey meeting. A meeting with the Contractor and other involved parties (FAA, State DOT, Owner, Engineer, AMG contact, Contractor's model creator, surveyors, inspectors, etc.) shall be held prior to field operations. The purpose of the meeting is to discuss the implementation of the work plan and exchange of electronic data between both parties. The Contractor must explain the operations and procedures for the AMG technology, discuss the development of the Contractor's model, and present their survey control plan. The meeting attendees would also discuss the workflow for field verification, steps to be taken to resolve concerns with the Contractor's model, and compliance of AMG operations with the contract.

670-2.3 Contractor's model. Contractor shall employ a third party to verify model is accurate. Transmit, to the Engineer a certification statement which states in part the following: "The Contractor's model(s) developed for the project is an accurate representation of the contract, submittal of this certification is in accordance with the Contractor's obligations and requirements within the Contractor Staking Quality Control Plan, AMG Work Plan and applicable statutory requirements for construction layout."

A. Contract and Reference Information Documents (RID). The model must be created based upon the contract. RID reference documents for the project may be used for creation of the model at the Contractor's discretion, provided use is consistent with the terms and conditions of the Owner disclaimer and the use does not form the basis for a claim. Bring any conflicts identified between the contract and RID documents to the attention of the Engineer as soon as possible. If the Contractor determines a need for additional data or requires electronic formatting of files different than provided, it is the responsibility of the Contractor to prepare such files prior to commencement of the AMG operation without additional costs to the Owner.

B. Liability and verification. The contract plans will govern construction activities. The Engineer will not approve the Contractor's model(s). The Contractor accepts all liability associated with the creation and use of the Contractor's model. Field verify existing project features to determine the suitability of any provided contract information. Features to be verified include, but are not limited to, ties at project limits, existing pavement grades and limits, existing turf grades, control points, benchmarks, section corners, monuments, and other critical locations.

670-2.4 Control. The Contractor shall verify horizontal and vertical control points shown on the plans prior to the commencement of any AMG operations. The tolerance for horizontal control points shall be

within 0.04 foot (northing and/or easting) of established location. The tolerance for vertical control points shall be within 0.02 foot of established elevation. Notify the Engineer if any control points exceed the established tolerances.

If the Contractor's AMG operation requires a greater density of control than that provided from the Engineer, the Contractor is responsible for densification of the AMG control. The additional AMG control will be established with sufficient frequency and precision to adequately support the AMG operation being performed. Ensure the control points are stable and properly marked to allow verification activities to be performed by the Engineer. Submit initial AMG control information (Point, Northing, Easting, Elevation, and Description) to the Engineer at least 2 calendar days prior to AMG operations. Ensure any subsequent AMG control information is provided in the same format and time consideration.

670-2.5 Contractor responsibility. The Contractor's AMG operation can only eliminate required staking if the Contractor's AMG operation meets the requirements and tolerances defined in these contract documents. The Contractor is responsible for all quality control necessary for their AMG operations to meet the prescribed tolerances for each associated specification. If prescribed tolerances are not met, the Contractor will either proceed with regular operations without the use of AMG or suspend operations to evaluate and address the AMG operations deficiencies. Once the cause of the inaccuracies is determined, the Contractor must provide the Engineer with a written corrective action plan addressing the concerns for the Engineer's approval. The Contractor may only resume AMG operations with the approval of the Engineer. If subsequent failures to meet specifications and accuracies are experienced, the Contractor will be suspended from AMG operations and conventional staking operations must be provided at no cost to the Owner.

Notify the Engineer at least 24 hours prior to commencement of AMG operations.

670-2.6 Quality Assurance. The Engineer will perform continuous and independent quality assurance for AMG operations to ensure compliance of the finished surfaces with corresponding specifications for the material being placed or removed. The Engineer will use equipment and methods that adequately support the precision level of the verification. The Engineer is prohibited from using the Contractor's equipment in the quality assurance verification process. Acceptance of the results of AMG operations will be based upon quality assurance results falling within prescribed tolerances for each associated pay item. If the Engineer determines that the prescribed tolerances are not being met, the Contractor must suspend AMG operations and follow direction specified for corrective action in subsection 670-2.5.

METHOD OF MEASUREMENT

670-3.1 No separate measurement for payment shall be made for automated machine guidance. Automated machine guidance shall be considered necessary and incidental to the work of this Contract.

BASIS OF PAYMENT

670-4.1 No payment will be made separately or directly for automated machine guidance. Automated machine guidance shall be considered necessary and incidental to the work of this Contract and the costs shall be included in the various pay items involved.

END OF ITEM P-670

Item D-705 Pipe Underdrains for Airports

DESCRIPTION

705-1.1 This item shall consist of the construction of pipe drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans. Cleanouts shall be installed where called out on the plans. Weeps shall be constructed at locations determined by the RPR during construction.

The work of this item shall include excavation, backfill, special porous backfill, filter fabric, restoration of surfaces, the cost of furnishing and installing all trench bracing, removal of water, all pipe, fittings and rodent screens required to complete the underdrain as shown on the plans, and the material for the making of all joints including all connections to existing drainage pipes and structures.

MATERIALS

705-2.1 General. Materials shall meet the requirements shown on the plans and specified below.

705-2.2 Pipe. The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements.

AASHTO M252 Standard Specification for Corrugated Polyethylene Drainage Pipe

705-2.3 Joint mortar. Not used.

705-2.4 Elastomeric seals. Elastomeric seals shall conform to the requirements of ASTM F477.

705-2.5 Porous backfill. Porous backfill shall be free of clay, humus, or other objectionable matter, and shall conform to the gradation in Table 1 when tested in accordance with ASTM C136.

Table 1. Gradation of Porous Backfill

Sieve Designation (square openings)	Percentage by Weight Passing Sieves	
	Porous Material No. 1	Porous Material No. 2
1-1/2 inch (37.5 mm)	--	100
1 inch (25.0 mm)	--	90 - 100
3/8 inch (9.5 mm)	100	25 - 60
No. 4 (4.75 mm)	95 – 100	5 - 40
No. 8 (2.36 mm)	--	0 - 20
No. 16 (1.18 mm)	45 – 80	--
No. 50 (300 μm)	10 – 30	--
No. 100 (150 μm)	0 – 10	--

When two courses of porous backfill are specified in the plans, the finer of the materials shall conform to particle size tabulated herein for porous material No. 1. The coarser granular material shall meet the gradation given in the tabulation for porous material No. 2.

705-2.6 Granular material. Granular material used for backfilling shall conform to the requirements of ASTM D2321 for Class IA, IB, or II materials.

705-2.7 Filter fabric. The filter fabric shall conform to the requirements of AASHTO M288 Class 2 or equivalent.

Table 2. Fabric Properties

Fabric Property	Test Method	Test Requirement
Grab Tensile Strength, lbs	ASTM D4632	125 min
Grab Tensile Elongation %	ASTM D4632	50 min
Burst Strength, psi	ASTM D3785	125 min
Trapezoid Tear Strength, lbs	ASTM D4533	55 min
Puncture Strength, lbs	ASTM D4833	40 min
Abrasion, lbs	ASTM D4886	15 max loss
Equivalent Opening Size	ASTM D4751	70-100
Permittivity sec ⁻¹	ASTM D4491	0.80
Accelerated Weathering (UV Stability) (Strength Retained - %)	ASTM D4355 *(500 hrs exposure)	70

705-2.8 Controlled low-strength material (CLSM). CLSM is not used.

705-2.9 Cleanouts. Cleanouts shall be installed at the locations shown and in accordance with the details shown on the Contract Drawings.

705-2.10 Rodent screen. Rodent screens shall be in accordance with the details shown on the Contract Drawings. The Contractor shall furnish screens of #2 or #3 welded wire mesh, 16 gauge or heavier, made of Type 304 stainless steel wire or hot dipped galvanized carbon steel wire.

705-2.11 Concrete. Concrete shall conform to the requirements of Item P-610, Structural Portland Cement Concrete.

705-2.12 Concrete underdrain outlet headwall. Concrete underdrain outlet headwalls shall be in accordance with the details shown on the plans.

705-2.13 Reinforcing steel. Reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A 615, Grade 60. Reinforcing steel shall be hot dipped galvanized in accordance with ASTM A-123, or epoxy coated.

CONSTRUCTION METHODS

705-3.1 Equipment. All equipment required for the construction of pipe underdrains shall be on the project, in good working condition, and approved by the RPR before construction is permitted to start.

705-3.2 Excavation. Underdrains shall be installed after excavation to subgrade. Porous backfill around the underdrains shall be placed in lifts prior to placing the adjacent subbase and base materials. The

Contractor is responsible for removal of water regardless of its source. Measures shall be taken to protect the excavation from surface water runoff as well as for dewatering the excavation from any water which has entered the excavation. The cost of the removal of water shall be considered as a subsidiary obligation of the Contractor and included in the contract price for the pay items of work involved.

The Contractor shall do all necessary excavation to the depth shown on the Contract Drawings. The excavation shall be unclassified and shall be performed regardless of the material encountered. The cost of all excavation shall be included under the unit price bid per foot for the pipe.

The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but shall not be less than the external diameter of the pipe plus 6 inches (150 mm) on each side of the pipe. The trench walls shall be approximately vertical.

Where rock, hardpan, or other unyielding material is encountered, it shall be removed below the foundation grade for a depth of at least 4 inches (100 mm). The excavation below grade shall be backfilled with selected fine compressible material, such as silty clay or loam, and lightly compacted in layers not over 6 inches (150 mm) in uncompacted depth to form a uniform but yielding foundation. The cost of furnishing and placing this material shall be included in the bid price per linear foot of pipe.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The RPR shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

Excavated material not required or acceptable for backfill shall be disposed of by the Contractor as directed by the RPR. The excavation shall not be carried below the required depth; if this occurs, the trench shall be backfilled at the Contractor's expense with material approved by the RPR and compacted to the density of the surrounding material.

The pipe bedding shall be constructed uniformly over the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 inch when the bedding thickness is less than 6 inches, and 1-1/2 inch when the bedding thickness is greater than 6 inches. Bedding shall be loosely placed, uncompacted material under the middle third of the pipe prior to placement of the pipe.

The Contractor shall do trench bracing, sheathing, or shoring necessary to perform and protect the excavation as required for safety and conformance to federal, state and local laws. Unless otherwise provided, the bracing, sheathing, or shoring shall be removed by the Contractor after the backfill has reached at least 12 inches (300 mm) over the top of the pipe. The sheathing or shoring shall be pulled as the granular backfill is placed and compacted to avoid any unfilled spaces between the trench wall and the backfill material. The cost of bracing, sheathing, or shoring, and the removal of same, shall be included in the unit price bid per foot (meter) for the pipe.

705-3.3 Laying and installing pipe.

a. Concrete pipe. Not used.

b. Metal pipe. Not used.

c. PVC, fiberglass, or polyethylene pipe. PVC or polyethylene pipe shall be installed in accordance with the requirements of ASTM D2321. Perforations shall meet the requirements of AASHTO M252 or AASHTO M294 Class 2, unless otherwise indicated on the plans. The pipe shall be laid accurately to line and grade. Fiberglass per ASTM D3839 Standard Guide for Underground Installation of "Fiberglass" (Glass-Fiber Reinforced Thermosetting-Resin) Pipe.

d. All types of pipe. The upgrade end of pipelines, not terminating in a structure, shall be plugged or capped as approved by the RPR.

Unless otherwise shown on the plans, a 4-inch (100 mm) bed of granular backfill material shall be spread in the bottom of the trench throughout the entire length under all perforated pipe underdrains.

Pipe outlets for the underdrains shall be constructed when required or shown on the plans. The pipe shall be laid with tight-fitting joints. Porous backfill is not required around or over pipe outlets for underdrains. All connections to other drainage pipes or structures shall be made as required and in a satisfactory manner. If connections are not made to other pipes or structures, the outlets shall be protected and constructed as shown on the plans.

e. Filter fabric. The filter fabric shall be installed in accordance with the manufacturer's recommendations, or in accordance with the AASHTO M288 Appendix, unless otherwise shown on the plans.

705-3.4 Mortar. The mortar shall be of the desired consistency for caulking and filling the joints of the pipe and for making connections to other pipes or to structures. Mortar that is not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted.

705-3.5 Joints in concrete pipe. Not used.

705-3.6 Embedment and Backfill

a. Earth. All trenches and excavations shall be backfilled soon after the pipes are installed, unless additional protection of the pipe is directed. The embedment material shall be select material from excavation or borrow and shall be approved by the RPR. The select material shall be placed on each side of the pipe out to a distance of the nominal pipe diameter and one foot (30 cm) over the top of the pipe and shall be readily compacted. It shall not contain stones 3 inches (75 mm) or larger in size, frozen lumps, chunks of highly plastic clay, or any other material that is objectionable to the RPR. The material shall be moistened or dried, as required to aid compaction. Placement of the embedment material shall not cause displacement of the pipe. Thorough compaction under the haunches and along the sides to the top of the pipe shall be obtained.

The embedment material shall be placed in loose layers not exceeding 6 inches (150 mm) in depth under and around the pipe. Backfill material over the pipe shall be placed in lifts not exceeding 8 inches (200 mm). Successive layers shall be added and thoroughly compacted by hand and pneumatic tampers, approved by the RPR, until the trench is completely filled and brought to the planned elevation. Embedment and backfilling shall be done to avoid damaging top or side of the pipe.

In embankments and other unpaved areas, the backfill shall be compacted per Item P-152 to the density required for embankments in unpaved areas. Under paved areas, the subgrade and any backfill shall be compacted per Item P-152 to the density required for embankments for paved areas.

b. Granular backfill. When granular backfill is required, placement in the trench and about the pipe shall be as shown on the plans. The granular backfill shall not contain an excessive amount of foreign matter, nor shall soil from the sides of the trench or from the soil excavated from the trench be allowed to filter into the granular backfill. When required by the RPR, a template shall be used to properly place and separate the two sizes of backfill. The backfill shall be placed in loose layers not exceeding 6 inches (150 mm) in depth. The granular backfill shall be compacted by hand and pneumatic tampers to the requirements as given for embankment. Backfilling shall be done to avoid damaging top or side pressure on the pipe. The granular backfill shall extend to the elevation of the trench or as shown on the plans.

When perforated pipe is specified, granular backfill material shall be placed along the full length of the pipe. The position of the granular material shall be as shown on the plans. If the original material excavated from the trench is pervious and suitable, it shall be used in lieu of porous backfill No. 1.

If porous backfill is placed in paved or adjacent to paved areas before grading or subgrade operations is completed, the backfill material shall be placed immediately after laying the pipe. The depth of the granular backfill shall be not less than 12 inches (300 mm), measured from the top of the underdrain.

During subsequent construction operations, a minimum depth of 12 inches (300 mm) of backfill shall be maintained over the underdrains. When the underdrains are to be completed, any unsuitable material shall be removed exposing the porous backfill. Porous backfill containing objectionable material shall be removed and replaced with suitable material. The cost of removing and replacing any unsuitable material shall be at the Contractor's expense.

If a granular subbase blanket course is used which extends several feet beyond the edge of paving to the outside edge of the underdrain trench, the granular backfill material over the underdrains shall be placed in the trench up to an elevation of 2 inches (50 mm) above the bottom surface of the granular subbase blanket course. Immediately prior to the placing of the granular subbase blanket course, the Contractor shall blade this excess trench backfill from the top of the trench onto the adjacent subgrade where it can be incorporated into the granular subbase blanket course. Any unsuitable material that remains over the underdrain trench shall be removed and replaced. The subbase material shall be placed to provide clean contact between the subbase material and the underdrain granular backfill material for the full width of the underdrain trench.

c. Controlled low-strength material (CLSM). CLSM is not used.

705-3.7 Flexible Pipe Ring Deflection. The flexible pipe shall be inspected by the Contractor during and after installation to ensure that the internal diameter of the pipe barrel has not been reduced by more than 5 percent. For guidance on properly sizing mandrels, refer to ASTM D3034 and ASTM F679 appendices.

705-3.8 Connections. When the plans call for connections to existing or proposed pipe or structures, these connections shall be watertight and made to obtain a smooth uniform flow line throughout the drainage system.

705-3.9 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, soil, and rubbish from the site. Surplus soil may be deposited in embankments, shoulders, or as directed by the RPR. Except for paved areas of the airport, the Contractor shall restore all disturbed areas to their original condition. Unsuitable material shall be disposed of off airport property, or as ordered by the Engineer.

Areas disturbed by the Contractor's operation shall be restored to their original condition. Restoration of surfaces shall be performed in accordance with the details of the Contract Drawings.

Where pipes are installed or removed outside of the general grading limits, or in areas that would not otherwise be disturbed, restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items for pipe installation or pipe removal.

Where pipes are installed or removed within the general limits of excavation and embankment, restoration of the area will not be necessary as payment for turf or pavement will be included in the various pay items of work involved.

The Contractor shall be responsible for maintaining all disturbed surfaces and restorations until final acceptance.

705-3.10 Concrete underdrain outlet headwalls and terminations. Concrete underdrain outlet headwalls shall be precast and installed at the locations shown on the plans. Headwalls shall be installed flush with the finished sloped and oriented to allow the headwall apron to drain. Anchor headwalls by driving two 1/2 inch diameter by 48 inch long rebar in the holes provided. Rebar shall be driven 1/2 inch to 2 inches below the surface of the headwall. Install rodent screens in the slot provided. Underdrain pipe shall be extended into the headwall fitting until flush with the installed rodent screen.

Underdrain terminations shall be installed at the locations shown on the plans. Terminations shall be cast in place in accordance with the details shown on the plans.

705-3.11 Weeps. Weeps shall be constructed at locations determined by the Engineer during construction. Weeps shall consist of a trench, 12 inches wide by 12 inches deep, excavated in the subgrade for the purpose of draining undercut areas. The bottom of the trench shall be at the bottom of the undercut, and shall be excavated at a location that will allow the undercut area to drain. The weep shall extend from the undercut area to an underdrain. If there is no underdrain located adjacent to the edge of pavement, the weep shall be extended to daylight in a ditch or swale. The weep shall be lined with filter fabric and filled with porous backfill No. 2. The weep shall be continuously sloped from the undercut area to its termination.

METHOD OF MEASUREMENT

705-4.1 The number of cleanouts removed shall be measured by each unit, complete and in accordance with the plans.

705-4.2 The quantity of pipe underdrain removal shall be made at the contract unit price per linear foot completed, and approved; measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable, including excavation and backfill.

705-4.3. The quantity of pipe underdrains shall be made at the contract unit price per linear foot completed, and approved; measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable, including porous backfill and filter fabric. The several classes, types, and sizes shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipeline being measured.

705-4.4 The number of cleanouts, concrete underdrain outlet headwall, or underdrain termination shall be measured by each unit, complete and in place, in accordance with the plans.

BASIS OF PAYMENT

705-5.1 Cleanout Removal. Payment for cleanout removal shall be made at the contract unit price for each cleanout removed.

705-5.2 Underdrain Removal. Payment for underdrain removal shall be made at the contract unit price per linear foot removed.

705-5.3 Pipe underdrains. Payment for pipe underdrains shall be made at the contract unit price per linear foot completed (including porous backfill and filter fabric).

705-5.4 Cleanouts. Payment will be made at the contract unit price per each cleanout furnished and installed in place.

These prices shall be full compensation for furnishing all materials and for all preparation, excavation, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item D-705-5.1	Removal of Existing Cleanout – per each
Item D-705-5.2	Removal of Existing Underdrain – per linear foot
Item D-705-5.3	6-inch Perforated Corrugated PE Drainage Pipe Underdrain, Type CP – per linear foot
Item D-705-5.4	Underdrain Cleanout – per each

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 C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM D2321	Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D4161	Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Pipe Joints Using Flexible Elastomeric Seals
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F758	Standard Specification for Smooth Wall Poly (Vinyl Chloride) (PVC) Plastic Underdrain Systems for Highway, Airport, and Similar Drainage
ASTM F794	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe & Fittings Based on Controlled Inside Diameter
ASTM F949	Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO M252	Standard Specification for Corrugated Polyethylene Drainage Pipe
AASHTO M288	Standard Specification for Geotextile Specification for Highway Applications
AASHTO M304	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter
AASHTO	Standard Specifications for Highway Bridges

END OF ITEM D-705

Item T-901 Seeding

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding and fertilizing and liming the areas shown on the plans or as directed by the RPR in accordance with these specifications.

MATERIALS

901-2.1 Seed. The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the RPR duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied as follows:

Seed Properties and Rate of Application

Percent		Percent	Percent
<u>By Weight</u>	<u>Variety</u>	<u>Purity</u>	<u>Germination</u>
45	Kentucky Blue Grass	90	80
15	Perennial Rye Grass	95	85
20	Tall Fescue	95	80
20	Fine Fescues ¹	95	80

¹ Fine fescues include creeping red fescue, chewings fescue, hard fescue, and sheep fescue.

Note: Alternative grass seed mixtures will be considered and may be submitted for review during the shop drawing submittal stage. Alternative grass seed mixtures shall be accompanied with a letter from the seed manufacturer that the proposed mix is suitable for the airport climate and will develop a reasonable stand of grass within a reasonable timeframe.

Seeding shall be performed during the period between April 1 and September 30 inclusive, unless otherwise approved by the RPR.

901-2.2 Lime. Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 (850 µm) mesh sieve and 50% will pass

through a No. 100 (150 μ m) mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate necessary to obtain the soil pH range specified in Item T-905. All liming materials shall conform to the requirements of ASTM C602.

901-2.3 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 commercial fertilizer and shall be spread at the rate of 20 pounds per 1,000 square feet, or as recommended by the manufacturer. Fertilizers shall contain the following compounds by weight:

Nitrogen	10%
Phosphorous	0% ¹
Potash	4%

¹ Fertilizers which contain up to 0.67% phosphorous are allowed

901-2.4 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

901-3.1 Advance preparation and cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches (125 mm) as a result of grading operations and, if immediately prior to seeding, the top 3 inches (75 mm) of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches (125 mm). Clods shall be broken and the top 3 inches

(75 mm) of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry application method. Section not used.

901-3.3 Wet application method.

a. General. The Contractor may elect to apply seed and fertilizer (and lime, if required) by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified in the special provisions.

b. Spraying equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons (190 liters) over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons (380 liters) per minute at a pressure of 100 lb / sq inches (690 kPa). The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8 inch (16 mm) solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet (6 to 30 m). One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For ease of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet (15 m) in length shall be provided to which the nozzles may be connected.

c. Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds (100 kg) of lime shall be added to and mixed with each 100 gallons (380 liters) of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds (100 kg) of these combined solids shall be added to and mixed with each 100 gallons (380 liters) of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the RPR all sources of water at least two (2) weeks prior to use. The RPR may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the RPR following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed or they shall be wasted and disposed of at approved locations.

d. Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime shall be worked into the top 3 inches (75 mm), after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the RPR, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-3.4 Maintenance of seeded areas. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the RPR. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the RPR. A grass stand shall be considered adequate when bare spots are one square foot (0.01 sq m) or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1 The quantity of seeding to be paid for shall be the number of units of square yards measured on the ground surface, completed and accepted.

BASIS OF PAYMENT

901-5.1 Payment shall be made at the contract unit price per square yards or fraction thereof, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item 901-5.1	Seeding, Wet Applied - per square yard
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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

Federal Specifications (FED SPEC)

FED SPEC JJJ-S-181, Federal Specification, Seeds, Agricultural

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-901

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 1 inch or more in diameter and clay lumps or similar objects. Topsoil shall be screened prior to placement. 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 loss on ignition or dry combustion method in accordance with ASTM D2974. There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (75 μ m) sieve as determined by the wash test in accordance with ASTM C117.

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 existing 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 (50 mm) 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 (50 mm) 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.

All available on-site topsoil shall be used prior to importing topsoil obtained from off-site. Topsoil obtained on-site shall be from stripping operations. The topsoil shall be screened and amended to meet the material specifications of this technical specification. All screen waste shall be disposed of off-site at a location determined by the Contractor.

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 stockpiled by the Contractor and any topsoil that has been stockpiled on the site by others that is required for topsoil purposes, shall be removed from the stockpile 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.

After all topsoil operations are complete, excess topsoil (and screened waste) which has been stockpiled by the Contractor shall be spoiled off-site at a location selected by the Contractor. Every effort should be made by the Contractor to recycle or re-use the material in other projects. Prior to placing spoil off airport property, Contractor shall submit a "Spoil Deposition and Release" to the RPR. A sample form is contained in the CSPP of these Specifications and shall be acceptable to the RPR prior to removing material from the work area. No direct payment will be made for spoiling operations. The cost of spoiling material off-site shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

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 the uniform depth shown on the plans or stated in the special provisions after compaction. 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 (1 inch 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

905-4.1 Topsoil obtained on the site shall be measured by the number of cubic yards of topsoil in its final position.

905-4.2 Topsoil obtained off the site shall be measured by the number of cubic yards of topsoil measured in its original position and stripped or excavated. Topsoil shall be measured by volume in cubic yards computed by the method of end areas.

BASIS OF PAYMENT

905-5.1 Payment will be made at the contract unit price per cubic yard for topsoil (obtained on the site). This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

905-5.2 Payment will be made at the contract unit price per cubic yard for topsoil (obtained off the site). This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-905-5.1	Topsoil (Furnished from Off the Site) - per cubic yard
Item T-905-5.2	Topsoil (Furnished from On Site) - 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.

ASTM International (ASTM)

ASTM C117	Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing
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Advisory Circulars (AC)

AC 150/5200-33	Hazardous Wildlife Attractants on or Near Airports
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FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-905

Item T-908 Mulching

DESCRIPTION

908-1.1 This item shall consist of furnishing, hauling, placing, and securing mulch on surfaces indicated on the plans or designated by the RPR.

MATERIALS

908-2.1 Mulch material. Acceptable mulch shall be the materials listed below or any approved locally available material that is similar to those specified. Mulch shall be free from noxious weeds, mold, and other deleterious materials. Mulch materials, which contain matured seed of species that would volunteer and be detrimental to the proposed overseeding, or to surrounding farm land, will not be acceptable. Straw or other mulch material which is fresh and/or excessively brittle, or which is in such an advanced stage of decomposition as to smother or retard the planted grass, will not be acceptable.

a. Hay. Hay shall be native hay in an air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Hay shall be sterile, containing no fertile seed.

b. Straw. Straw shall be the stalks from threshed plant residue of oats, wheat, barley, rye, or rice from which grain has been removed. Furnish in air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Straw shall contain no fertile seed.

c. Hay mulch containing seed. Hay mulch shall be mature hay containing viable seed of native grasses or other desirable species stated in the special provisions or as approved by the RPR. The hay shall be cut and handled so as to preserve the maximum quantity of viable seed. Hay mulch that cannot be hauled and spread immediately after cutting shall be placed in weather-resistant stacks or baled and stored in a dry location until used.

d. Manufactured mulch. Cellulose-fiber or wood-pulp mulch shall be products commercially available for use in spray applications.

e. Asphalt binder. Asphalt binder material shall conform to the requirements of ASTM D977, Type SS-1 or RS-1.

908-2.2 Inspection. The RPR shall be notified of sources and quantities of mulch materials available and the Contractor shall furnish him with representative samples of the materials to be used 30 days before delivery to the project. These samples may be used as standards with the approval of the RPR and any materials brought on the site that do not meet these standards shall be rejected.

CONSTRUCTION METHODS

908-3.1 Mulching. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch may be by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

Mulch material shall be furnished, hauled, and evenly applied on the area shown on the plans or designated by the RPR. Straw or hay shall be spread over the surface to a uniform thickness at the rate of

2 to 3 tons per acre (1800 - 2700 kg per acre) to provide a loose depth of not less than 1-1/2 inches (38 cm) nor more than 3 inches (75 mm). Other organic material shall be spread at the rate directed by the RPR. Mulch may be blown on the slopes and the use of cutters in the equipment for this purpose will be permitted to the extent that at least 95% of the mulch in place on the slope shall be 6 inches (150 mm) or more in length. When mulches applied by the blowing method are cut, the loose depth in place shall be not less than one inch (25 mm) nor more than 2 inches (50 mm).

908-3.2 Securing mulch. The mulch shall be held in place by light discing, a very thin covering of topsoil, pins, stakes, wire mesh, asphalt binder, or other adhesive material approved by the RPR. Where mulches have been secured by either of the asphalt binder methods, it will not be permissible to walk on the slopes after the binder has been applied. When an application of asphalt binder material is used to secure the mulch, the Contractor must take every precaution to guard against damaging or disfiguring structures or property on or adjacent to the areas worked and will be held responsible for any such damage resulting from the operation.

If the “peg and string” method is used, the mulch shall be secured by the use of stakes or wire pins driven into the ground on 5-foot (1.5-m) centers or less. Binder twine shall be strung between adjacent stakes in straight lines and crisscrossed diagonally over the mulch, after which the stakes shall be firmly driven nearly flush to the ground to draw the twine down tight onto the mulch.

908-3.3 Care and repair.

a. The Contractor shall care for the mulched areas until final acceptance of the project. Care shall consist of providing protection against traffic or other use by placing warning signs, as approved by the RPR, and erecting any barricades that may be shown on the plans before or immediately after mulching has been completed on the designated areas.

b. The Contractor shall be required to repair or replace any mulch that is defective or becomes damaged until the project is finally accepted. When, in the judgment of the RPR, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor.

c. If the “asphalt spray” method is used, all mulched surfaces shall be sprayed with asphalt binder material so that the surface has a uniform appearance. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons (32 liters) per 1,000 square feet (100 sq m), or as directed by the RPR, with a minimum of 6 gallons (24 liters) and a maximum of 10 gallons (40 liters) per 1,000 square feet (100 sq m) depending on the type of mulch and the effectiveness of the binder securing it. Asphalt binder material may be sprayed on the mulched slope areas from either the top or the bottom of the slope. An approved spray nozzle shall be used. The nozzle shall be operated at a distance of not less than 4 feet (1.2 m) from the surface of the mulch and uniform distribution of the asphalt material shall be required. A pump or an air compressor of adequate capacity shall be used to ensure uniform distribution of the asphalt material.

d. If the “asphalt mix” method is used, the mulch shall be applied by blowing, and the asphalt binder material shall be sprayed into the mulch as it leaves the blower. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons (32 liters) per 1,000 square feet (100 sq m) or as directed by the RPR, with a minimum of 6 gallons (24 liters) and a maximum of 10 gallons (40 liters) per 1,000 square feet (100 sq m) depending on the type of mulch and the effectiveness of the binder securing it.

METHOD OF MEASUREMENT

908-4.1 Mulching shall be measured in square yards on the basis of the actual surface area acceptably mulched.

BASIS OF PAYMENT

908-5.1 Payment will be made at the contract unit price per square yard for mulching. The price shall be full compensation for furnishing all materials and for placing and anchoring the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-908-5.1 Mulching - 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 D977 Standard Specification for Emulsified Asphalt

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-908

Item L-108 Underground Power Cable for Airports

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the RPR. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

EQUIPMENT AND MATERIALS

108-2.1 General.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least twelve (12) months from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's

discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period when tested in accordance with AC 150/5340-26, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

108-2.2 Cable. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 Type C, 5,000 volts, non-shielded, with cross-linked polyethylene insulation. L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 Bare copper wire (counterpoise, bare copper wire ground and ground rods). Wire for counterpoise installations and external grounding bond wire for airfield lighting systems shall be No. 6 AWG bare solid copper wire per ASTM B3. Wire for internal grounding bond wire for airfield lighting systems shall be green insulated No. 6 AWG stranded copper wire per ASTM B8. For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.

Ground rods shall be copper-clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 8 feet (2.4 m) long and 5/8 inch (16 mm) in diameter.

108-2.4 Cable connections. In-line connections or splices of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

a. The cast splice. A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3MTM Company, "Scotchcast" Kit No. 82-B, or an approved equivalent, used for potting the splice is acceptable.

b. The field-attached plug-in splice. Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish

appropriately sized connector kits and/or adapters. Tape or heat shrink tubing with integral sealant shall be in accordance with the manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal is acceptable. Heat-shrink tubing shall be used where the field attached plug-in splice is connected to the cable insulation jacket.

c. The factory-molded plug-in splice. Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

d. The taped or heat-shrink splice. Taped splices employing field-applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D4388 and the plastic tape should comply with Military Specification MIL-I-24391 or Commercial Item Description A-A-55809. Heat shrinkable tubing shall be heavy-wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct-buried installations. The tubing shall be factory coated with a thermoplastic adhesive-sealant that will adhere to the insulation of the wire being spliced forming a moisture- and dirt-proof seal. Additionally, heat shrinkable tubing for multi-conductor cables, shielded cables, and armored cables shall be factory kits that are designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.

In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the manufacturer's recommendations and listings.

All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except that a light base ground clamp connector shall be used for attachment to the light base. All exothermic connections shall be made per the manufacturer's recommendations and listings.

108-2.5 Splicer qualifications. Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the RPR proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

108-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

108-2.7 Flowable backfill. Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

108-2.8 Cable identification tags. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

108-2.9 Tape. Electrical tapes shall be Scotch™ Electrical Tapes –Scotch™ 88 (1-1/2 inch (38 mm) wide) and Scotch™ 130C® linerless rubber splicing tape (2-inch (50 mm) wide), as manufactured by the Minnesota Mining and Manufacturing Company (3M™), or an approved equivalent.

108-2.10 Electrical coating. Electrical coating shall be Scotchkote™ as manufactured by 3M™, or an approved equivalent.

108-2.11 Existing circuits. Whenever the scope of work requires connection to an existing circuit, the existing circuit's insulation resistance shall be tested, in the presence of the RPR. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the RPR. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the RPR. The Contractor shall record the results on forms acceptable to the RPR. The second reading shall be equal to or greater than the

first reading or the Contractor shall make the necessary repairs to the existing circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

108-2.12 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend tape shall be polyethylene film with a metalized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item. Detectable warning tape for communication cables shall be orange. Detectable warning tape color code shall comply with the APWA Uniform Color Code.

CONSTRUCTION METHODS

108-3.1 General. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Cable shall be run without splices, from fixture to fixture.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the RPR or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans, but in no case shall they be further apart than 1,000 feet of cable run. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed and on both sides of slack loops where a future connector would be installed.

Provide not less than 3 feet (1 m) of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot (30 cm) vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the RPR.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch (6 mm) in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 Installation in duct banks or conduits. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the RPR prior to any cable installation. If required by the RPR, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR. Cable pull tensions shall be recorded by the Contractor and reviewed by the RPR. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the RPR, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 Installation of direct-buried cable in trenches. Unless otherwise specified, the Contractor shall not use a cable plow for installing the cable. Cable shall be unreeled uniformly in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable shall not be unreeled and pulled into the trench from one end. Slack cable sufficient to provide strain relief shall be placed in the trench in a series of S curves. Sharp bends or kinks in the cable shall not be permitted.

Where cables must cross over each other, a minimum of 3 inches (75 mm) vertical displacement shall be provided with the topmost cable depth at or below the minimum required depth below finished grade.

a. Trenching. Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Trenches for cables may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of surface is disturbed. Graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable

trenches shall be excavated to a minimum depth of 18 inches (0.5 m) below finished grade per NEC Table 300.5, except as follows:

- When off the airport or crossing under a roadway or driveway, the minimum depth shall be 36 inches (91 cm) unless otherwise specified.
- Minimum cable depth when crossing under a railroad track, shall be 42 inches (1 m) unless otherwise specified.
- Low voltage cables shall be placed a minimum of 12 inches from high voltage cables.

Dewatering necessary for cable installation, is incidental to its respective pay items as part of Item L-108. The cost of all excavation regardless of type of material encountered, shall be included in the unit price bid for the L-108 Item.

The Contractor shall excavate all cable trenches to a width not less than 6 inches (150 mm). Unless otherwise specified on the plans, all cables in the same location and running in the same general direction shall be installed in the same trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the required cable depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. Flowable backfill material may alternatively be used.

Duct bank or conduit markers temporarily removed for trench excavations shall be replaced as required.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

(1) Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

(2) Trenching, etc., in cable areas shall then proceed, with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair or replacement.

b. Backfilling. After the cable has been installed, the trench shall be backfilled. The first layer of backfill in the trench shall encompass all cables ; be 3 inches (75 mm) deep, loose measurement; and shall be either earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. This layer shall not be compacted. The second layer shall be 5 inches (125 mm) deep, loose measurement, and shall contain no particles that would be retained on a one inch (25.0 mm) sieve. The remaining third and subsequent layers of backfill shall not exceed 8 inches (20 cm) of loose measurement and be excavated or imported material and shall not contain stone or aggregate larger than 4 inches (100 mm) maximum diameter.

The second and subsequent layers shall be thoroughly tamped and compacted to at least the density of the adjacent material. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D698 or backfill with controlled low strength material (CLSM) in accordance with P-153.

Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except that when turf is to be

established over the trench, the backfilling shall be stopped at an appropriate depth consistent with the type of turving operation to be accommodated. A proper allowance for settlement shall also be provided. Any excess excavated material shall be removed and disposed of per the plans and specifications.

Underground electrical warning (caution) tape shall be installed in the trench above all direct-buried cable. Contractor shall submit a sample of the proposed warning tape for acceptance by the RPR. If not shown on the plans, the warning tape shall be located 6 inches (150 mm) above the direct-buried cable or the counterpoise wire if present. A 3-6 inch (75 - 150 mm) wide polyethylene film detectable tape, with a metalized foil core, shall be installed above all direct buried cable or counterpoise. The tape shall be of the color and have a continuous legend as indicated on the plans. The tape shall be installed 8 inches (200 mm) minimum below finished grade.

c. Restoration. Following restoration of all trenching near airport movement surfaces, the Contractor shall visually inspect the area for foreign object debris (FOD) and remove any that is found. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include the topsoiling, seeding, and mulching, as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. When trenching is through paved areas, restoration shall be equal to existing conditions. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be to a minimum of 100 percent of ASTM D698 or backfill with controlled low strength material (CLSM) in accordance with P-153. Restoration shall be considered incidental to the pay item of which it is a component part.

Where cables are installed in trenches outside of the general grading limits, or in areas that would not otherwise be disturbed, restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items of work involved.

Where cables are installed within the general grading limits, restoration of the area will not be necessary as payment for establishment of turf will be included in the various pay items of work involved.

After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. Suitable material may be deposited in embankment or shoulders areas. Unsuitable material shall be disposed of off airport property or as ordered by the Engineer.

Prior to placing spoil off airport property, Contractor shall submit a "Spoil Deposition and Release" to the RPR. A sample form is contained in Attachment A to Section 70-08 of these Specifications and shall be acceptable to the RPR prior to removing material from the work area.

No direct payment will be made for spoiling operations. The cost of spoiling material off-site shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

108-3.4 Cable markers for direct-buried cable. Not used.

108-3.5 Splicing. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

a. Cast splices. These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the manufacturer's instructions and to the satisfaction of the RPR.

b. Field-attached plug-in splices. These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint (2) Covered with heat shrinkable tubing with integral sealant

extending at least 1-1/2 inches (38 mm) on each side of the joint or (3) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector. Heat-shrink tubing shall be used where the field attached plug-in splice is connected to the cable insulation jacket.

c. Factory-molded plug-in splices. These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint. (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches (38 mm) on each side of the joint. or (3) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

d. Taped or heat-shrink splices. A taped splice shall be made in the following manner:

Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch (6 mm) of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inches (75 mm) on each end) is clean. After scraping, wipe the entire area with a clean lint-free cloth. Do not use solvents.

Apply high-voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. The manufacturer's recommendation for stretching tape during splicing shall be followed. Always attempt to exactly half-lap to produce a uniform buildup. Continue buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch (25 mm) over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.

Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminants prior to application.

e. Assembly. Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean all surfaces at least 1/4 inch (6.4 mm) beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.6 Bare counterpoise wire installation for lightning protection and grounding. If shown on the plans or included in the job specifications, bare solid #6 AWG copper counterpoise wire shall be installed for lightning protection of the underground cables.

a. Equipotential. Not used.

b. Isolation. Counterpoise size is as shown on the plans. The isolation method is an alternate method for use only with edge lights installed in turf and stabilized soils and raceways installed parallel to and adjacent to the edge of the pavement. NFPA 780 uses 15 feet to define "adjacent to".

The counterpoise conductor shall be installed halfway between the pavement edge and the light base, mounting stake, raceway, or cable being protected.

The counterpoise conductor shall be installed 8 inches (203 mm) minimum below grade. The counterpoise is not connected to the light base or mounting stake. An additional grounding electrode is required at each light base or mounting stake. The grounding electrode is bonded to the light base or mounting stake with a 6 AWG solid copper conductor. Payment will be made for each counterpoise wire installed in a counterpoise trench shown on the plans and shall include excavation, backfill, counterpoise wire, restoration, ground rods, exothermic connections and detectable warning tape.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Isolation Method of lightning protection.

c. Common Installation requirements. When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor. A green insulated No. 6 AWG stranded copper grounding wire shall be installed connecting the internal grounding lug to the metallic light fixture or metallic base plate.

When a nonmetallic light base is used, the grounding electrode shall be bonded to the external grounding lug with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor. A green insulated No. 6 AWG stranded copper grounding wire shall be installed connecting the internal grounding lug to the metallic light fixture or metallic base plate.

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 feet (150 m) apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

At access structures, the safety ground shall be connected to all metal surfaces within the structure and attached to a ground rod. Ground wires and ground rods for equipment safety ground systems shall be considered necessary and incidental to the work of this contract and the costs shall be included in the associated pay items of work involved.

d. Parallel Voltage Systems. Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.

108-3.7 Counterpoise installation above multiple conduits and duct banks. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

When multiple conduits or airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits or wires shall be adequate to provide a complete cone of protection measured 22-1/2 degrees each side of vertical. One counterpoise wire shall be installed for every 3 cables, or increment thereof, installed in a common trench. One counterpoise wire shall be installed for every 2 conduits, or increment thereof, installed in a common trench.

The Contractor may choose to install cables and/or conduits in multiple trenches however, additional counterpoise wire will be required to protect the cables and/or conduits. The cost of installing additional counterpoise wire shall be borne by the Contractor.

108-3.8 Counterpoise installation at existing duct banks. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.9 Exothermic bonding. Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the RPR. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the RPR, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

a. All slag shall be removed from welds.

b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30 for galvanized light base exception.

c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.10 Testing. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

a. Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

c. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

- d.** That all affected circuits (existing and new) are free from unspecified grounds.
- e.** That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than 50 megohms. Verify continuity of all series airfield lighting circuits prior to energization.
- f.** That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.
- g.** That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.
- h.** That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.
- i.** That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved “repair” procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work.

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall not include additional quantities required for slack. Cable and counterpoise slack is considered incidental to this item and is included in the Contractor’s unit price.

108-4.3 No separate payment will be made for ground rods.

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench (direct-buried), or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

Item L-108-5.1	No. 8 AWG, 5 kV, L-824, Type C Cable, Installed in Duct Bank or Conduit - per linear foot
Item L-108-5.2	No. 6 AWG, Solid, Bare Copper Counterpoise Wire Installed in Separate Trench - per linear foot
Item L-108-5.3	No. 6 AWG, Solid, Bare Copper Counterpoise Wire Installed Above the Duct Bank or Conduit - per linear 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.

Advisory Circulars (AC)

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
ASTM B8	Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
ASTM B33	Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes
ASTM D4388	Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

Mil Spec

MIL-PRF-23586F	Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical
MIL-I-24391	Insulation Tape, Electrical, Plastic, Pressure Sensitive

National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
NFPA-780	Standard for the Installation of Lightning Protection Systems

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81 IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Federal Aviation Administration Standard

FAA STD-019E Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment

END OF ITEM L-108

Item L-110 Airport Underground Electrical Duct Banks and Conduits

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits and removal of existing duct banks. It shall also include all trenching, backfilling, removal, and restoration of any paved or turfed areas which are not otherwise disturbed; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

Restoration within grading limits will not be necessary as the establishment of paved or turf surfaces are included in the various pay items of the proposed work of this contact.

EQUIPMENT AND MATERIALS

110-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, that comply with these specifications, at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

110-2.2 Steel conduit. Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and 1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with a 10-mil thick coat of asphaltum sealer or shall have a factory-bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. PVC coated rigid galvanized steel conduit shall have a 0.04-inch thick factory applied PVC coating meeting NEMA Standard No. RN1. Fittings shall have the same coating. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions. In lieu of PVC coated RGS, corrosion wrap tape shall be permitted to be used where RGS is in contact with direct earth."

110-2.3 Plastic conduit and fittings. Plastic conduit and fittings shall be in compliance with Article 352 of the current National Electrical Code and as follows:

- a. PVC conduit shall conform to UL 651. In addition, the conduit shall be one of the following types, as shown on the plans:
 - 1. Type I–Schedule 40 or Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.
 - 2. Type II–Schedule 40 PVC suitable for either above ground or underground use.
 - 3. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.
- c. PVC fittings shall conform to UL 514B.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

110-2.4 Split conduit. Not used.

110-2.5 Conduit spacers. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 Concrete. Concrete foundations shall be proportioned, placed, and cured per state department of transportation structural concrete with minimum 25% Type F fly ash, and a minimum allowable compressive strength of 4,000 psi (28 MPa).

110-2.7 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

110-2.8 Flowable backfill. Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

110-2.9 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item. The legend shall read "CAUTION: BURIED ELECTRIC LINE BELOW", or similar language which includes the words "CAUTION" and "ELECTRIC".

110-2.10 Bedding. Bedding shall meet the requirements of ASTM C 33, fine aggregate for concrete. Gradation shall be in accordance with the table below:

Percentage By Weight	
<u>Sieve Designations</u>	<u>Passing Sieves</u>
3/8 Inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	5-30
No. 100	0-10

110-2.11 Flexible conduit. Flexible conduit shall be liquid-tight non-metallic conforming to the requirements of NEC 356 and UL 1660. Fittings shall conform to UL 514B. Where connected to rigid steel or PVC conduit, the flexible conduit shall have the same inside diameter.

110-2.12 Reinforcing steel. Reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A 615, Grade 60. Reinforcing steel shall be hot dipped galvanized in accordance with ASTM A-123, or epoxy coated.

110-2.13 Concrete bonding agent. Concrete bonding agent shall conform to the requirements of ASTM C 881. Concrete bonding agent shall be Type V, Grade 2 and un-pigmented. Concrete bonding agent shall be Class A, B, or C, depending on the temperature of the concrete surface to which the agent will be applied.

110-2.14 Backfill. Backfill shall be suitable on-site material obtained from the trench excavation, unless otherwise shown on the Contract Drawings.

110-2.15 Counterpoise wire. Counterpoise wire shall meet the requirements of Item L-108, Underground Cable for Airports.

110-2.16 Ground rods. Ground Rods shall meet the requirements of Item L-108, Underground Cable for Airports.

110-2.17 Concrete grouting material. This material shall have a maximum initial setting time of one hour. Compressive strength shall be a minimum of 2,000 psi after one day and 5,000 psi after 28 days. The material shall be able to withstand 25 cycles of freeze-thaw (10% NaCl) with a maximum loss of 4%. The material may exhibit expansion at no more than 0.40% and shrinkage of no more than 0.05% such that no cracks are produced. The bond strength shall be a minimum of 200 psi after 5 days air cure without the use of a special bonding agent. The material shall exhibit no appreciable heat of hydration.

CONSTRUCTION METHODS

110-3.1 General. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The RPR shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches (50 mm) inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches (75 mm) per 100 feet (30 m). On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where

moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches (0.5 m) below the subgrade; in other locations, the top of the duct bank or underground conduit shall be not less than 18 inches (0.5 m) below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch (6 mm) smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 1,000 pound test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet (1.5 m).

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

Existing material, regardless of its nature, shall be removed to a depth of at least 3 inches (75 mm) below the required conduit or duct bank depth and it shall be replaced with bedding. Flowable backfill may alternatively be used. The cost of excavation, regardless of the type of material encountered, shall be included in the various pay items involved.

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the RPR. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet (60 cm).

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the RPR, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Additional duct bank supports shall be installed, as approved by the RPR.

All excavation shall be unclassified and shall be considered incidental to Item L-110. Dewatering necessary for duct installation, and erosion protection shall be per federal, state, and local requirements and shall be incidental to Item L-110.

Excavation for conduits and duct banks that are placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the conduit and duct bank as shown on the plans.

The Contractor shall do such trench bracing, sheeting or shoring necessary to protect the excavation as required for safety and conformance to governing laws. Contractor shall brace, sheet or shore the trenches in areas such that existing pavements and utilities are not undermined. The bracing, sheeting or shoring shall not be removed in one operation, but shall be done in successive stages as determined by the Engineer to prevent overloading of the conduit or duct bank during backfilling operations. The cost of the bracing, sheeting or shoring and the removal of same shall be considered as a subsidiary obligation of the Contractor and included in the contract price for the pay items of work involved.

Unless otherwise specified, excavated materials that are deemed by the RPR to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the RPR and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

a. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred

b. Trenching, etc., in cable areas shall then proceed with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any cable is damaged during the course of construction, the Contractor shall be responsible for the immediate and complete repair.

110-3.2 Duct banks. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches (0.5 m) below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches (0.5 m) below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 10 feet beyond the edges of pavement. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Duct banks shall be constructed in accordance with the details shown on the Plans. Conduits within the duct bank shall be spaced not less than 3 inches (75 mm) apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches (75 mm) thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot (1.5-m) intervals. To relieve stresses on joints between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and tied to the duct bank reinforcement at the time the duct bank is installed.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 to 6 inches (75 to 150 mm) wide tape, 8 inches (200 mm) minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch (75-mm) wide tape only for single conduit runs. Utilize the 6-inch (150-mm) wide tape for multiple conduits and duct banks. Install one warning tape above each counterpoise wire installed.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the RPR shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the RPR.

Where duct banks are being extended, or where the duct bank is structurally tied to existing concrete, Contractor shall apply a concrete bonding agent to the surface of existing concrete prior to pouring fresh concrete.

Counterpoise wire and ground rods shall be installed in accordance with Item L-108, Underground Cable for Airports.

110-3.3 Conduits without concrete encasement. Trenches for single-conduit lines shall be not less than 6 inches (150 mm) nor more than 12 inches (300 mm) wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 3 inches (75 mm) thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a

1/4-inch (6.3 mm) sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches (0.5 m) below the finished grade. Conduits outside the Airport's secured area shall be installed so that the tops of the conduits are at least 24 inches (60 cm) below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches (150 mm) apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches (150 mm) apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

Counterpoise wire and ground rods shall be installed in accordance with Item L-108, Underground Cable for Airports.

Install a plastic, detectable, color as noted, 3 to 6 inches (75 to 150 mm) wide tape, above all underground conduit or duct lines not installed under pavement, at the depth shown on the plans. One warning tape shall be installed above each counterpoise wire installed.

110-3.4 Markers. Not used.

110-3.5 Backfilling for conduits. For conduits, sand, soft earth, or other fine fill (loose measurement), as shown on the Plans, shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 except that material used for back fill shall be select material not larger than 4 inches (100 mm) in diameter.

Flowable backfill may alternatively be used, provided flowable fill is used as bedding below the conduit. Flowable fill shall not be used above the bottom of subgrade beneath paved areas.

Trenches shall not contain pools of water during back filling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.6 Backfilling for duct banks. After the concrete has cured, the remaining trench shall be backfilled and compacted in accordance with the details shown on the Plans. Where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet (76 m) of duct bank or one work period's construction, whichever is less.

Flowable backfill may alternatively be used. Flowable fill shall not be used above the bottom of subgrade beneath paved areas.

Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement. Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.7 Restoration. Suitable material excavated for conduit or duct bank installation may be deposited in embankment or shoulders areas. Excess suitable material and unsuitable material shall be disposed of off airport property or as ordered by the Engineer. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The restoration shall include topsoiling, seeding and mulching shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. Where conduits or duct banks are installed or removed outside of the general grading limits, or in areas that would not otherwise be disturbed, restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items of work involved. Where conduits or duct banks are installed or removed within the general grading limits, restoration of the area will not be necessary as payment for establishment of turf or pavement will be included in the various pay items of work involved. Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

110-3.8 Ownership of removed cable. All cable removed shall become the property of the Contractor and shall be disposed of in a manner which is in accordance with all Federal, State and Local regulations. In no case, shall any removed cables be left within the airport limits. Contractor shall make every effort to recycle the used cable at an approved recycling center. When the Contractor chooses to dispose of cable off the airport property, the Contractor shall obtain and file with the RPR permission in writing from the property owner for the use of private property for this purpose.

No direct payment will be made for spoiling operations. The cost of spoiling material off-site shall be considered incidental to this Contract and the costs shall be included in the various pay items involved.

110-3.9 Conduit and duct bank removal. Where existing conduits and duct banks are to be removed in the same trench as proposed conduits and duct banks, the Contractor shall consider such removal as an incidental part of construction and include the costs thereof in the various pay items involved. Where existing conduits and duct banks are to be removed outside of proposed trenching limits, they shall be paid for separately. The cost of such removal shall include excavation, conduit and duct bank removal, disposal, and backfill. Restoration shall be as specified below in the section titled "Restoration". Backfill shall be with suitable on-site material unless otherwise shown or specified. Backfill under paved areas shall be as shown on the plans. Conduit and duct banks shall be removed as shown on the plans and as directed by the Engineer. When conduit and duct banks are removed and disconnected from existing structures, the openings in the structure shall be closed watertight with brick and mortar. When conduits and duct banks are to be replaced, any structure modifications required to accept the proposed conduit and duct bank shall be done with all connections grouted watertight.

Where conduits or duct banks are installed or removed outside of the general grading limits, or in areas that would not otherwise be disturbed, restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items of work involved.

Where conduits or duct banks are installed or removed within the general grading limits, restoration of the area will not be necessary as payment for establishment of turf or pavement will be included in the various pay items of work involved.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and restoration, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for removal and disposal of existing duct banks and conduits as shown on the plans, furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

Item L-110-5.1	2-Inch Dia. Schedule 40 PVC Conduit in Turf - per linear foot
Item L-110-5.2	4-Inch Dia. Schedule 40 PVC Conduit in Turf - per linear foot
Item L-110-5.3	2-Inch Dia. Schedule 40 PVC Electrical Drain Pipe, including connections – per linear foot
Item L-110-5.4	Concrete Encased Duct Bank, 4-Way – 4 Inch, Schedule 40 PVC Conduits – per linear 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.

Advisory Circular (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
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National Fire Protection Association (NFPA)

NFPA-70	National Electrical Code (NEC)
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Underwriters Laboratories (UL)

UL Standard 6	Electrical Rigid Metal Conduit - Steel
UL Standard 651	Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings

END OF ITEM L-110

Item L-115 Electrical Manholes and Junction Structures

DESCRIPTION

115-1.1 This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the RPR. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the RPR including removal of existing manholes and junction structures as shown on the plans.

This item shall also include the modification or removal of existing electrical manholes and junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

115-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from the date of final

acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 Cast-in-place concrete structures. Not used.

115-2.3 Precast concrete structures. Provide precast concrete structures where shown on the plans. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program and shall be manufactured in accordance with and conforming to ASTM C913 and ASTM C478.

Precast concrete structures shall be an approved standard design of the manufacturer. The structure shall be designed to withstand aircraft loads based on a maximum takeoff weight of 72,000 lbs. with dual wheel gear at 174 psi (34,200 each rear gear set), unless otherwise shown on the plans. Design calculations shall be performed by a professional engineer licensed in New York State. Licensed professional engineer signed and sealed shop drawings, design calculations, and other information requested by the RPR shall be submitted by the Contractor to allow for a full evaluation by the RPR.

Precast structures shall have bitumastic sealer placed between all joints to make them watertight. Openings or knockouts shall be provided in the structure as detailed on the plans. Precast structures with multiple sections shall have bitumastic sealer placed between all joints to make them watertight. Provide precast concrete structures where shown on the plans. Threaded inserts and pulling eyes shall be cast in as shown on the plans.

115-2.4 Junction boxes. Junction boxes shall be L-867 Class 1A, hot dipped galvanized steel (non-load bearing) or L-868 Class 1A, hot dipped galvanized steel (load bearing) airport light bases that are encased in concrete. The light bases shall have a L-894 blank cover, gasket, and stainless steel hardware. All bolts, studs, nuts, lock washers, and other similar fasteners used for the light fixture assemblies must be fabricated from 316L (equivalent to EN 1.4404), 18-8, 410, or 416 stainless steel. If 18-8, 410, or 416 stainless steel is utilized it shall be passivated and be free from any discoloration. Covers shall be 3/8-inch (9-mm) thickness for L-867 and 3/4-inch (19-mm) thickness for L-868. All junction boxes shall be provided with both internal and external ground lugs.

115-2.5 Mortar. The mortar shall be composed of one part of cement and two parts of mortar sand, by volume. The cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C206. Water shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.6 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

115-2.7 Frames and covers. The frames shall conform to one of the following requirements:

- a. ASTM A48 Gray iron castings
- b. ASTM A47 Malleable iron castings
- c. ASTM A27 Steel castings
- d. ASTM A283, Grade D Structural steel for grates and frames
- e. ASTM A536 Ductile iron castings
- f. ASTM A897 Austempered ductile iron castings

Castings shall withstand a maximum tire pressure of 250 psi and maximum wheel load of 100,000 lbs. as shown on the plans.

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings specified.

Each frame and cover unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

Each cover shall have the word "ELECTRIC" or other approved designation cast on it. Each frame and cover shall be as shown on the plans or approved equivalent. No cable notches are required.

Each manhole shall be provided with a "DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" safety warning sign as detailed in the Contract Documents and in accordance with OSHA 1910.146 (c)(2).

115-2.8 Ladders. Not used.

115-2.9 Reinforcing steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

115-2.10 Bedding/special backfill. Bedding or special backfill shall conform to the requirements of Item D-711 - Lining, unless otherwise shown the plans.

115-2.11 Flowable backfill. Flowable material used to backfill shall conform to the requirements of Item P-153, Controlled Low Strength Material.

115-2.12 Cable trays. Cable trays shall be of nonmetallic type, as shown on the plans. Cable trays shall be located as shown on the plans.

115-2.13 Plastic conduit. Plastic conduit shall comply with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

115-2.14 Conduit terminators. Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.

115-2.15 Pulling-in irons. Pulling-in irons shall be manufactured with 7/8-inch (22 mm) diameter hot-dipped galvanized steel or stress-relieved carbon steel roping designed for concrete applications (7 strand, 1/2-inch (12 mm) diameter with an ultimate strength of 270,000 psi (1862 MPa)). Where stress-relieved carbon steel roping is used, a rustproof sleeve shall be installed at the hooking point and all exposed surfaces shall be encapsulated with a polyester coating to prevent corrosion.

115-2.16 Ground rods. Ground rods shall be copper-clad steel. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 8 feet (2.4 m) long and 5/8 inch (16 mm) in diameter.

115-2.17 Separation Geotextile. Separation geotextile shall be Class 2; 0.02 sec^{-1} permittivity per ASTM D4491; Apparent opening size per ASTM D4751 with 0.60 mm maximum average roll value. The cost of separation fabric used for the placement of structures shall be included in the cost of the concrete structures.

CONSTRUCTION METHODS

115-3.1 Unclassified excavation. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the RPR without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to Item L-115. Dewatering necessary for structure installation and erosion per federal, state, and local requirements is incidental to Item L-115.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the RPR. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The bracing, sheeting or shoring shall not be removed in one operation, but shall be done in successive stages of backfill to prevent overloading of the pipe during backfilling operations. The cost of bracing, sheeting and shoring, and its removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the RPR. Structures shall be placed after the RPR has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 12 inches of lining as a suitable base to receive the structure. The lining shall be compacted to 95% maximum density in accordance with ASTM D 1557, graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

Soil below the lining shall be compacted to 95% maximum density for non-cohesive soils and 90% maximum density for cohesive soils in accordance with ASTM D 1557.

115-3.2 Concrete structures. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

115-3.3 Precast unit installations. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

115-3.4 Placement and treatment of castings, frames and fittings. All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the RPR and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written approval is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the RPR and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

115-3.5 Installation of ladders. Not used.

115-3.6 Removal of sheeting and bracing. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches (150 mm) of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The RPR may direct the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 Backfilling. After a structure has been completed, the area around it shall be backfilled with suitable on-site material in horizontal layers not to exceed 6 inches (150 mm) in thickness measured after compaction. For backfill with suitable on-site material, the material shall be compacted to the density requirements of embankment as specified in Item P-152. For backfill with select material, compaction shall be in accordance with the referenced specification. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

Backfill shall not be placed against any structure until approval is given by the RPR.

Where required, the RPR may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 Connection of duct banks. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed. The size and spacing of the reinforcing bars shall match those in the concrete encased duct bank, but in no case shall they be less than No. 4 bars spaced at 6 inches maximum on center.

115-3.9 Grounding. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches (150 mm) above the floor. The ground rod shall be installed within one foot (30 cm) of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch (100 mm) diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot (30 cm) above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtailed shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure.

Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

115-3.10 Cleanup and repair. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared and compound applied per the manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. Surplus dirt may be incorporated into embankments on the project site provided it is suitable material. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. Where no other work or soil disturbance is required, restoration shall be considered incidental to the respective Item L-115 pay item.

Electrical manholes and junction structures in areas of existing special surface treatment, such as aprons, taxiways, runways, shoulders, roads, sidewalks, or similar stabilized surfaces shall be restored using materials comparable to original materials, and at depths matching existing layers. Payment for restoration shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include all costs associated with restoration in the various pay items involved.

Electrical manholes and junction structures in proposed turf areas shall be restored in accordance with the topsoil, seeding and mulching specifications of this contract. Topsoil, seeding and mulching will be paid for at the contract unit price for the pay items involved. All other work associated with restoration shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include the costs associated with restoration in the various pay items involved.

Electrical manholes and junction structures in areas of proposed pavement such as aprons, taxiways, runways, shoulders, roads, sidewalks, or other similar stabilized surfaces shall be restored using the materials specified or as shown on the plans. Payment for restoration up to the bottom of the proposed pavement section shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include all costs associated with restoration in the various pay items involved.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Following restoration of all excavations near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 Inspection. Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected by the Contractor without additional compensation. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes.

115-3.13 Manhole elevation adjustments. The Contractor shall adjust the tops of existing manholes and junction structures in areas designated in the Contract Documents to the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise or lower the top of each manhole and junction structures to the new elevations. The existing top elevation of each

manhole and junction structures to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation.

The Contractor shall remove/extend the existing top section or ring and cover on the manhole structure or manhole access. The Contractor shall install precast concrete sections or grade rings of the required dimensions to adjust the manhole top to the new proposed elevation or shall cut the existing manhole walls to shorten the existing structure, as required by final grades. The Contractor shall reinstall the manhole top section or ring and cover on top and check the new top elevation. Adjustments shall be as shown on the plans. Precast concrete sections or grade rings shall be in accordance with paragraph 115-2.3.

Where shown on the plans, the Contractor shall construct a concrete slab around the top of adjusted structures located in graded areas that are not to be paved. The concrete slab shall conform to the dimensions shown on the plans.

115-3.14 Duct extension to existing ducts. Junction structures shall be placed at the locations shown on the plans. Where existing concrete encased ducts are to be extended to the structure, the duct extension shall be concrete encased plastic conduit. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. The duct extensions shall be installed according to the concrete encased duct detail and as shown on the plans.

The duct or conduit extension shall be made in accordance with Item L-110, Airport Underground Electrical Duct. Where indicated on the plans, duct or conduit extensions shall be considered a subsidiary and incidental part of the completion of this item and as such, the Contractor shall include all costs in the various pay items involved.

115-3.15 Removal of existing structures. Existing structures shall be removed at the locations shown on the plans and as directed by the Engineer. Where existing structures are to be removed in the same location as proposed structures, the Contractor shall consider such removal including excavation, removal, backfilling and disposal of existing structures as an incidental part of construction and include the costs thereof in the various pay items involved. Where existing structures are to be removed outside the limits of proposed structures, they shall be paid for separately. The cost of such removal shall include excavation, removal, backfilling and disposal of existing structures. Restoration shall be as specified above in the section titled "Restoration". Backfill shall be with suitable on-site material unless otherwise shown or specified. Backfill under paved areas shall be as shown on the plans.

METHOD OF MEASUREMENT

115-4.1 Electrical junction structures, pull boxes and removal of existing structures shall be measured by each unit completed in place and accepted, or removed. The following items shall be included in the price of each unit: All required excavation and dewatering; sheeting and bracing; all required backfilling with on-site materials; restoration of all surfaces and finished grading and turfing; all required connections; temporary cables and connections; and ground rod testing

BASIS OF PAYMENT

115-5.1 The accepted quantity of electrical pull boxes, junction structures and removal of existing structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

Item L-115-5.1	Removal of Existing Electrical Junction Can – per each
Item L-115-5.2	Electrical Pullbox – per each

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 National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
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Advisory Circular (AC)

AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)
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ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C206	Standard Specification for Finishing Hydrated Lime

Mil Spec

MIL-P-21035 Paint High Zinc Dust Content, Galvanizing Repair
National Fire Protection Association (NFPA)
NFPA-70 National Electrical Code (NEC)

END OF ITEM L-115

Item L-125 Installation of Airport Lighting Systems

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

125-1.2 Qualifications. Airfield lighting circuits differ greatly from standard commercial and industrial lighting by using constant current series circuits. The prime contractor shall submit the electrical subcontractors qualifications for review and approval during the pre-construction activities. The RPR, Owner and Airport Operations will review and make a determination on the electrical contractor's qualifications.

The following minimum qualifications are required:

1. The contractor shall have a NYS licensed master electrician on staff.
2. The contractor shall have a minimum of 5 years of aviation electrical experience, with work aspects matching the electrical scope of work under this project. Provide the project name and location, brief scope of work, contact reference and construction value (electrical items only) of at least 5 similar projects completed in the 5-year timeframe.
3. Contractor shall demonstrate L-823 connector installation procedures by the actual person(s) designated to perform the work during construction to the RPR prior to the installation of any kits. Demonstration shall include all necessary tools and supplies as required.
4. Catalog data and calibration test reports for all electrical testing equipment including grounding and electrical circuit test equipment.
5. Lock out/ tag out procedures.

EQUIPMENT AND MATERIALS

125-2.1 General.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not perform as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in a neatly bound, properly sized 3-ring binder, tabbed by specification section. The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. All LED light fixtures, with the exception of obstruction lighting (AC 150/5345-43) must be warranted by the manufacturer for a minimum of 4 years after date of installation inclusive of all electronics.

125-2.2 Conduit/Duct. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 Cable and Counterpoise. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-2.4 Tape. Plastic tape shall meet the requirements of ASTM D1000, such as Scotch Electrical Tapes number Scotch 88 (1-1/2" wide), as manufactured by the Minnesota Mining and Manufacturing Company, or approved equivalent. Rubber or synthetic rubber tape shall meet the requirements of ASTM D4388, such as Scotch 130C linerless rubber splicing tape (2" wide), as manufactured by the Minnesota Mining and Manufacturing Company, or approved equivalent.

125-2.5 Cable Connections. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 Retroreflective Markers. Not required.

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46 and as shown and specified on the Contract Drawings. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced. The airfield lighting systems are designed using the fixtures indicated on the plans. Other approved airfield lighting fixtures are permissible provided the Contractor assumes all costs for the redesign of the airfield lighting and necessary power distribution systems and all costs incurred furnishing and installing any additional equipment. In no case shall the Contractor be allowed to reduce the size of the constant current regulators or the power distribution systems.

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44 and as shown and specified on the Contract Drawings.

125-2.9 Runway End Identifier Light (REIL). Not required.

125-2.10 Precision Approach Path Indicator (PAPI). Not required.

125-2.11 Circuit Selector Cabinet and Switches. Not required.

125-2.12 Light Base and Transformer Housings. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867 for non-load bearing locations or L-868 for load bearing locations, Class 1A, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.13 Isolation Transformers. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

125-2.14 Power adapter. Not required.

125-2.15 Concrete. Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

125-2.16 Reinforcing steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A 615, Grade 60.

125-2.17 Anchor bolts and concrete anchor studs. Anchor bolts and concrete anchor studs shall be sized in accordance with the equipment manufacturer's requirements. Anchor bolts and studs less than 3/4 inch in diameter shall be stainless steel.

125-2.18 Water tight termination. Water tight terminations for conduits, ducts, nipples, equipment and bases shall be mechanical compression type and shall be sized for the application and number of conductors.

125-2.19 Bedding. Bedding shall meet the requirements of ASTM C 33, fine aggregate for concrete. gradation shall be in accordance with the table below:

Percentage By Weight	
<u>Sieve Designations</u>	<u>Passing Sieves</u>
3/8 Inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	5-30
No. 100	0-10

125-2.20 Identification tags. Identification tags shall be a 2 inch diameter disk of non-corrosive copper based metal with numbers permanently stamped or engraved on the surface.

125-2.21 Fixture Hold Down Bolts. Fixture hold down bolts and installations shall adhere to the following requirements: All bolts shall be all-thread, 18-8, Type 304 stainless steel and shall be a sufficient length to extend at least 1/2-inch past the bottom flange of the light base. Bolt information shall be submitted for approval of the Engineer. Submittal shall specifically identify, as a minimum, the bolt material, dimensions, and threading. Bolt material shall be readily identifiable in the field by appropriate ASTM markings on the bolts or by having material identified on bolt packaging, as approved through the Engineer. Stainless steel bolts shall receive anti seize compound.

INSTALLATION

125-3.1 Installation. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

Equipment installation shall be as shown on the plans.

125-3.1.1 Excerpts from AC 150/5340-30J, Appendix E

E.1 Electrical Notes.

E.1.1 General.

1. The electrical installation, at a minimum, must meet the NEC and local regulations.
2. The contractor must ascertain that all lighting system components furnished (including FAA approved equipment) are compatible in all respects with each other and the remainder of the new/existing system. Any non-compatible components furnished by the contractor must be replaced at no additional cost to the airport sponsor with a similar unit that is approved by the RPR and compatible with the remainder of the airport lighting system.
3. In case the contractor elects to furnish and install airport lighting equipment requiring additional wiring, transformers, adapters, mountings, etc., to those shown on the drawings and/or listed in the specifications, any cost for these items must be incidental to the equipment cost.
4. The contractor-installed equipment (including FAA approved) must not generate any EMI in the existing and/or new communications, weather, air navigation, and ATC equipment. Any equipment generating such interference must be replaced by the contractor at no additional cost with equipment meeting the applicable specifications.
5. When a specific type, style, class, etc., of FAA approved equipment is specified only that type, style, class, etc., will be acceptable, though equipment of other types, style, class, etc., may be FAA approved.
6. Any and all instructions from the RPR to the contractor regarding changes in, or deviations from, the plans and specifications must be in writing with copies sent to the airport sponsor and the FAA field office (Airports District Office (ADO)/Airports Field Office (AFO)). The contractor must not accept any verbal instructions from the RPR regarding any changes from the plans and specifications.
7. A minimum of three copies of instruction books must be supplied with each type of equipment. For more sophisticated types of equipment, such as regulators, PAPI, REIL, etc., the instruction book must contain the following:
 - a. A detailed description of the overall equipment and its individual components.
 - b. Theory of operation including the function of each component.
 - c. Installation instructions.
 - d. Start-up instructions.
 - e. Preventative maintenance requirements.
 - f. Chart for troubleshooting.
 - g. Complete power and control detailed wiring diagram(s), showing each conductor/connection/component; "black" boxes are not acceptable. The diagram or the narrative must show voltages/currents/wave shapes at strategic locations to be used when checking and/or

troubleshooting the equipment. When the equipment has several brightness steps, these parameters must be indicated for all the different modes.

- h. Parts list will include all major and minor components, such as resistors, diodes, etc. It must include a complete nomenclature of each component and, if applicable, the name of its manufacturer and the catalog number.
- i. Safety instructions.

E.1.2 Power and Control.

1. Stencil all electrical equipment to identify function, circuit voltage and phase. Where the equipment contains fuses, also stencil the fuse or fuse link ampere rating. Where the equipment does not have sufficient stenciling area, the stenciling must be done on the wall next to the unit. The letters must be one inch (25 mm) high and painted in white or black paint to provide the highest contrast with the background. Engraved plastic nameplates may also be used with one inch (25 mm) white (black background) or black (white background) characters. All markings must be of sufficient durability to withstand the environment.
2. Color code all phase wiring by the use of colored wire insulation and/or colored tape. Where tape is used, the wire insulation must be black. Black and red must be used for single-phase, three wire systems and black, red and blue must be used for three-phase systems. Neutral conductors, size No. 6 AWG or smaller, must be identified by a continuous white or natural outer finish. Conductors larger than No. 6 AWG must be identified either by a continuous white or natural gray outer finish along its entire length or by the use of white tape at its terminations and inside accessible wireways.
3. All branch circuit conductors connected to a particular phase must be identified with the same color. The color coding must extend to the point of utilization.
4. In control wiring, the same color must be used throughout the system for the same function, such as 10%, 30%, 100% brightness control, etc.
5. All power and control circuit conductors must be copper; aluminum must not be accepted. This includes wire, cable, busses, terminals, switch/panel components, etc.
6. Low voltage (600 V) and high voltage (5000 V) conductors must be installed in separate wireways.
7. Neatly lace wiring in distribution panels, wireways, switches and pull/junction boxes.
8. The minimum size of pull/junction boxes, regardless of the quantity and the size of the conductors shown, must be as follows:
 - a. In straight pulls, the length of the box must not be less than eight times the trade diameter of the larger conduit. The total area (including the conduit cross-sectional area) of a box end must be at least three times greater than the total trade cross-sectional area of the conduits terminating at the end.
 - b. In angle or u-pulls, the distance between each conduit entry inside the box and the opposite wall of the box must not be less than six times the trade diameter of the largest conduit. This distance must be increased for additional entries by the amount of the sum of the diameters of all other conduit entries on the same wall of the box. The distance between conduit entries enclosing the same conductor must not be less than six times the trade diameter of the largest conduit.
9. A run of conduit between terminations at equipment enclosures, square ducts and pull/junction boxes, must not contain more than the equivalent of four quarter bends (360 degrees total),

including bends located immediately at the terminations. Cast, conduit type outlets must not be treated as pull/junction boxes.

10. Equipment cabinets must not be used as pull/junction boxes. Only wiring terminating at the equipment must be brought into these enclosures.
11. Splices and junction points must be permitted only in junction boxes, ducts equipped with removable covers, and at easily accessible locations.
12. Circuit breakers in power distribution panel(s) must be thermal-magnetic, molded case, permanent trip with 100-ampere, minimum, frame.
13. Dual lugs must be used where two wires, size No. 6 or larger, are to be connected to the same terminal.
14. All wall mounted equipment enclosures must be mounted on wooden mounting boards.
15. Not used.
16. Rigid steel conduit must be used throughout the installation unless otherwise specified. The minimum trade size must be 3/4 inch (19 mm).
17. All rigid conduit must be terminated at CCRs with a section (10 inch (254 mm) minimum) of flexible conduit.
18. Unless otherwise shown all exposed conduits must be run parallel to, or at right angles with, the lines of the structure.
19. All steel conduits, fittings, nuts, bolts, etc., must be galvanized.
20. Use conduit bushings at each conduit termination. Where No. 4 AWG or larger ungrounded wire is installed, use insulated bushings.
21. Use double lock nuts at each conduit termination. Use weather tight hubs in damp and wet locations. Sealing locknuts must not be used.
22. Wrap all primary and secondary power transformer connections with sufficient layers of insulating tape and cover with insulating varnish for full value of cable insulation voltage.
23. Unless otherwise noted, all indoor single conductor control wiring must be No. 12 AWG.
24. Both ends of each control conductor must be terminated at a terminal block. The terminal block must be of proper rating and size for the function intended and must be located in equipment enclosures or special terminal cabinets.
25. All control conductor terminators must be of the open-eye connector/screw type. Soldered, closed-eyed terminators, or terminators without connectors are not acceptable.
26. In terminal block cabinets, the minimum spacing between parallel terminal blocks must be 6 inches (152 mm). The minimum spacing between terminal block sides/ends and cabinet sides/bottom/top must be 5 inches (127 mm). The minimum spacing will be increased as required by the number of conductors. Additional spacing must be provided at conductor entrances.
27. Both ends of all control conductors must be identified as to the circuit, terminal, block, and terminal number. Only stick-on labels must be used.
28. A separate and continuous neutral conductor must be installed and connected for each breaker circuit in the power panel(s) from the neutral bar to each power/control circuit.
29. The following must apply to relay/contactors panel/enclosures:
 - a. All components must be mounted in dust proof enclosures with vertically hinged covers.

- b. The enclosures must have ample space for the circuit components, terminal blocks, and incoming internal wiring.
- c. All incoming/outgoing wiring must be terminated at terminal blocks.
- d. Each terminal on terminal blocks and on circuit components must be clearly identified.
- e. All control conductor terminations must be of the open-eye connector/screw type. Soldered, closed-eye connectors, or terminations without connectors are not acceptable.
- f. When the enclosure cover is opened, all circuit components, wiring, and terminals must be exposed and accessible without any removal of any panels, covers, etc., except those covering high voltage components.
- g. Access to, or removal of, a circuit component or terminal block will not require the removal of any other circuit component or terminal block.
- h. Each circuit component must be clearly identified indicating its corresponding number shown on the drawing and its function.
- i. A complete wiring diagram (not a block or schematic diagram) must be mounted on the inside of the cover. The diagram must represent each conductor by a separate line.
- j. The diagram must identify each circuit component and the number and color of each internal conductor and terminal.
- k. All wiring must be neatly trained and laced.
- l. Minimum wire size must be No. 12 AWG.

E.1.3 Field Lighting.

1. Unless otherwise stated, all underground field power multiple and series circuit conductors (whether direct earth burial (DEB) or in duct/conduit) must be FAA approved Type L-824. Insulation voltage and size must be as specified.
2. No components of the primary circuit such as cable, connectors and transformers must be brought above ground at edge lights, signs, REIL, etc.
3. There must be no exposed power/control cables between the point where they leave the underground (DEB or L-867 bases) and where they enter the equipment (such as taxiway signs, PAPI, REIL, etc.). Enclosures. These cables must be enclosed in rigid conduit or in flexible water-tight conduit with frangible coupling(s) at the grade or the housing cover, as shown in applicable details.
4. The joints of the L-823 primary connectors must be wrapped with one layer of rubber or synthetic rubber tape and one layer of plastic tape, one half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint, as shown in Figure E-9.
5. The cable entrance into the field attached L-823 connectors must be enclosed by heat-shrinkable tubing with continuous internal adhesive as shown in Figure E-9.
6. The ID of the primary L-823 field attached connectors must match the cable OD to provide a watertight cable entrance. The entrance must be encapsulated in heat shrinkable tubing with continuous factory applied internal adhesive, as shown in Figure E-9.
7. L-823 type 11, two-conductor secondary connector must be class "A" (factory molded).
8. There must be no splices in the secondary cable(s) within the stems of a runway/taxiway edge/threshold lighting fixtures and the wireways leading to taxiway signs and PAPI/REIL equipment.

9. Electrical insulating grease must be applied within the L-823, secondary, two conductor connectors to prevent water entrance. The connectors must not be taped.
10. Not used.
11. Not used.
12. A slack of 3 ft. (0.9 m), minimum, must be provided in the primary cable at each transformer/connector termination. At stake-mounted lights, the slack must be loosely coiled immediately below the isolation transformer.
13. Direction of primary cables must be identified by color coding as follows when facing light with back facing pavement: cable to the left is coded red and cable to the right is coded blue, this applies to the stake-mounted lights and base-mounted lights where the base has only one entrance.
14. L-867 bases must be size B, 24" (610 mm) deep Class 1 unless otherwise noted.
15. Base-mounted frangible couplings must not have weep holes to the outside. Plugged holes are not acceptable. The coupling must have a 1/4" (6 mm) diameter minimum or equivalent opening for drainage from the space around the secondary connector into the L-867 base.
16. The elevation of the frangible coupling groove must not exceed 1-1/2" (38 mm) above the edge of the cover for base-mounted couplings or the top of the stake for stake-mounted couplings.
17. Where the frangible coupling is not an integral part of the light fixture stem or mounting leg, a bead of silicone rubber seal must be applied completely around the light stem or wireway at the frangible coupling to provide a watertight seal.
18. Not used.
19. Plastic lighting fixture components, such as lamp heads, stems, frangible couplings, base covers, brackets, stakes, are not acceptable. L-867 plastic transformer housings are acceptable. A metal threaded fitting must be set in flange during casting process. Base cover bolts must be fabricated from 18-8 stainless steel.
20. The tolerance for the height of runway/taxiway edge lights must be ± 1 inch (25 mm). For stake-mounted lights, the specified lighting fixture height must be measured between the top of the stake and the top of the lens. For base-mounted lights, the specified lighting fixture height must be measured between the top of the base flange and the top of the lens, and includes the base cover, the frangible coupling, the stem, the lamp housing and the lens.
21. The tolerance for the lateral spacing (light lane to runway/taxiway centerline) of runway/taxiway edge lights must be ± 1 inch (25.4 mm). This also applies at intersections to lateral spacing between lights of a runway/taxiway and the intersecting runway/taxiway.
22. L-867 bases may be precast. Entrances into L-867 bases must be plugged from the inside with duct seal.
23. Galvanized/painted equipment/component surfaces must not be damaged by drilling, filing, etc. – this includes drain holes in metal transformer housings.
24. Edge light numbering tags must be facing the pavement.
25. Cable/splice/duct markers must be pre-cast concrete of the size shown. Letters/numbers/arrows for the legend to be impressed into the tops of the markers must be pre-assembled and secured in the mold before the concrete is poured. Legends inscribed by hand in wet concrete are not acceptable.

26. All underground cable runs must be identified by cable markers at 200 ft (61 m) maximum spacing with an additional marker at each change of direction of the cable run. Cable markers must be installed above the cable.
27. Not used.
28. The cable and splice markers must identify the circuits to which the cables belong. For example: RWY 4-22, PAPI-4, PAPI-22.
29. Locations of ends of all underground ducts must be identified by duct markers.
30. The preferred mounting method of runway and taxiway signs is by the use of single row of legs. However, two rows will be acceptable.
31. Reference Figure E-13 and Figure E-14 for an example of a lighted sign installation.
 - a. Power to the sign must be provided through breakaway cable connectors installed within the frangible point portion of the sign's mounting legs.
 - b. There must be no above ground electrical connection between signs in a sign array.
32. Stencil horizontal and vertical aiming angles on each REIL flash head or equipment enclosure. The numerals must be black and one inch (25 mm) minimum height.
33. Stencil vertical aiming angles on the outside of each PAPI lamp housing. The numerals must be black and one inch (25 mm) minimum height.
34. All power and control cables in man/hand holes must be tagged. Use embossed stainless steel strips or tags attached at both ends to the cable by the use of UV resistant plastic straps. A minimum of two tags must be provided on each cable in a man/hand hole - one at the cable entrance, and one at the cable exit.
35. Apply a corrosion inhibiting, anti-seize compound to all screws, nuts and frangible coupling threads. If coated bolts are used per EB #83, do not apply anti-seize compound.
36. There must be no splices between the isolation transformers. L-823 connectors are allowed at transformer connections only, unless shown otherwise.
37. Not used.
38. Where a parallel, constant voltage PAPI system is provided, the "T" splices must be of the cast type.
39. Concrete used for slabs, footing, backfill around transformer housings, markers, etc., must be 3000 PSI, min., air-entrained.

E.1.4 Equipment Grounding.

1. Ground all non-current-carrying metal parts of electrical equipment by using conductors sized and routed per NEC Handbook, Article 250.
2. All ground connections to ground rods, busses, panels, etc., must be made with pressure type solderless lugs and ground clamps. Soldered or bolt and washer type connections are not acceptable. Clean all metal surfaces before making ground connections. Exothermic welds are the preferred method of connection to a ground rod
3. Tops of ground rods must be 6 inches (152 mm) below grade.
4. The resistance to ground of the vault grounding system with the commercial power line neutral disconnected must not exceed 10 ohms.

5. The resistance to ground of the counterpoise system, or at isolation locations, such as airport beacon must not exceed 10 ohms.

125-3.2 Testing. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase and results meeting the specifications below must be maintained by the Contractor throughout the entire project as well as during the ensuing warranty period.

Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

The test equipment for insulation resistance shall be an insulation resistance tester (1,000V megger) with a digital readout. The instrument shall provide a 500 volt test for insulation resistance with a meter range of 0 to 500 megohms.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

- a. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.
- b. That all affected circuits (existing and new) are free from unspecified grounds.
- c. That the insulation resistance to ground of all new non-grounded series circuits or cable segments is not less than 50 megohms.
- d. That the insulation resistance to ground of all non-grounded conductors of new multiple circuits or circuit segments is not less than 50 megohms.
- e. That all affected circuits (existing and new) are properly connected in accordance with applicable wiring diagrams.
- f. That all affected circuits (existing and new) are operable. All circuits shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.
- g. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by ANSI/IEEE Standard 81, to verify this requirement.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, ground resistance tests shall be performed on the new cable prior to connection to the existing circuit

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

125-3.3 Shipping and Storage. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-3.4 Placing lights, signs and approach lighting aids. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline, unless otherwise required, and facing in the required direction. Light bases in pavement shall be installed such that the light base is level and the top of the base plate or light unit is even with the downhill slope of the pavement. Surplus sealant or flexible embedding material shall be removed. Sealant which leaks into the light base shall be removed before it sets. The holding device shall remain in place until sealant has reached its initial set.

The airport lights, signs or approach lighting aids shall be installed at the approximate location indicated in the Contract Drawings. The exact location shall be as directed by the RPR. The lights, signs or shall be installed in accordance with the Contract Drawings and the manufacturer's recommendations.

Contractor shall attach a light unit identification tag to each light unit, sign, wind cone, navigational system and other fixture connected to the circuit where indicated on the Contract Drawings. ID tags shall be securely attached with a set screw or non-corrosive wire band. The light unit ID tags shall be sequentially numbered and attached to the fixtures in the order in which the lights are connected to the circuit. Light unit identification tags shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items of work involved.

Contractor's surveyor shall be on-site during installation of approach lighting aids to verify elevations, alignment and sighting angles of approach lighting aids prior to energizing the equipment. Any deviations shall be corrected by the Contractor and verified by the surveyor before the equipment is put to service.

Contractor shall have experience installing approach lighting aids, or the manufacturer's representative shall be onsite during installation. Experience shall be documented by the Contractor by providing the RPR with a list of three previous installations of the equipment being installed.

Tolerances for light fixtures shall be as follows:

- A. The lateral tolerance, both station and offset, for the center point of light units shall be +/- 1-inch of the distance or location specified.
- B. All lights in a tangent segment shall be within +/- 1-inch of each other.
- C. The top elevation of the leading edge of semi-flush light units shall be no higher than the pavement surface nor less than 1/16-inch below the pavement surface, measured on the low side of the pavement. [+0", - 1/16"]. Lights placed above grade that allow for damage caused by snow plow blades shall not be acceptable.
- D. All light units shall be orientated on the correct azimuth for the intended use within a tolerance of +/- 1 degree.

125-3.5 Excavation. All excavation shall be considered unclassified excavation. Unclassified excavation shall consist of the excavation of all material, regardless of its nature and the disposal of all such material as directed by the RPR.

- A. The Contractor shall do all excavation for airport lights, signs and navigational system installations to the lines and grades or elevations shown on the Contract Drawings or as directed

by the RPR. The excavation shall be of sufficient size to permit the placing of the airport lights, signs or navigational system.

- B.** Boulders, logs or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation and excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.
- C.** The Contractor shall do all bracing, sheeting or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting or shoring shall be included in the unit price bid for the structure. All trench bracing, sheeting and shoring shall be in accordance with the Sheeting and Bracing section of the General Provisions.
- D.** Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner which will not disturb or mar finished masonry. The cost of removal shall be included in the unit bid for that item.

125-3.6 Backfilling. Backfilling around structures shall not be commenced until directed by the RPR. Prior to backfilling, all conduits and openings shall be sealed water tight. Backfill shall be placed evenly and simultaneously on all sides of structures in 6-inch lifts. All structures shall be backfilled to the lines and grades shown on the Contract Drawings, or as required for proper operation of the airport lights, signs or navigation system and as directed by the RPR. Contractor shall use previously excavated material if it is suitable for backfill, or if additional material is required for backfill, the Contractor shall provide suitable backfill. All materials used for backfill shall be approved in advance by the RPR. No direct payment will be made for backfill material or its placement.

125-3.7 Removal of lights, signs and approach lighting aids. Where existing lights, signs and approach lighting aids are to be removed in the same location as proposed fixtures, the Contractor shall consider such removal as an incidental part of construction and include the costs thereof in the various pay items of work involved. Where existing lights, signs and approach lighting aids are to be removed at locations where a new fixture is not being placed, removal shall be paid for separately. The cost of such removal shall include excavation, removal of fixture and foundation, backfilling, disposal of existing fixture, and restoration. Lights, signs and approach lighting aids shall be removed from the locations shown on the Contract Drawings, unless otherwise directed by the RPR.

125-3.8 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. Suitable material may be deposited in embankment or shoulders areas. Unsuitable material shall be disposed of off airport property or as ordered by the RPR.

Areas disturbed by the Contractor's operation shall be restored to their original condition. Restoration of surfaces shall be performed in accordance with the details of the Contract Drawings.

Where airport lights, signs or approach lighting aids are installed or removed outside of the general grading limits, or in areas that would not otherwise be disturbed, restoration shall be considered necessary and incidental to the work of this item and the costs shall be included in the associated pay items for airport lights, signs or approach lighting aids installed or removed.

Where airport lights, signs or approach lighting aids are installed or removed within the general grading limits, restoration of the area will not be necessary as payment for establishment of turf or pavement will be included in the various pay items of work involved.

The Contractor shall be responsible for maintaining all disturbed surfaces and restorations until final acceptance.

125-3.9 Installation of cables and conduits. Excavation for trenches, backfilling, furnishing and installation of cables and conduits shall be performed in accordance with Items L-108, Underground Cable for Airports and L-110, Airport Underground Electrical Duct Banks and Conduits.

125-3.10 Installation of retroreflective markers. Not used.

125-3.11 Spoil material. The following equipment has been identified to be salvaged by the owner: edge light assemblies (light unit, conduit post, transformer, light base cover), centerline light assemblies (light unit, transformer), touchdown zone light assemblies (light unit, transformer), threshold light assemblies (light unit, conduit post, transformer, light base cover), guidance sign assemblies (sign, legs, floor flanges). Contractor shall separate useable equipment from unusable equipment. The equipment to be salvaged shall be stockpiled at a location designated by the owner in proper working condition. All other materials shall be spoiled off airport property at a proper disposal site.

125-3.12 Brightness adjustments for internally lighted guidance signs. Upon completion of the sign installation, the contractor shall make necessary brightness adjustment for each sign unit. The contractor shall make the required adjustments in accordance with the manufacturer's printed instructions.

125-3.13 Aiming, flight check and notification for approach lighting aids. Not used.

125-3.14 Survey report. Not used.

METHOD OF MEASUREMENT

125-4.1 Runway and taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, or removed, and accepted by the RPR. Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, or removed, and accepted by the RPR.

Light fixture payment items shall include the light fixture, base plate, frangible coupling, light head, post, isolation transformer, L-823 connectors, gaskets, bolts and ground cable.

Light base payment items shall include the light base, conduit connections, ground rod and lugs, exterior safety ground jumper, concrete encasement.

125-4.2 Spare lighting and signage parts shall be provided as listed in the Contract Drawings. The cost of the spare parts shall not exceed \$10,000, not 10% of the total value of the fixtures. Spare parts shall be measured on a Lump Sum basis.

BASIS OF PAYMENT

125-5.1 Payment will be made at the Contract unit price for each complete taxiway light, guidance sign installed by the Contractor, or removed, and accepted by the RPR. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

125-5.2 Payment will be made as a lump sum for the spare light and sign parts indicated on the Contract Drawings and provided to the Owner. The total bid price shall not exceed \$10,000, nor 10% of the cost of the fixtures.

Payment will be made under:

Item L 125-5.1	Medium Intensity Taxiway Edge Light Fixture, Base Mounted, LED – per each
Item L 125-5.2	Salvage and Reinstall Existing Medium Intensity Taxiway Edge Light Fixture, Base Mounted, Quartz – per each
Item L 125-5.3	L-867B Non Load Bearing Light Base, In Turf - per each
Item L 125-5.4	Airfield Guidance Sign, LED, Size 2, 3 Modules- per each
Item L 125-5.5	Airfield Guidance Sign, LED, Size 2, 4 Modules- per each
Item L 125-5.6	Remove Existing Stake Mounted Edge Light – per each
Item L 125-5.7	Remove Existing Guidance Sign and Foundation – per each
Item L-125-5.8	Spare Parts (Not to Exceed \$10,000 or 10% Total Fixture Cost) - 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.

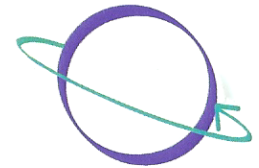
Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures
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END OF ITEM L-125



Kenney Geotechnical
Services

Kenney Geotechnical Engineering Services PLLC

Pavement Investigation Report

Taxiway B and D Rehabilitation Project
Oswego County Airport
40 Airport Drive
Fulton, New York



C.M. Kenney, P.E.

11-16-2022

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INTRODUCTION

This report presents the findings of the pavement investigation performed at the Oswego County Airport. This geotechnical report presents the data developed during the subsurface investigation and provides analysis and recommendations for the proposed construction.

No environmental services are included in this study. No conclusions have been drawn regarding environmental conditions of the site, potential contaminants, potential special treatment or disposal of site materials, or other environmental considerations.

AUTHORIZATION

Our services for this project were authorized by Chris Brubach, P.E. of C&S Engineers, Inc. via a Geotechnical Services Agreement dated September 26, 2022

PROJECT DESCRIPTION

It is our understanding that the project includes the rehabilitation of Taxiway B and a portion of parallel Taxiway D over a combined 9500 square yard area. Construction is expected to include full depth asphalt removal by cold milling, hot-mix asphalt pavement and isolated areas of stone aggregate undercutting. The taxiway surface will be re-graded to meet current FAA standards by using stone subbase depth corrections.

INVESTIGATION SCOPE

The scope of the pavement investigation requested by C&S Engineers Inc. (C&S) included coring the taxiway asphalt at eight locations, performing Standard Penetration Testing to a depth of 5 feet at each location, and performing laboratory testing on the recovered soil samples. The investigation locations were selected and field located by C&S.

Asphalt investigation was performed with an electric coring machine and truck-mounted Geoprobe 3100GT drill rig. The asphalt was cored, measured for thickness, and photographed. The subbase was sampled during Standard Penetration Testing and classified using the Unified Soil Classification System. Asphalt core photos and subbase results can be found at the end of this report.

Soil samples obtained during the subsurface investigation were classified by a Geotechnical Engineer using the Unified Soil Classification System. Boring logs documenting the subsurface conditions encountered are attached. The boring logs and related information depict subsurface conditions only at the specific locations and times indicated. Subsurface conditions and water levels at other locations may differ from conditions at the locations where sampling was conducted. The passage of time also may result in changes in the conditions interpreted to exist at the locations where sampling was performed.

LABORATORY TESTING

Laboratory testing was performed to assist in the engineering classification of the recovered soil samples. The testing requested by C&S included:

- Particle Size Analysis of Soils in accordance with ASTM C 136 and C117
- Particle-Size Distribution of Fine-Grained Soils Using Sedimentation (Hydrometer) Analysis in accordance with ASTM D 7928
- Natural Moisture Content determination in accordance with ASTM D 2216 (Method A).
- Liquid Limit, Plastic Limit and Plasticity Index of Soils in accordance with ASTM D 4318.

Testing was performed in Kenney Geotechnical Services laboratory. Test results are summarized in the following table. Complete test reports are attached.

TABLE 1 - LABORATORY TESTING RESULTS SUMMARY

Boring	Depth (FEET)	Natural Moisture Content (%)	Grain Size Distribution				Atterberg Limits		
			Gravel* (%)	Sand** (%)	Silt*** (%)	Clay*** (%)	Liquid Limit, LL (%)	Plastic Limit, PL (%)	Plasticity Index, PI (%)
B-1	1' to 2'	10.3	38.9	49.9	21				
B-1	4' to 6'	2.3	54.7	35.8	9.5				
B-2	0.5' to 2'	2.7	33.0	49.6	17.4				
B-3						NP	NP	NP	
B-4	0.5' to 2'	2.9	35.3	48.2	16.5				
B-4	2' to 4'	9.7	12.3	48.1	39.6				
B-4	4' to 6'	9.6	23.1	41.8	35.1				
B-5	4' to 6'					NP	NP	NP	
B-6	0.5' to 2'	2.6	37.3	45.8	16.9				
B-6	4' to 6'	8.5	25.3	47	27.7				
B-7	2' to 4'					NP	NP	NP	
B-7	4' to 6'	22.3	14.6	40.1	45.3				
B-8	0.5' to 2'	2.3	34.8	47.2	18				
B-8	4' to 6'	13.8	23.5	49.4	27.1				

SUBSURFACE CONDITIONS ENCOUNTERED

The following presents our interpretation of the subsurface conditions encountered during exploration and is based on our review of the recovered samples, the boring logs, drilling observations, and our professional experience.

The test borings generally encountered a subbase of well-graded limestone aggregate overlying a subgrade of silty sand with gravel. The subbase and subgrade were separated by multiple layers of woven geotextile. The fines content of the soils encountered ranged from 9.5% to 45.3%. The fines were generally non-plastic. Standard penetration testing "N" values indicated the ground was medium dense to dense. Uncorrected "N" values ranged from 16 to 98 blows per foot (bpf) with an average value of 43 bpf.

Detailed subsurface information is presented on the attached boring logs.

GROUNDWATER CONDITIONS ENCOUNTERED

Water levels were measured within the augers during advancement and from the open borehole after the augers were removed. The following table summarizes water level measurements at the time of the subsurface investigation.

Boring Location	Depth of Water While Drilling (ft)	Depth of Water Within the Augers (ft)	Depth of Water in Open Borehole (ft)	Depth of Cave in Open Borehole (ft)
B-1	Dry	Dry	Dry	3.8
B-2	Dry	Dry	Dry	3.6
B-3	DRY	DRY	DRY	4.0
B-4	DRY	DRY	DRY	2.9
B-5	DRY	DRY	DRY	3.8
B-6	DRY	DRY	DRY	3.5
B-7	DRY	DRY	DRY	3.0
B-8	DRY	DRY	DRY	3.4

Groundwater depths and seepage rates will vary with the seasons and changes in precipitation patterns and may be higher during the wetter seasons. No long-term groundwater data was generated during this study and the range of possible groundwater elevation is unknown.

PAVEMENT DATA

The following table summarizes the data collected during the taxiway pavement investigation. Conditions may vary between the investigation locations.

OSWEGO COUNTY AIRPORT TAXIWAY								
Location	Total Asphalt Thickness (in.)	Top Course Thickness (in.)	Binder Course Thickness (in.)	Subbase Material	Subbase Thickness (in.)	Subgrade Material	Subgrade "N" Value	Notes
B-1	8.50	1.75	2.25	~	~	Brown GWS	33	Pavement Overlaid. No subbase observed, no geotextile observed, no groundwater observed
		2.25	2.25					
B-2	3.50	1.5	2.0	Grey GWS	17	Brown SM	46	Two layers of woven geotextile observed, no groundwater observed
B-3	4.25	2.0	2.25	Grey GWS	18	Grey/Brown SM	28	Two layers of woven geotextile observed, no groundwater observed
B-4	4.00	2.0	2.0	Grey GWS	17.5	Brown SWG	78	Two layers of woven geotextile observed, no groundwater observed
B-5	6.00	1.5	4.5	Grey GWS	23	Grey SM	52	Two layers of woven geotextile observed, no groundwater observed
B-6	6.13	1.25	4.875	Grey GWS	10	Grey SM	41	Three layers of woven geotextile observed, no groundwater observed
B-7	4.25	2.0	2.25	Grey GWS	12	Grey/Brown SM	39	One layer of woven geotextile observed, no groundwater observed
B-8	5.00	2.0	3.0	Grey GWS	10	Red-Brown/Grey SM	59	One layer of woven geotextile observed, no groundwater observed

BORING LOGS

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 4
Loose	15 to 35 %	4 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 50
Very dense	85 to 100 %	> 50

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

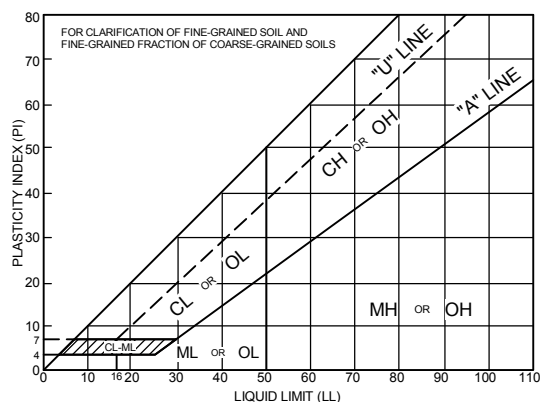
Descriptive Terms	Unconfined Compressive Strength kPa	SPT Blow Count
Very soft	< 25	< 2
Soft	25 to 50	2 to 4
Medium stiff	50 to 100	4 to 8
Stiff	100 to 200	8 to 15
Very stiff	200 to 400	15 to 30
Hard	> 400	> 30

GENERAL NOTES

- Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.
- Surface elevations are based on topographic maps and estimated locations.
- Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times.

Major Divisions	Group Symbols	Typical Names	Laboratory Classification Criteria	Particle Size	Material			
Coarse-Grained soils (More than half the material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3 Not meeting all gradation requirements for GW	Sieve sizes < #200			
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines					
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean gravel (Little or no fines)	GM* ^d	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4 Atterberg limits above "A" line or P.I. greater than 7 $C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3 Not meeting all gradation requirements for SW	mm < 0.074		
			GC	Clayey gravels, gravel-sand-silt mixtures				
		Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines				
			SP	Poorly-graded sands, gravelly sands, little or no fines				
	Sands with fines (Appreciable amount of fines)	SM* ^d	Silt	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4 Atterberg limits above "A" line or P.I. greater than 7	Silt or clay Sand Fine Medium Coarse		
			SC	Clayey sands, sand-clay mixtures				
		Highly Organic Soils	Pt	Peat and other highly organic soils				
Fine-Grained soils (More than half the material is smaller than No. 200 sieve size)	Silt and Clays (Liquid limit less than 60)	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity		mm			
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					
		OL	Organic silts and organic silty clays of low plasticity					
	Silt and Clays (Liquid limit greater than 60)	MH	Inorganic silts, micaceous or distomaceous fine sandy or silty soils, organic silts					
		CH	Inorganic clays of high plasticity, fat clays					
		OH	Organic clays of medium to high plasticity, organic silts					
	Highly Organic Soils	Pt	Peat and other highly organic soils					

Determine percentages of sand and gravel from grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows:
 Less than 5 percent..... GW, GP, SW, SP
 More than 12 percent..... GM, GC, SM, SC
 6 to 12 percent..... Borderline cases requiring dual symbols**



Plasticity Chart

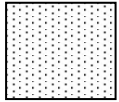
* Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg Limits: suffix d used when L.L. is 23 or less and the P.I. is 6 or less; the suffix u is used when L.L. is greater than 26.
 ** Borderline classifications used for soils possessing characteristics of two groups are designated by combinations of group symbols. For example; GW-GC, well-graded gravel-sand mixture with clay binder.

Key to Symbols

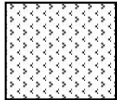
Project Name:	Oswego County Airport - Taxiway B & D Rehab.
Client:	C&S Companies

Project Number:	2022-176
Location:	Fulton, NY

LITHOLOGIC SYMBOLS
(UNIFIED SOIL CLASSIFICATION SYSTEM)



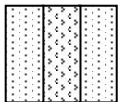
SP/SW: POORLY GRADED/WELL-GRADED SAND



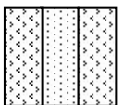
ML: SILT



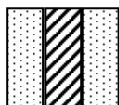
CL: LEAN CLAY



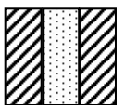
SM: SILTY SAND



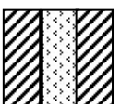
MLS: SANDY SILT



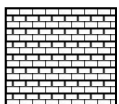
SC: CLAYEY SAND



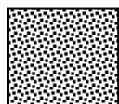
CLS: LOW PLASTICITY SANDY CLAY



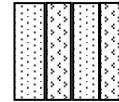
CL-ML: SILTY CLAY OR SANDY SILTY CLAY



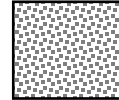
BEDROCK ANY TYPE



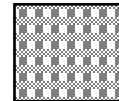
TILL: GLACIAL TILL



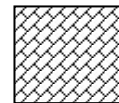
SP-SM: POORLY GRADED SAND WITH SILT



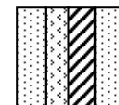
GW/GP: WELL-GRADED GRAVEL AND POORLY GRADED GRAVEL



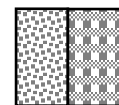
GM/GC: SILTY GRAVEL OR CLAYEY GRAVEL



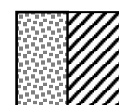
FILL/OL



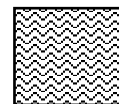
SC-SM: SILTY CLAYEY SAND



GP-GM OR GW-GM: POORLY GRADED/WELL-GRADED GRAVEL WITH SILT



GP-GC OR GW-GC: POORLY GRADED/WELL-GRADED GRAVEL WITH CLAY



MARL



PEAT

Geotechnical Boring Log

Project Name:		Oswego County Airport - Taxiway B&D Rehabilitation		Project Number:	2022-176	Logged By:	NM	Boring Number	B-1	
Client:		C&S Companies		Ground Elevation:	N/A	Checked By:	CMK	Sheet:	1 of 1	
Location:		Fulton, NY		Drill Rig:	3100GT	Depth To Groundwater While Drilling:		DRY		
Started:		10/6/2022		Drill Method:	3.25" HSA	Depth To Groundwater Before Auger Removal:		DRY		
Completed:		10/6/2022		Driller:	D. GREEN	Depth To Groundwater After Auger Removal:		DRY		
Depth (ft)	Sample Type	Recovery (inch)	Blow Count Per 6 inches	Graphic Log	N (bpf)	USCS Material Description		Strata Change Depth (ft.)	Pocket Penet. (tsf)	Moisture Content (%)
1						ASPHALT		0.75		
2	SPT	9	11 22		33	(GWS) DENSE, BROWN WELL GRADED GRAVEL WITH SAND, MOIST (BANK RUN SUBBASE)				
3	SPT	6	24 12		24	SIMILAR SOIL, MEDIUM DENSE, MOIST NO GEOTEXTILE WAS OBSERVED UNABLE TO DETERMINE DIFFERENCE BETWEEN SUBBASE AND SUBGRADE		4.0		
4			12 14							
5	SPT	14	38 24		42	(GWS) DENSE, GREY/RED WELL GRADED GRAVEL WITH SAND, MOIST				
			18							
6			11							
Bottom of Boring: 6.0 FT						Cave Depth: 3.8 FT				

DRAFT

Geotechnical Boring Log

Project Name:		Oswego County Airport - Taxiway B&D Rehabilitation		Project Number:	2022-176	Logged By:	NM	Boring Number	B-2		
Client:		C&S Companies		Ground Elevation:	N/A	Checked By:	CMK	Sheet:	1 of 1		
Location:		Fulton, NY		Drill Rig:	3100GT	Depth To Groundwater While Drilling:		DRY			
Started:		10/6/2022		Drill Method:	3.25" HSA	Depth To Groundwater Before Auger Removal:		DRY			
Completed:		10/6/2022		Driller:	D. GREEN	Depth To Groundwater After Auger Removal:		DRY			
Depth (ft)	Sample Type	Recovery (inch)	Blow Count Per 6 inches	Graphic Log	N (bpf)	USCS Material Description		Strata Change Depth (ft.)	Pocket Penet. (tsf)	Moisture Content (%)	
						ASPHALT		0.33			
1	SPT	14	20		39	LIMESTONE SUBBASE (17") - (GWS) DENSE, GREY WELL GRADED GRAVEL WITH SAND, MOIST TWO LAYERS OF WOVEN GEOTEXTILE OBSERVED		1.75			
2			19								
			21			(SM) DENSE, BROWN SILTY SAND WITH GRAVEL, MOIST					
3	SPT	21	18		46						
			22								
4			24								
			16			SIMILAR SOIL, DENSE, MOIST					
5	SPT	15	16		40						
			24								
6			16								
			15								
Bottom of Boring: 6.0 FT						Cave Depth: 3.6 FT					

DRAFT

Geotechnical Boring Log

Project Name:		Oswego County Airport - Taxiway B&D Rehabilitation		Project Number:	2022-176	Logged By:	NM	Boring Number	B-3	
Client:		C&S Companies		Ground Elevation:	N/A	Checked By:	CMK	Sheet:	1 of 1	
Location:		Fulton, NY		Drill Rig:	3100GT	Depth To Groundwater While Drilling:		DRY		
Started:		10/6/2022		Drill Method:	3.25" HSA	Depth To Groundwater Before Auger Removal:		DRY		
Completed:		10/6/2022		Driller:	D. GREEN	Depth To Groundwater After Auger Removal:		DRY		
Depth (ft)	Sample Type	Recovery (inch)	Blow Count Per 6 inches	Graphic Log	N (bpf)	USCS Material Description		Strata Change Depth (ft.)	Pocket Penet. (tsf)	Moisture Content (%)
						ASPHALT		0.33		
1	SPT	16	14		30	LIMESTONE AGGREGATE SUBBASE (18") - (GWS) DENSE, GREY WELL GRADED GRAVEL WITH SAND, MOIST TWO LAYERS OF WOVEN GEOTEXTILE		1.83		
2			20							
3	SPT	17	14		28	(SM) MEDIUM DENSE, GREY/BROWN SILTY SAND WITH GRAVEL, MOIST				
			12							
4			16							
	SPT	17	14		20	SIMILAR SOIL, MEDIUM DENSE, MOIST (SC-SM) MEDIUM DENSE, RED-BROWN SILTY CLAYEY SAND WITH GRAVEL, MOIST		5.0		
5			11							
			9							
6			11							
Bottom of Boring: 6.0 FT						Cave Depth: 4.0 FT				

DRAFT

Geotechnical Boring Log

Project Name:		Oswego County Airport - Taxiway B&D Rehabilitation		Project Number:	2022-176	Logged By:	NM	Boring Number	B-4	
Client:		C&S Companies		Ground Elevation:	N/A	Checked By:	CMK	Sheet:	1 of 1	
Location:		Fulton, NY		Drill Rig:	3100GT	Depth To Groundwater While Drilling:		DRY		
Started:		10/6/2022		Drill Method:	3.25" HSA	Depth To Groundwater Before Auger Removal:		DRY		
Completed:		10/6/2022		Driller:	D. GREEN	Depth To Groundwater After Auger Removal:		DRY		
Depth (ft)	Sample Type	Recovery (inch)	Blow Count Per 6 inches	Graphic Log	N (bpf)	USCS Material Description		Strata Change Depth (ft.)	Pocket Penet. (tsf)	Moisture Content (%)
						ASPHALT		0.33		
1	SPT	20	20		50	LIMESTONE SUBBASE (17.5") - (GWS) DENSE, GREY WELL GRADED GRAVEL WITH SAND, MOIST		1.79		
2			21							
3	SPT	13	30		78	(SWG) VERY DENSE, BROWN WELL GRADED SAND WITH SILT AND GRAVEL, MOIST				
4			34							
4			44							
5	SPT	11	48		16	SIMILAR SOIL, MEDIUM DENSE, GREY, MOIST				
5			18							
6			12							
6			4							
6			3							
Bottom of Boring: 6.0 FT						Cave Depth: 2.9 FT				

DRAFT



Geotechnical Boring Log

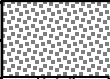
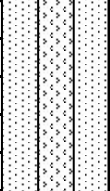
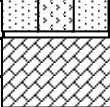

Project Name:		Oswego County Airport - Taxiway B&D Rehabilitation		Project Number:	2022-176	Logged By:	NM	Boring Number	B-5	
Client:		C&S Companies		Ground Elevation:	N/A	Checked By:	CMK	Sheet:	1 of 1	
Location:		Fulton, NY		Drill Rig:	3100GT	Depth To Groundwater While Drilling:		DRY		
Started:		10/6/2022		Drill Method:	3.25" HSA	Depth To Groundwater Before Auger Removal:		DRY		
Completed:		10/6/2022		Driller:	D. GREEN	Depth To Groundwater After Auger Removal:		DRY		
Depth (ft)	Sample Type	Recovery (inch)	Blow Count Per 6 inches	Graphic Log	N (bpf)	USCS Material Description		Strata Change Depth (ft.)	Pocket Penet. (tsf)	Moisture Content (%)
						ASPHALT		0.5		
1	SPT	18	48		98	LIMESTONE SUBBASE (23") - (GWS) VERY DENSE, GREY WELL GRADED GRAVEL WITH SAND, MOIST TWO LAYERS OF WOVEN GEOTEXTILE OBSERVED		2.42		
2			50							
	SPT	18	49		52	(SM) VERY DENSE, GREY/GRED SILTY SAND WITH GRAVEL, MOIST				
3			24							
4			24							
	SPT	19	28		36	SIMILAR SOIL, DENSE, MOIST				
5			30							
			16							
6			18							
			18							
			22							
Bottom of Boring: 6.0 FT						Cave Depth: 3.8 FT				

Geotechnical Boring Log

Project Name:		Oswego County Airport - Taxiway B&D Rehabilitation		Project Number:	2022-176	Logged By:	NM	Boring Number	B-6	
Client:		C&S Companies		Ground Elevation:	N/A	Checked By:	CMK	Sheet:	1 of 1	
Location:		Fulton, NY		Drill Rig:	3100GT	Depth To Groundwater While Drilling:		DRY		
Started:		10/6/2022		Drill Method:	3.25" HSA	Depth To Groundwater Before Auger Removal:		DRY		
Completed:		10/6/2022		Driller:	D. GREEN	Depth To Groundwater After Auger Removal:		DRY		
Depth (ft)	Sample Type	Recovery (inch)	Blow Count Per 6 inches	Graphic Log	N (bpf)	USCS Material Description		Strata Change Depth (ft.)	Pocket Penet. (tsf)	Moisture Content (%)
						ASPHALT		0.33		
1	SPT	19	26		68	LIMESTONE SUBBASE (10") - (GWS) DENSE, GREY WELL GRADED GRAVEL WITH SAND, MOIST		1.1		
			42							
2	SPT	20	28		41	THREE LAYERS OF WOVEN GEOTEXTILE OBSERVED (SM) DENSE, GREY SILTY SAND WITH GRAVEL, MOIST				
			28							
3			22							
	SPT	12	19		40	SIMILAR SOIL, DENSE, MOIST				
4			11							
	SPT	12	35		40	SIMILAR SOIL, DENSE, MOIST				
5			22							
			18							
6			14							
Bottom of Boring: 6.0 FT						Cave Depth: 3.5 FT				

DRAFT

Geotechnical Boring Log

Project Name:		Oswego County Airport - Taxiway B&D Rehabilitation		Project Number:	2022-176	Logged By:	NM	Boring Number	B-7			
Client:		C&S Companies		Ground Elevation:	N/A	Checked By:	CMK	Sheet:	1 of 1			
Location:		Fulton, NY		Drill Rig:	3100GT	Depth To Groundwater While Drilling:		DRY				
Started:		10/6/2022		Drill Method:	3.25" HSA	Depth To Groundwater Before Auger Removal:		DRY				
Completed:		10/6/2022		Driller:	D. GREEN	Depth To Groundwater After Auger Removal:		DRY				
Depth (ft)	Sample Type	Recovery (inch)	Blow Count Per 6 inches	Graphic Log	N (bpf)	USCS Material Description		Strata Change Depth (ft.)	Pocket Penet. (tsf)	Moisture Content (%)		
						ASPHALT		0.33				
1	SPT	15	21		45	LIMESTONE SUBBASE (12") - (GWS) DENSE, GREY WELL GRADED GRAVEL WITH SAND, MOIST		1.33				
2			24					30	ONE LAYER OF WOVEN GEOTEXTILE OBSERVED			
3	SPT	14	20		39	(SM) DENSE, GREY/BROWN SILTY SAND WITH GRAVEL, MOIST						
4			19					20				
			26									
5	SPT	19	15		24	SIMILAR SOIL, MEDIUM DENSE, MOIST		4.5				
			14					(OL) VERY STIFF, DARK GREY ORGANIC SILTY CLAY WITH GRAVEL AND WOOD, MOIST				
			10									
6			11			(SM) MED. DENSE GREY SILTY SAND WITH GRAVEL, MOIST						
Bottom of Boring: 6.0 FT						Cave Depth: 3.0 FT						

DRAFT



Geotechnical Boring Log

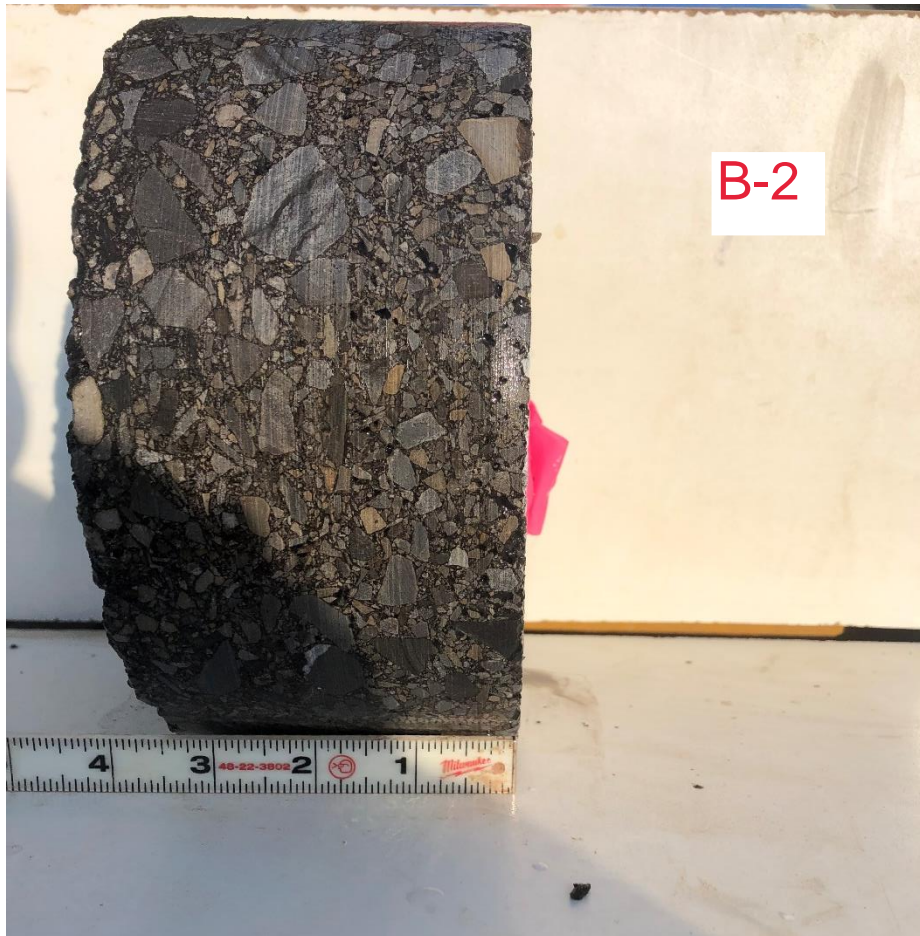
Project Name:		Oswego County Airport - Taxiway B&D Rehabilitation		Project Number:	2022-176	Logged By:	NM	Boring Number	B-8	
Client:		C&S Companies		Ground Elevation:	N/A	Checked By:	CMK	Sheet:	1 of 1	
Location:		Fulton, NY		Drill Rig:	3100GT	Depth To Groundwater While Drilling:		DRY		
Started:		10/6/2022		Drill Method:	3.25" HSA	Depth To Groundwater Before Auger Removal:		DRY		
Completed:		10/6/2022		Driller:	D. GREEN	Depth To Groundwater After Auger Removal:		DRY		
Depth (ft)	Sample Type	Recovery (inch)	Blow Count Per 6 inches	Graphic Log	N (bpf)	USCS Material Description		Strata Change Depth (ft.)	Pocket Penet. (tsf)	Moisture Content (%)
						ASPHALT		0.42		
1	SPT	13	27		54	LIMESTONE SUBBASE (10") - (GWS) DENSE, GREY WELL GRADED GRAVEL WITH SAND, MOIST		1.25		
2			21							
3	SPT	11	22		59	(SM) VERY DENSE, RED-BROWN/GREY SILTY SAND WITH GRAVEL, MOIST				
4			21							
5			18							
6	SPT	13	20		20	SIMILAR SOIL, MEDIUM DENSE, MOIST				
5			7							
6			13							
6			12							
Bottom of Boring: 6.0 FT						Cave Depth: 3.4 FT				

DRAFT

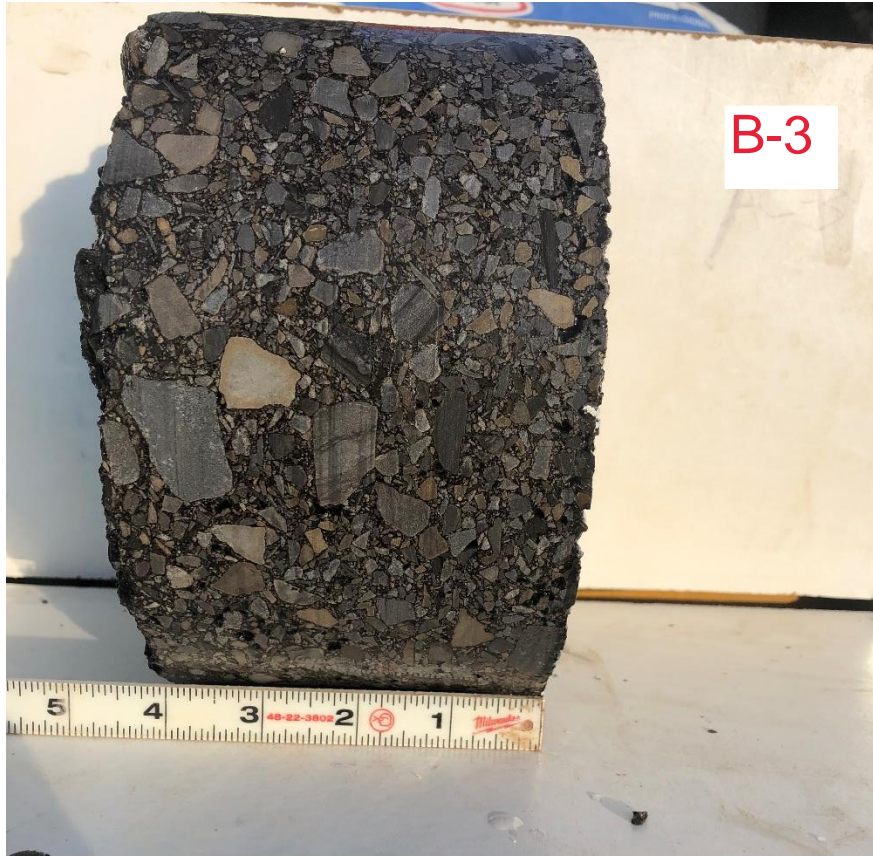
ASPHALT CORE PHOTOGRAPHS

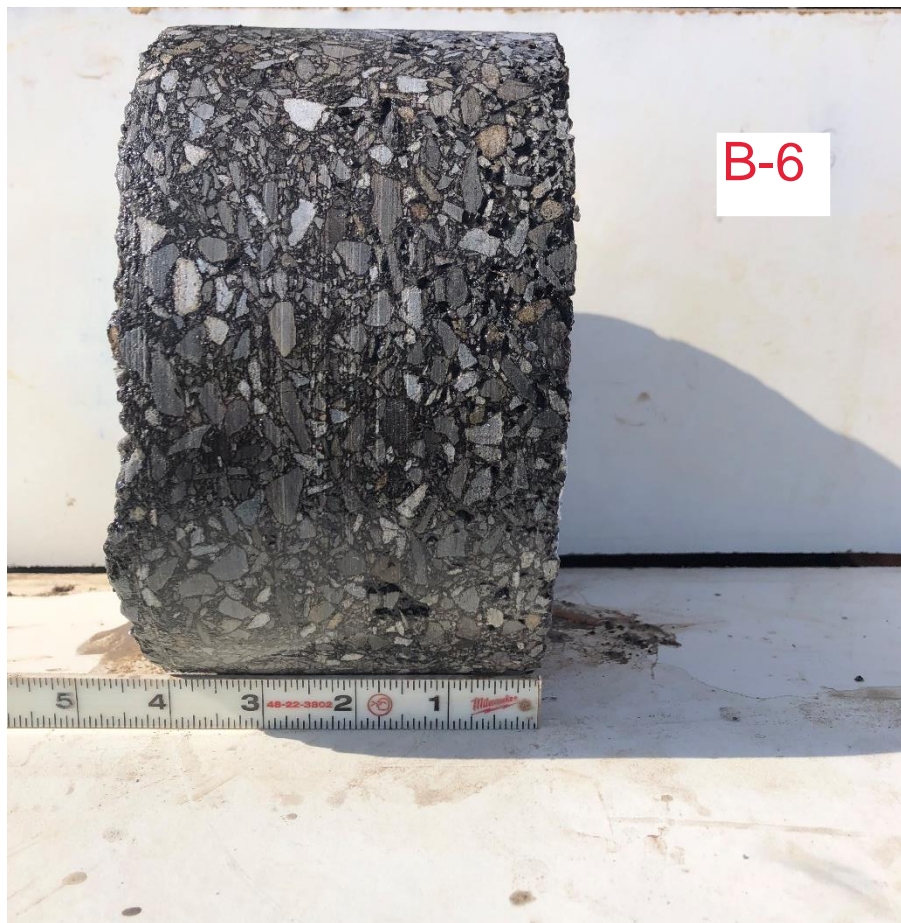
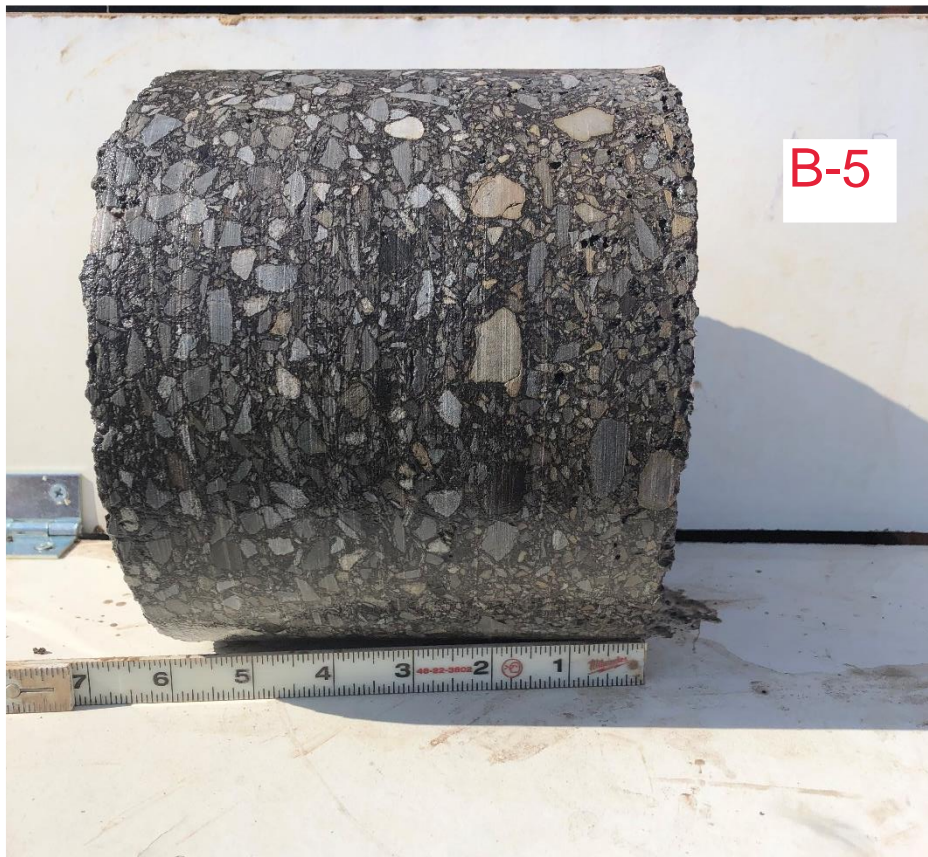


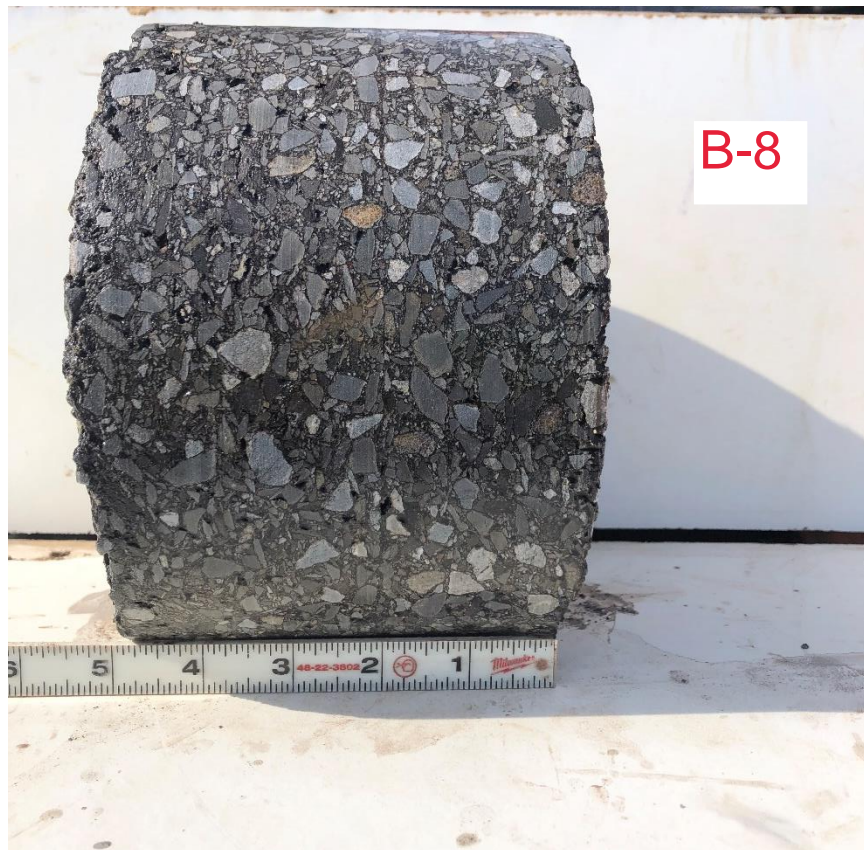
B-1



B-2



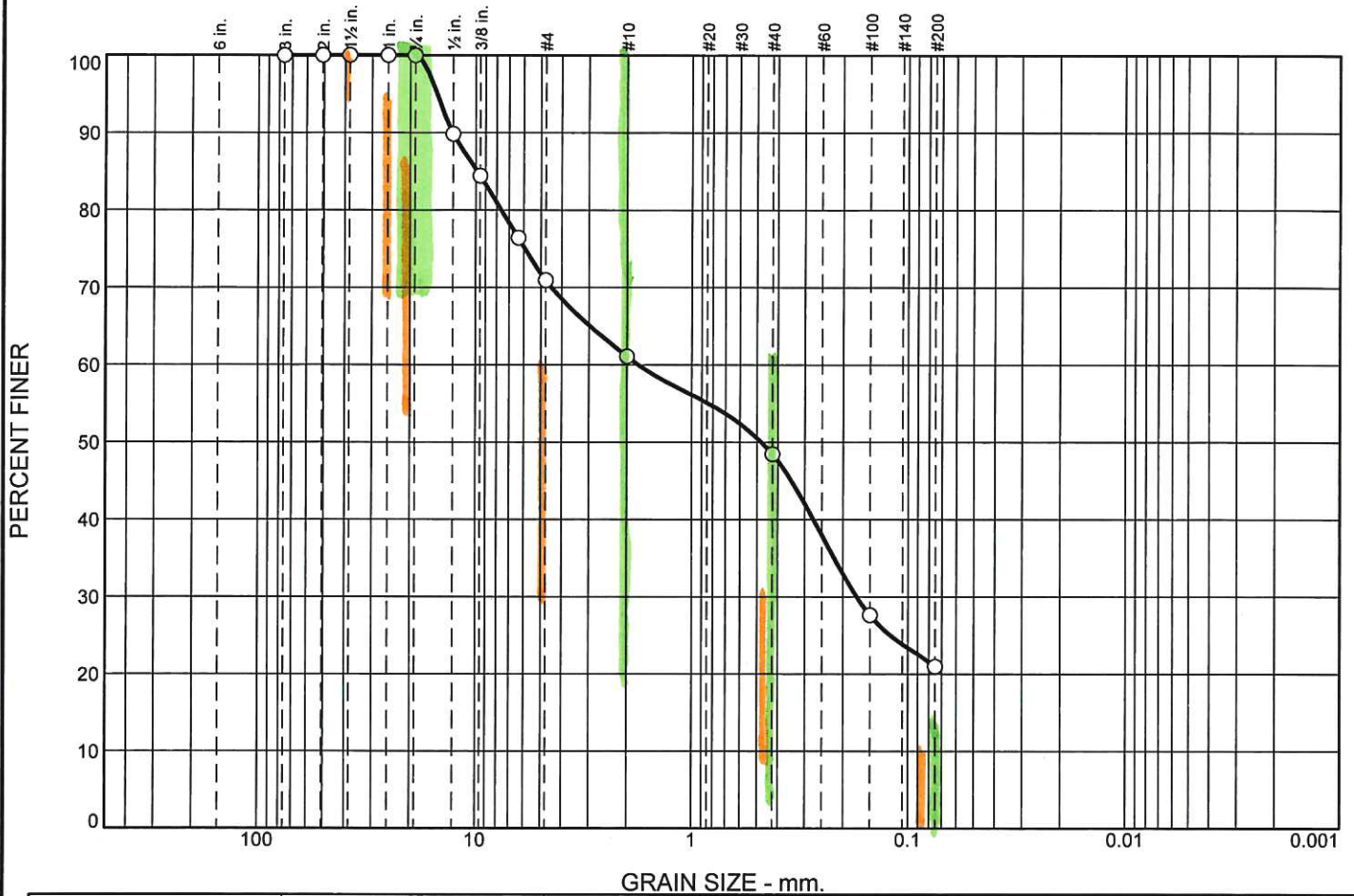




LABORATORY TESTING RESULTS

Particle Size Distribution Report

ASTM D422 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	29.1	9.8	12.7	27.4	21.0	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
		9.8136	1.7733	0.4784	0.1727				

Material Description	Test Date	USCS	NM

Project No. 2022-176 Client: C&S Engineers
 Project: Oswego County Airport Taxiway
 Sample Number: B-1, 1'-2'

Legend:
 — = P.154 RANGE
 — = P.209 RANGE

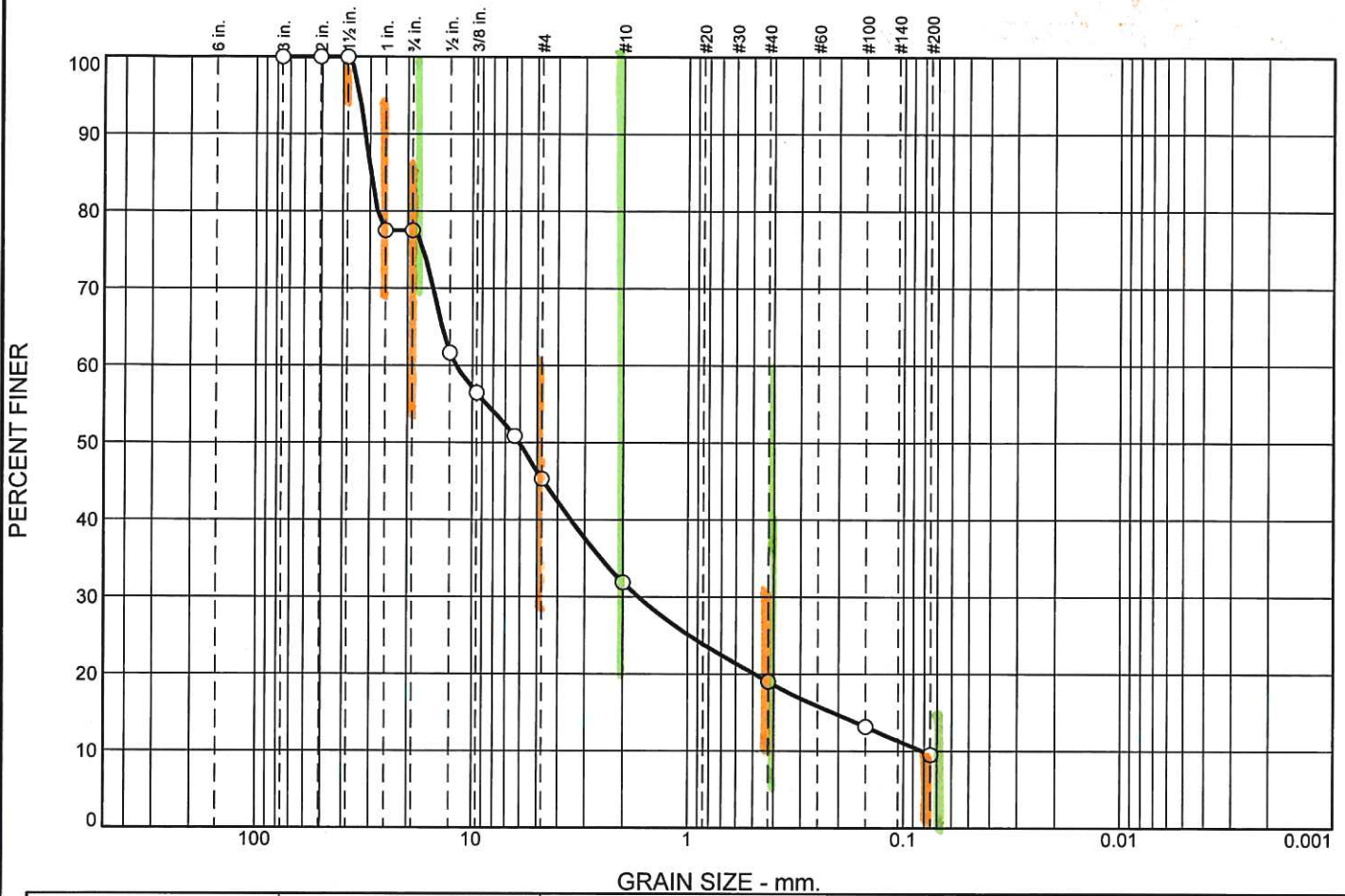
Remarks:
 Kenney Geotechnical Engineering Services, PLLC
 Office: 6901 Herman Road, Syracuse, NY 13209
 Mail: 117 Warners, NY 13164
 Phone: (315) 638-2706

Figure

Tested By: BE

Particle Size Distribution Report

ASTM D422 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	22.5	32.2	13.4	12.9	9.5	9.5	

LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		29.7161	11.8769	6.0514	1.6934	0.2135	0.0821	2.94	144.66

Material Description	Test Date	USCS	NM

Project No. 2022-176 Client: C&S Engineers
 Project: Oswego County Airport Taxiway
 Sample Number: B-1, 4'-6'

————— = p-154
————— = p-209

Remarks:
 ○ Kenney Geotechnical Engineering Services, PLLC
 Office: 6901 Herman Road, Syracuse, NY 13209
 Mail: 117 Warners, NY 13164
 Phone: (315) 638-2706

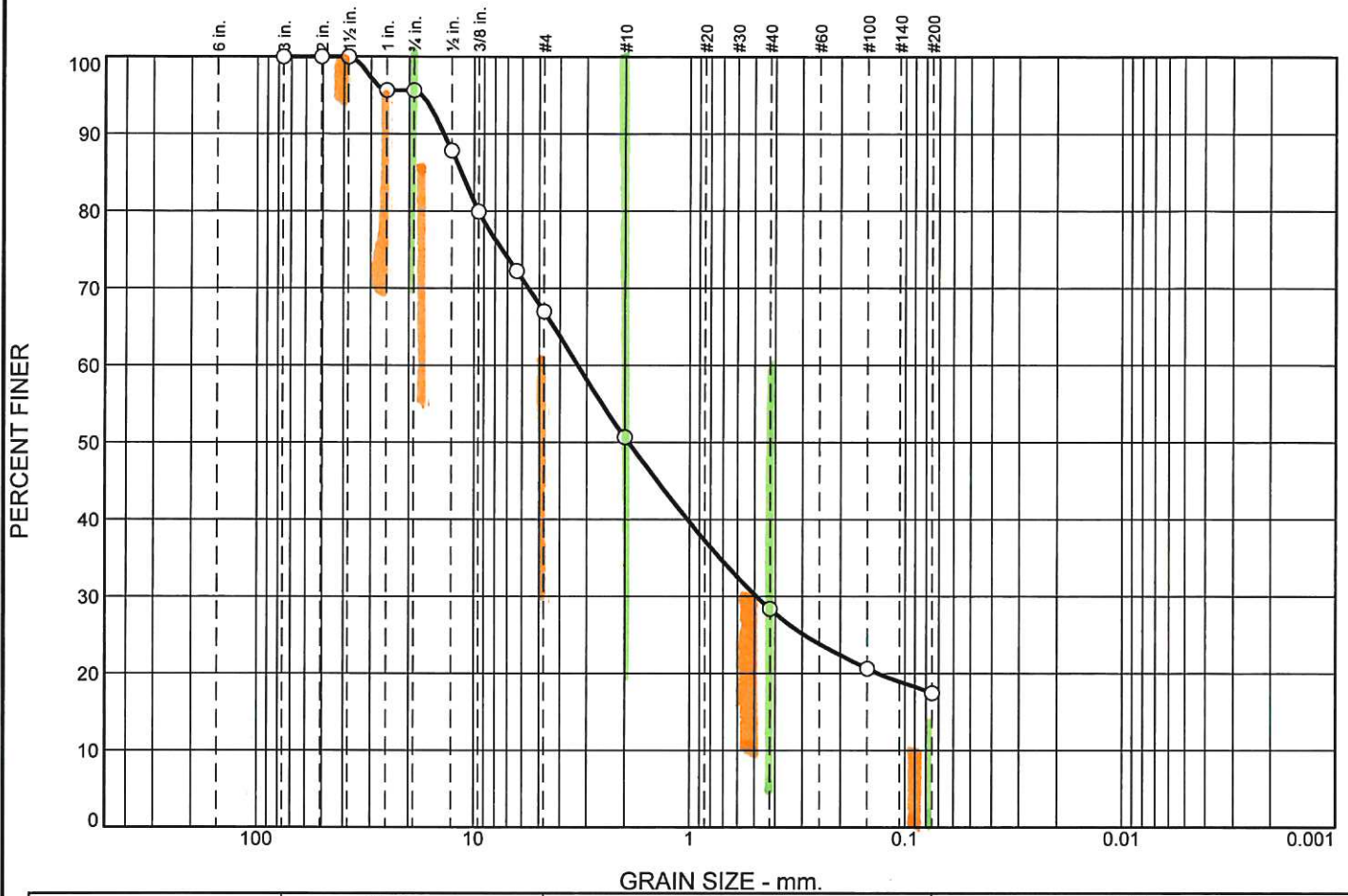
Figure



Tested By: BE

Particle Size Distribution Report

ASTM D422 & D1140




% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.4	28.6	16.4	22.2	11.0	17.4	

LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		11.4309	3.3096	1.9232	0.4898				

Material Description	Test Date	USCS	NM

Project No. 2022-176 Client: C&S Engineers
 Project: Oswego County Airport Taxiway
 Sample Number: B-2, 0.5'-2'

P-154 RANGE
P-209 RANGE



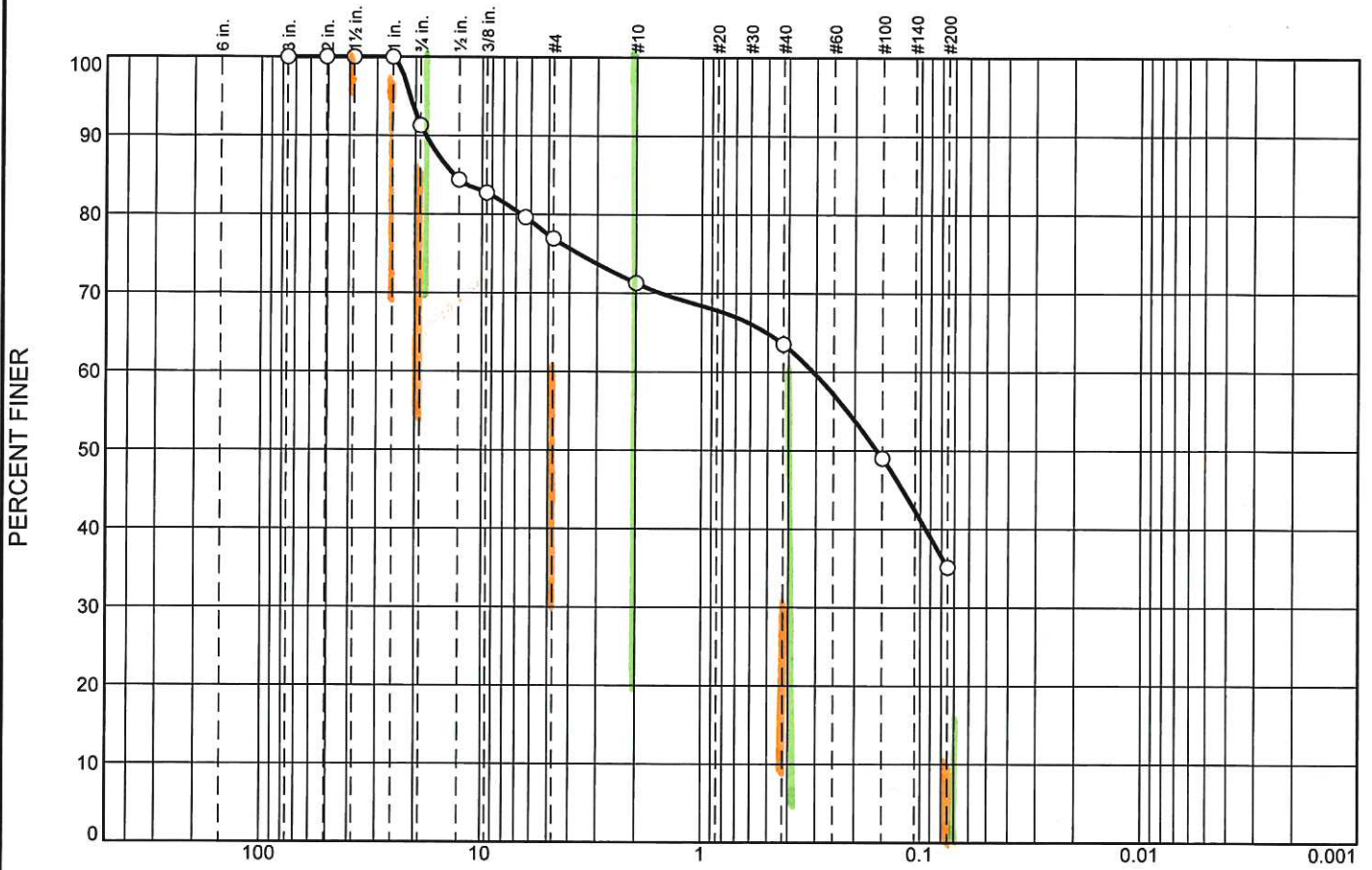
Remarks:
 Kenney Geotechnical Engineering Services, PLLC
 Office: 6901 Herman Road, Syracuse, NY 13209
 Mail: P.O. Box 117 Warners, NY 13164

Figure

Tested By: BE

Particle Size Distribution Report

ASTM D422 & D1140



GRAIN SIZE - mm.

	% +3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0.0	8.7	14.4	5.6	7.8	28.4	35.1			
⊗	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			13.3579	0.3099	0.1590					
○	Material Description							Test Date	USCS	NM
○										

Project No. 2022-176 Client: C&S Engineers
 Project: Oswego County Airport Taxiway
 ○ Sample Number: B-2, 4'-6'

————— = P-154
————— = P-209

Remarks:
 ○ Kenney Geotechnical Engineering Services, PLLC
 Office: 6901 Herman Road, Syracuse, NY 13209
 Mail: 117 Warners, NY 13164
 Phone: (315) 638-2706

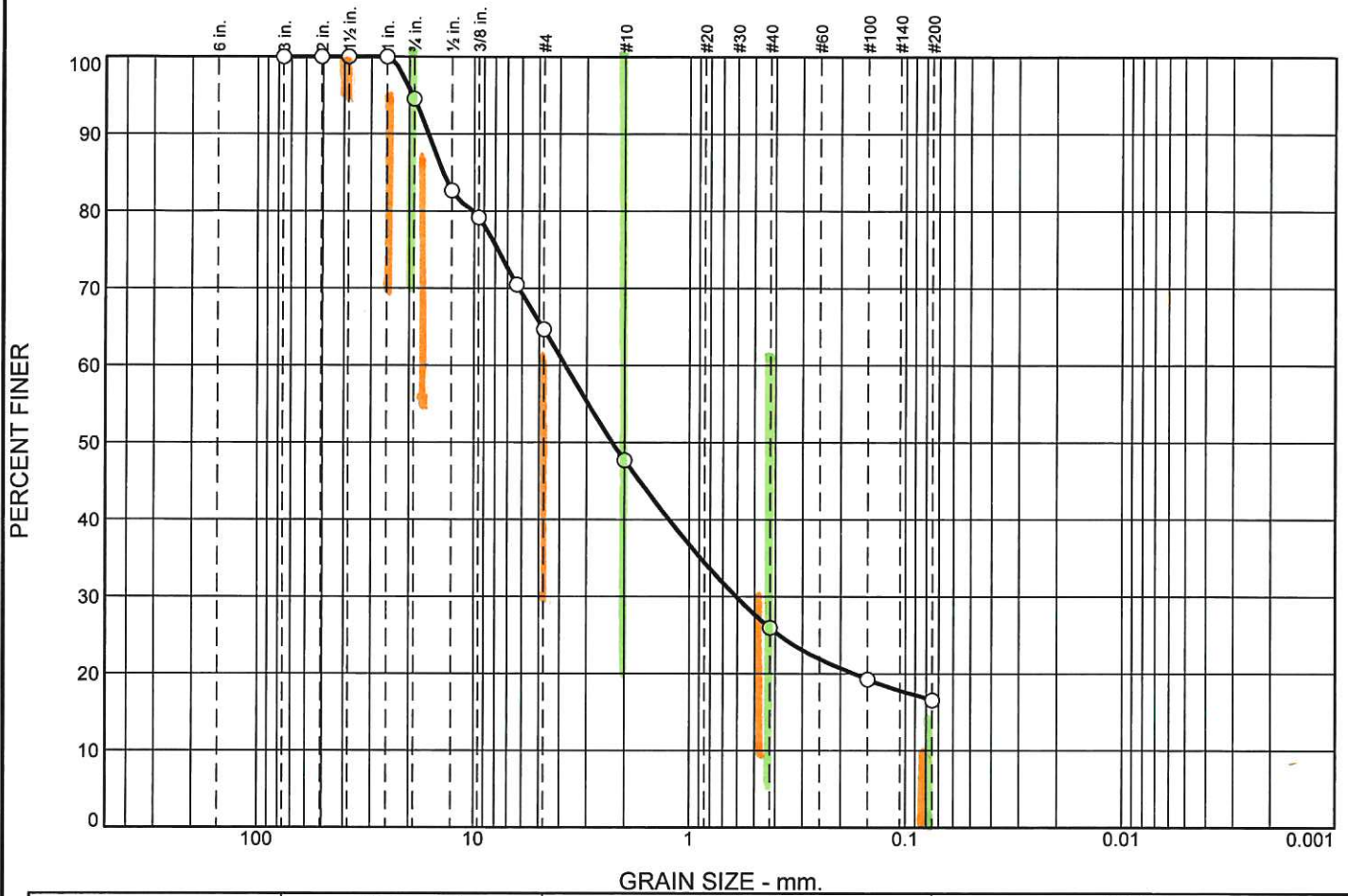
Figure



Tested By: BE

Particle Size Distribution Report

ASTM D422 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.5	29.8	17.0	21.8	9.4	16.5	

LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
		13.9448	3.7719	2.2804	0.6085				

Material Description							Test Date	USCS	NM

Project No. 2022-176 Client: C&S Engineers
 Project: Oswego County Airport Taxiway
 Sample Number: B-4, 0.5'-2'

Remarks:
█ = P. 154 RANGE
█ = P. 209 RANGE

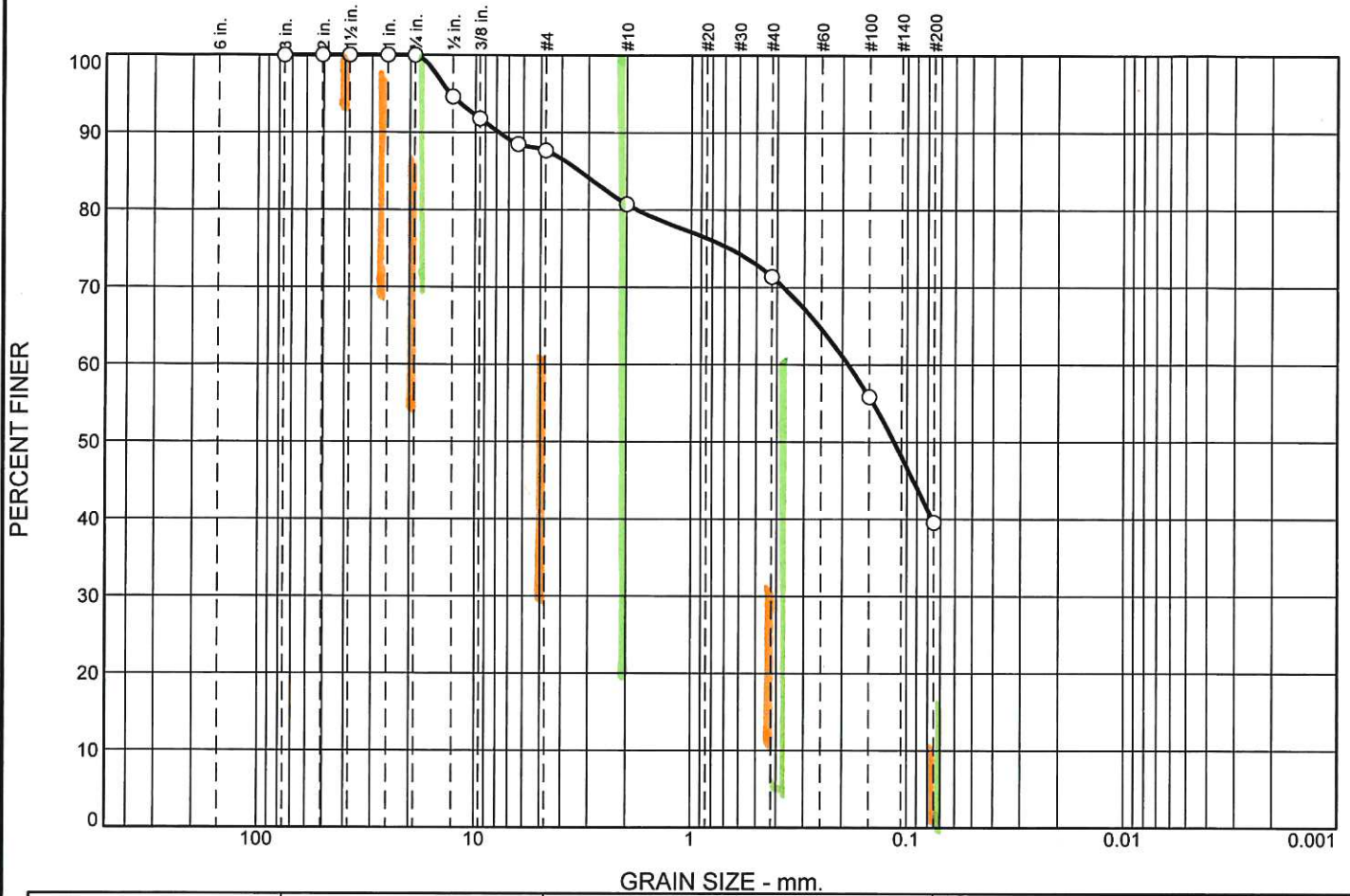


Figure

Tested By: BE

Particle Size Distribution Report

ASTM D422 & D1140



GRAIN SIZE - mm.

%	+3"	% Gravel		% Sand			% Fines			
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
○	0.0	0.0	12.3	7.0	9.3	31.8	39.6			
×	LL	PL	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○			3.3045	0.1883	0.1148					
Material Description								Test Date	USCS	NM
○										

Project No. 2022-176 Client: C&S Engineers
 Project: Oswego County Airport Taxiway
 ○ Sample Number: B-4, 2'-4'

ep. 154
ep. 259

Remarks:

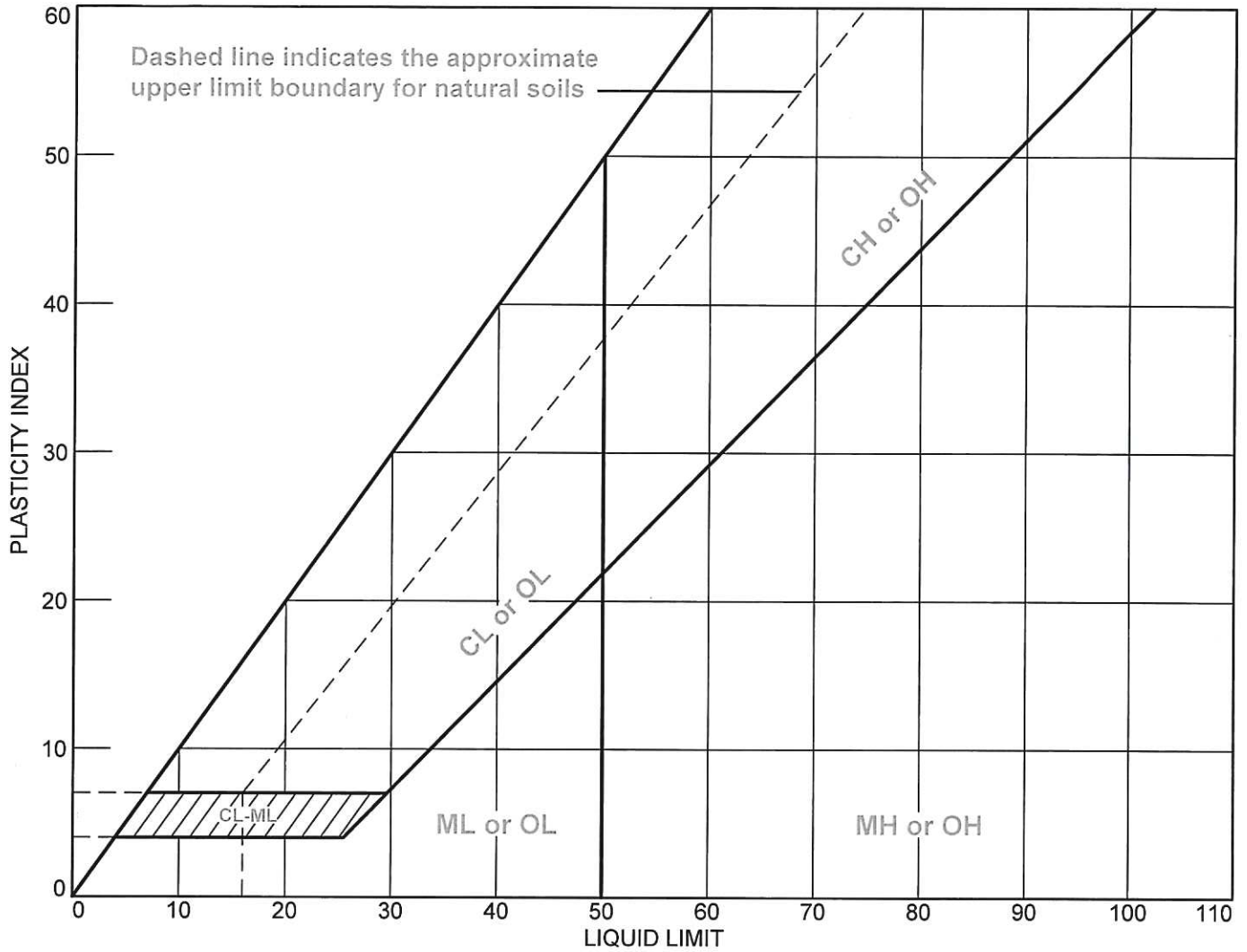
○ Kenney Geotechnical Engineering Services, PLLC
 Office: 6901 Herman Road, Syracuse, NY 13209
 Mail: P.O. Box 117 Warners, NY 13164



Figure

Tested By: BE

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●		B-3, 2'-4'		7.5	NP	NP	NP	



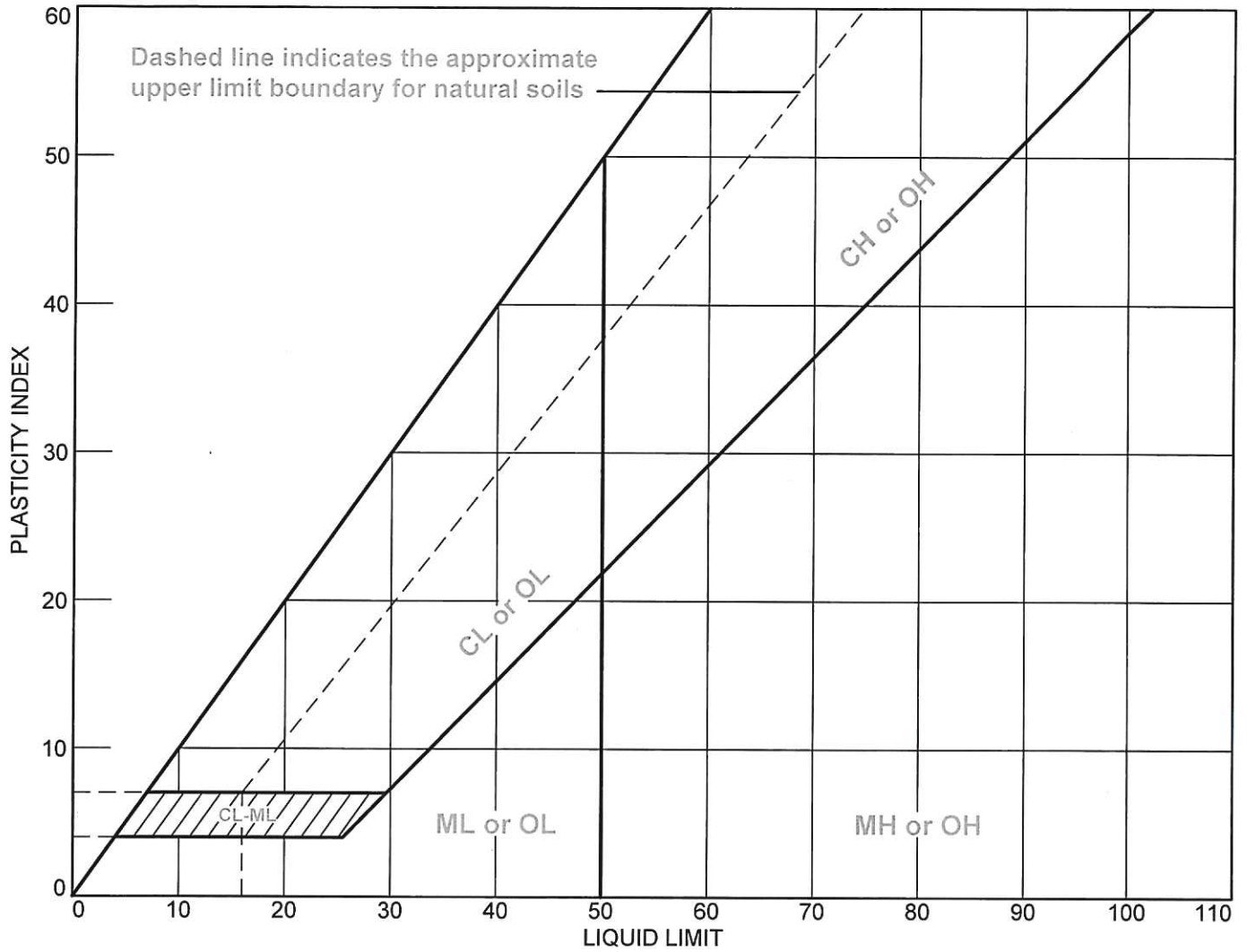
Client: C&S Engineers
Project: Oswego County Airport Taxiway

Project No.: 2022-176

Figure

Tested By: BE

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●		B-5, 4'-6'		7.1	NP	NP	NP	



Kenney Geotechnical
Services

Client: C&S Engineers
Project: Oswego County Airport Taxiway

Project No.: 2022-176

Figure

Tested By: BE



CONTRACT DRAWINGS FOR THE CONSTRUCTION OF

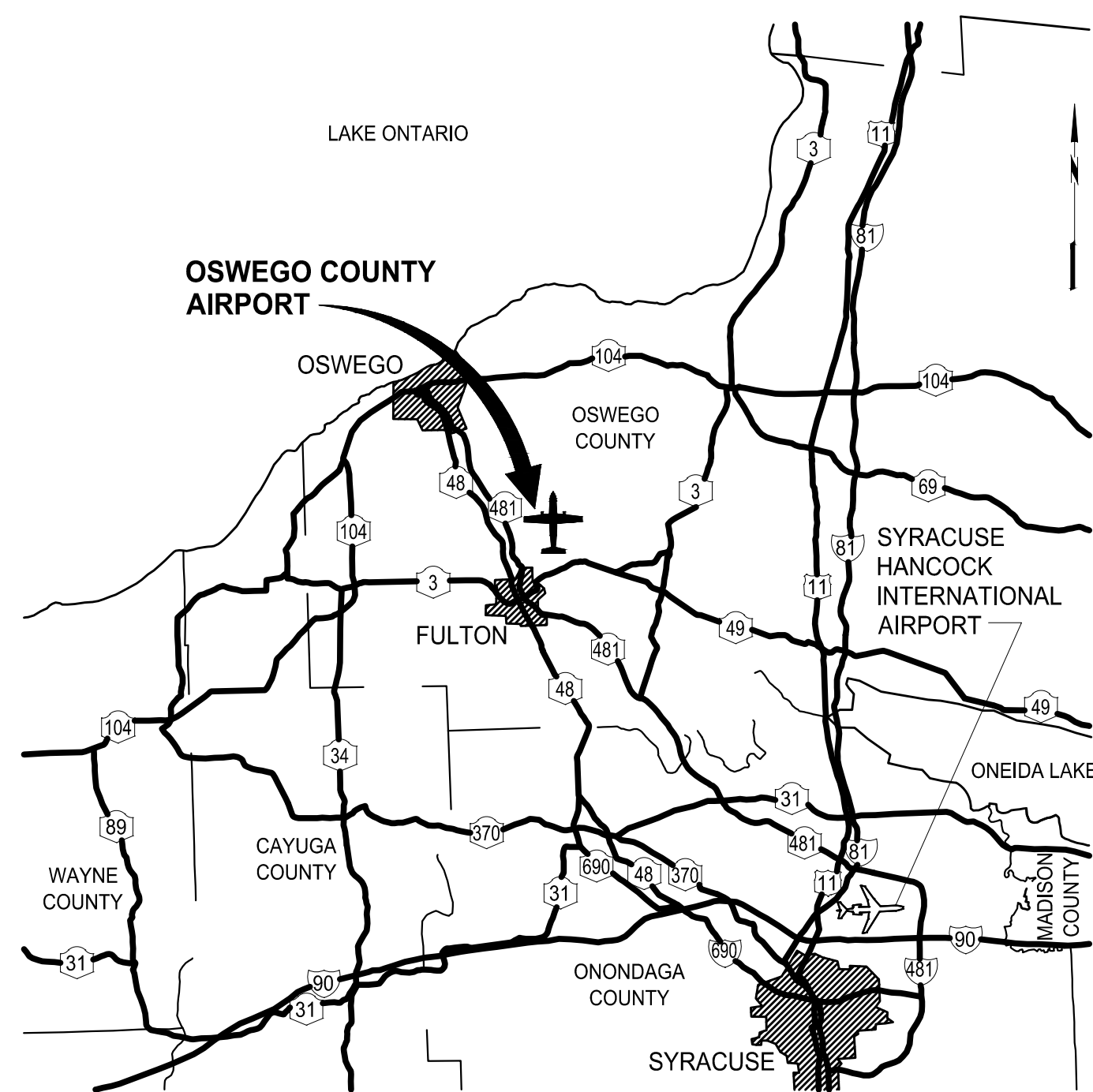
TAXIWAY "B" & "D" REHABILITATION

OSWEGO COUNTY AIRPORT

OSWEGO COUNTY FULTON, NEW YORK

FAA AIP PROJECT: 3-36-0031-056-2022 (D)
FAA AIP PROJECT: 3-36-0031-__-2024 (C)
NYS DOT PROJECT: 3904.__(D)
NYS DOT PROJECT: 3904.__(C)
C&S PROJECT: 180.254.001

FEBRUARY 27, 2024



LOCATION MAP
NOT TO SCALE



TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF
THE PLANS AND SPECIFICATIONS FOR THIS PROJECT ARE IN
COMPLIANCE WITH THE NEW YORK STATE ENERGY
CONSERVATION CONSTRUCTION CODE AND THE BUILDING
CODE OF NEW YORK STATE

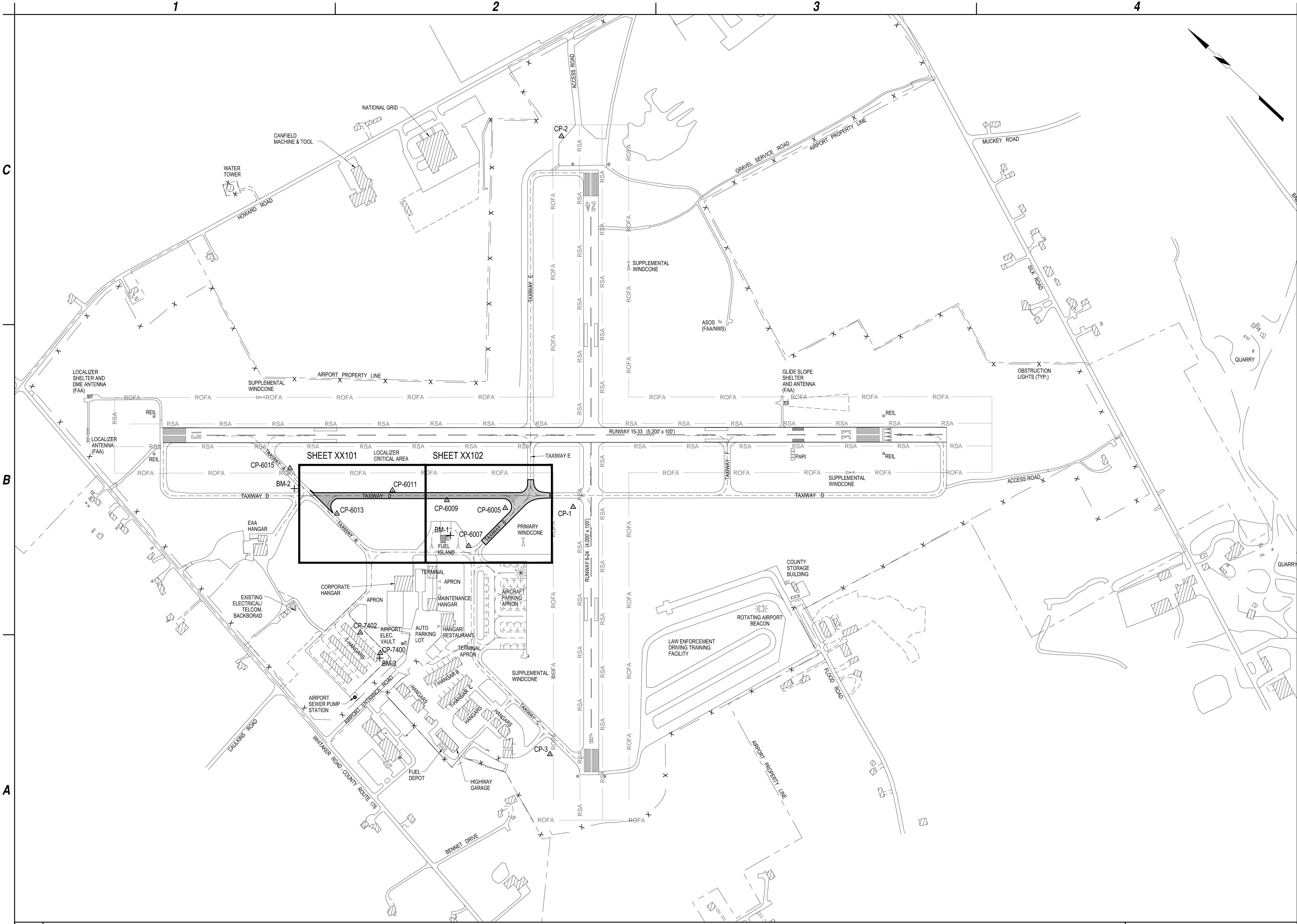
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED
UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK
STATE EDUCATION LAW

SHEET REFERENCE NO.

GI001

SHEET 1 OF 27

Feb. 25, 2024 - 9:18am
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C&S Engineers, Inc.
 499 Col. Eileen Collins Blvd.
 Syracuse, New York 13212
 Phone: 315-455-2000
 Fax: 315-455-9667
 www.cscos.com



TAXIWAY "B" & "D" REHABILITATION
OSWEGO COUNTY AIRPORT
OSWEGO COUNTY
FULTON, NEW YORK

MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO:	180.254.001	
DATE:	FEBRUARY 27, 2024	
DRAWN BY:	J.W.P / T.W.L	
DESIGNED BY:	J.W.P / T.W.L	
CHECKED BY:	C.D.B	

GENERAL AND KEY PLAN

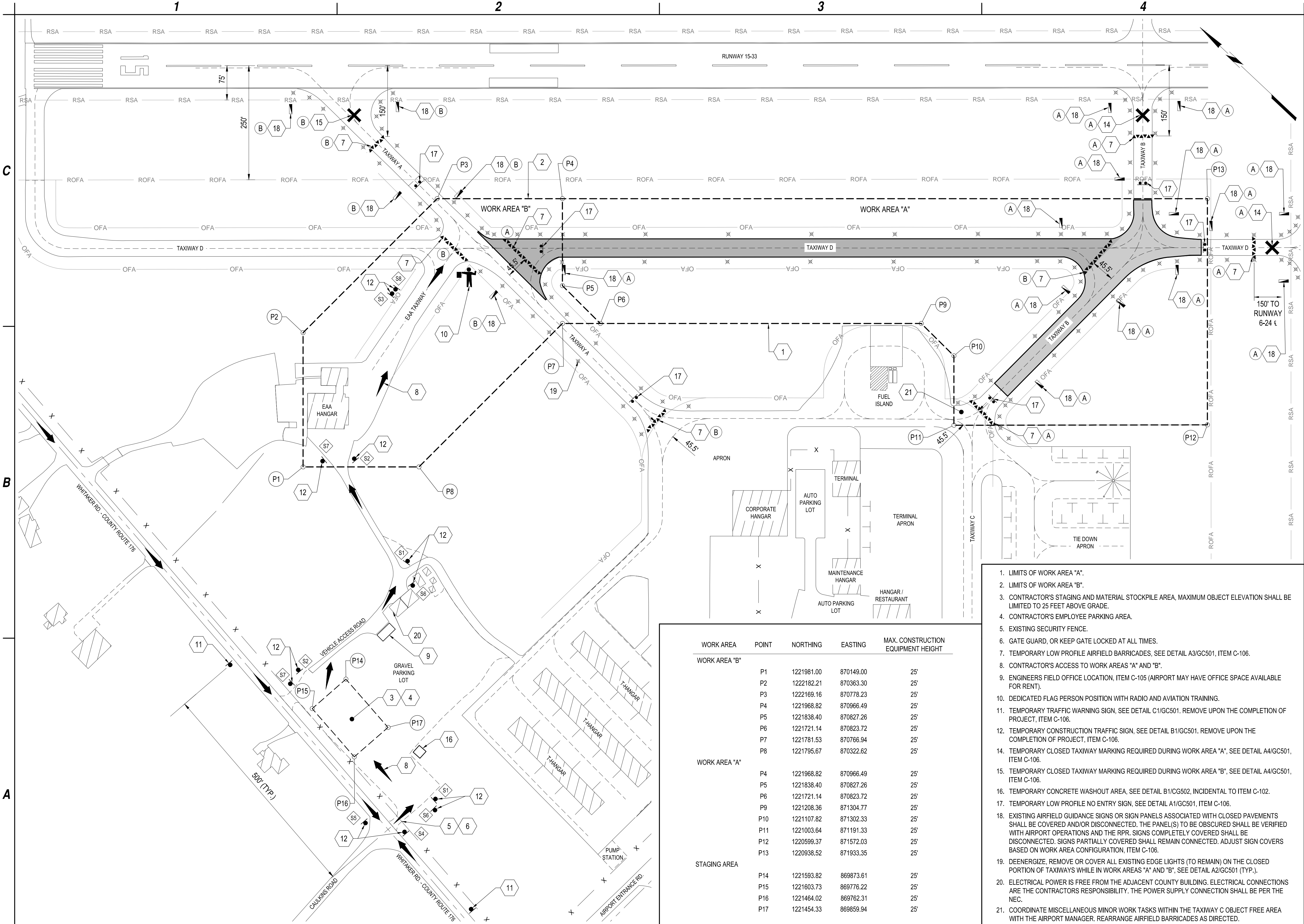
GC101

SHEET 4 OF 27

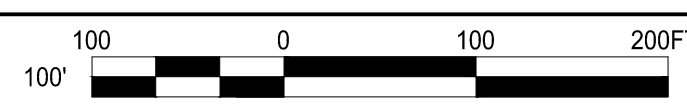
A1 GENERAL PLAN
 SCALE: 1" = 300'



Feb. 24, 2024 - 11:40am
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A1 CONSTRUCTION SAFETY PHASING PLAN
 SCALE: 1" = 100'



A3 CONSTRUCTION PERIMETER DATA TABLE
 SCALE: NOT TO SCALE

WORK AREA	POINT	NORTHING	EASTING	MAX. CONSTRUCTION EQUIPMENT HEIGHT
WORK AREA "B"	P1	1221981.00	870149.00	25'
	P2	1222182.21	870363.30	25'
	P3	1222169.16	870778.23	25'
	P4	1221968.82	870966.49	25'
	P5	1221838.40	870827.26	25'
	P6	1221721.14	870823.72	25'
	P7	1221781.53	870766.94	25'
	P8	1221795.67	870322.62	25'
WORK AREA "A"	P4	1221968.82	870966.49	25'
	P5	1221838.40	870827.26	25'
	P6	1221721.14	870823.72	25'
	P9	1221208.36	871304.77	25'
	P10	1221107.82	871302.33	25'
STAGING AREA	P11	1221003.64	871191.33	25'
	P12	1220599.37	871572.03	25'
	P13	1220938.52	871933.35	25'
	P14	1221593.82	869873.61	25'
	P15	1221603.73	869776.22	25'
	P16	1221464.02	869762.31	25'
	P17	1221454.33	869859.94	25'

- LIMITS OF WORK AREA "A".
- LIMITS OF WORK AREA "B".
- CONTRACTOR'S STAGING AND MATERIAL STOCKPILE AREA, MAXIMUM OBJECT ELEVATION SHALL BE LIMITED TO 25 FEET ABOVE GRADE.
- CONTRACTOR'S EMPLOYEE PARKING AREA.
- EXISTING SECURITY FENCE.
- GATE GUARD, OR KEEP GATE LOCKED AT ALL TIMES.
- TEMPORARY LOW PROFILE AIRFIELD BARRICADES, SEE DETAIL A3/GC501, ITEM C-106.
- CONTRACTOR'S ACCESS TO WORK AREAS "A" AND "B".
- ENGINEERS FIELD OFFICE LOCATION, ITEM C-105 (AIRPORT MAY HAVE OFFICE SPACE AVAILABLE FOR RENT).
- DEDICATED FLAG PERSON POSITION WITH RADIO AND AVIATION TRAINING.
- TEMPORARY TRAFFIC WARNING SIGN, SEE DETAIL C1/GC501. REMOVE UPON THE COMPLETION OF PROJECT, ITEM C-106.
- TEMPORARY CONSTRUCTION TRAFFIC SIGN, SEE DETAIL B1/GC501. REMOVE UPON THE COMPLETION OF PROJECT, ITEM C-106.
- TEMPORARY CLOSED TAXIWAY MARKING REQUIRED DURING WORK AREA "A", SEE DETAIL A4/GC501, ITEM C-106.
- TEMPORARY CLOSED TAXIWAY MARKING REQUIRED DURING WORK AREA "B", SEE DETAIL A4/GC501, ITEM C-106.
- TEMPORARY CONCRETE WASHOUT AREA, SEE DETAIL B1/GC502, INCIDENTAL TO ITEM C-102.
- TEMPORARY LOW PROFILE NO ENTRY SIGN, SEE DETAIL A1/GC501, ITEM C-106.
- EXISTING AIRFIELD GUIDANCE SIGNS OR SIGN PANELS ASSOCIATED WITH CLOSED PAVEMENTS SHALL BE COVERED AND/OR DISCONNECTED. THE PANEL(S) TO BE OBSCURED SHALL BE VERIFIED WITH AIRPORT OPERATIONS AND THE RPR. SIGNS COMPLETELY COVERED SHALL BE DISCONNECTED. SIGNS PARTIALLY COVERED SHALL REMAIN CONNECTED. ADJUST SIGN COVERS BASED ON WORK AREA CONFIGURATION, ITEM C-106.
- DEENERGIZE, REMOVE OR COVER ALL EXISTING EDGE LIGHTS (TO REMAIN) ON THE CLOSED PORTION OF TAXIWAYS WHILE IN WORK AREAS "A" AND "B", SEE DETAIL A2/GC501 (TYP.).
- ELECTRICAL POWER IS FREE FROM THE ADJACENT COUNTY BUILDING. ELECTRICAL CONNECTIONS ARE THE CONTRACTORS RESPONSIBILITY. THE POWER SUPPLY CONNECTION SHALL BE PER THE NEC.
- COORDINATE MISCELLANEOUS MINOR WORK TASKS WITHIN THE TAXIWAY C OBJECT FREE AREA WITH THE AIRPORT MANAGER. REARRANGE AIRFIELD BARRICADES AS DIRECTED.

A4 KEYED NOTES
 SCALE: NOT TO SCALE



C&S Engineers, Inc.
 499 Col. Eileen Collins Blvd.
 Syracuse, New York 13212
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 Fax: 315-455-9667
 www.cscos.com

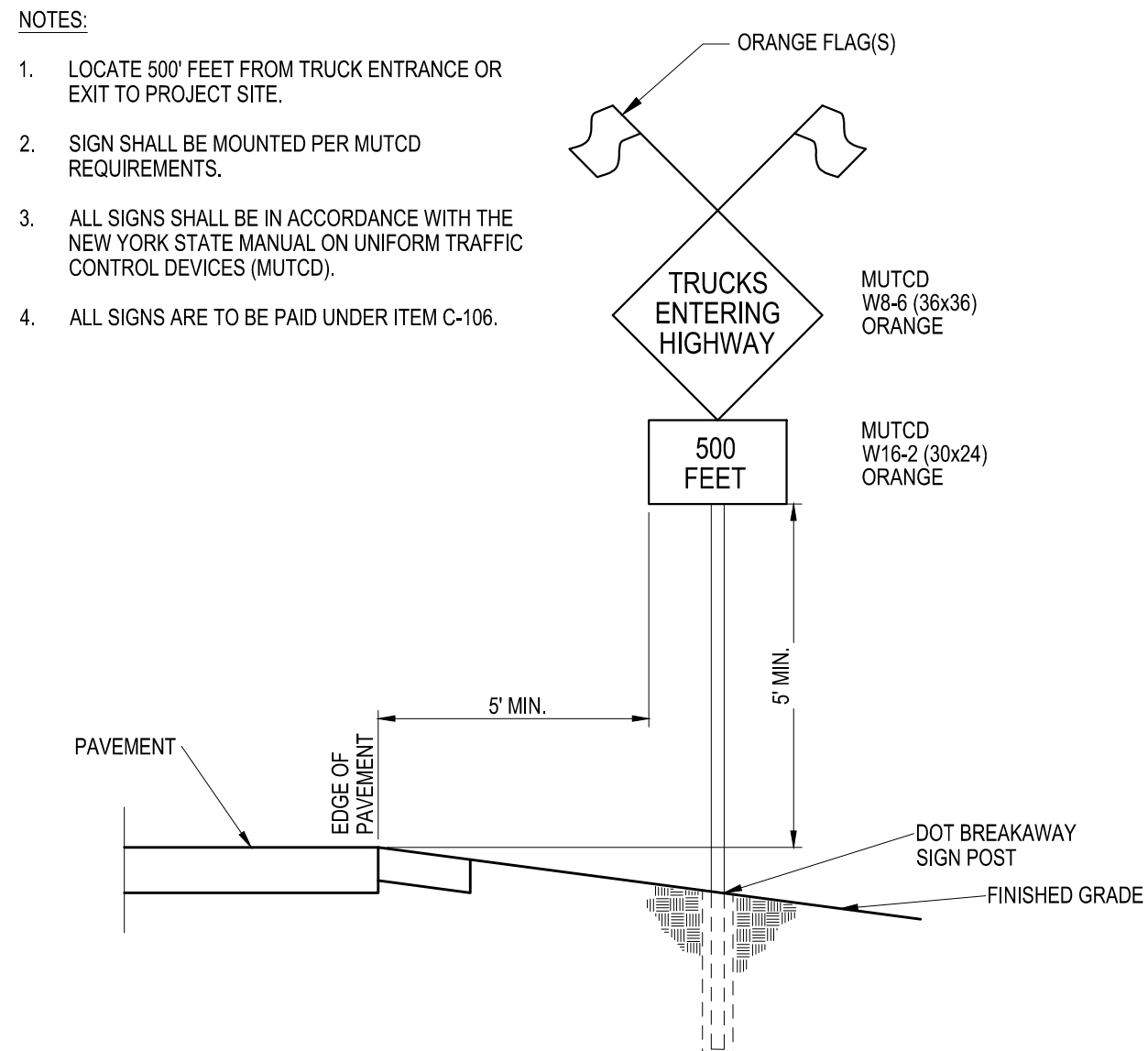


TAXIWAY "B" & "D" REHABILITATION
OSWEGO COUNTY AIRPORT
OSWEGO COUNTY
FULTON, NEW YORK

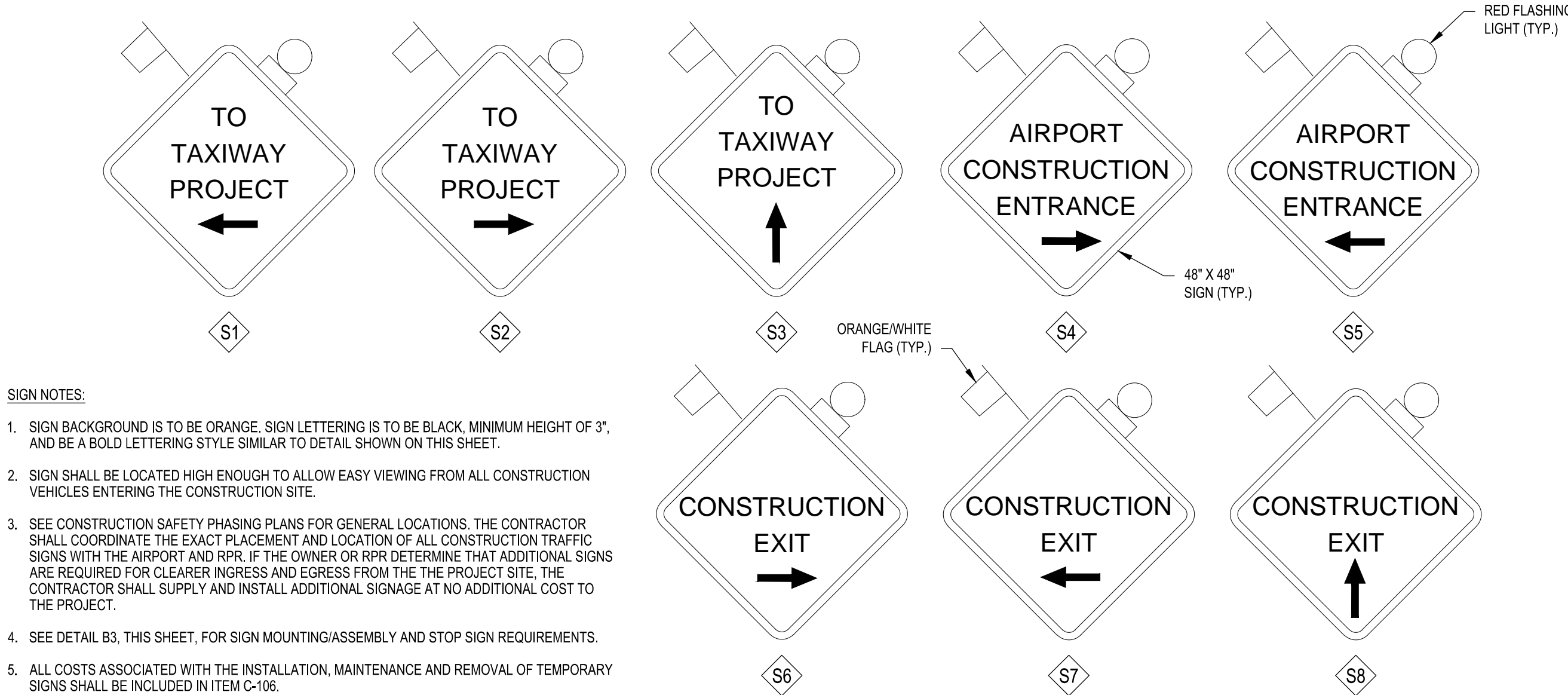
MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO:	180.254.001	
DATE:	FEBRUARY 27, 2024	
DRAWN BY:	J.W.P / T.W.L	
DESIGNED BY:	J.W.P / T.W.L	
CHECKED BY:	C.D.B	

CONSTRUCTION SAFETY AND PHASING DRAWING

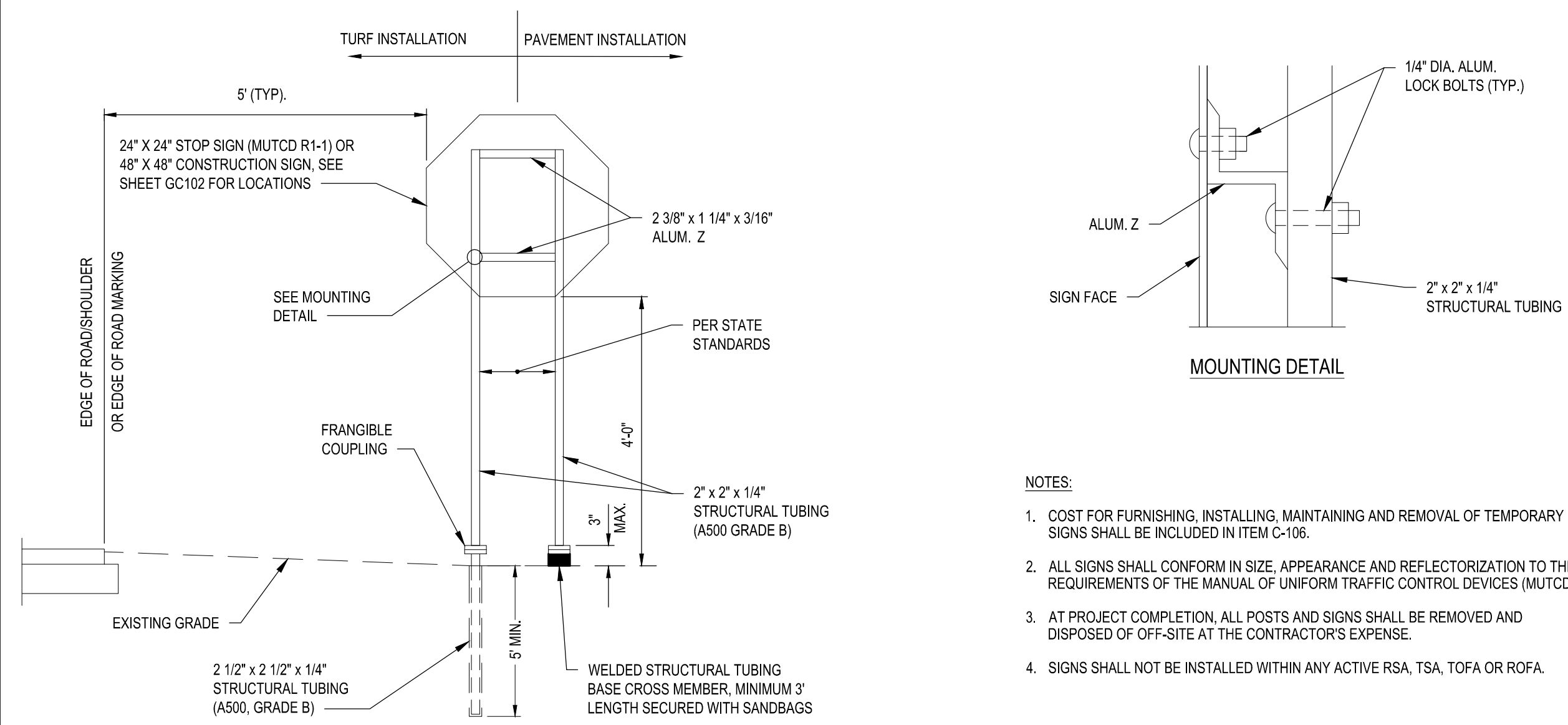
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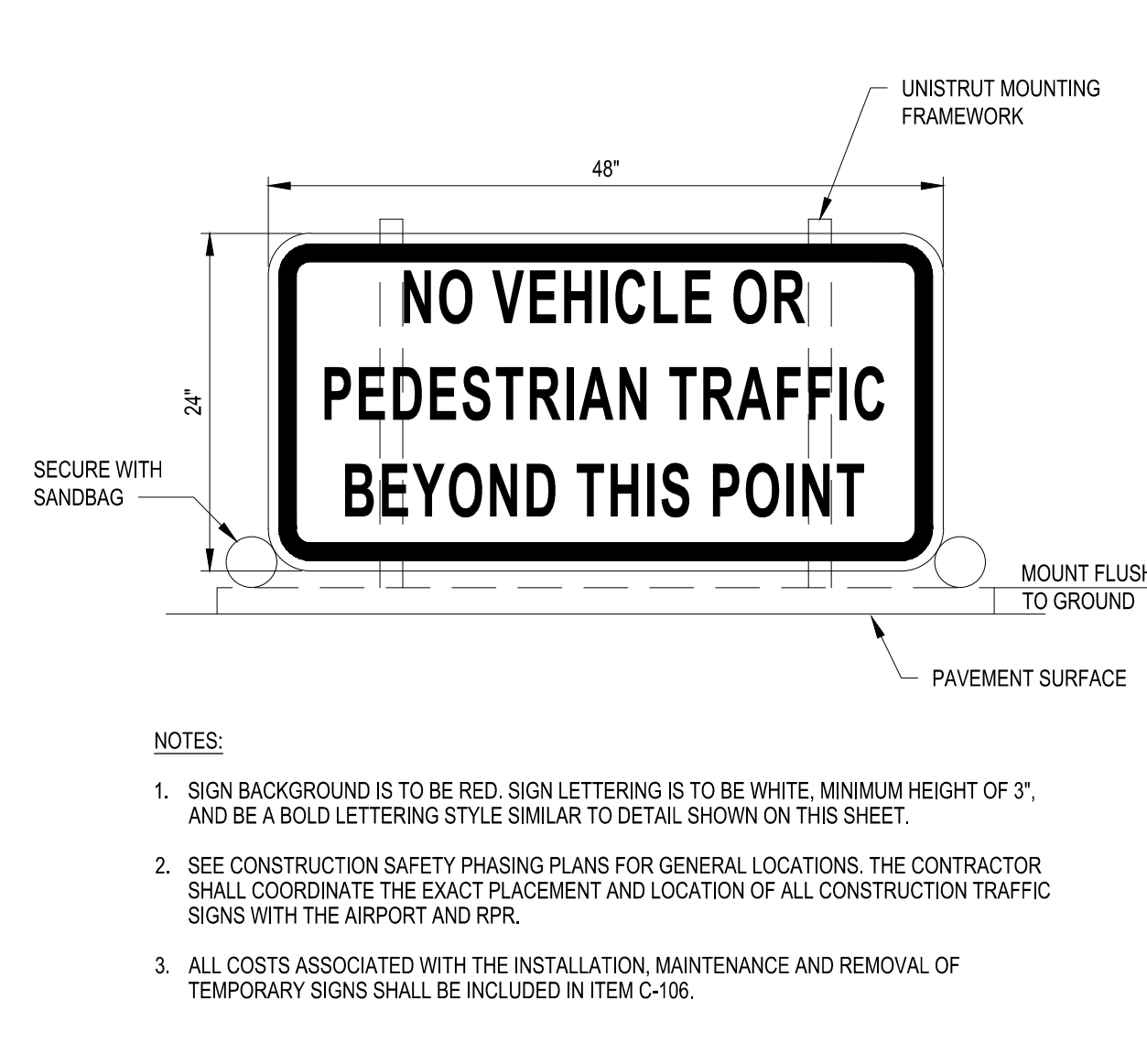
C1 TRAFFIC WARNING SIGN DETAIL
SCALE: NOT TO SCALE



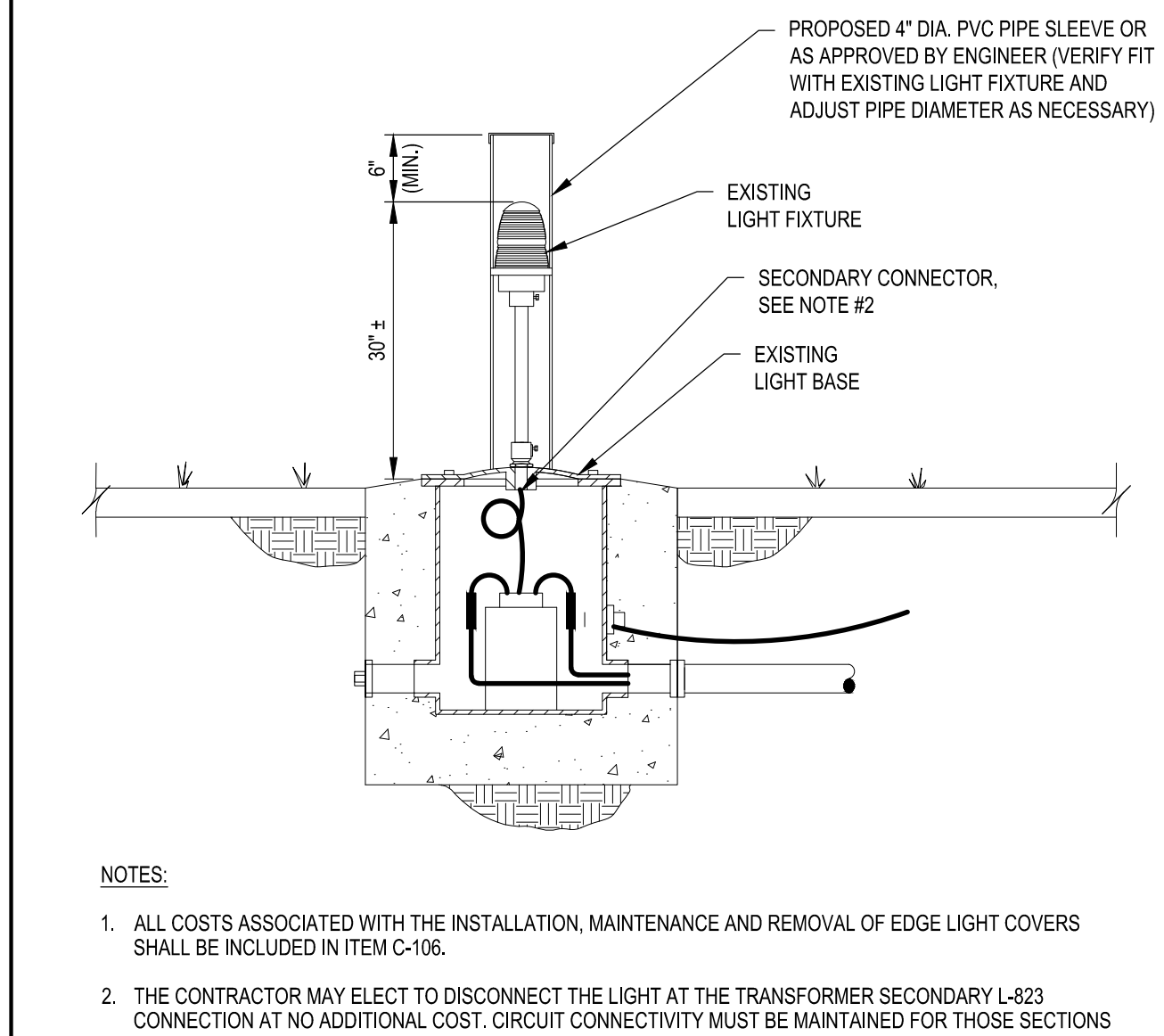
B1 TEMPORARY CONSTRUCTION SIGN DETAIL
SCALE: NOT TO SCALE



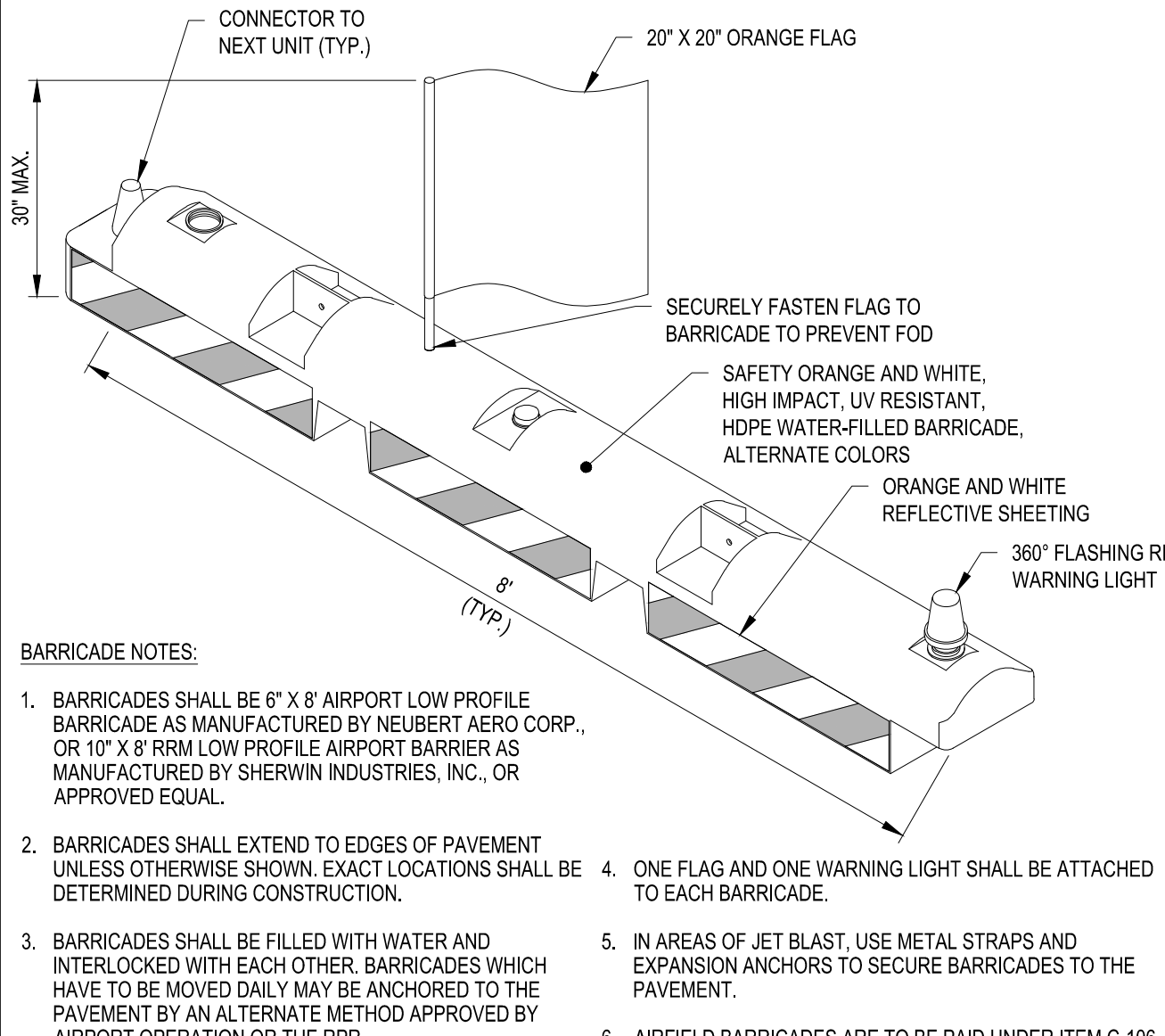
B3 TEMPORARY CONSTRUCTION SIGN ASSEMBLY DETAIL
SCALE: NOT TO SCALE



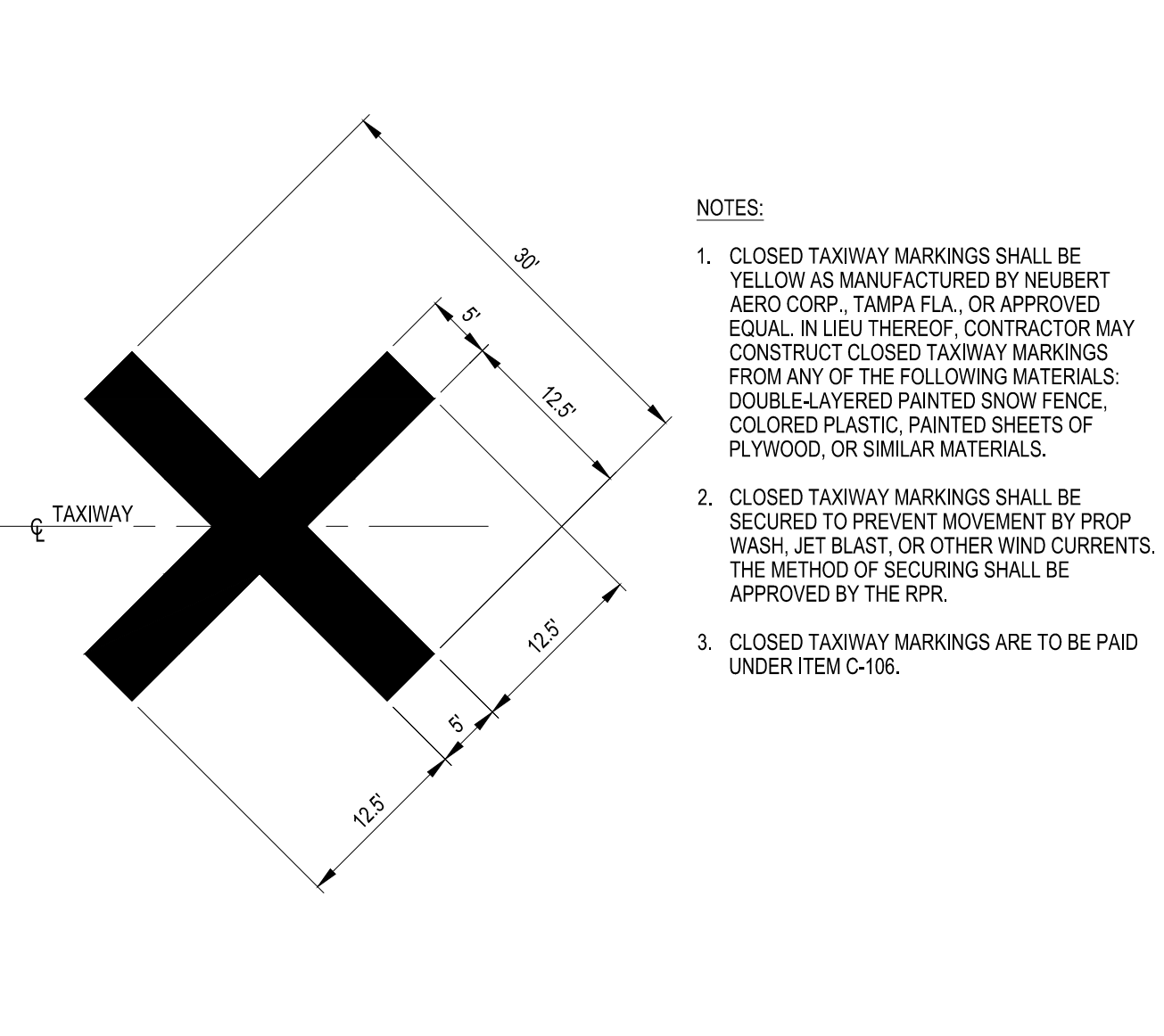
A1 TEMPORARY LOW PROFILE NO ENTRY SIGN DETAIL
SCALE: NOT TO SCALE



A2 TEMPORARY EDGE LIGHT COVER DETAIL
SCALE: NOT TO SCALE



A3 INTERLOCKING AIRFIELD BARRICADE DETAIL
SCALE: NOT TO SCALE



A4 CLOSED TAXIWAY MARKING DETAIL
SCALE: NOT TO SCALE

- SIGN NOTES:**
- SIGN BACKGROUND IS TO BE ORANGE. SIGN LETTERING IS TO BE BLACK, MINIMUM HEIGHT OF 3", AND BE A BOLD LETTERING STYLE SIMILAR TO DETAIL SHOWN ON THIS SHEET.
 - SIGN SHALL BE LOCATED HIGH ENOUGH TO ALLOW EASY VIEWING FROM ALL CONSTRUCTION VEHICLES ENTERING THE CONSTRUCTION SITE.
 - SEE CONSTRUCTION SAFETY PHASING PLANS FOR GENERAL LOCATIONS. THE CONTRACTOR SHALL COORDINATE THE EXACT PLACEMENT AND LOCATION OF ALL CONSTRUCTION TRAFFIC SIGNS WITH THE AIRPORT AND RPR. IF THE OWNER OR RPR DETERMINE THAT ADDITIONAL SIGNS ARE REQUIRED FOR CLEARER INGRESS AND EGRESS FROM THE THE PROJECT SITE, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL SIGNAGE AT NO ADDITIONAL COST TO THE PROJECT.
 - SEE DETAIL B3, THIS SHEET, FOR SIGN MOUNTING/ASSEMBLY AND STOP SIGN REQUIREMENTS.
 - ALL COSTS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE AND REMOVAL OF TEMPORARY SIGNS SHALL BE INCLUDED IN ITEM C-106.

- NOTES:**
- COST FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVAL OF TEMPORARY SIGNS SHALL BE INCLUDED IN ITEM C-106.
 - ALL SIGNS SHALL CONFORM IN SIZE, APPEARANCE AND REFLECTORIZATION TO THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
 - AT PROJECT COMPLETION, ALL POSTS AND SIGNS SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT THE CONTRACTOR'S EXPENSE.
 - SIGNS SHALL NOT BE INSTALLED WITHIN ANY ACTIVE RSA, TSA, TOFA OR ROFA.

- BARRICADE NOTES:**
- BARRICADES SHALL BE 6" X 8' AIRPORT LOW PROFILE BARRICADE AS MANUFACTURED BY NEUBERT AERO CORP., OR 10" X 8' RRM LOW PROFILE AIRPORT BARRIER AS MANUFACTURED BY SHERWIN INDUSTRIES, INC., OR APPROVED EQUAL.
 - BARRICADES SHALL EXTEND TO EDGES OF PAVEMENT UNLESS OTHERWISE SHOWN. EXACT LOCATIONS SHALL BE DETERMINED DURING CONSTRUCTION.
 - BARRICADES SHALL BE FILLED WITH WATER AND INTERLOCKED WITH EACH OTHER. BARRICADES WHICH HAVE TO BE MOVED DAILY MAY BE ANCHORED TO THE PAVEMENT BY AN ALTERNATE METHOD APPROVED BY AIRPORT OPERATION OR THE RPR.
 - ONE FLAG AND ONE WARNING LIGHT SHALL BE ATTACHED TO EACH BARRICADE.
 - IN AREAS OF JET BLAST, USE METAL STRAPS AND EXPANSION ANCHORS TO SECURE BARRICADES TO THE PAVEMENT.
 - AIRFIELD BARRICADES ARE TO BE PAID UNDER ITEM C-106.

Feb. 24, 2024 - 11:41am - OSWEGO COUNTY\180254001 - TWP B&D Rehab Design\CADD\Sheet Files\180254001-C0-Detail.dwg



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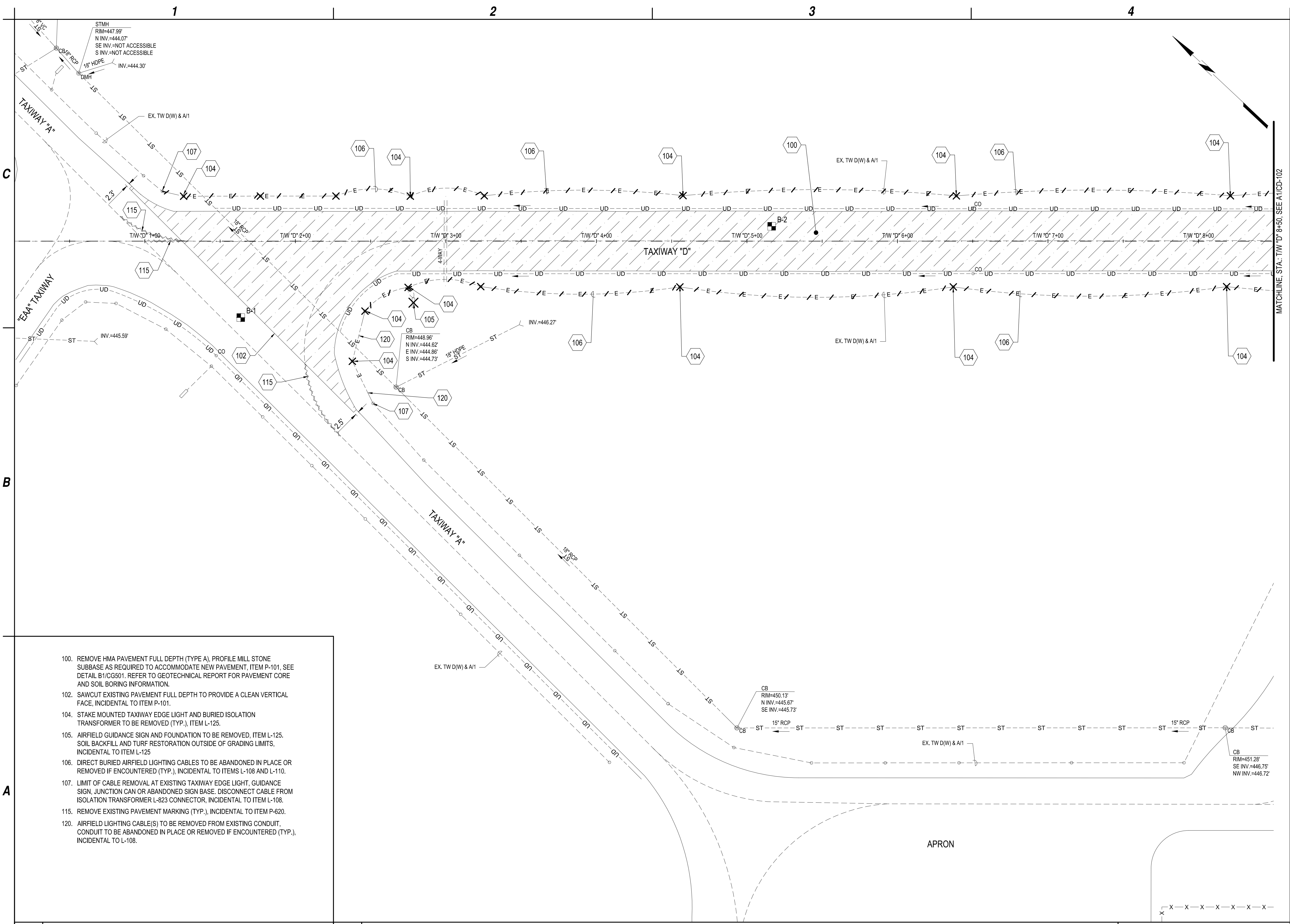
TAXIWAY "B" & "D" REHABILITATION
OSWEGO COUNTY AIRPORT
OSWEGO COUNTY
FULTON, NEW YORK

MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO:	180.254.001	
DATE:	FEBRUARY 27, 2024	
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DESIGNED BY:	J.W.P / T.W.L	
CHECKED BY:	C.D.B	

CONSTRUCTION SAFETY AND PHASING DETAILS

GC501

Feb. 24, 2024 - 11:42am - OSWEGO COUNTY\180254001 - TWY B&D Rehab Design\CADD\Sheet Files\180254001_CD-Series.dwg



MATCHLINE STA.: TW "D" 8+50, SEE A1/CD-102

- 100.** REMOVE HMA PAVEMENT FULL DEPTH (TYPE A), PROFILE MILL STONE SUBBASE AS REQUIRED TO ACCOMMODATE NEW PAVEMENT, ITEM P-101, SEE DETAIL B1/CG501. REFER TO GEOTECHNICAL REPORT FOR PAVEMENT CORE AND SOIL BORING INFORMATION.
- 102.** SAWCUT EXISTING PAVEMENT FULL DEPTH TO PROVIDE A CLEAN VERTICAL FACE, INCIDENTAL TO ITEM P-101.
- 104.** STAKE MOUNTED TAXIWAY EDGE LIGHT AND BURIED ISOLATION TRANSFORMER TO BE REMOVED (TYP.), ITEM L-125.
- 105.** AIRFIELD GUIDANCE SIGN AND FOUNDATION TO BE REMOVED, ITEM L-125. SOIL BACKFILL AND TURF RESTORATION OUTSIDE OF GRADING LIMITS, INCIDENTAL TO ITEM L-125.
- 106.** DIRECT BURIED AIRFIELD LIGHTING CABLES TO BE ABANDONED IN PLACE OR REMOVED IF ENCOUNTERED (TYP.), INCIDENTAL TO ITEMS L-108 AND L-110.
- 107.** LIMIT OF CABLE REMOVAL AT EXISTING TAXIWAY EDGE LIGHT, GUIDANCE SIGN, JUNCTION CAN OR ABANDONED SIGN BASE. DISCONNECT CABLE FROM ISOLATION TRANSFORMER L-823 CONNECTOR, INCIDENTAL TO ITEM L-108.
- 115.** REMOVE EXISTING PAVEMENT MARKING (TYP.), INCIDENTAL TO ITEM P-620.
- 120.** AIRFIELD LIGHTING CABLE(S) TO BE REMOVED FROM EXISTING CONDUIT, CONDUIT TO BE ABANDONED IN PLACE OR REMOVED IF ENCOUNTERED (TYP.), INCIDENTAL TO L-108.

A1 KEYED NOTES
SCALE: NOT TO SCALE

A2 DEMOLITION PLAN
SCALE: 1" = 30'



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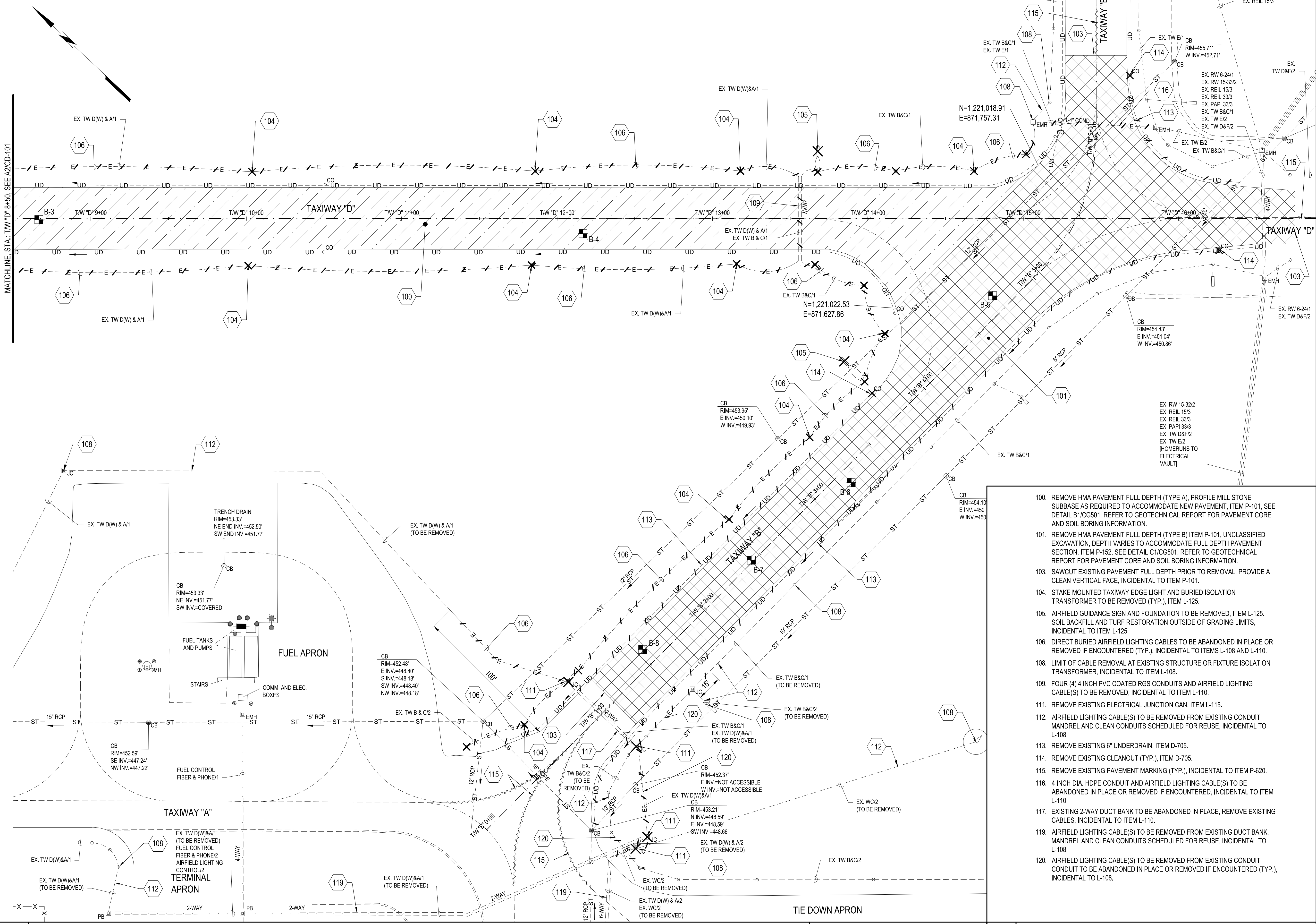
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REVISIONS		
PROJECT NO:	180.254.001	
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DEMOLITION PLAN

CD101

SHEET 7 OF 27

Feb. 24, 2024 - 11:43am - OSWEGO COUNTY\180 - OSWEGO COUNTY\180254001 - TWR, B&D, Rehab, Design\CADD\Sheet - Files\180254001_CD-Series.dwg



- 100. REMOVE HMA PAVEMENT FULL DEPTH (TYPE A), PROFILE MILL STONE SUBBASE AS REQUIRED TO ACCOMMODATE NEW PAVEMENT, ITEM P-101, SEE DETAIL B1/CG501. REFER TO GEOTECHNICAL REPORT FOR PAVEMENT CORE AND SOIL BORING INFORMATION.
- 101. REMOVE HMA PAVEMENT FULL DEPTH (TYPE B) ITEM P-101, UNCLASSIFIED EXCAVATION, DEPTH VARIES TO ACCOMMODATE FULL DEPTH PAVEMENT SECTION, ITEM P-152, SEE DETAIL C1/CG501. REFER TO GEOTECHNICAL REPORT FOR PAVEMENT CORE AND SOIL BORING INFORMATION.
- 103. SAWCUT EXISTING PAVEMENT FULL DEPTH PRIOR TO REMOVAL, PROVIDE A CLEAN VERTICAL FACE, INCIDENTAL TO ITEM P-101.
- 104. STAKE MOUNTED TAXIWAY EDGE LIGHT AND BURIED ISOLATION TRANSFORMER TO BE REMOVED (TYP.), ITEM L-125.
- 105. AIRFIELD GUIDANCE SIGN AND FOUNDATION TO BE REMOVED, ITEM L-125. SOIL BACKFILL AND TURF RESTORATION OUTSIDE OF GRADING LIMITS, INCIDENTAL TO ITEM L-125.
- 106. DIRECT BURIED AIRFIELD LIGHTING CABLES TO BE ABANDONED IN PLACE OR REMOVED IF ENCOUNTERED (TYP.), INCIDENTAL TO ITEMS L-108 AND L-110.
- 108. LIMIT OF CABLE REMOVAL AT EXISTING STRUCTURE OR FIXTURE ISOLATION TRANSFORMER, INCIDENTAL TO ITEM L-108.
- 109. FOUR (4) 4 INCH PVC COATED RGS CONDUITS AND AIRFIELD LIGHTING CABLE(S) TO BE REMOVED, INCIDENTAL TO ITEM L-110.
- 111. REMOVE EXISTING ELECTRICAL JUNCTION CAN, ITEM L-115.
- 112. AIRFIELD LIGHTING CABLE(S) TO BE REMOVED FROM EXISTING CONDUIT, MANDREL AND CLEAN CONDUITS SCHEDULED FOR REUSE, INCIDENTAL TO L-108.
- 113. REMOVE EXISTING 6" UNDERDRAIN, ITEM D-705.
- 114. REMOVE EXISTING CLEANOUT (TYP.), ITEM D-705.
- 115. REMOVE EXISTING PAVEMENT MARKING (TYP.), INCIDENTAL TO ITEM P-620.
- 116. 4 INCH DIA. HDPE CONDUIT AND AIRFIELD LIGHTING CABLE(S) TO BE ABANDONED IN PLACE OR REMOVED IF ENCOUNTERED, INCIDENTAL TO ITEM L-110.
- 117. EXISTING 2-WAY DUCT BANK TO BE ABANDONED IN PLACE, REMOVE EXISTING CABLES, INCIDENTAL TO ITEM L-110.
- 119. AIRFIELD LIGHTING CABLE(S) TO BE REMOVED FROM EXISTING DUCT BANK, MANDREL AND CLEAN CONDUITS SCHEDULED FOR REUSE, INCIDENTAL TO L-108.
- 120. AIRFIELD LIGHTING CABLE(S) TO BE REMOVED FROM EXISTING CONDUIT, CONDUIT TO BE ABANDONED IN PLACE OR REMOVED IF ENCOUNTERED (TYP.), INCIDENTAL TO L-108.

A1 DEMOLITION PLAN
SCALE: 1" = 30'



A4 KEYED NOTES
SCALE: NOT TO SCALE



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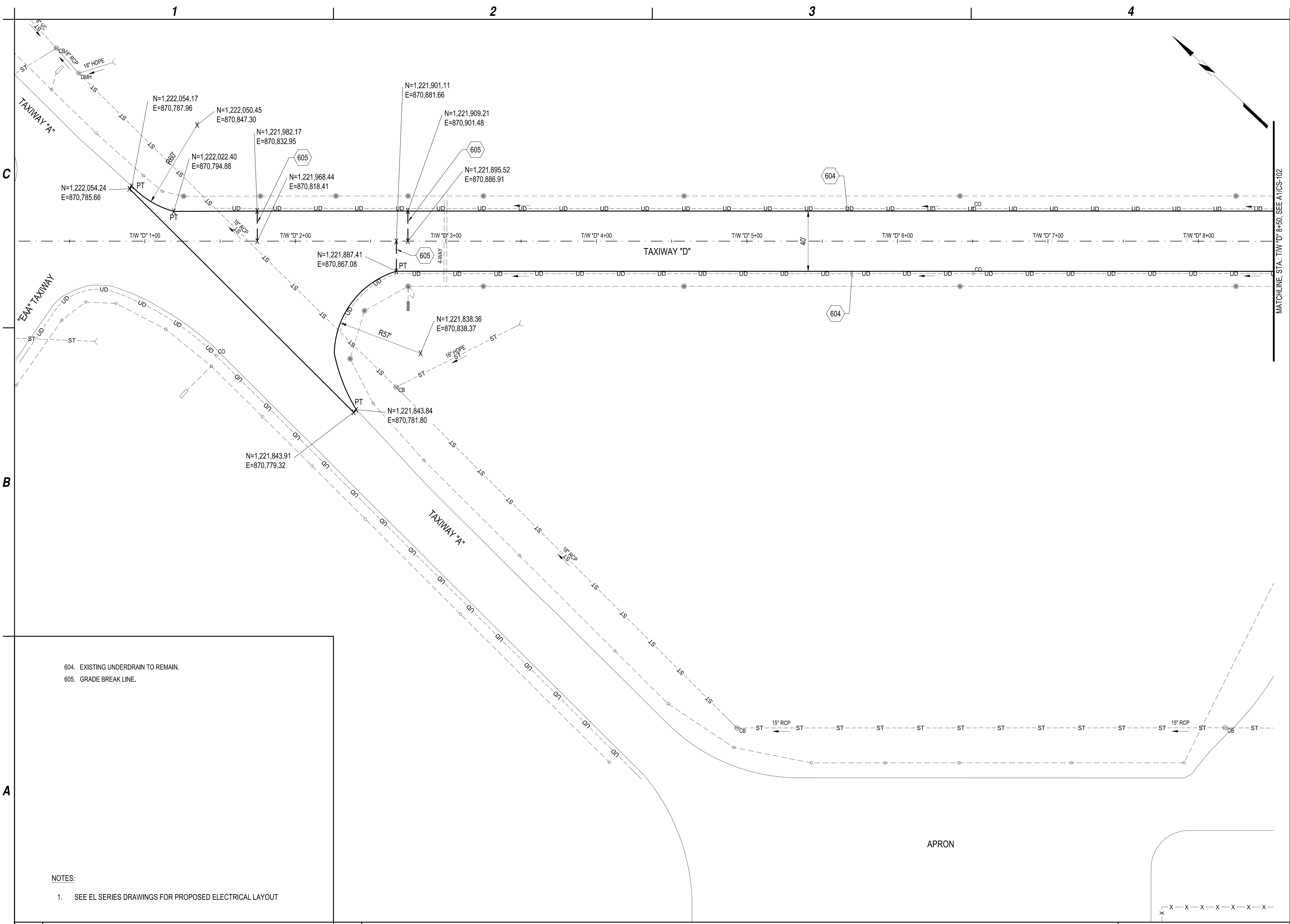
MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO:	180.254.001	
DATE:	FEBRUARY 27, 2024	
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DEMOLITION PLAN

CD102

SHEET 8 OF 27

Feb 24, 2024 - 11:44am
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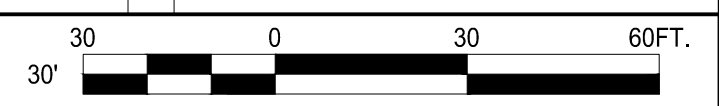


- 604. EXISTING UNDERDRAIN TO REMAIN.
- 605. GRADE BREAK LINE.

NOTES:
 1. SEE EL SERIES DRAWINGS FOR PROPOSED ELECTRICAL LAYOUT

A1 KEYED NOTES
 SCALE: NOT TO SCALE

A2 GEOMETRY AND DRAINAGE PLAN
 SCALE: 1" = 30'



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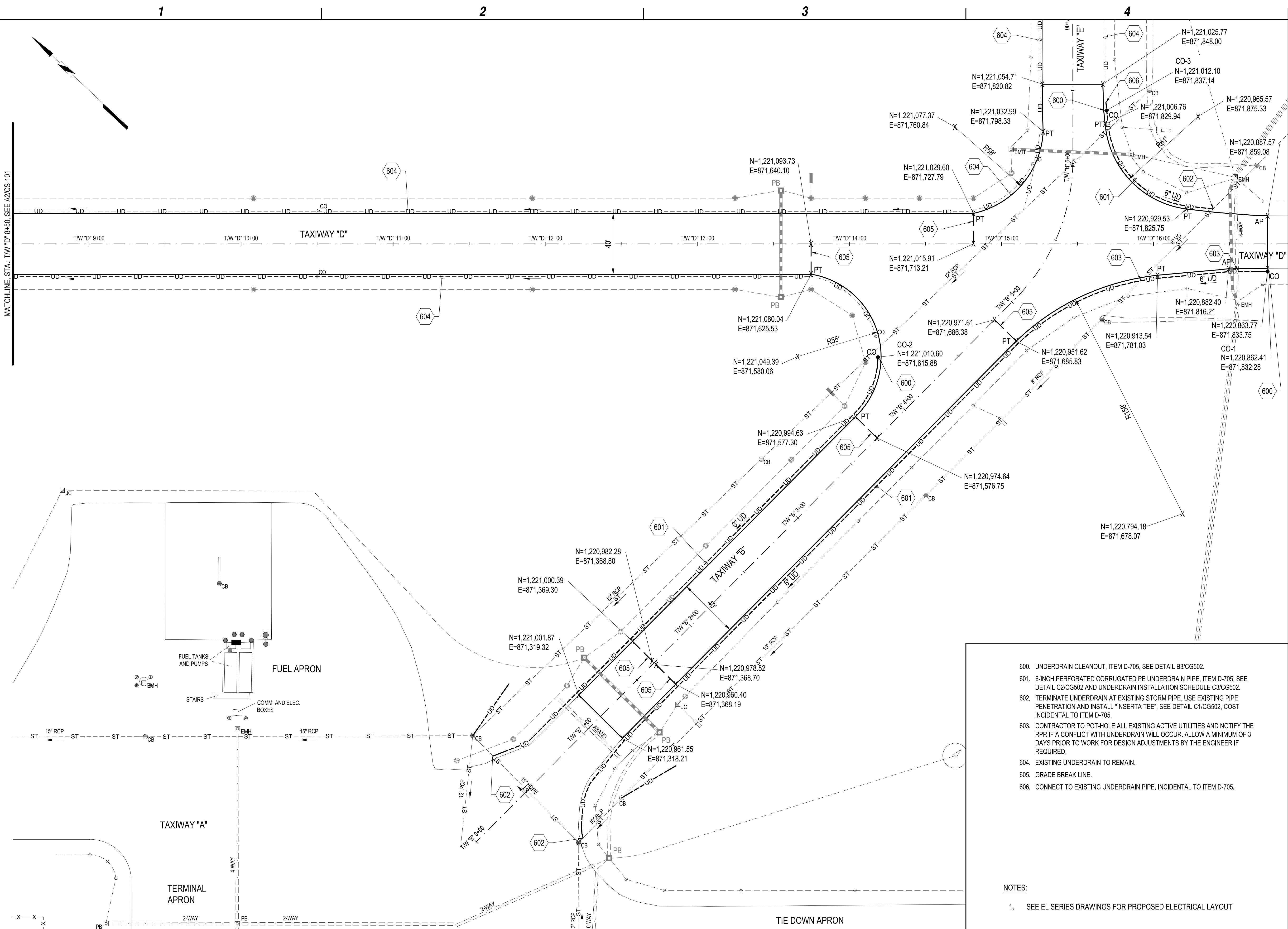
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PROJECT NO:	180.254.001	
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CHECKED BY:	C.D.B	

GEOMETRY AND DRAINAGE PLAN

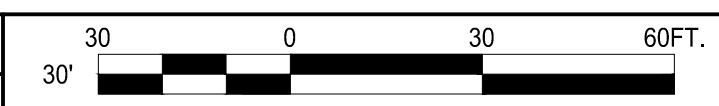
CS101

SHEET 9 OF 27

Feb. 24, 2024 - 11:50am
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A1 GEOMETRY AND DRAINAGE PLAN
 SCALE: 1" = 30'



- NOTES:**
- SEE EL SERIES DRAWINGS FOR PROPOSED ELECTRICAL LAYOUT
- KEYED NOTES**
 SCALE: NOT TO SCALE
- 600. UNDERDRAIN CLEANOUT, ITEM D-705. SEE DETAIL B3/CG502.
 - 601. 6-INCH PERFORATED CORRUGATED PE UNDERDRAIN PIPE, ITEM D-705. SEE DETAIL C2/CG502 AND UNDERDRAIN INSTALLATION SCHEDULE C3/CG502.
 - 602. TERMINATE UNDERDRAIN AT EXISTING STORM PIPE, USE EXISTING PIPE PENETRATION AND INSTALL "INSERTA TEE", SEE DETAIL C1/CG502, COST INCIDENTAL TO ITEM D-705.
 - 603. CONTRACTOR TO POT-HOLE ALL EXISTING ACTIVE UTILITIES AND NOTIFY THE RPR IF A CONFLICT WITH UNDERDRAIN WILL OCCUR. ALLOW A MINIMUM OF 3 DAYS PRIOR TO WORK FOR DESIGN ADJUSTMENTS BY THE ENGINEER IF REQUIRED.
 - 604. EXISTING UNDERDRAIN TO REMAIN.
 - 605. GRADE BREAK LINE.
 - 606. CONNECT TO EXISTING UNDERDRAIN PIPE, INCIDENTAL TO ITEM D-705.

A4 KEYED NOTES
 SCALE: NOT TO SCALE



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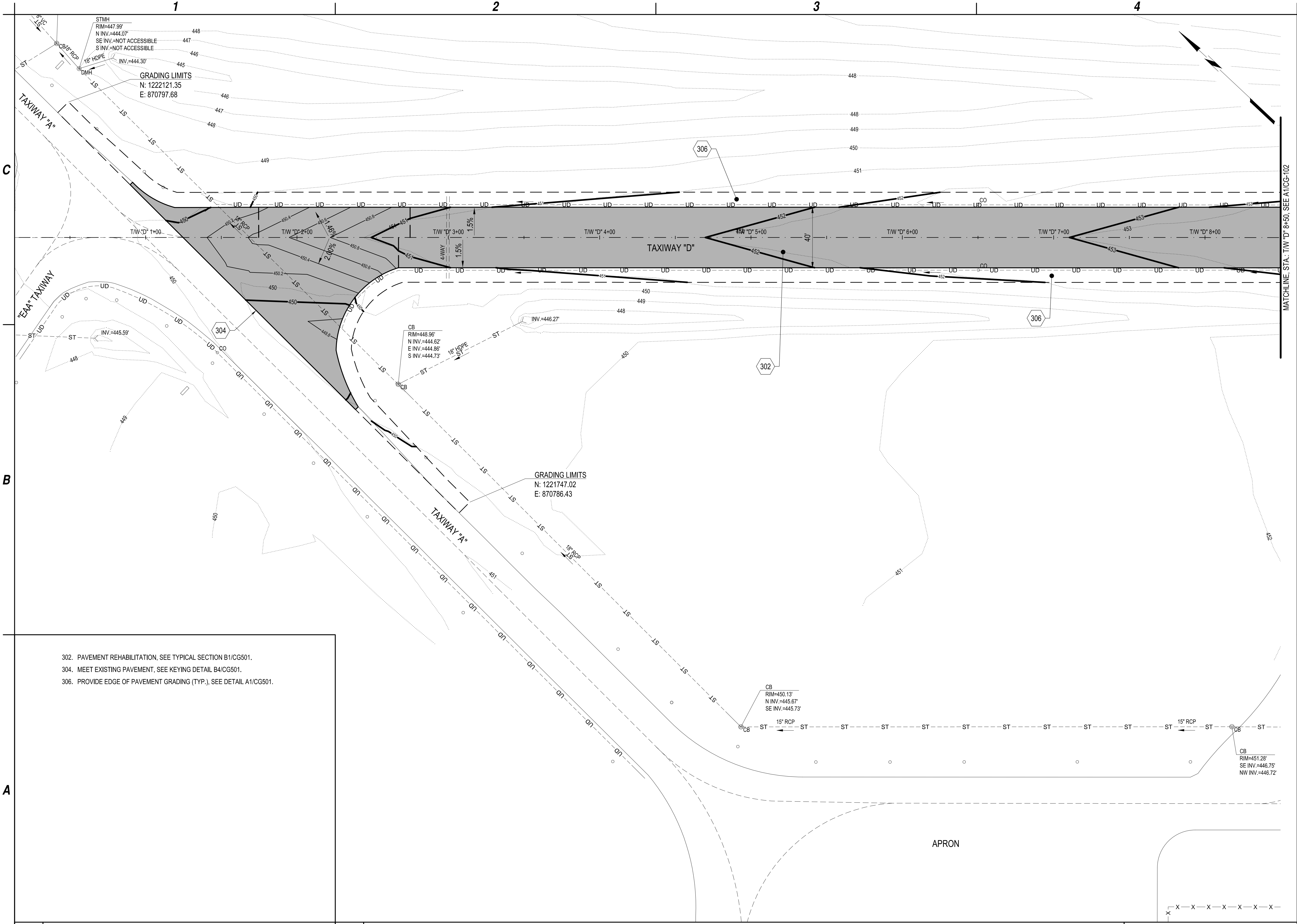
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GEOMETRY AND DRAINAGE PLAN

CS102

Feb. 24, 2024 - 11:55am
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MATCHLINE STA.: TWY "D" 8+50, SEE A1/CG-102



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DESIGNED BY:	J.W.P / T.W.L	
CHECKED BY:	C.D.B	

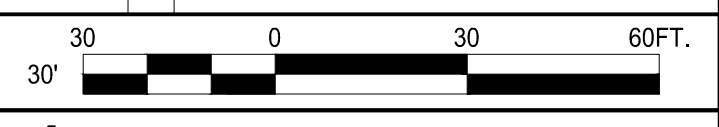
GRADING PLAN

CG101

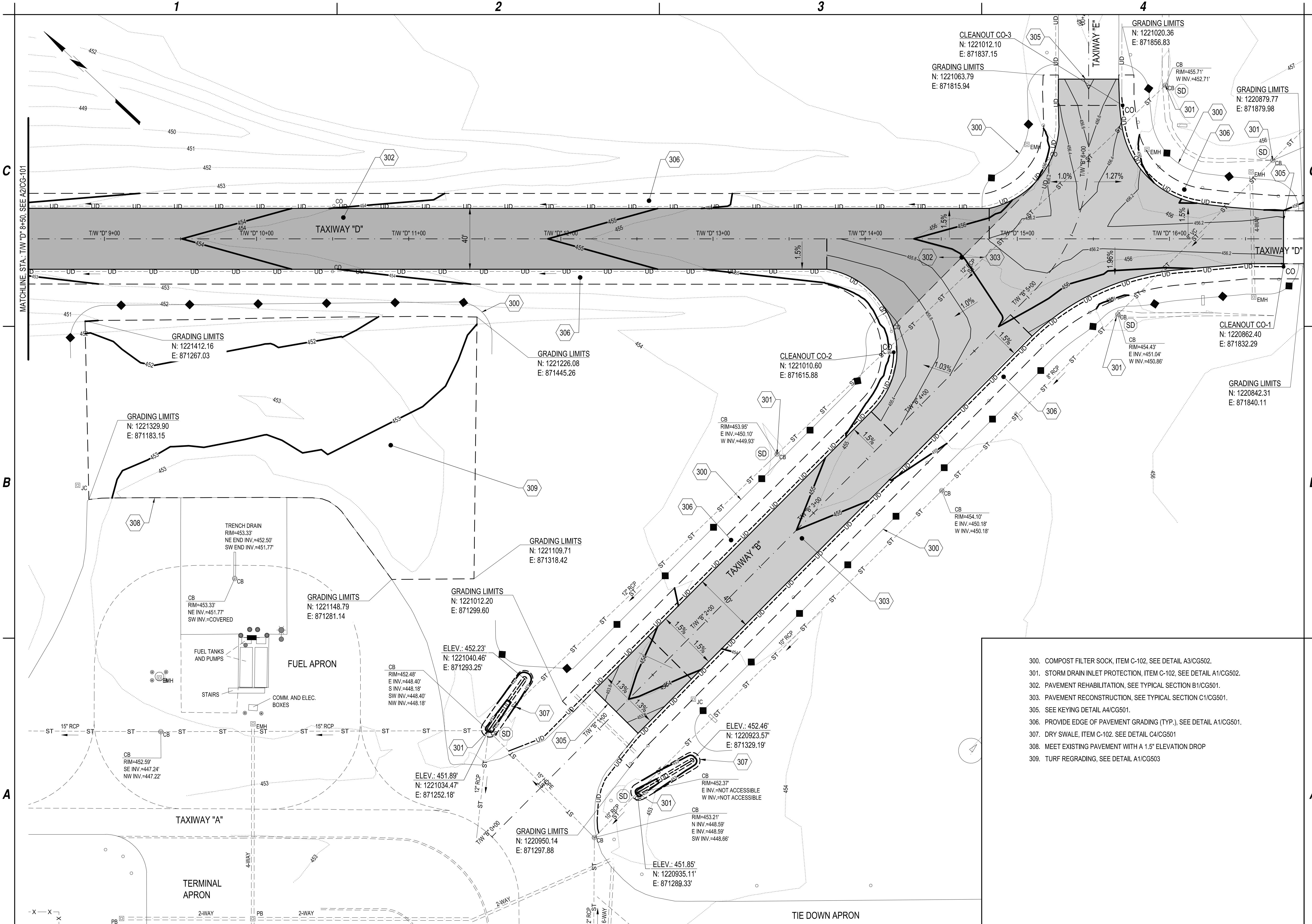
SHEET 11 OF 27

A1 KEYED NOTES
 SCALE: NOT TO SCALE

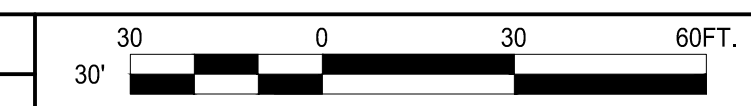
A2 GRADING PLAN
 SCALE: 1" = 30'



Feb. 24, 2024 - 11:56am
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A1 GRADING PLAN
 SCALE: 1" = 30'



A4 KEYED NOTES
 SCALE: NOT TO SCALE

- 300. COMPOST FILTER SOCK, ITEM C-102, SEE DETAIL A3/CG502.
- 301. STORM DRAIN INLET PROTECTION, ITEM C-102, SEE DETAIL A1/CG502.
- 302. PAVEMENT REHABILITATION, SEE TYPICAL SECTION B1/CG501.
- 303. PAVEMENT RECONSTRUCTION, SEE TYPICAL SECTION C1/CG501.
- 305. SEE KEYING DETAIL A4/CG501.
- 306. PROVIDE EDGE OF PAVEMENT GRADING (TYP.), SEE DETAIL A1/CG501.
- 307. DRY SWALE, ITEM C-102, SEE DETAIL C4/CG501
- 308. MEET EXISTING PAVEMENT WITH A 1.5" ELEVATION DROP
- 309. TURF REGRADING, SEE DETAIL A1/CG503



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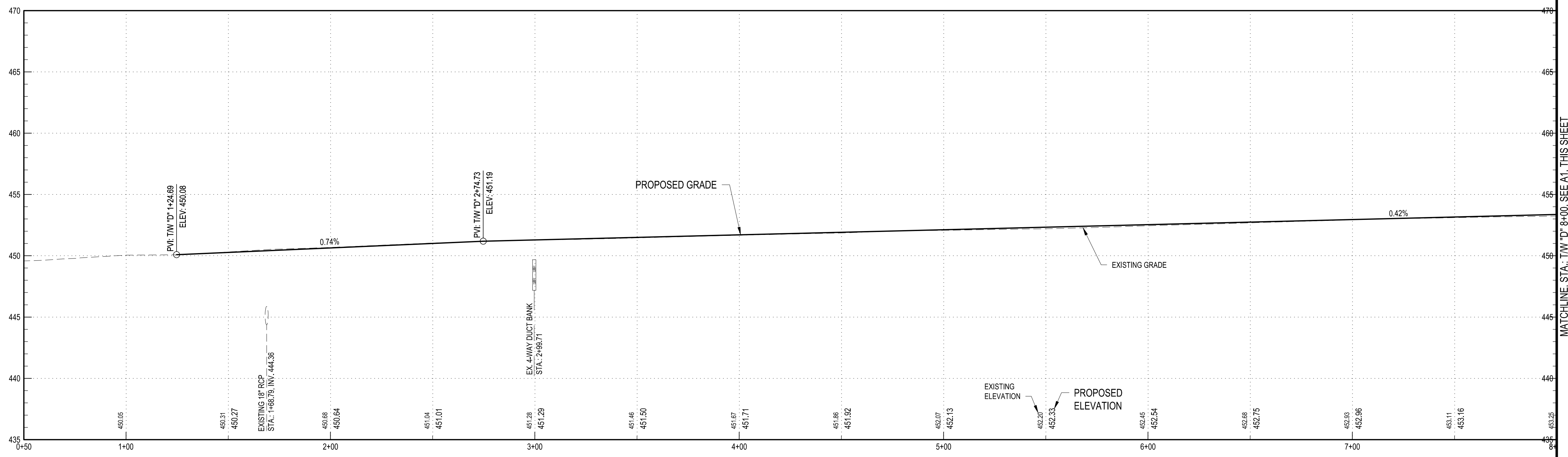
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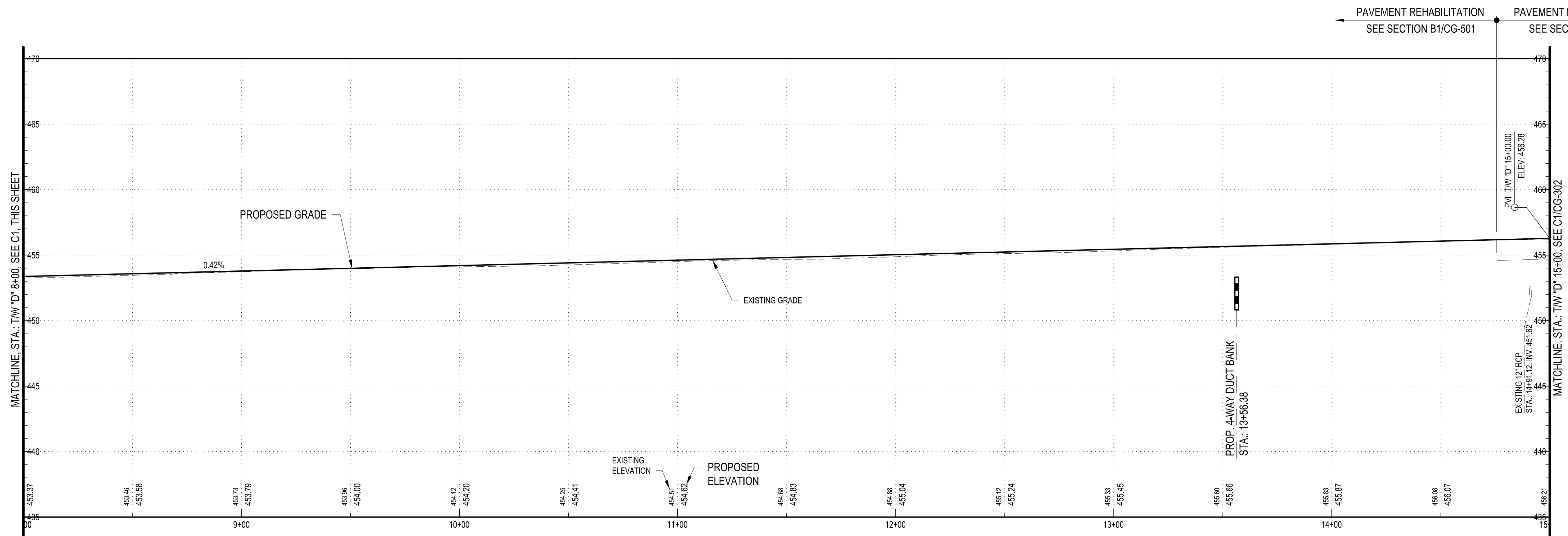
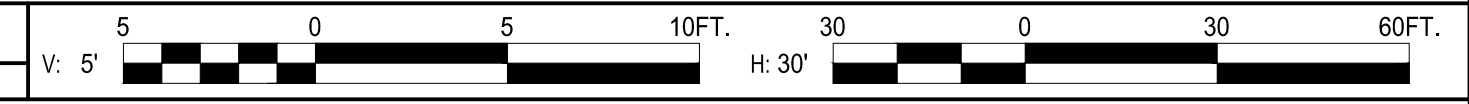
GRADING PLAN

CG102

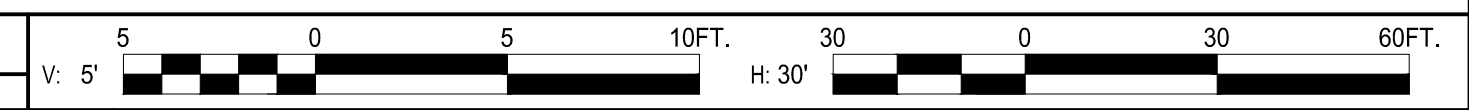
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C1 TAXIWAY "D" CENTERLINE PROFILE
 SCALE: 1" = 30' HORIZONTAL, 1" = 5' VERTICAL



A1 TAXIWAY "D" CENTERLINE PROFILE
 SCALE: 1" = 30' HORIZONTAL, 1" = 5' VERTICAL



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TAXIWAY "B" & "D" REHABILITATION
OSWEGO COUNTY AIRPORT
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MARK	DATE	DESCRIPTION

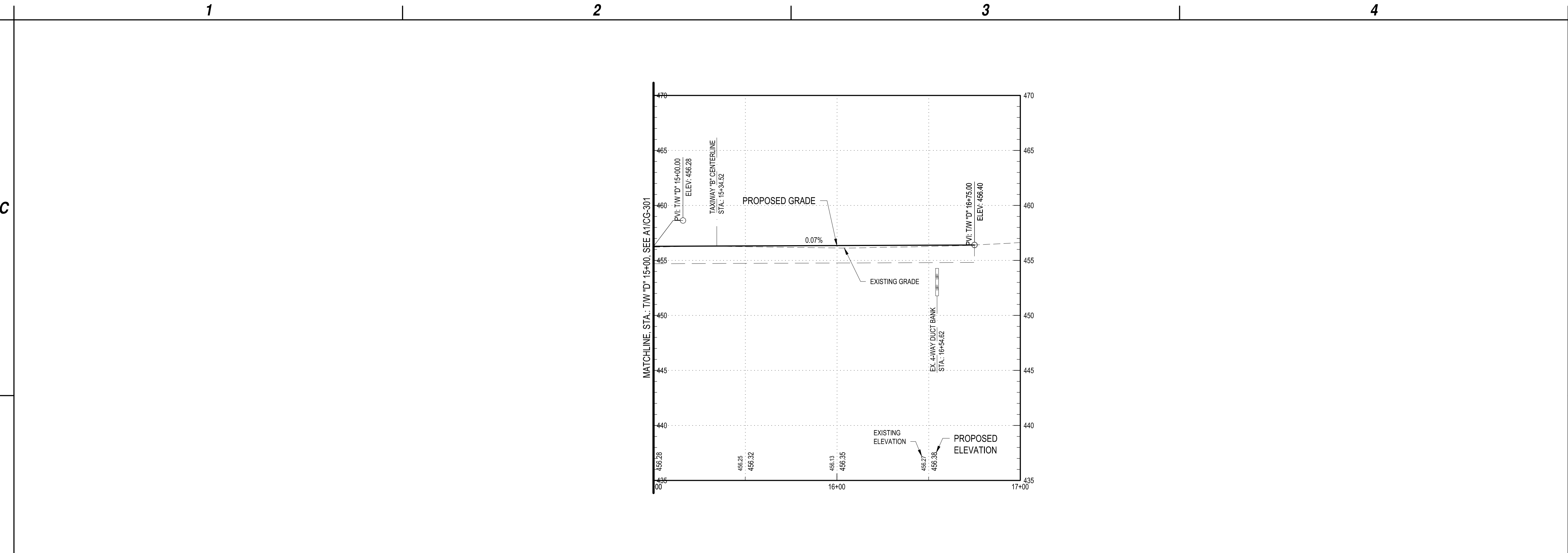
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TAXIWAY "D"
CENTERLINE
PROFILE

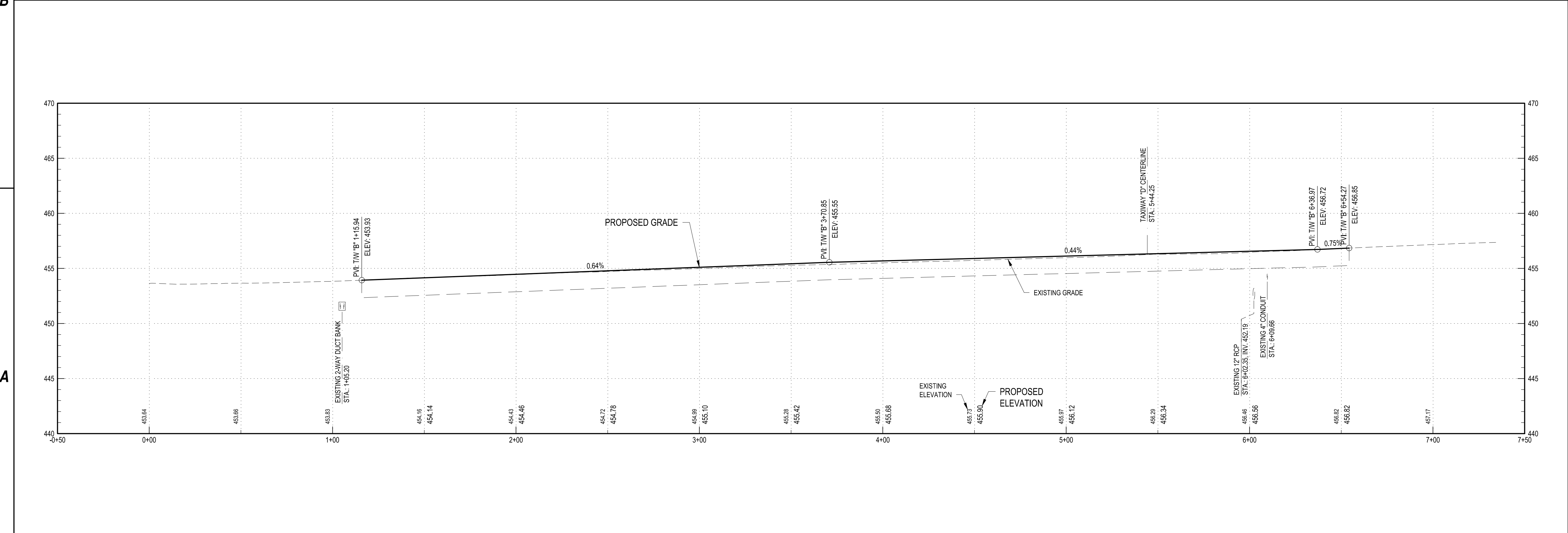
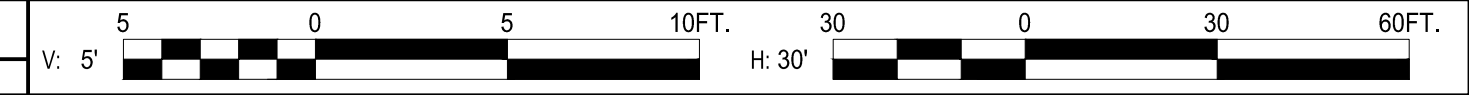
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SHEET 13 OF 27

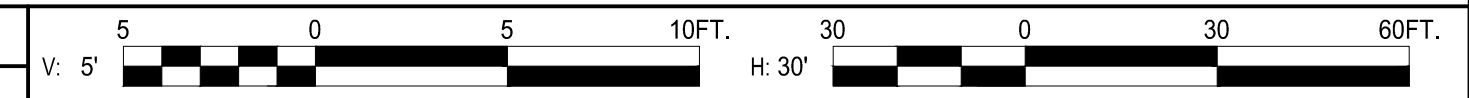
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C1 TAXIWAY "D" CENTERLINE PROFILE
 SCALE: 1" = 30' HORIZONTAL, 1" = 5' VERTICAL



A1 TAXIWAY "B" CENTERLINE PROFILE
 SCALE: 1" = 30' HORIZONTAL, 1" = 5' VERTICAL



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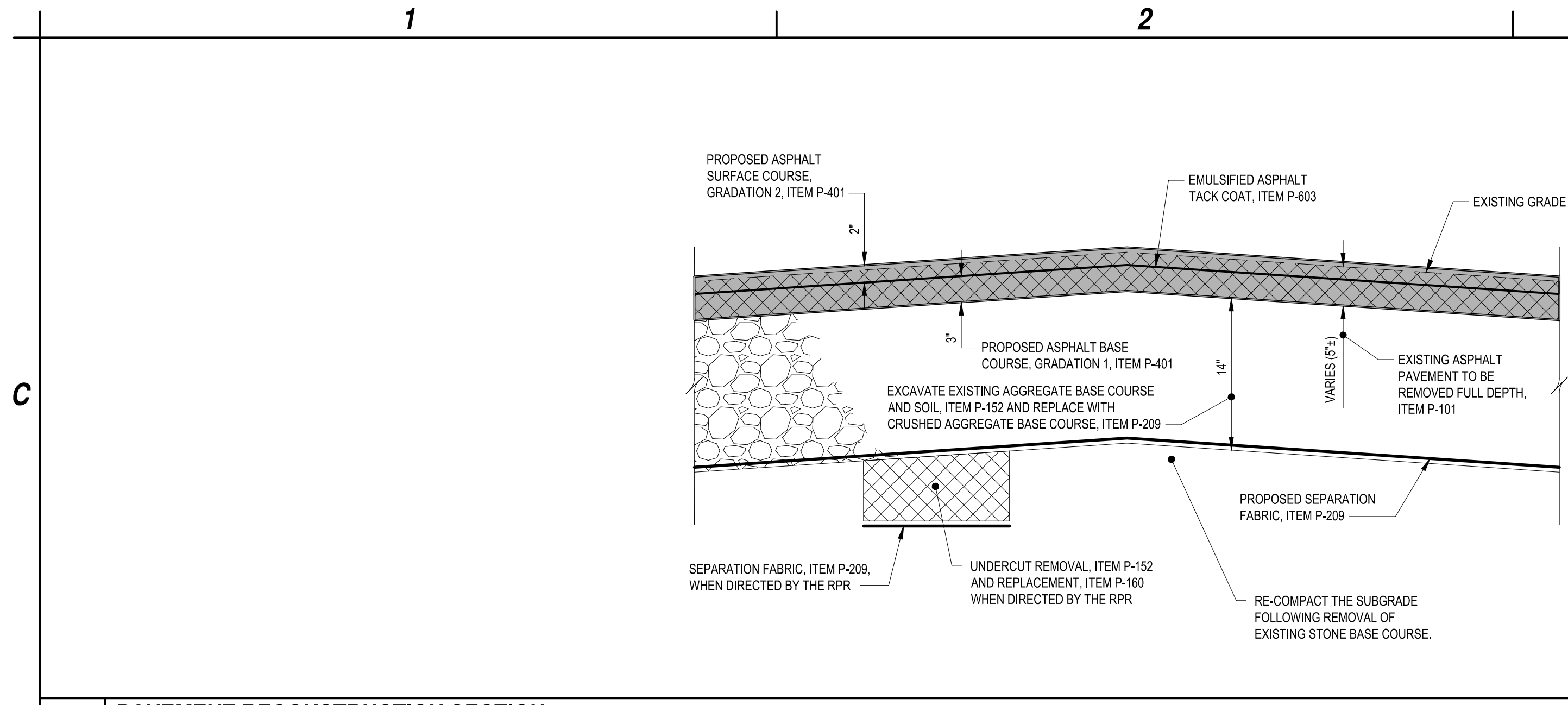
TAXIWAY "B" & "D" REHABILITATION
OSWEGO COUNTY AIRPORT
OSWEGO COUNTY
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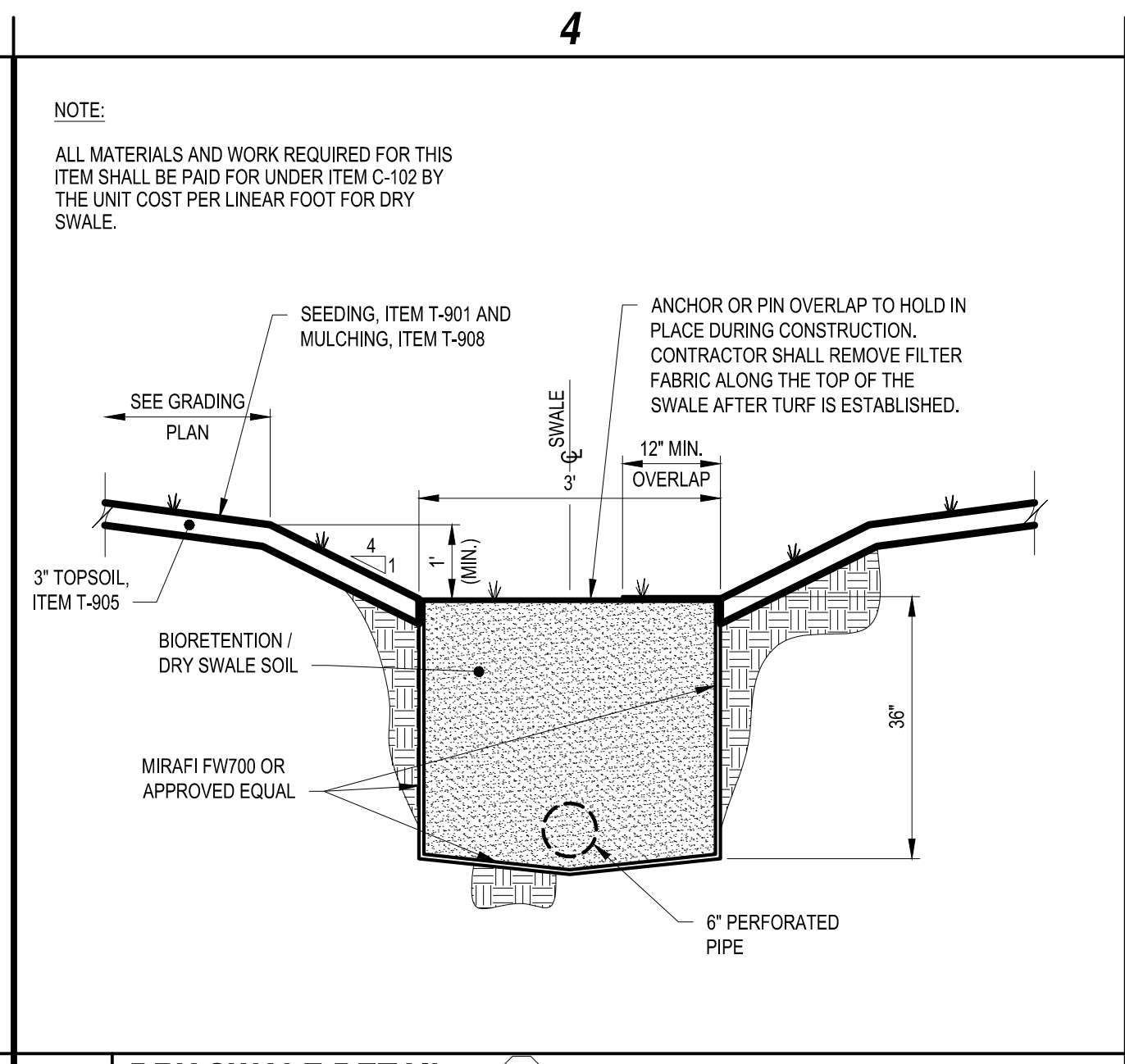
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CG302

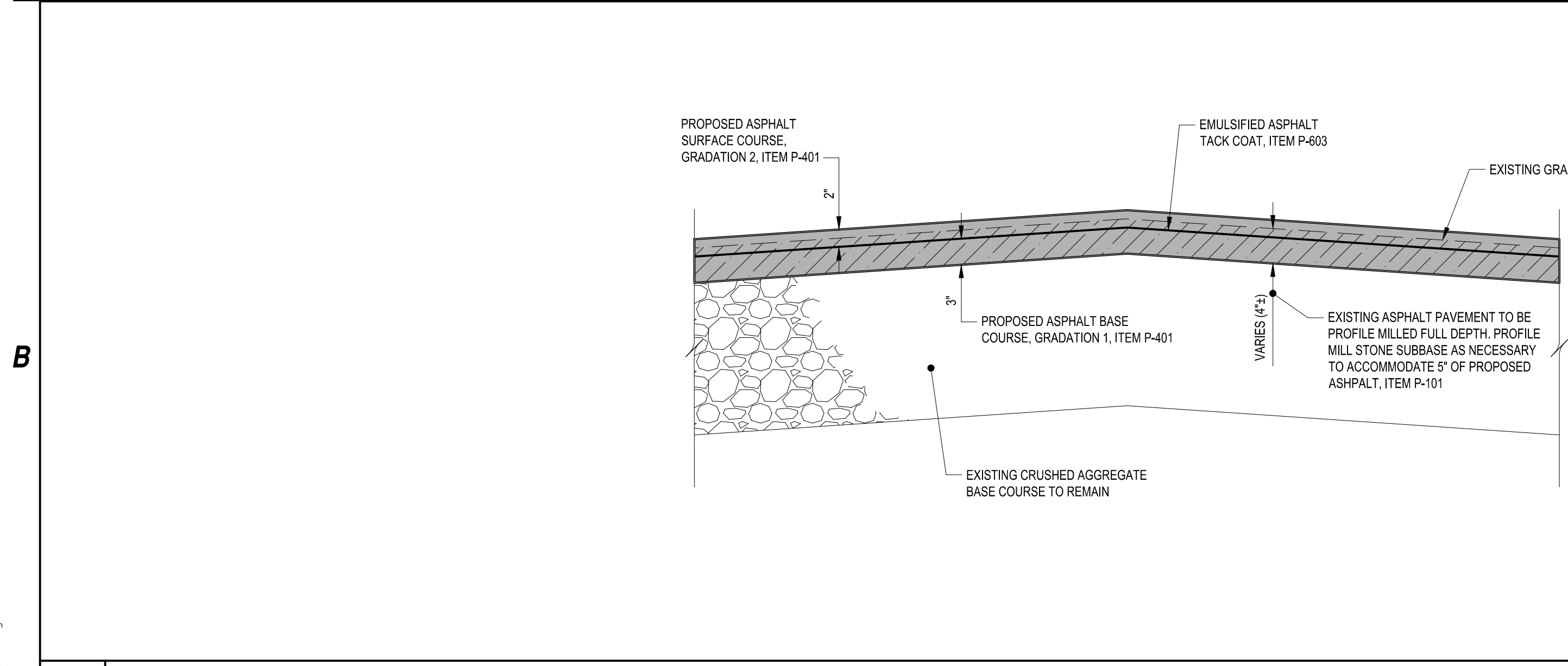
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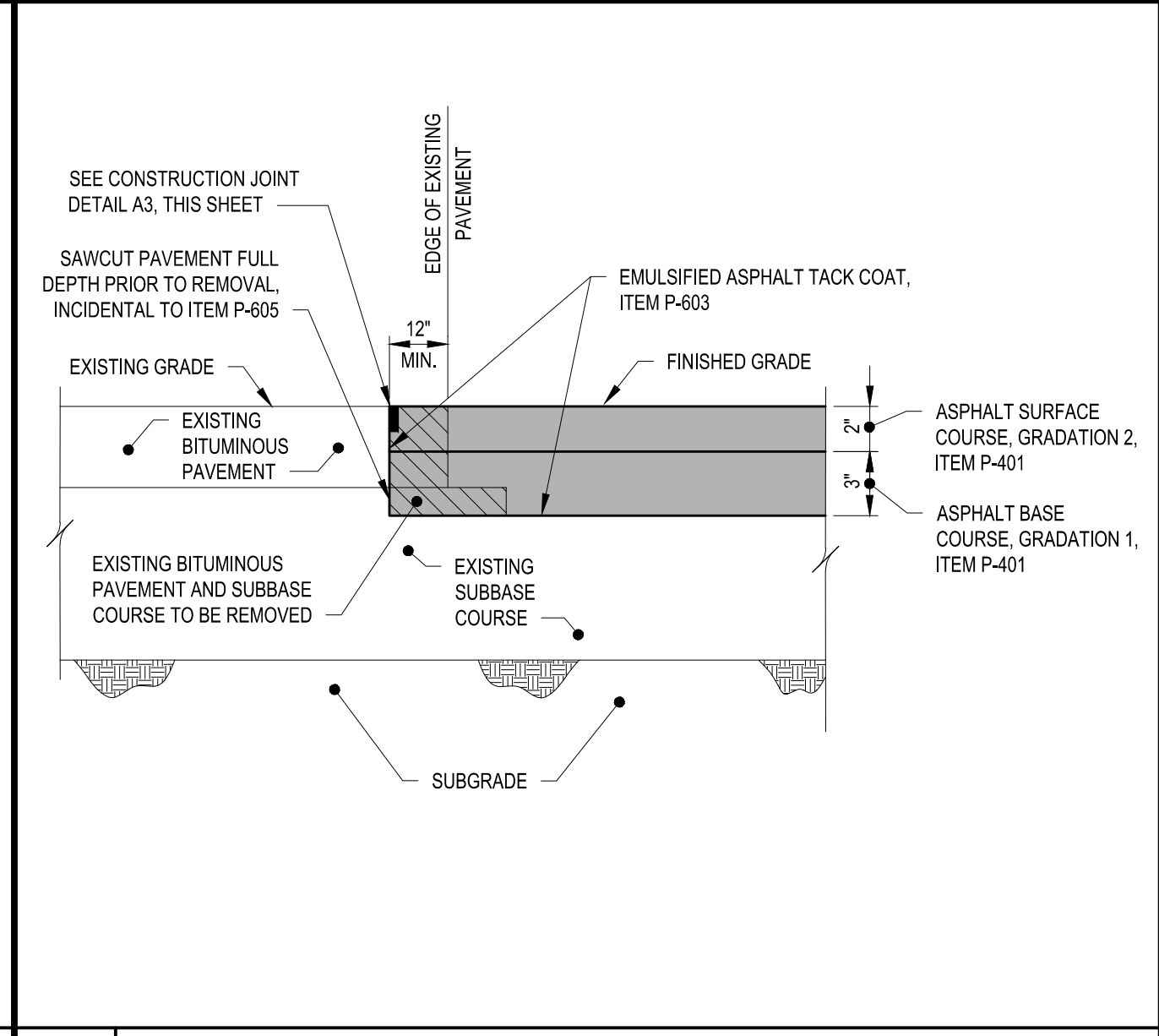
C1 PAVEMENT RECONSTRUCTION SECTION
 SCALE: NOT TO SCALE



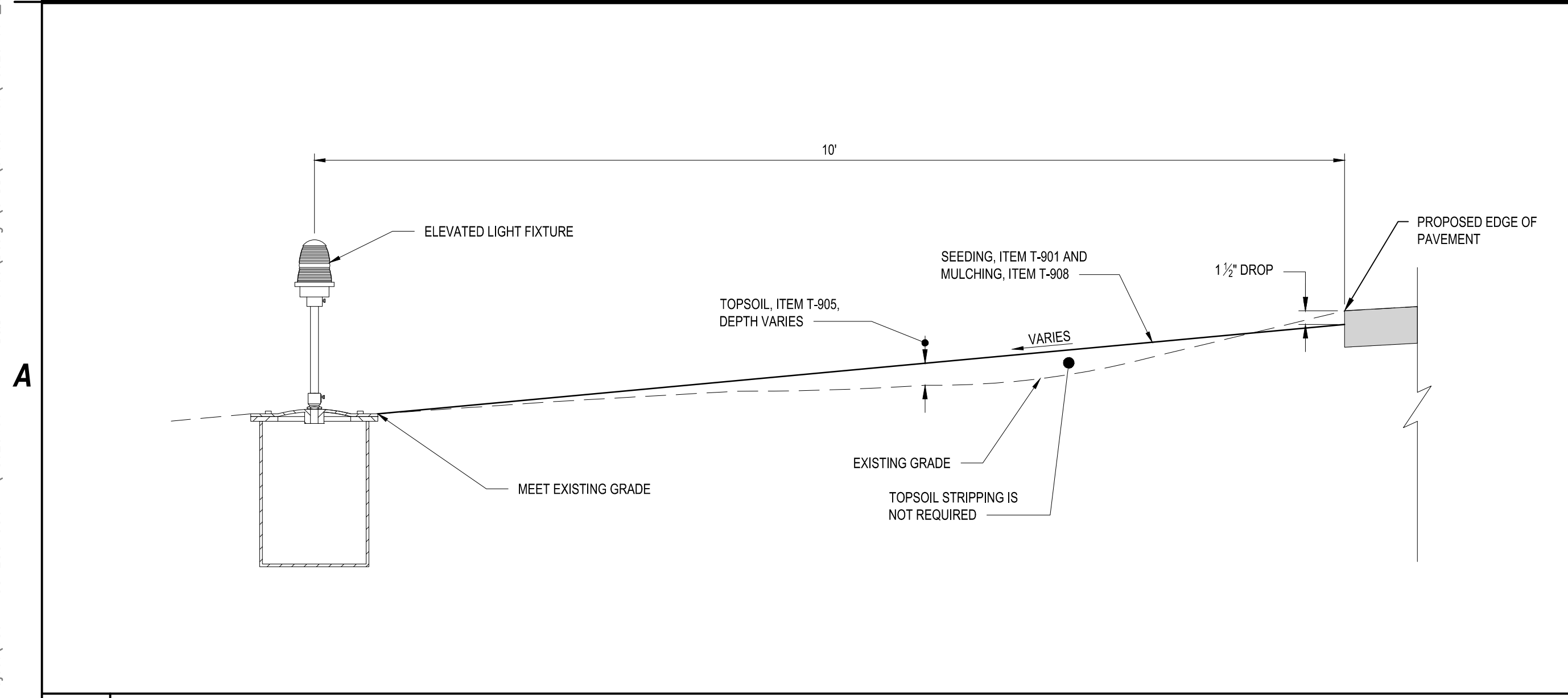
C4 DRY SWALE DETAIL (DS)
 SCALE: NOT TO SCALE



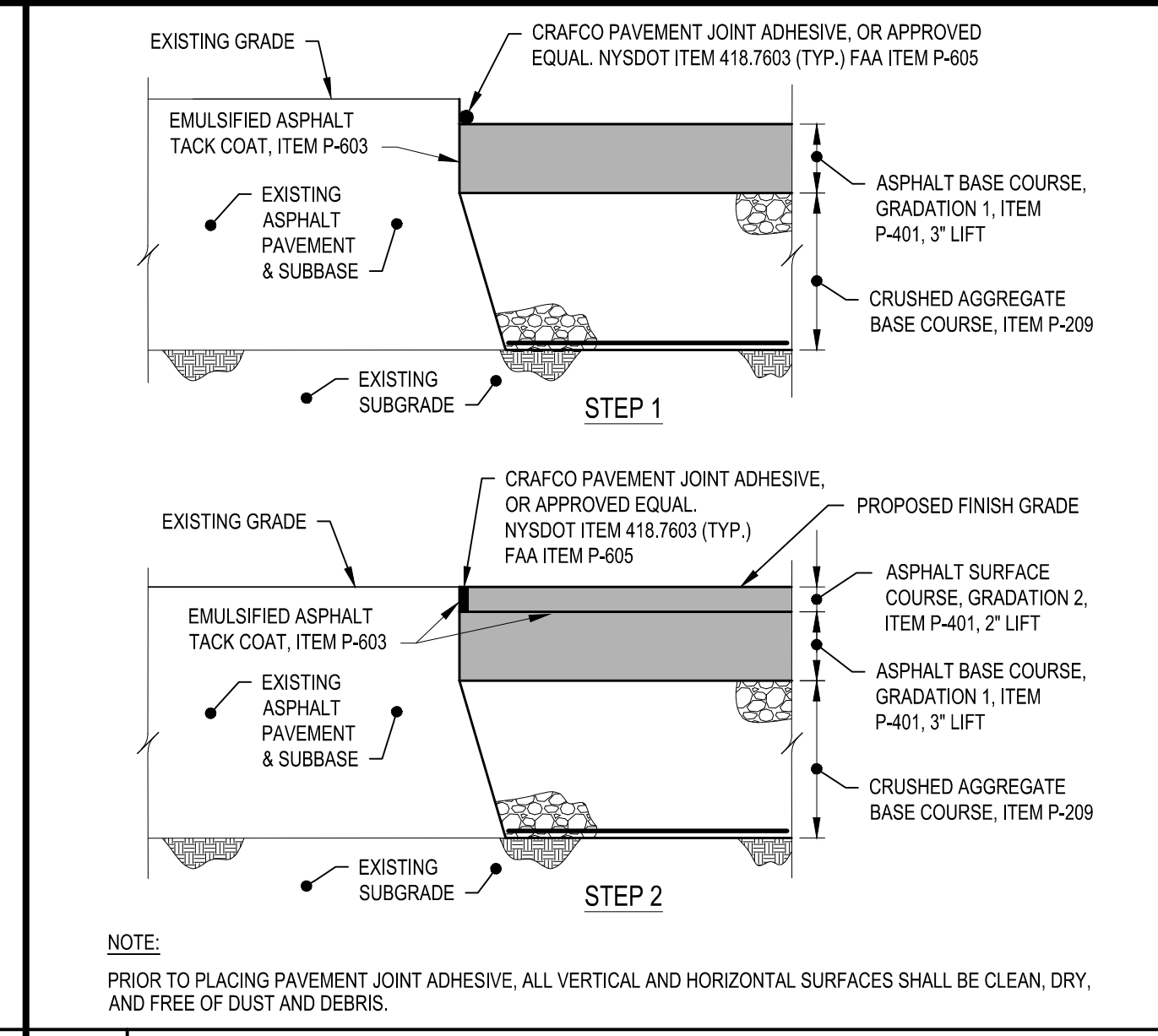
B1 PAVEMENT REHABILITATION SECTION
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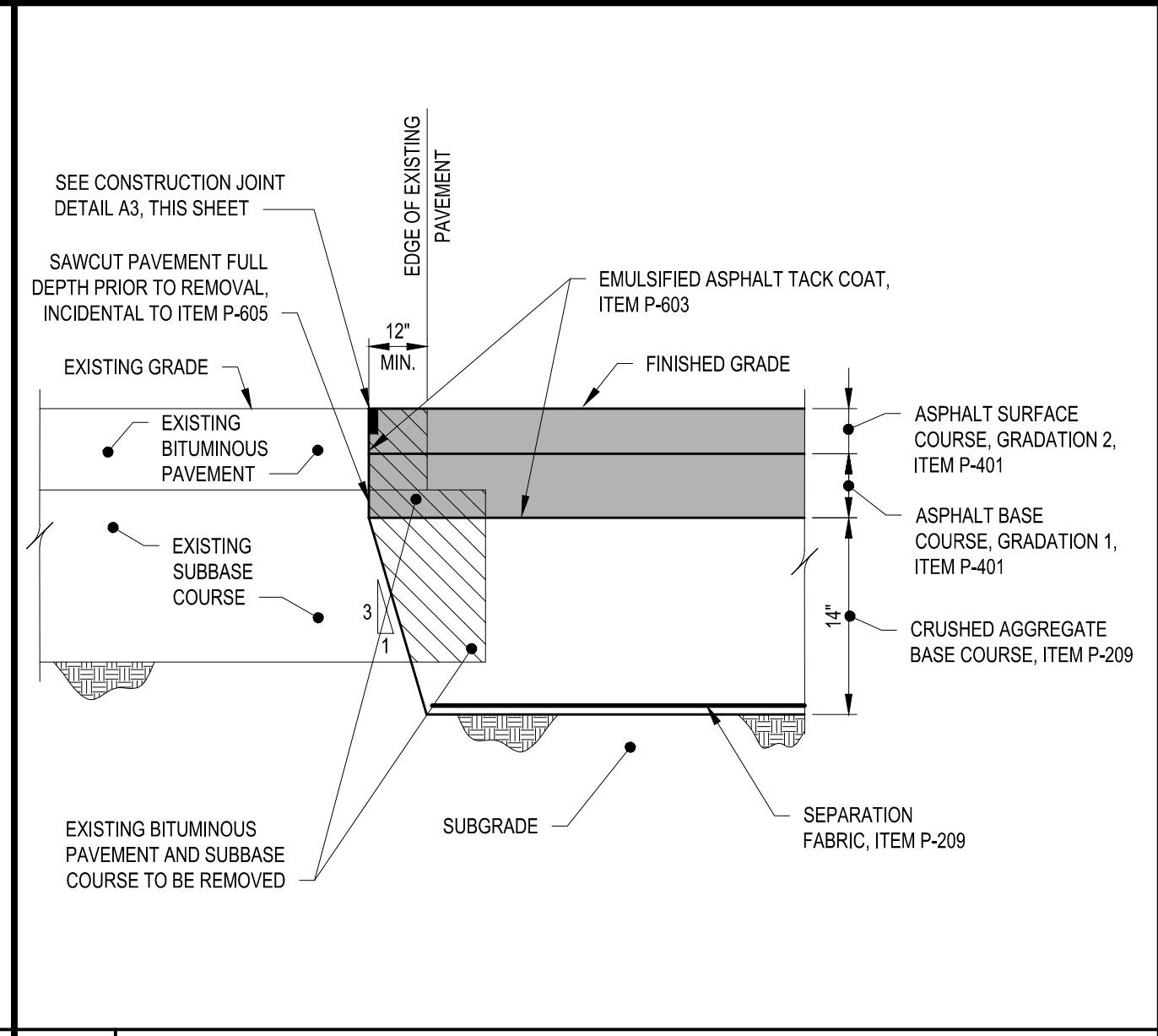
B4 KEYING DETAIL (PAVEMENT REHABILITATION TO EXISTING)
 SCALE: NOT TO SCALE



A1 EDGE OF PAVEMENT DETAIL
 SCALE: NOT TO SCALE



A3 CONSTRUCTION JOINT DETAIL
 SCALE: NOT TO SCALE



A4 KEYING DETAIL (PAVEMENT RECONSTRUCTION TO EXISTING)
 SCALE: NOT TO SCALE



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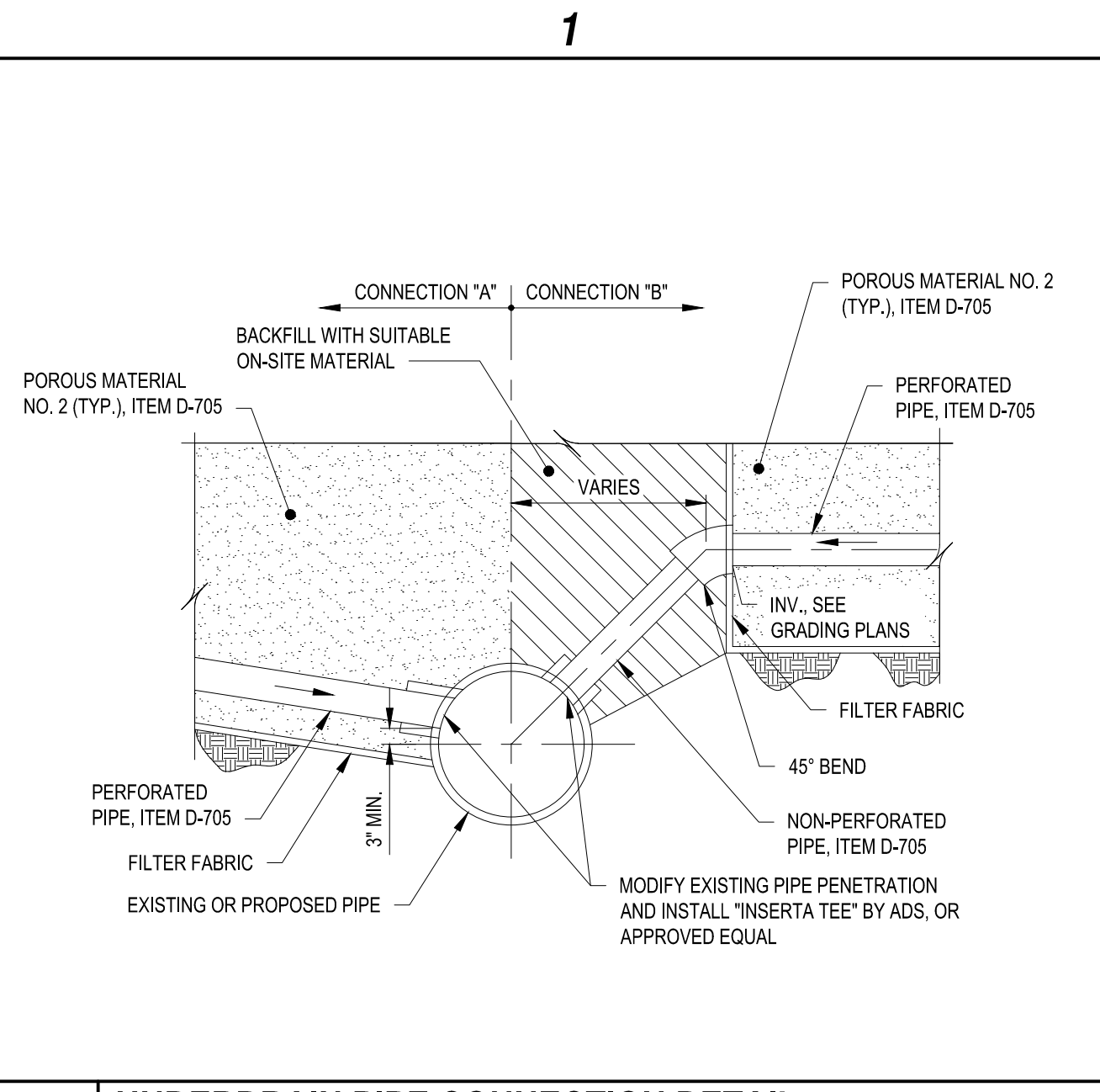
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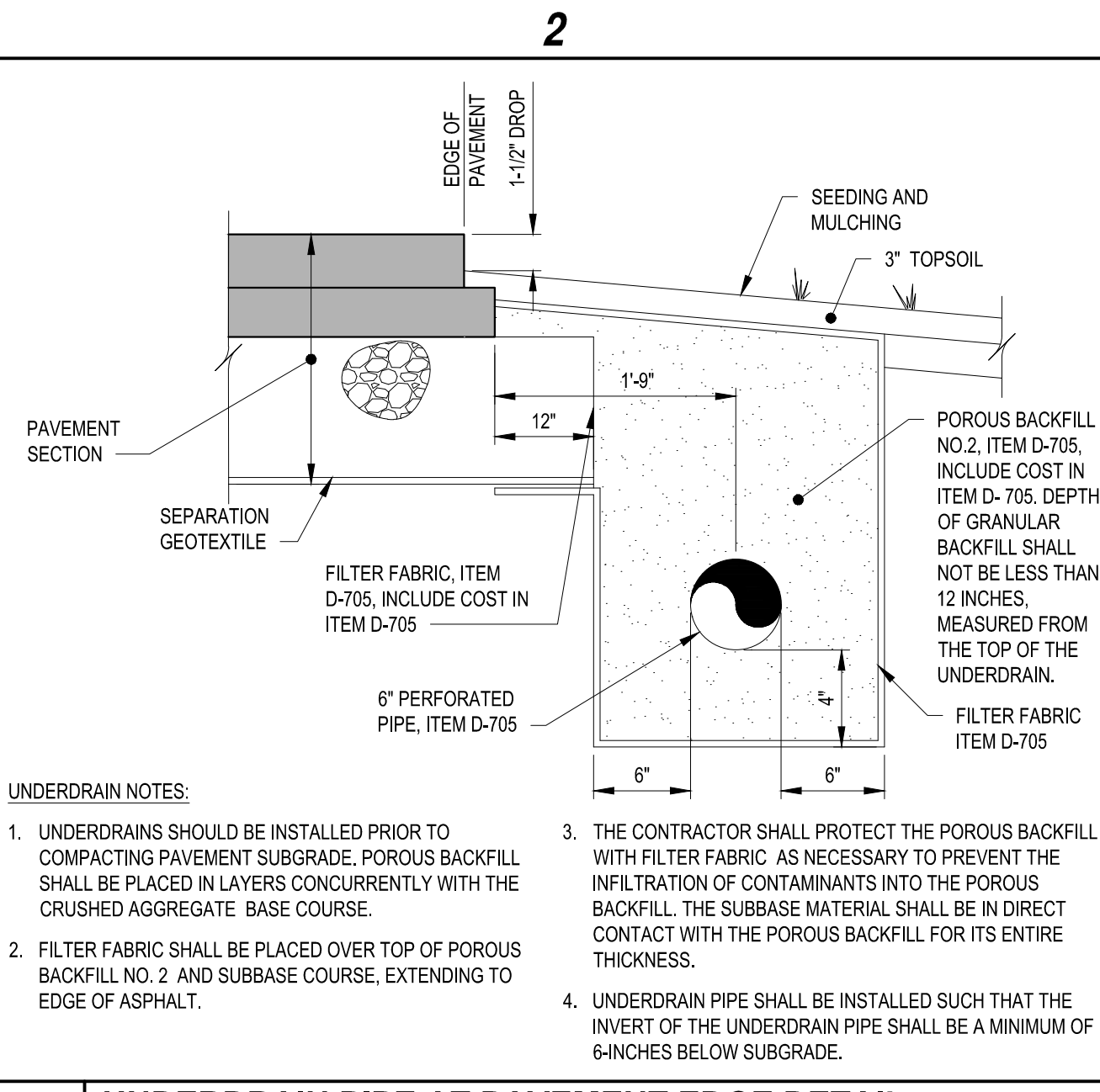
DETAILS

CG501

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C1 UNDERDRAIN PIPE CONNECTION DETAIL
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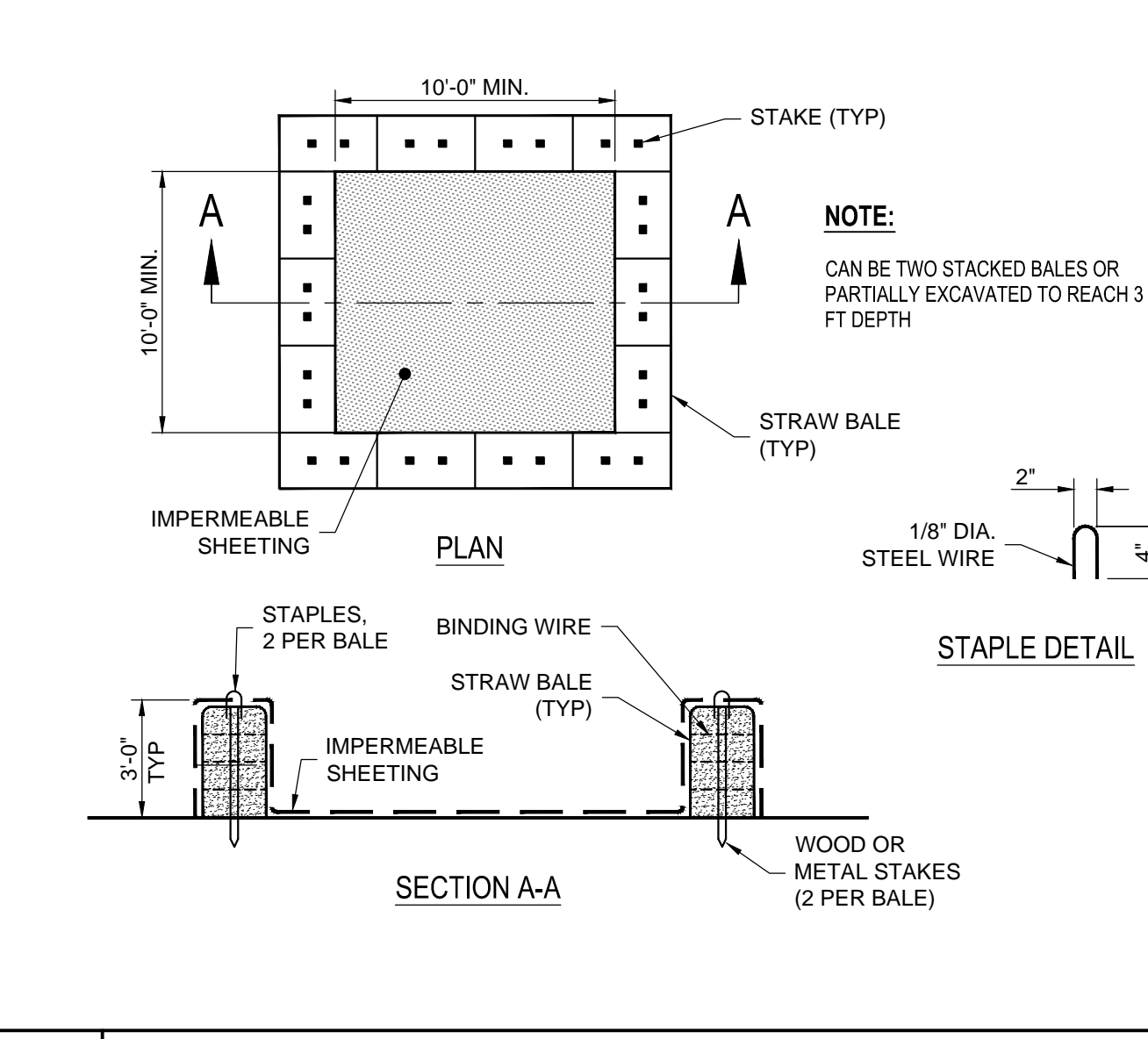
C2 UNDERDRAIN PIPE AT PAVEMENT EDGE DETAIL
 SCALE: NOT TO SCALE

UNDERDRAIN INSTALLATION TABLE							
PT. ID	NORTHING	EASTING	INVERT	LENGTH	SLOPE	RIM	DESCRIPTION
CO1	1220862.40	871832.29	453.40			455.90	HIGH END CLEANOUT
CONN1	1220935.53	871252.75	451.25	615.00	0.35%		CONNECTION AT 10" RCP STORM PIPE
CO2	1221010.60	871615.88	453.35			455.05	HIGH END CLEANOUT
CONN2	1221015.57	871251.51	450.92	370.00	0.65%		CONNECTION AT 15" HDPE STORM PIPE
CO3	1221012.10	871837.15	453.79			456.29	HIGH END CLEANOUT
CONN3	1220916.86	871837.73	453.32	112.00	0.42%		CONNECTION AT 8" VP STORM PIPE

UNDERDRAIN NOTES:

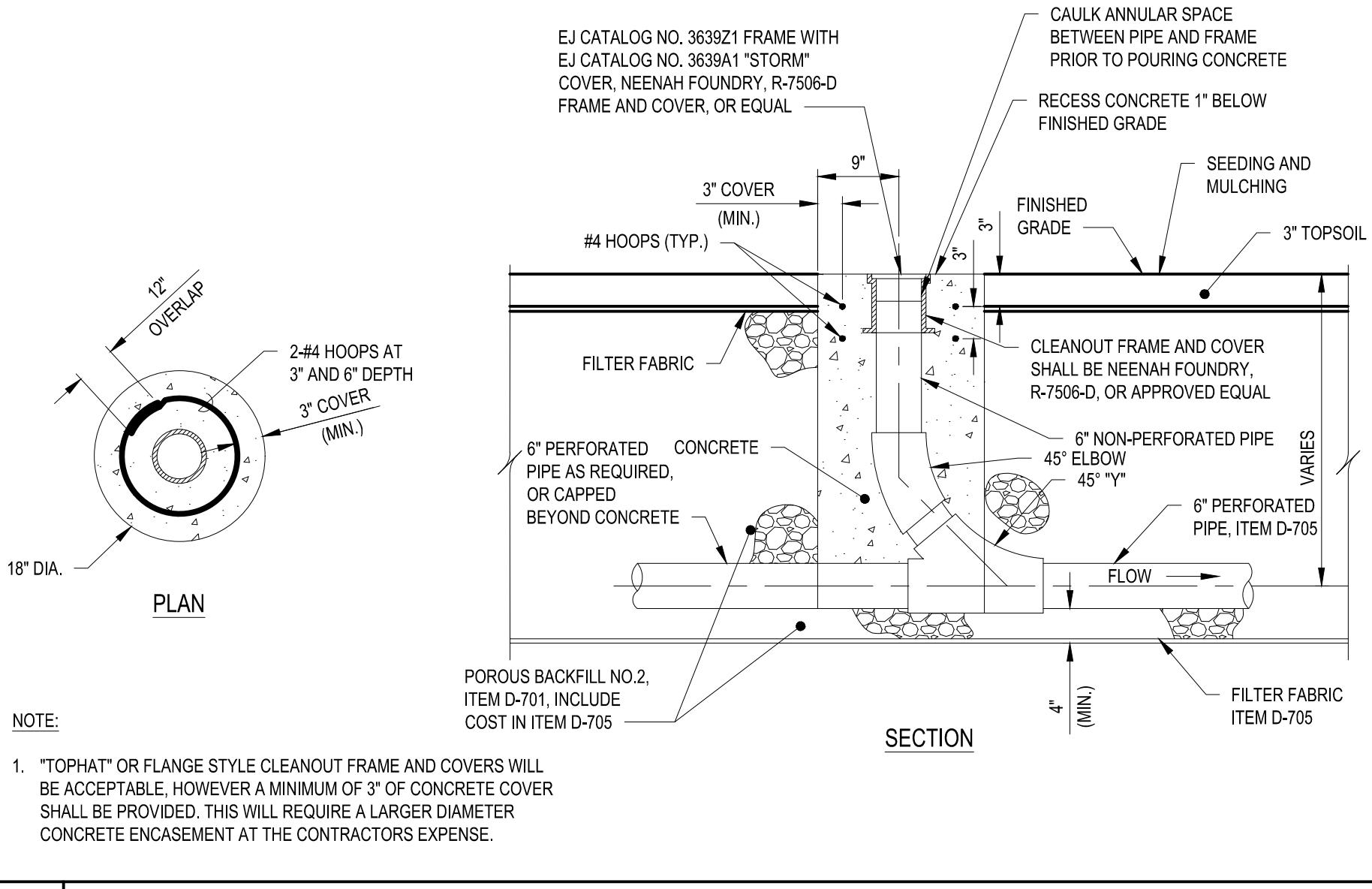
- UNDERDRAIN PIPE SHALL BE INSTALLED SUCH THAT THE INVERT OF THE UNDERDRAIN PIPE SHALL BE A MINIMUM OF 6-INCHES BELOW SUBGRADE. THE CONTRACTOR SHALL ADJUST THE INVERTS FROM WHAT THE UNDERDRAIN INSTALLATION SCHEDULE SHOWS IF REQUIRED TO MEET THIS REQUIREMENT.
- EXCAVATION OF UNDERDRAIN PIPE ADJACENT TO EXISTING PAVEMENT EDGES SHALL NOT UNDERMINE THE EXISTING PAVEMENT SECTION. IF UNDERMINING OCCURS, THE OFFSET OF THE TRENCH SHALL BE INCREASED.

C3 UNDERDRAIN INSTALLATION SCHEDULE
 SCALE: NOT TO SCALE

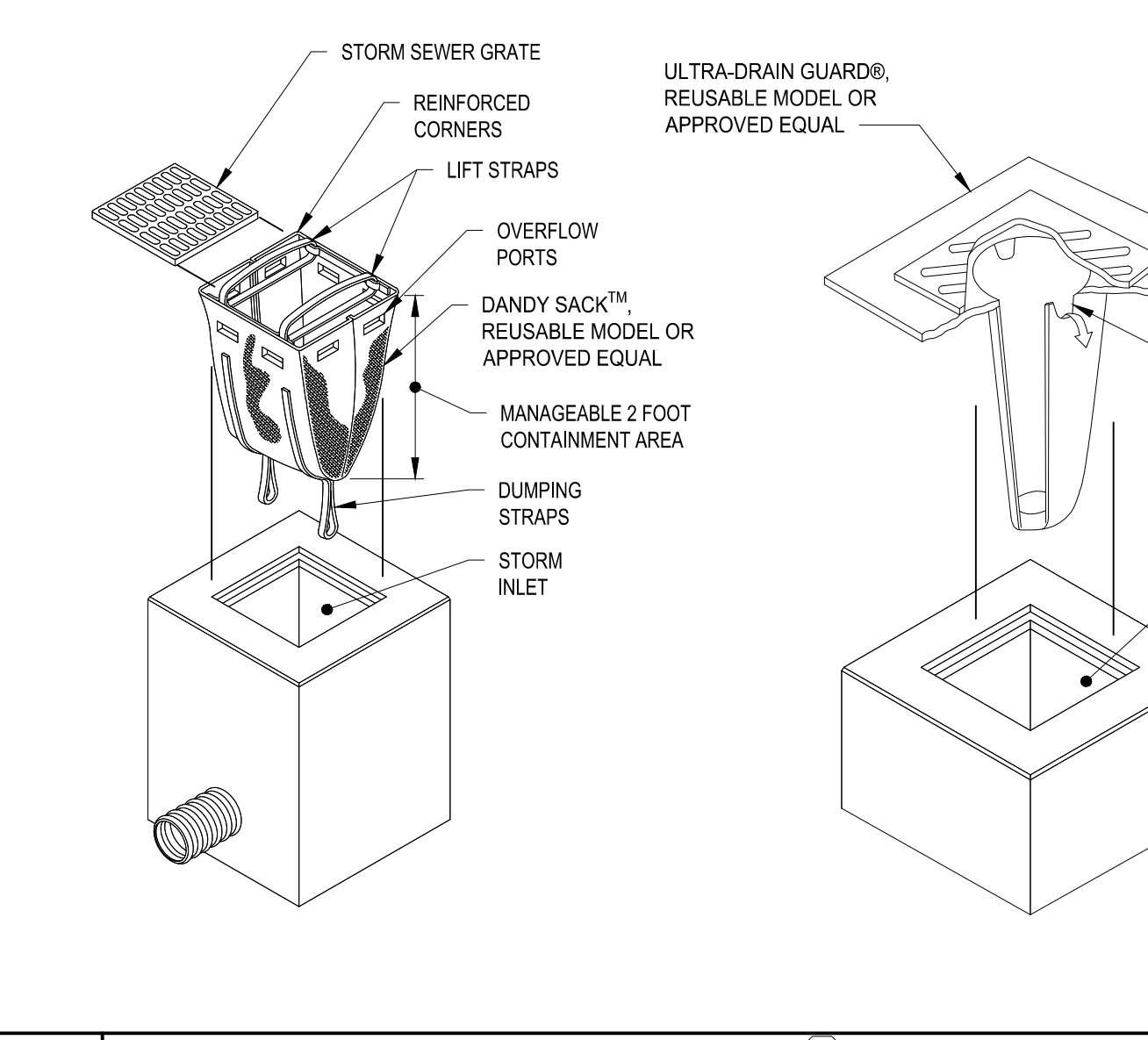


B1 TEMPORARY CONCRETE WASHOUT DETAIL
 SCALE: NOT TO SCALE

- CONSTRUCTION SPECIFICATIONS**
- LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, UNPROTECTED STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
 - SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
 - PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
 - PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
 - KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED); EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET/VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER.
 - PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.
 - CONTRACTOR TO COORDINATE FINAL LOCATION OF CONCRETE WASHOUT WITH OWNER'S REPRESENTATIVE.

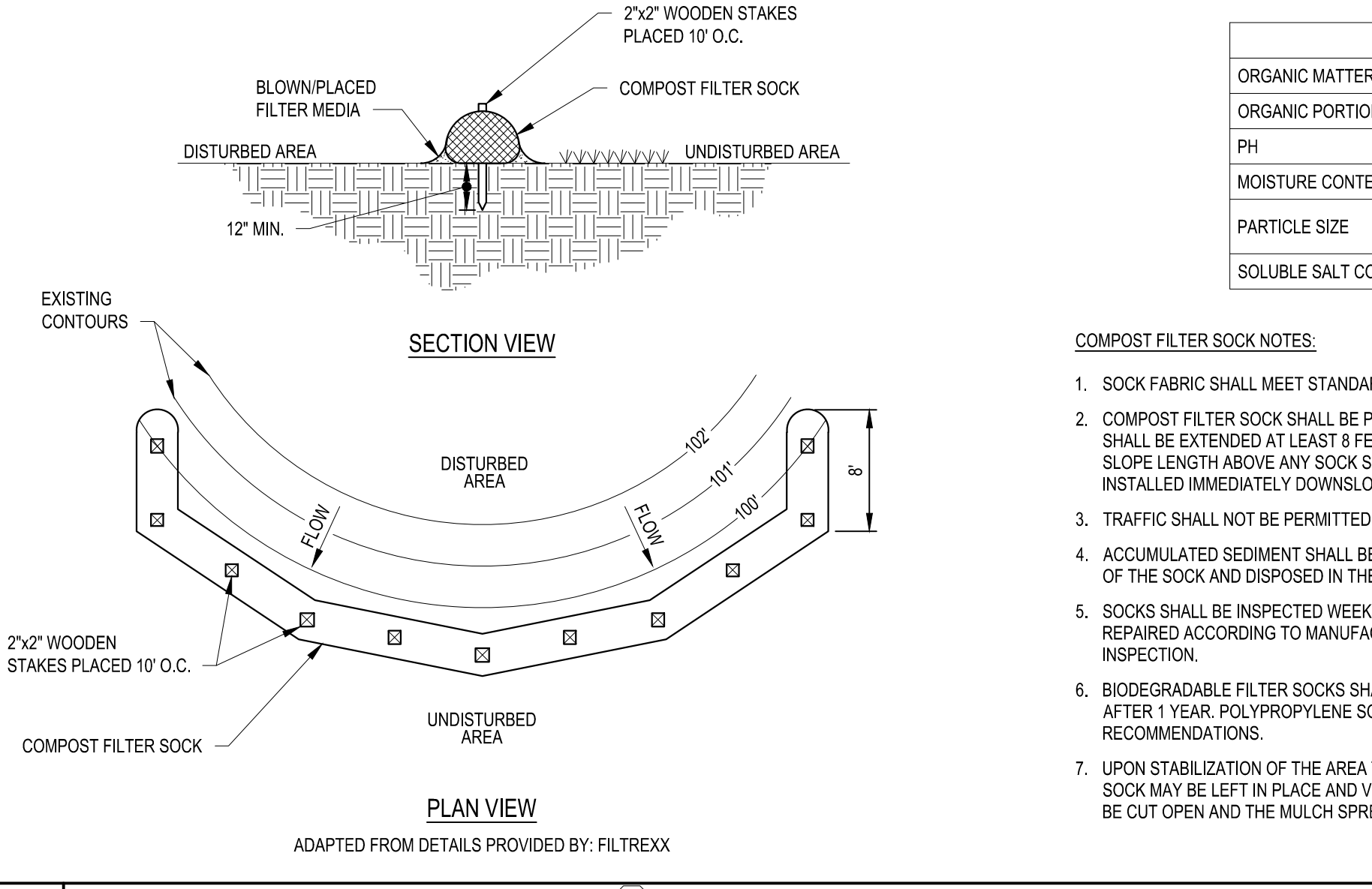


B3 UNDERDRAIN CLEANOUT DETAIL
 SCALE: NOT TO SCALE



A1 STORM DRAIN INLET PROTECTION
 SCALE: NOT TO SCALE

- CATCH BASIN INSERT INLET PROTECTION NOTES:**
- CONTRACTOR SHALL VERIFY DIMENSIONS OF STRUCTURES WITH MANUFACTURER PRIOR TO ORDERING FOR CORRECT SIZING.
 - THE STORM DRAIN INLET PROTECTION SHALL BE INSTALLED, MAINTAINED AND REMOVED PER MANUFACTURER RECOMMENDATIONS.
 - THE LOCATIONS SHOWN ON THE PLAN FOR PLACEMENT OF THIS DEVICE MAY VARY FROM WHERE THEY ARE ACTUALLY INSTALLED. THE DEVICES SHALL BE PLACED IN CATCH BASINS PRIOR TO COMMENCING ANY WORK.
 - ALL STORM WATER THAT NEEDS TO BE PUMPED FROM THE SITE SHALL BE PUMPED INTO ONE OF THESE DEVICES. THE FLOW RATE PUMPED INTO THIS DEVICE SHALL NOT EXCEED THE MANUFACTURER'S RECOMMENDED TREATMENT FLOW RATE. DURING THE PUMPING PROCESS, THE DEVICE SHALL BE MONITORED IN ORDER TO DETERMINE THAT IT IS TREATING THE WATER. IF THE WATER IS UTILIZING THE OVERFLOW PORT AND IS NOT BEING CLEANED BY THE DEVICE, THE PUMPING SHALL BE STOPPED AND THE DEVICE SHALL BE CLEANED PER MANUFACTURER'S RECOMMENDATIONS AND THEN REINSTALLED.
 - MAINTENANCE SHALL BE PROVIDED BY THE CONTRACTOR WHEN THE CAPACITY IS REDUCED BY APPROXIMATELY 50 PERCENT OR DIRECTED BY THE RPR.
 - THE MEASUREMENT OF THE STORM DRAIN INLET PROTECTION FOR INSTANCES OF A PROPOSED / MODIFIED STRUCTURE BEING INSTALLED IN THE SAME LOCATION AS AN EXISTING ONE SHALL BE CONSIDERED AS ONE DEVICE AND ANY ADDITIONAL COSTS SHALL BE CONSIDERED INCIDENTAL.
 - THIS DEVICE SHALL BE PAID FOR UNDER THE UNIT COST PER EACH FOR STORM DRAIN INLET PROTECTION, ITEM C-102. THIS COST SHALL INCLUDE ALL THE COSTS FOR MAINTENANCE, INSTALLATION, REPLACEMENT, IF NEEDED, AND ALL LABOR, EQUIPMENT AND TOOLS AND INCIDENTALS TO INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS AND REMOVE.



A3 COMPOST FILTER SOCK DETAIL
 SCALE: NOT TO SCALE

COMPOST STANDARDS TABLE	
ORGANIC MATTER CONTENT	25% - 100% (DRY WEIGHT)
ORGANIC PORTION	FIBROUS AND ELONGATED
PH	6.0 - 8.0
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	100% PASSING A 1" SCREEN 10-50% PASSING A 3/8" SCREEN
SOLUBLE SALT CONCENTRATION	5.0 ds/M (mmhos/cm) MAX.

COMPOST FILTER SOCK NOTES:

- SOCK FABRIC SHALL MEET STANDARDS LISTED IN COMPOST STANDARDS TABLE. THIS DETAIL.
- COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45° TO THE MAIN SOCK ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL NOT EXCEED THAT SHOWN ON THIS DETAIL. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
- TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
- ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVE GROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
- SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
- BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS. PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCKS, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.



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TAXIWAY "B" & "D" REHABILITATION

OSWEGO COUNTY AIRPORT

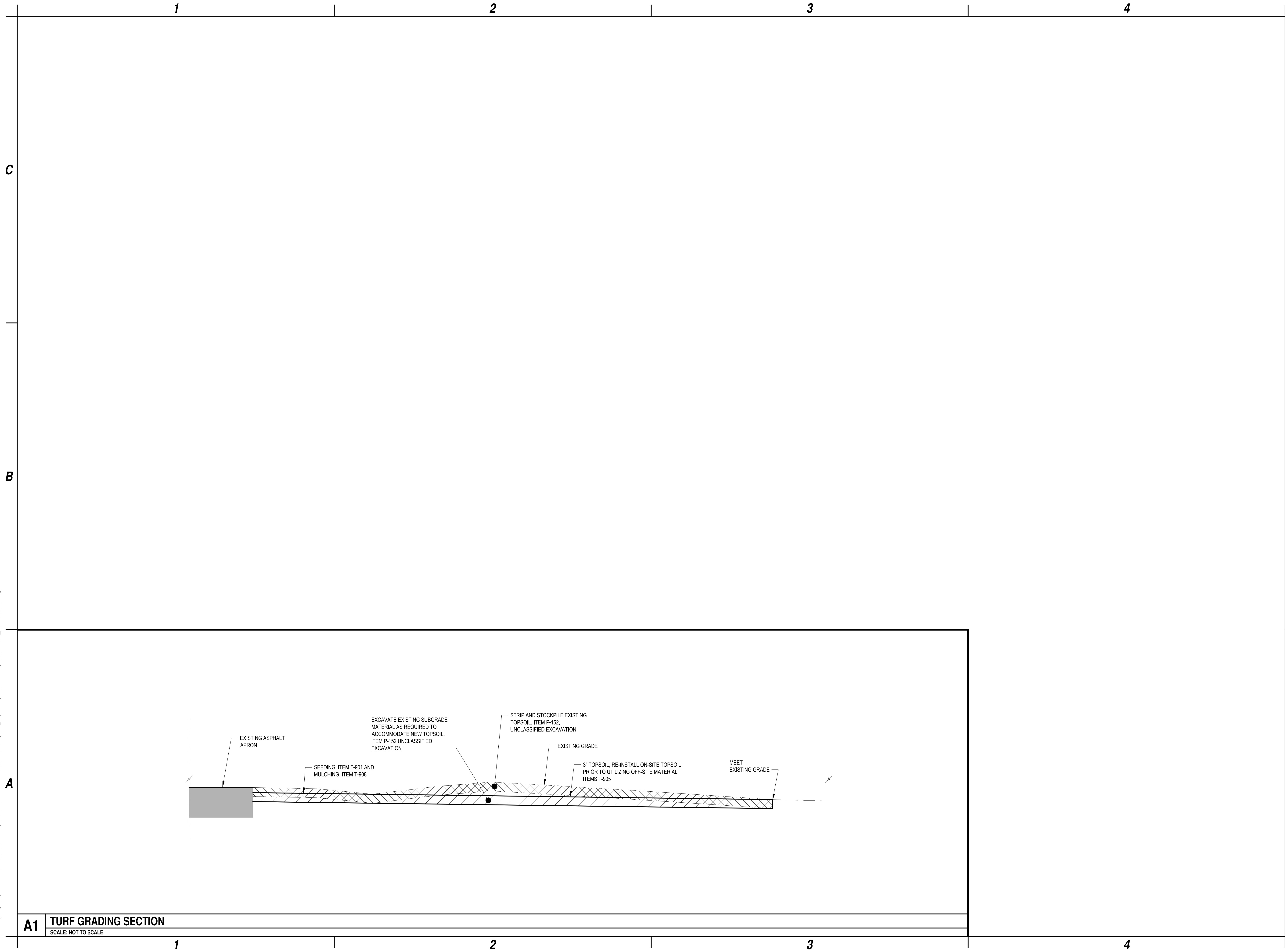
OSWEGO COUNTY

FULTON, NEW YORK

MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO:	180.254.001	
DATE:	FEBRUARY 27, 2024	
DRAWN BY:	J.W.P / T.W.L	
DESIGNED BY:	J.W.P / T.W.L	
CHECKED BY:	C.D.B	

DETAILS

Feb 25, 2024 - 9:12am
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A1 TURF GRADING SECTION
 SCALE: NOT TO SCALE



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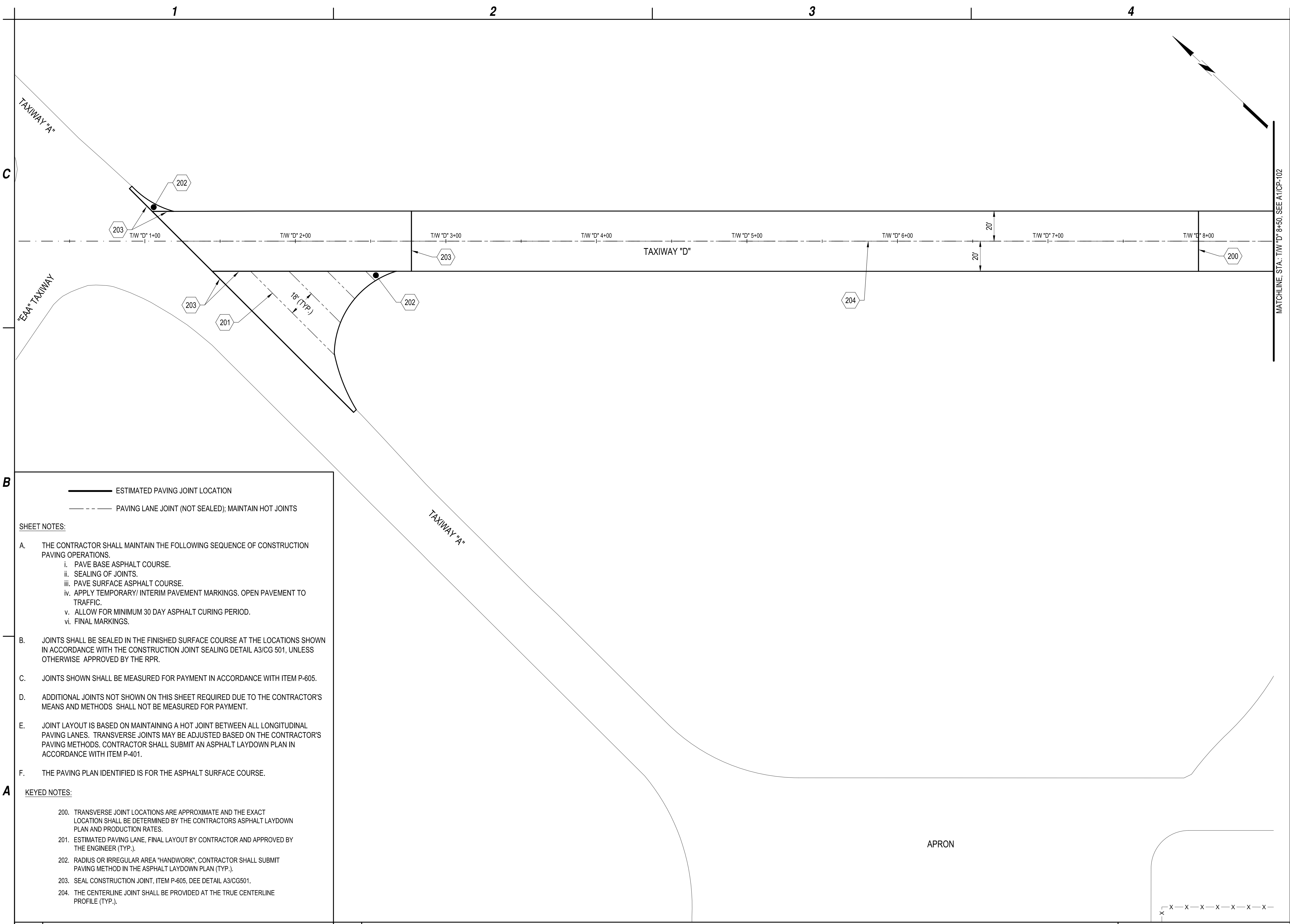
TAXIWAY "B" & "D" REHABILITATION
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DETAILS

CG503

Feb. 24, 2024 - 11:56am - F:\Project\180 - OSWEGO COUNTY\180254001 - TWP B&D Rehab Design\CADD\Sheet Files\180254001_CP-Series.dwg



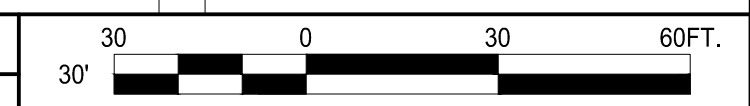
- ESTIMATED PAVING JOINT LOCATION
- - - - - PAVING LANE JOINT (NOT SEALED); MAINTAIN HOT JOINTS

- SHEET NOTES:**
- A. THE CONTRACTOR SHALL MAINTAIN THE FOLLOWING SEQUENCE OF CONSTRUCTION PAVING OPERATIONS.
 - i. PAVE BASE ASPHALT COURSE.
 - ii. SEALING OF JOINTS.
 - iii. PAVE SURFACE ASPHALT COURSE.
 - iv. APPLY TEMPORARY/ INTERIM PAVEMENT MARKINGS. OPEN PAVEMENT TO TRAFFIC.
 - v. ALLOW FOR MINIMUM 30 DAY ASPHALT CURING PERIOD.
 - vi. FINAL MARKINGS.
 - B. JOINTS SHALL BE SEALED IN THE FINISHED SURFACE COURSE AT THE LOCATIONS SHOWN IN ACCORDANCE WITH THE CONSTRUCTION JOINT SEALING DETAIL A3/CG 501, UNLESS OTHERWISE APPROVED BY THE RPPR.
 - C. JOINTS SHOWN SHALL BE MEASURED FOR PAYMENT IN ACCORDANCE WITH ITEM P-605.
 - D. ADDITIONAL JOINTS NOT SHOWN ON THIS SHEET REQUIRED DUE TO THE CONTRACTOR'S MEANS AND METHODS SHALL NOT BE MEASURED FOR PAYMENT.
 - E. JOINT LAYOUT IS BASED ON MAINTAINING A HOT JOINT BETWEEN ALL LONGITUDINAL PAVING LANES. TRANSVERSE JOINTS MAY BE ADJUSTED BASED ON THE CONTRACTOR'S PAVING METHODS. CONTRACTOR SHALL SUBMIT AN ASPHALT LAYDOWN PLAN IN ACCORDANCE WITH ITEM P-401.
 - F. THE PAVING PLAN IDENTIFIED IS FOR THE ASPHALT SURFACE COURSE.

- KEYED NOTES:**
200. TRANSVERSE JOINT LOCATIONS ARE APPROXIMATE AND THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTORS ASPHALT LAYDOWN PLAN AND PRODUCTION RATES.
 201. ESTIMATED PAVING LANE, FINAL LAYOUT BY CONTRACTOR AND APPROVED BY THE ENGINEER (TYP.).
 202. RADIUS OR IRREGULAR AREA "HANDWORK", CONTRACTOR SHALL SUBMIT PAVING METHOD IN THE ASPHALT LAYDOWN PLAN (TYP.).
 203. SEAL CONSTRUCTION JOINT, ITEM P-605, DEE DETAIL A3/CG501.
 204. THE CENTERLINE JOINT SHALL BE PROVIDED AT THE TRUE CENTERLINE PROFILE (TYP.).

A1 KEYED/SHEET NOTES AND LEGEND
SCALE: NOT TO SCALE

A2 JOINT SEALING AND PAVING PLAN
SCALE: 1" = 30'



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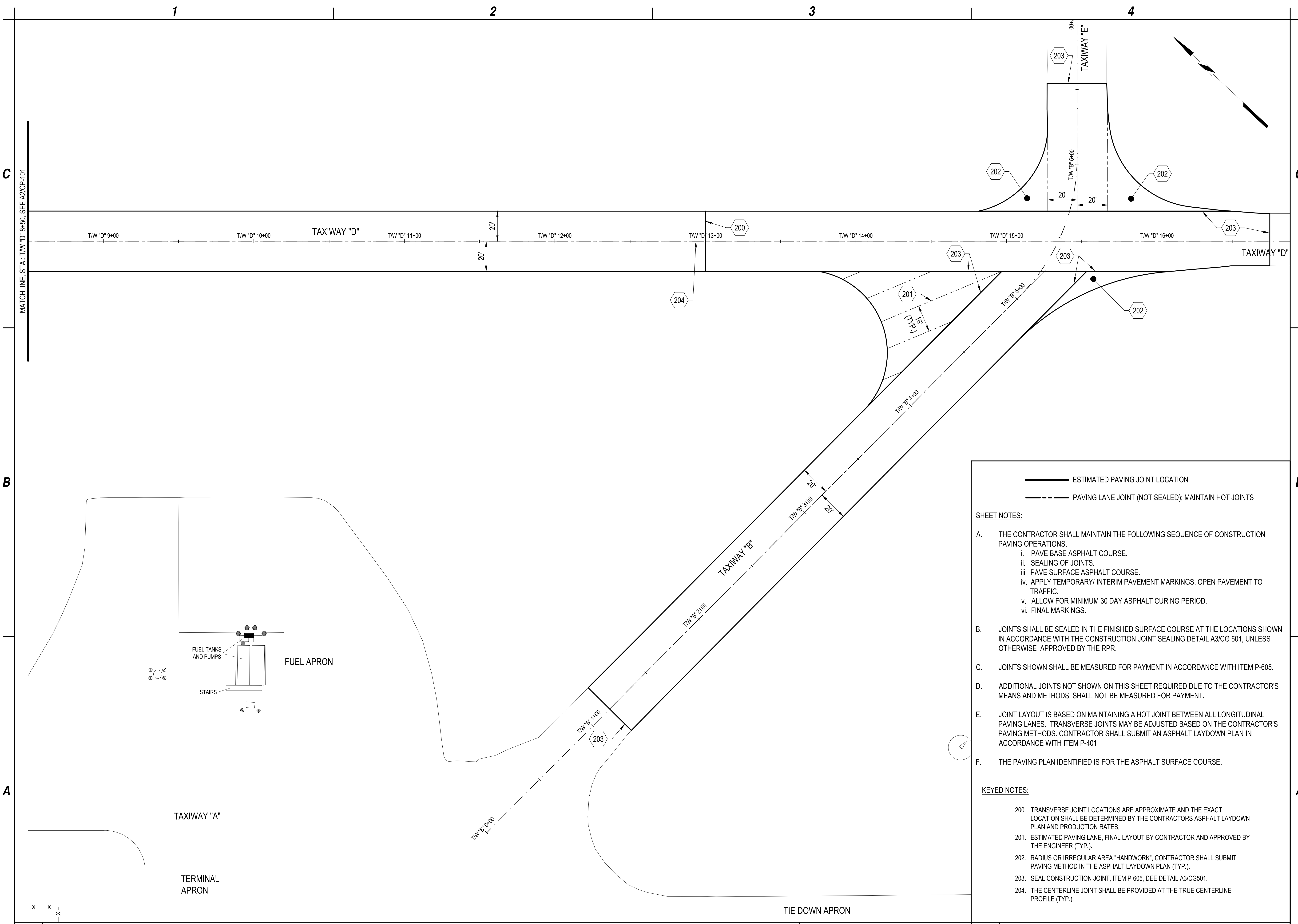
TAXIWAY "B" & "D" REHABILITATION
OSWEGO COUNTY AIRPORT
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FULTON, NEW YORK

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CHECKED BY:	C.D.B	

JOINT SEALING AND PAVING PLAN

CP101

Feb. 24, 2024 - 11:57am
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——— ESTIMATED PAVING JOINT LOCATION
 - - - PAVING LANE JOINT (NOT SEALED); MAINTAIN HOT JOINTS

SHEET NOTES:

A. THE CONTRACTOR SHALL MAINTAIN THE FOLLOWING SEQUENCE OF CONSTRUCTION PAVING OPERATIONS.

- i. PAVE BASE ASPHALT COURSE.
- ii. SEALING OF JOINTS.
- iii. PAVE SURFACE ASPHALT COURSE.
- iv. APPLY TEMPORARY/ INTERIM PAVEMENT MARKINGS. OPEN PAVEMENT TO TRAFFIC.
- v. ALLOW FOR MINIMUM 30 DAY ASPHALT CURING PERIOD.
- vi. FINAL MARKINGS.

B. JOINTS SHALL BE SEALED IN THE FINISHED SURFACE COURSE AT THE LOCATIONS SHOWN IN ACCORDANCE WITH THE CONSTRUCTION JOINT SEALING DETAIL A3/CG 501, UNLESS OTHERWISE APPROVED BY THE RPR.

C. JOINTS SHOWN SHALL BE MEASURED FOR PAYMENT IN ACCORDANCE WITH ITEM P-605.

D. ADDITIONAL JOINTS NOT SHOWN ON THIS SHEET REQUIRED DUE TO THE CONTRACTOR'S MEANS AND METHODS SHALL NOT BE MEASURED FOR PAYMENT.

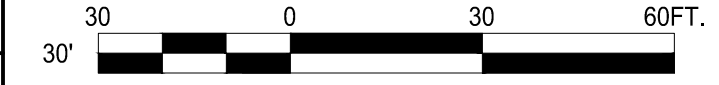
E. JOINT LAYOUT IS BASED ON MAINTAINING A HOT JOINT BETWEEN ALL LONGITUDINAL PAVING LANES. TRANSVERSE JOINTS MAY BE ADJUSTED BASED ON THE CONTRACTOR'S PAVING METHODS. CONTRACTOR SHALL SUBMIT AN ASPHALT LAYDOWN PLAN IN ACCORDANCE WITH ITEM P-401.

F. THE PAVING PLAN IDENTIFIED IS FOR THE ASPHALT SURFACE COURSE.

KEYED NOTES:

200. TRANSVERSE JOINT LOCATIONS ARE APPROXIMATE AND THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTORS ASPHALT LAYDOWN PLAN AND PRODUCTION RATES.
201. ESTIMATED PAVING LANE, FINAL LAYOUT BY CONTRACTOR AND APPROVED BY THE ENGINEER (TYP.).
202. RADIUS OR IRREGULAR AREA "HANDWORK", CONTRACTOR SHALL SUBMIT PAVING METHOD IN THE ASPHALT LAYDOWN PLAN (TYP.).
203. SEAL CONSTRUCTION JOINT, ITEM P-605, DEE DETAIL A3/CG501.
204. THE CENTERLINE JOINT SHALL BE PROVIDED AT THE TRUE CENTERLINE PROFILE (TYP.).

A1 JOINT SEALING AND PAVING PLAN
 SCALE: 1" = 30'



A4 KEYED/SHEET NOTES AND LEGEND
 SCALE: NOT TO SCALE



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TAXIWAY "B" & "D" REHABILITATION

OSWEGO COUNTY AIRPORT

OSWEGO COUNTY

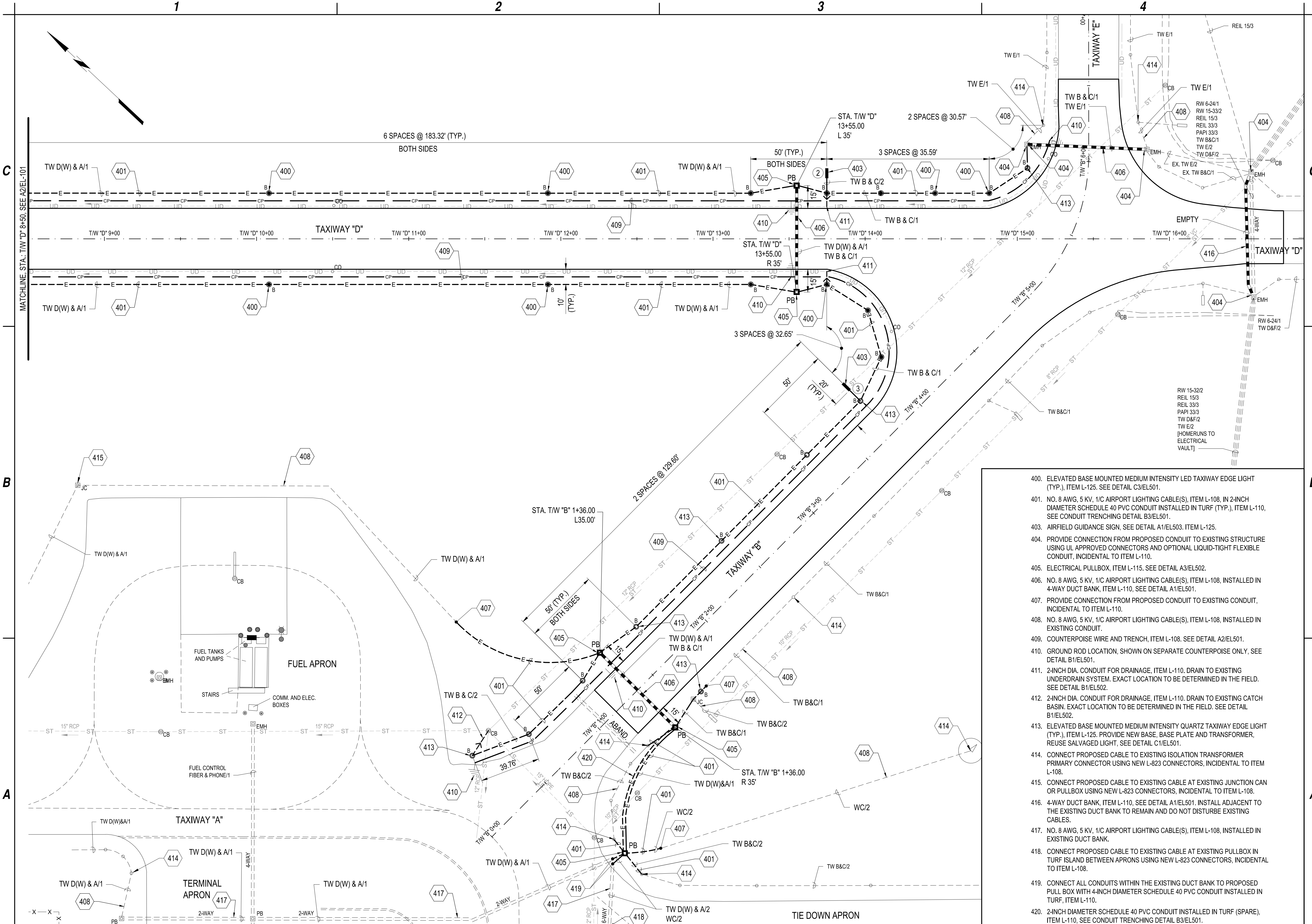
FULTON, NEW YORK

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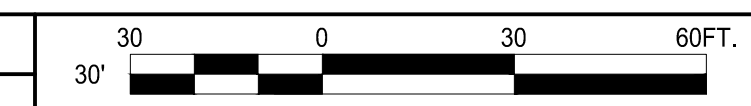
JOINT SEALING AND PAVING PLAN

CP102

Feb. 24, 2024 - 12:01pm
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A1 ELECTRICAL PLAN
 SCALE: 1" = 30'



A4 KEYED NOTES
 SCALE: NOT TO SCALE

400. ELEVATED BASE MOUNTED MEDIUM INTENSITY LED TAXIWAY EDGE LIGHT (TYP.), ITEM L-125. SEE DETAIL C3/EL501.
401. NO. 8 AWG, 5 KV, 1/C AIRPORT LIGHTING CABLE(S), ITEM L-108, IN 2-INCH DIAMETER SCHEDULE 40 PVC CONDUIT INSTALLED IN TURF (TYP.), ITEM L-110, SEE CONDUIT TRENCHING DETAIL B3/EL501.
403. AIRFIELD GUIDANCE SIGN, SEE DETAIL A1/EL503. ITEM L-125.
404. PROVIDE CONNECTION FROM PROPOSED CONDUIT TO EXISTING STRUCTURE USING UL APPROVED CONNECTORS AND OPTIONAL LIQUID-TIGHT FLEXIBLE CONDUIT, INCIDENTAL TO ITEM L-110.
405. ELECTRICAL PULLBOX, ITEM L-115. SEE DETAIL A3/EL502.
406. NO. 8 AWG, 5 KV, 1/C AIRPORT LIGHTING CABLE(S), ITEM L-108, INSTALLED IN 4-WAY DUCT BANK, ITEM L-110, SEE DETAIL A1/EL501.
407. PROVIDE CONNECTION FROM PROPOSED CONDUIT TO EXISTING CONDUIT, INCIDENTAL TO ITEM L-110.
408. NO. 8 AWG, 5 KV, 1/C AIRPORT LIGHTING CABLE(S), ITEM L-108, INSTALLED IN EXISTING CONDUIT.
409. COUNTERPOISE WIRE AND TRENCH, ITEM L-108. SEE DETAIL A2/EL501.
410. GROUND ROD LOCATION, SHOWN ON SEPARATE COUNTERPOISE ONLY, SEE DETAIL B1/EL501.
411. 2-INCH DIA. CONDUIT FOR DRAINAGE, ITEM L-110. DRAIN TO EXISTING UNDERDRAIN SYSTEM. EXACT LOCATION TO BE DETERMINED IN THE FIELD. SEE DETAIL B1/EL502.
412. 2-INCH DIA. CONDUIT FOR DRAINAGE, ITEM L-110. DRAIN TO EXISTING CATCH BASIN. EXACT LOCATION TO BE DETERMINED IN THE FIELD. SEE DETAIL B1/EL502.
413. ELEVATED BASE MOUNTED MEDIUM INTENSITY QUARTZ TAXIWAY EDGE LIGHT (TYP.), ITEM L-125. PROVIDE NEW BASE, BASE PLATE AND TRANSFORMER, REUSE SALVAGED LIGHT, SEE DETAIL C1/EL501.
414. CONNECT PROPOSED CABLE TO EXISTING ISOLATION TRANSFORMER PRIMARY CONNECTOR USING NEW L-823 CONNECTORS, INCIDENTAL TO ITEM L-108.
415. CONNECT PROPOSED CABLE TO EXISTING CABLE AT EXISTING JUNCTION CAN OR PULLBOX USING NEW L-823 CONNECTORS, INCIDENTAL TO ITEM L-108.
416. 4-WAY DUCT BANK, ITEM L-110, SEE DETAIL A1/EL501. INSTALL ADJACENT TO THE EXISTING DUCT BANK TO REMAIN AND DO NOT DISTURB EXISTING CABLES.
417. NO. 8 AWG, 5 KV, 1/C AIRPORT LIGHTING CABLE(S), ITEM L-108, INSTALLED IN EXISTING DUCT BANK.
418. CONNECT PROPOSED CABLE TO EXISTING CABLE AT EXISTING PULLBOX IN TURF ISLAND BETWEEN APRONS USING NEW L-823 CONNECTORS, INCIDENTAL TO ITEM L-108.
419. CONNECT ALL CONDUITS WITHIN THE EXISTING DUCT BANK TO PROPOSED PULL BOX WITH 4-INCH DIAMETER SCHEDULE 40 PVC CONDUIT INSTALLED IN TURF, ITEM L-110.
420. 2-INCH DIAMETER SCHEDULE 40 PVC CONDUIT INSTALLED IN TURF (SPARE), ITEM L-110, SEE CONDUIT TRENCHING DETAIL B3/EL501.



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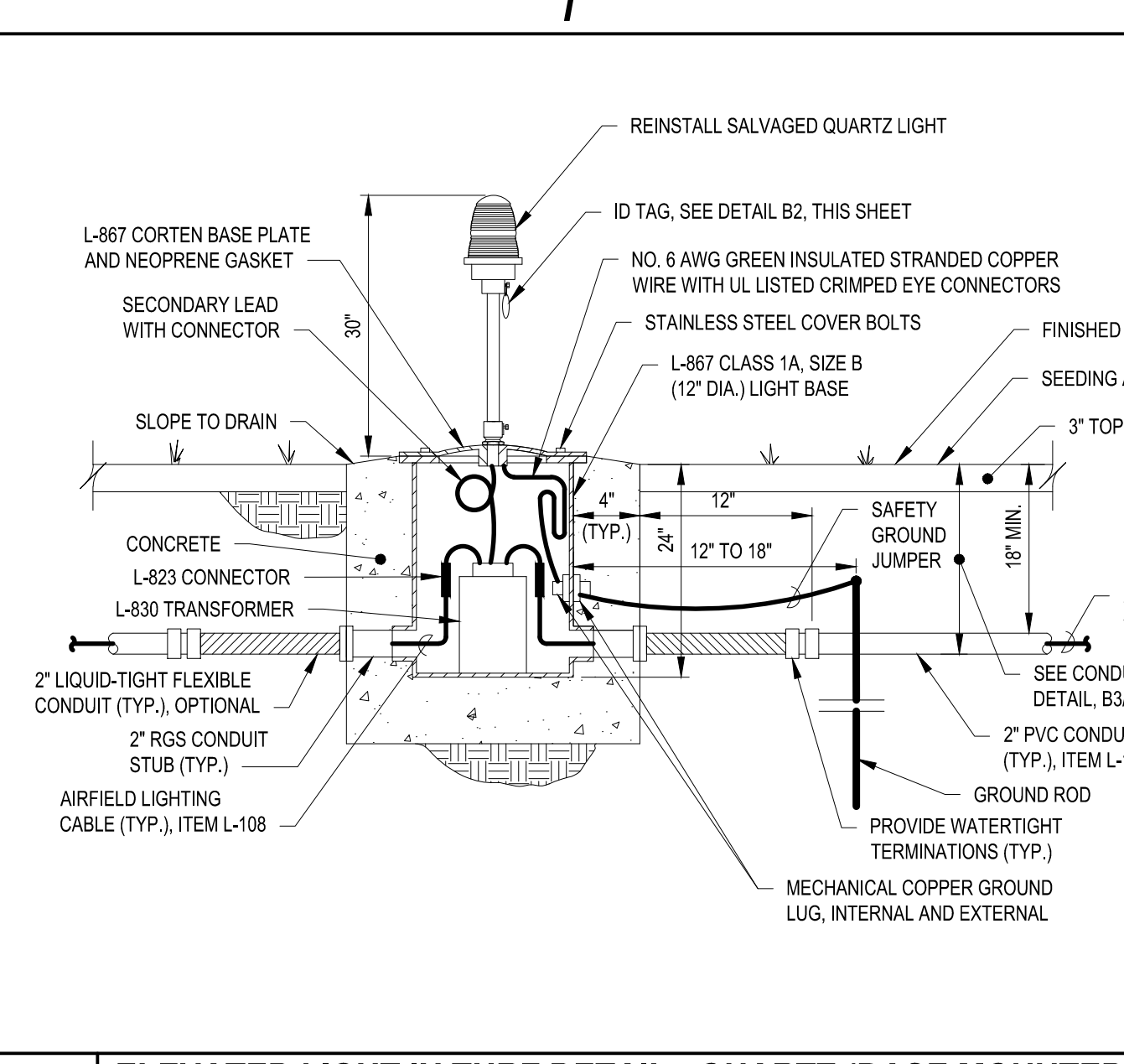
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CHECKED BY:	C.D.B	

ELECTRICAL PLAN

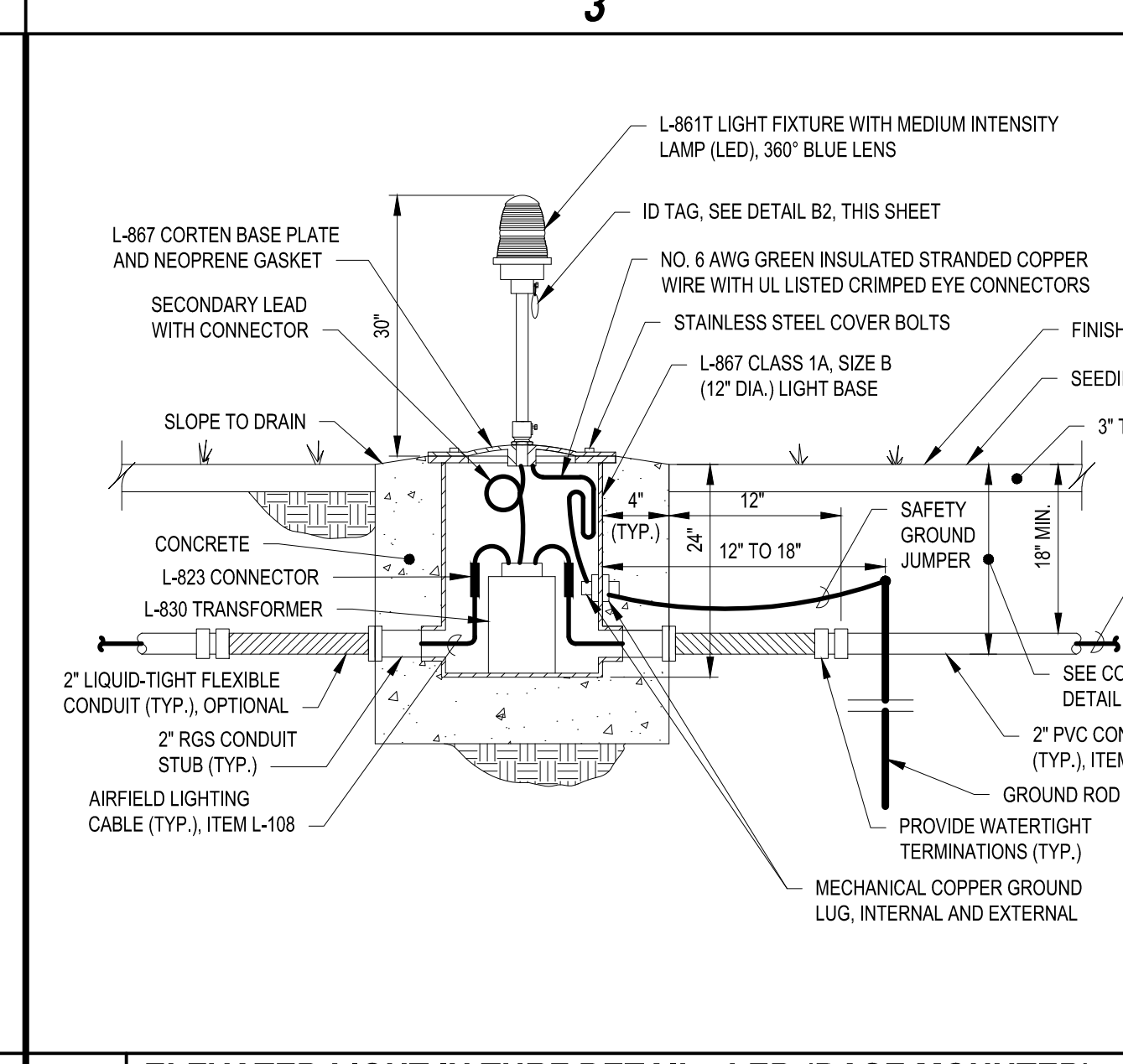
EL102

Feb. 25, 2024 - 9:33am
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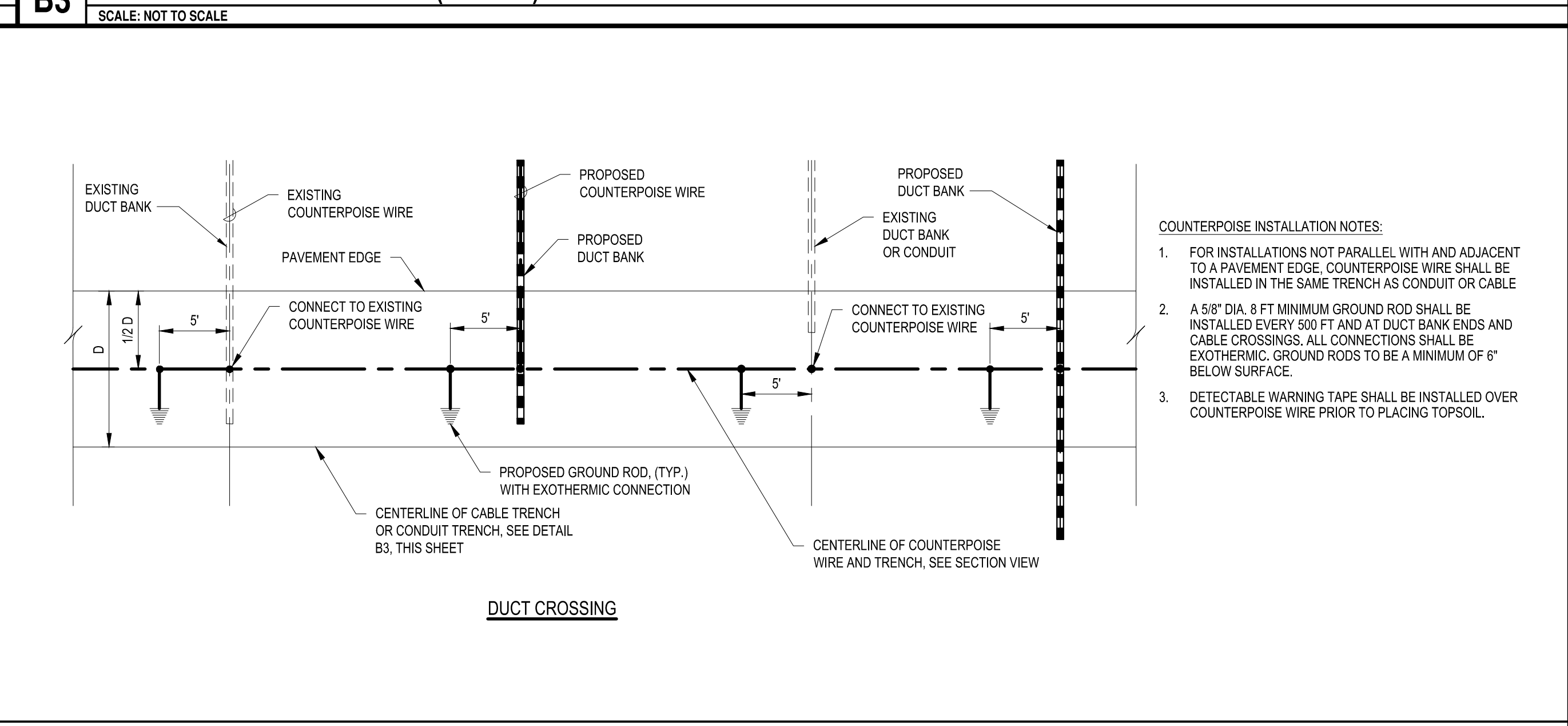
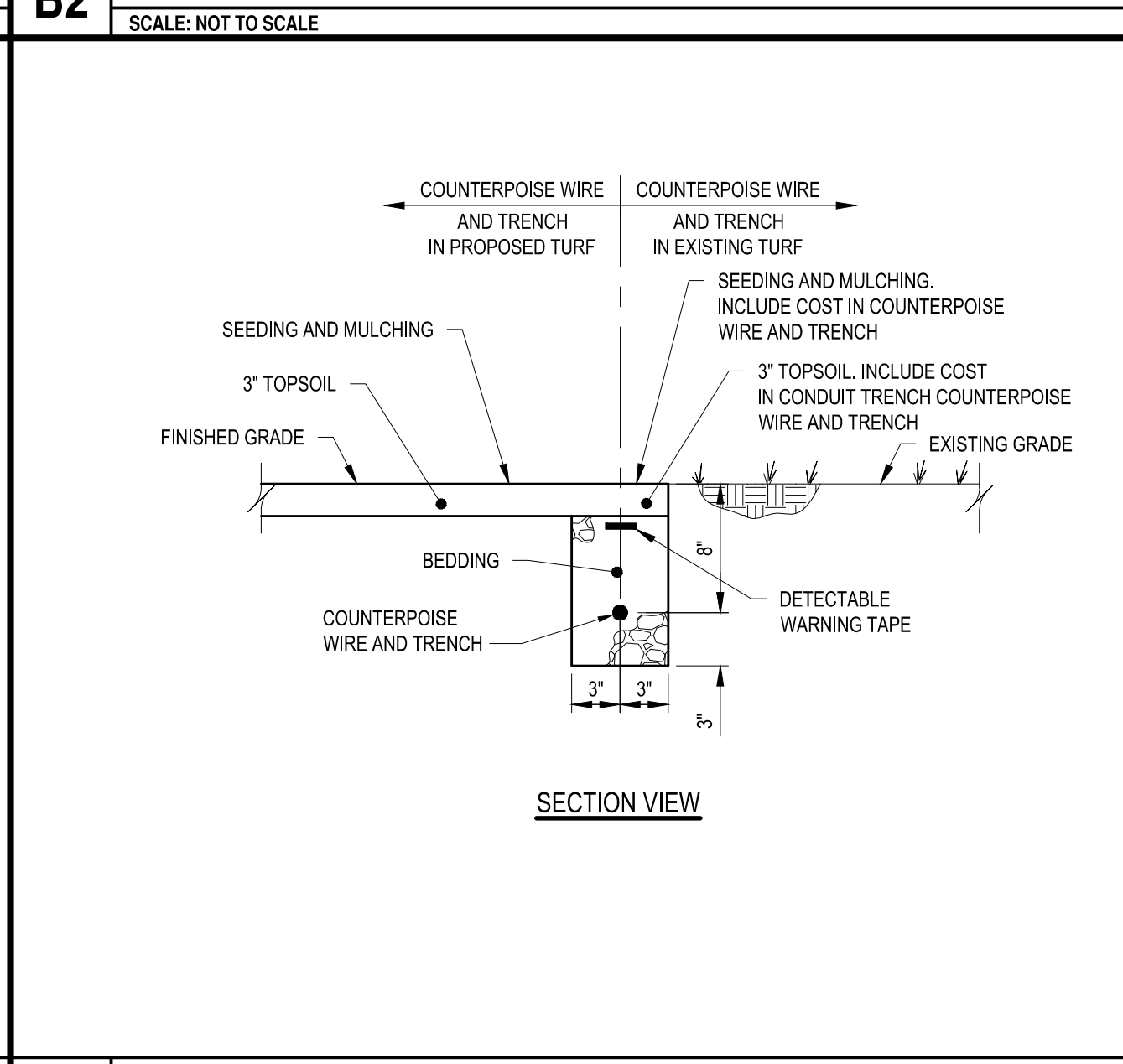
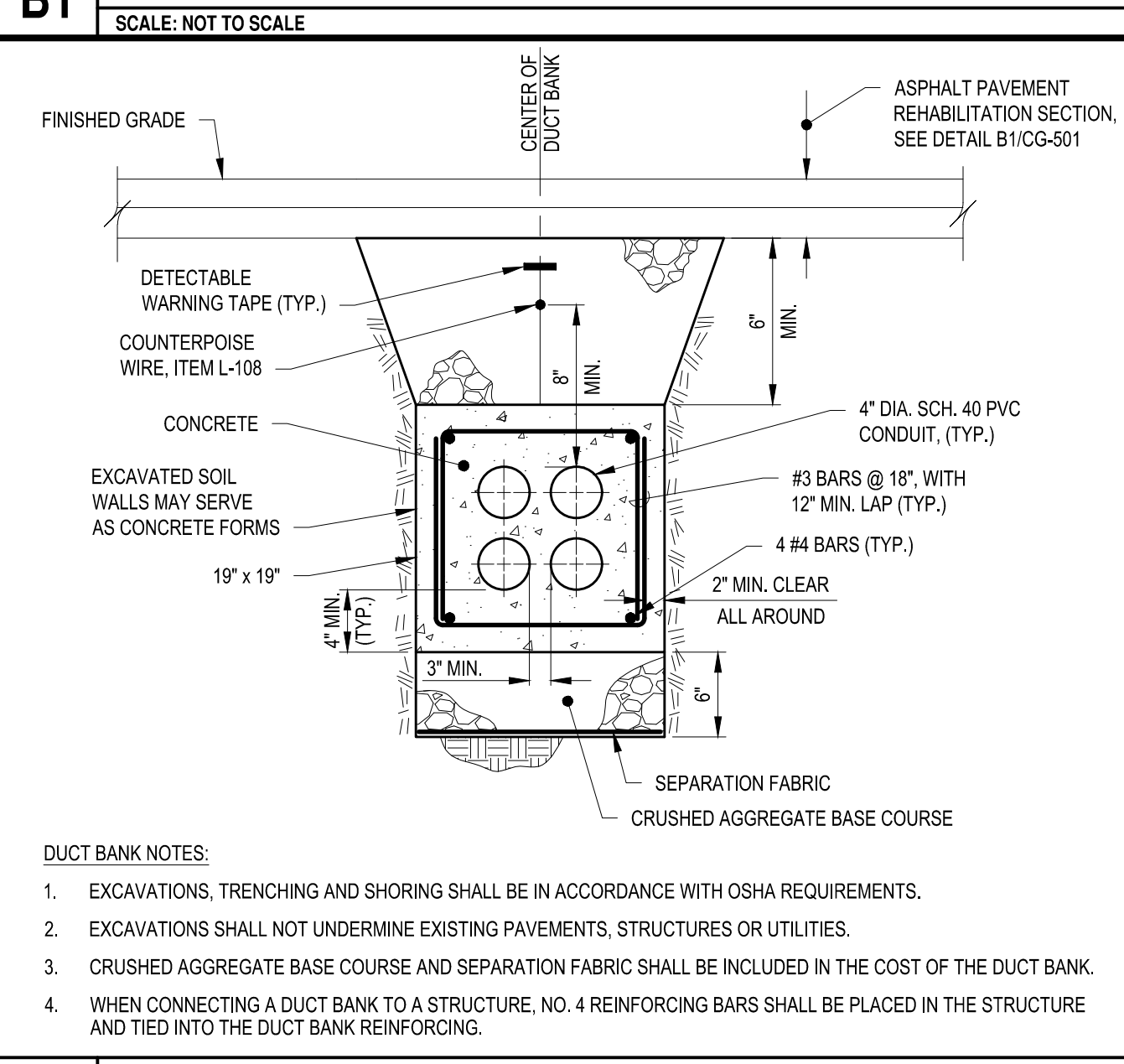
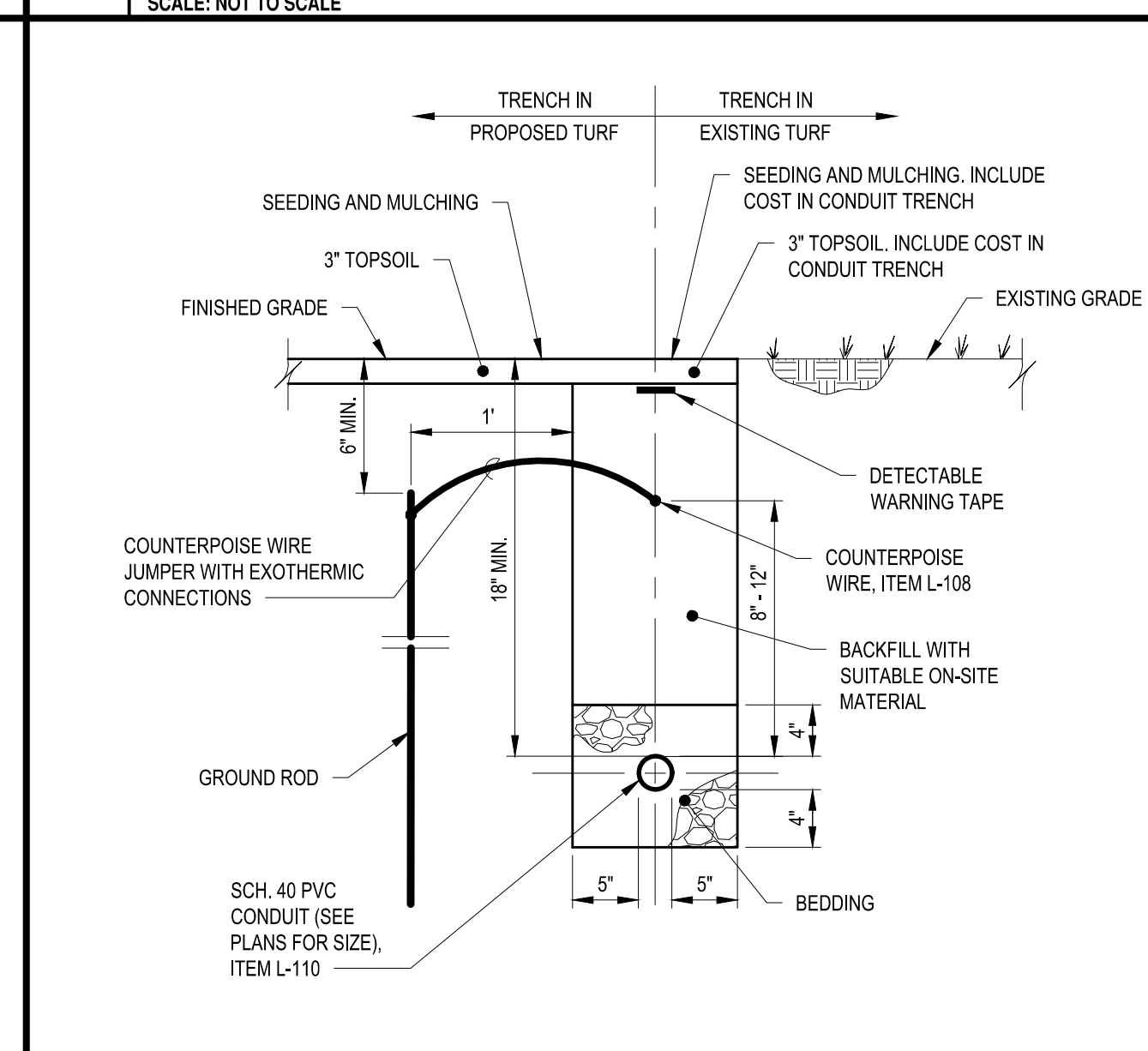
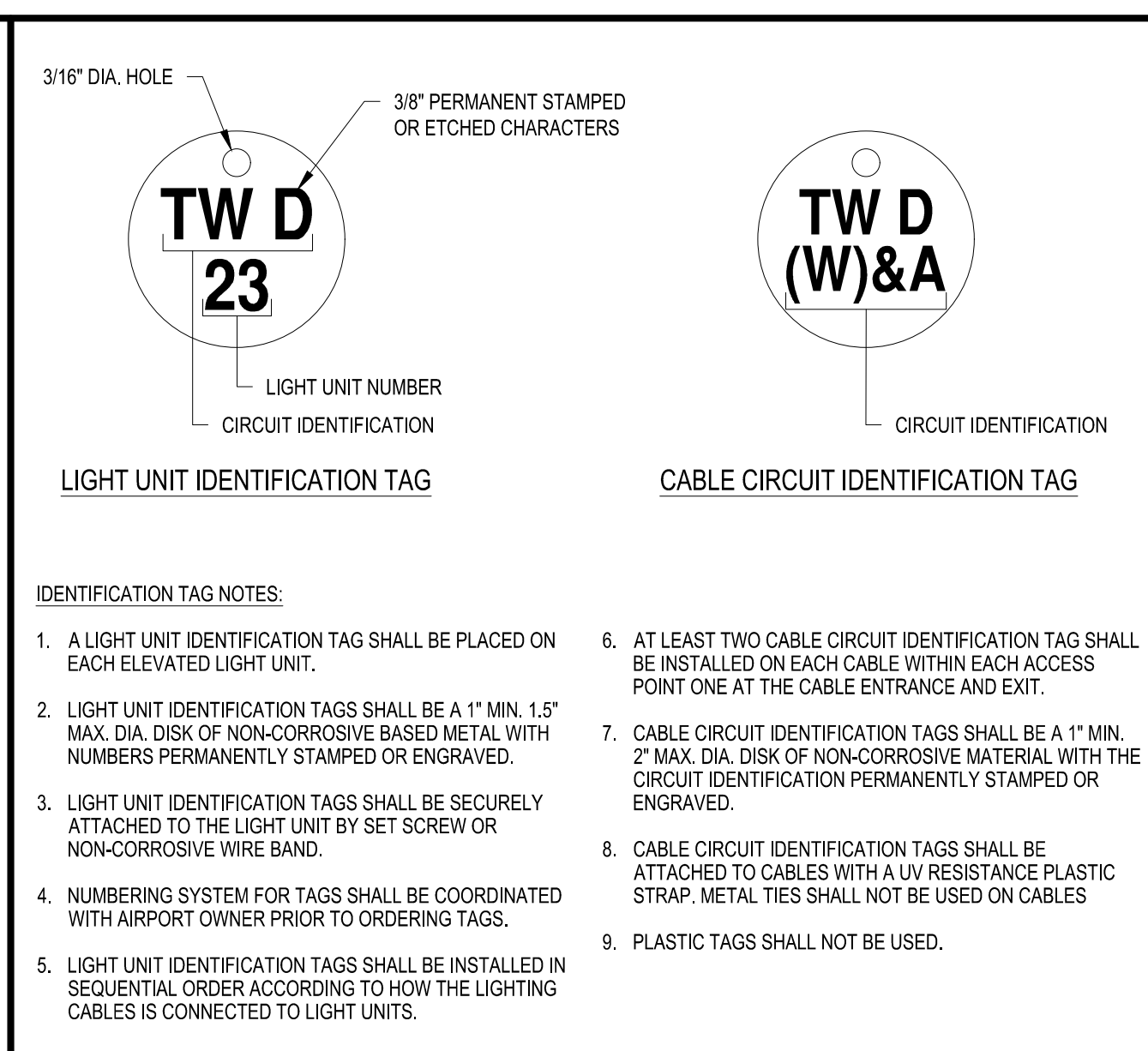
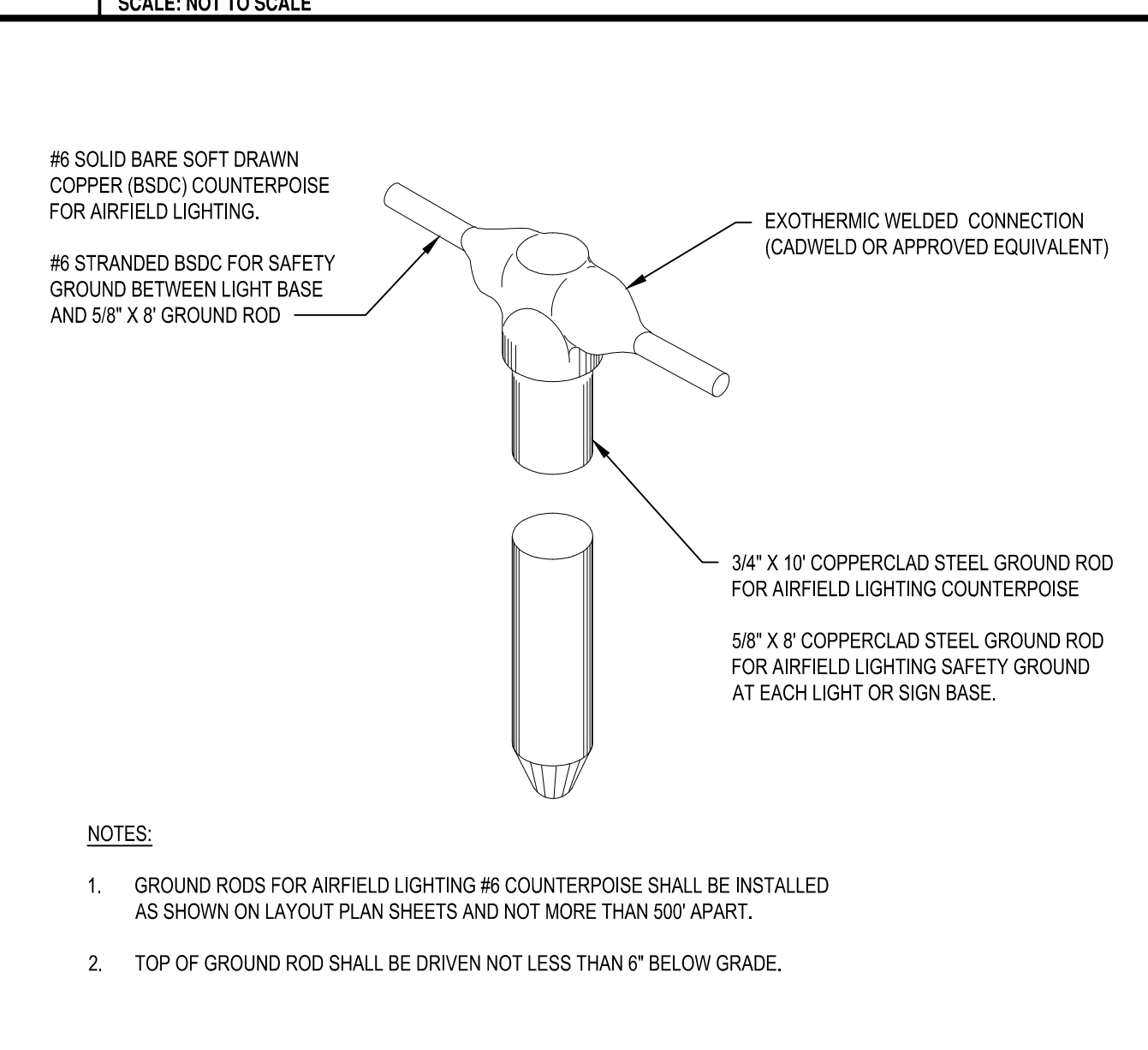
LIGHT NOTES:

- ALL LIGHT BASES SHALL HAVE A MINIMUM OF TWO CONDUIT STUBS SPACED 180 DEGREES APART. CAP CONDUIT IF STUB IS NOT OCCUPIED. ADDITIONAL CONDUIT STUBS MAY BE REQUIRED. SEE PLANS FOR NUMBER AND LOCATION OF STUBS.
- COUNTERPOISE WIRE SHALL BE INSTALLED IN A SEPARATE TRENCH. SEE DETAIL A2, THIS SHEET.
- CONNECT A SAFETY GROUND JUMPER TO THE EXTERNAL GROUND LUG AND ATTACH IT TO A 5/8" DIA. x 8 FT LONG (MIN.) GROUND ROD.
- CONDUIT OUTBOARD OF THE FLEXIBLE CONDUIT AND AIRFIELD LIGHTING CABLES ARE PAID FOR SEPARATELY. ALL OTHER ITEMS ARE INCLUDED IN PAYMENT FOR THE EDGE LIGHT.
- TRANSFORMERS FOR L-861 FIXTURES SHALL BE 6.6 AMP PRIMARY/6.6 AMP SECONDARY, SIZED TO MATCH EXISTING FIXTURE LOAD.
- PROVIDE A MINIMUM OF 3' OF CABLE SLACK ON PRIMARY CONDUCTORS, AND GREEN GROUND IN ORDER TO BRING CONNECTORS 3' ABOVE GRADE.



LIGHT NOTES:

- ALL LIGHT BASES SHALL HAVE A MINIMUM OF TWO CONDUIT STUBS SPACED 180 DEGREES APART. CAP CONDUIT IF STUB IS NOT OCCUPIED. ADDITIONAL CONDUIT STUBS MAY BE REQUIRED. SEE PLANS FOR NUMBER AND LOCATION OF STUBS.
- COUNTERPOISE WIRE SHALL BE INSTALLED IN A SEPARATE TRENCH. SEE DETAIL A2, THIS SHEET.
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- CONDUIT OUTBOARD OF THE FLEXIBLE CONDUIT AND AIRFIELD LIGHTING CABLES ARE PAID FOR SEPARATELY. ALL OTHER ITEMS ARE INCLUDED IN PAYMENT FOR THE EDGE LIGHT.
- TRANSFORMERS FOR L-861T FIXTURES SHALL BE 6.6 AMP PRIMARY/6.6 AMP SECONDARY.
- PROVIDE A MINIMUM OF 3' OF CABLE SLACK ON PRIMARY CONDUCTORS, AND GREEN GROUND IN ORDER TO BRING CONNECTORS 3' ABOVE GRADE.
- THE CONTRACTOR SHALL PROVIDE AND TURN OVER THE FOLLOWING SPARE LIGHT FIXTURES IN NEW UNPACKAGED CONDITION TO FZY (FOR LED LIGHTS ONLY):
 - LIGHT HEADS WITH POSTS AND FRANGIBLE COUPLINGS 3 EA
 - ISOLATION TRANSFORMERS 3 EA
 - CORTEN BASE PLATES WITH HARDWARE 3 EA



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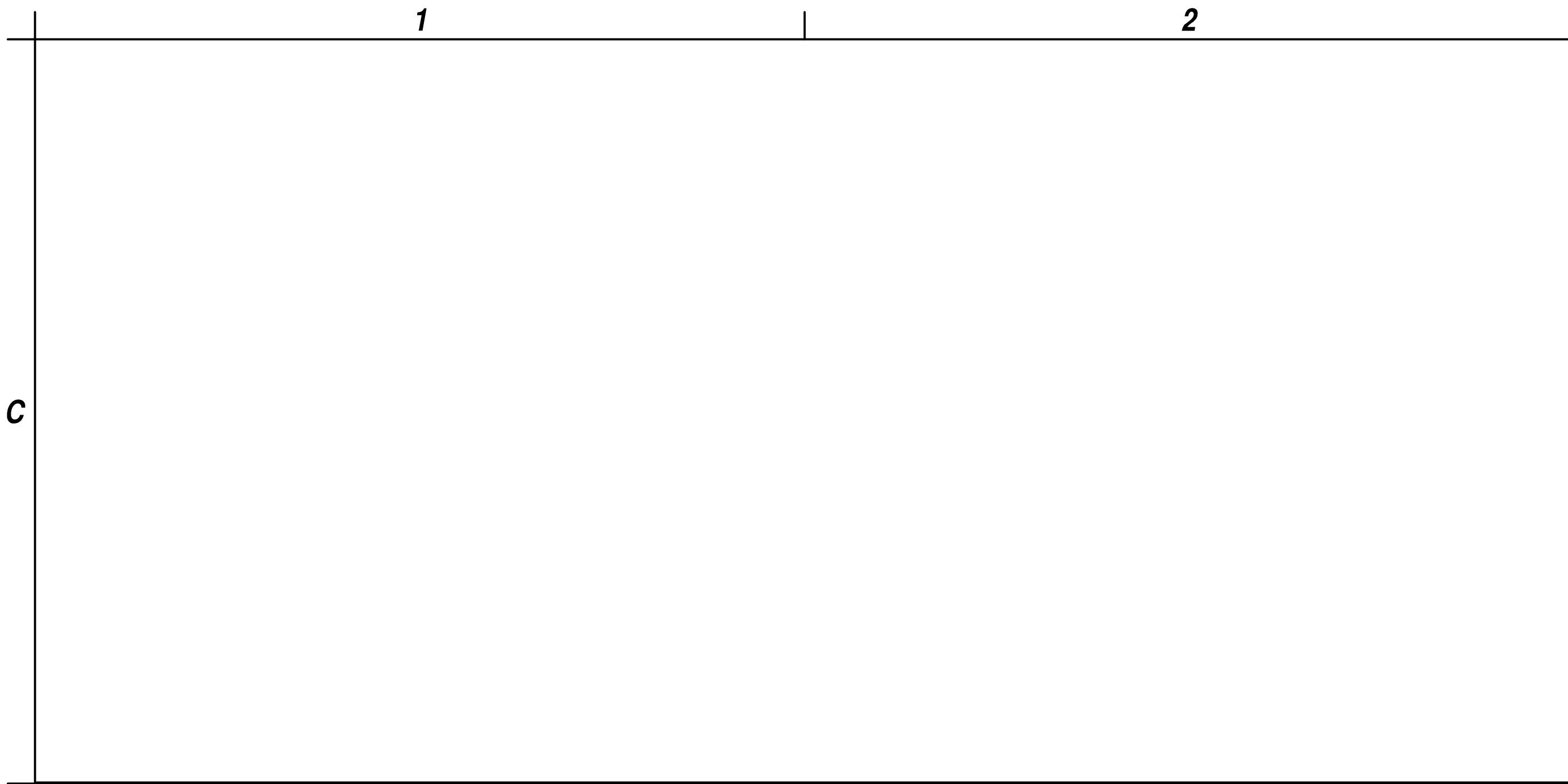


TAXIWAY "B" & "D" REHABILITATION
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FULTON, NEW YORK

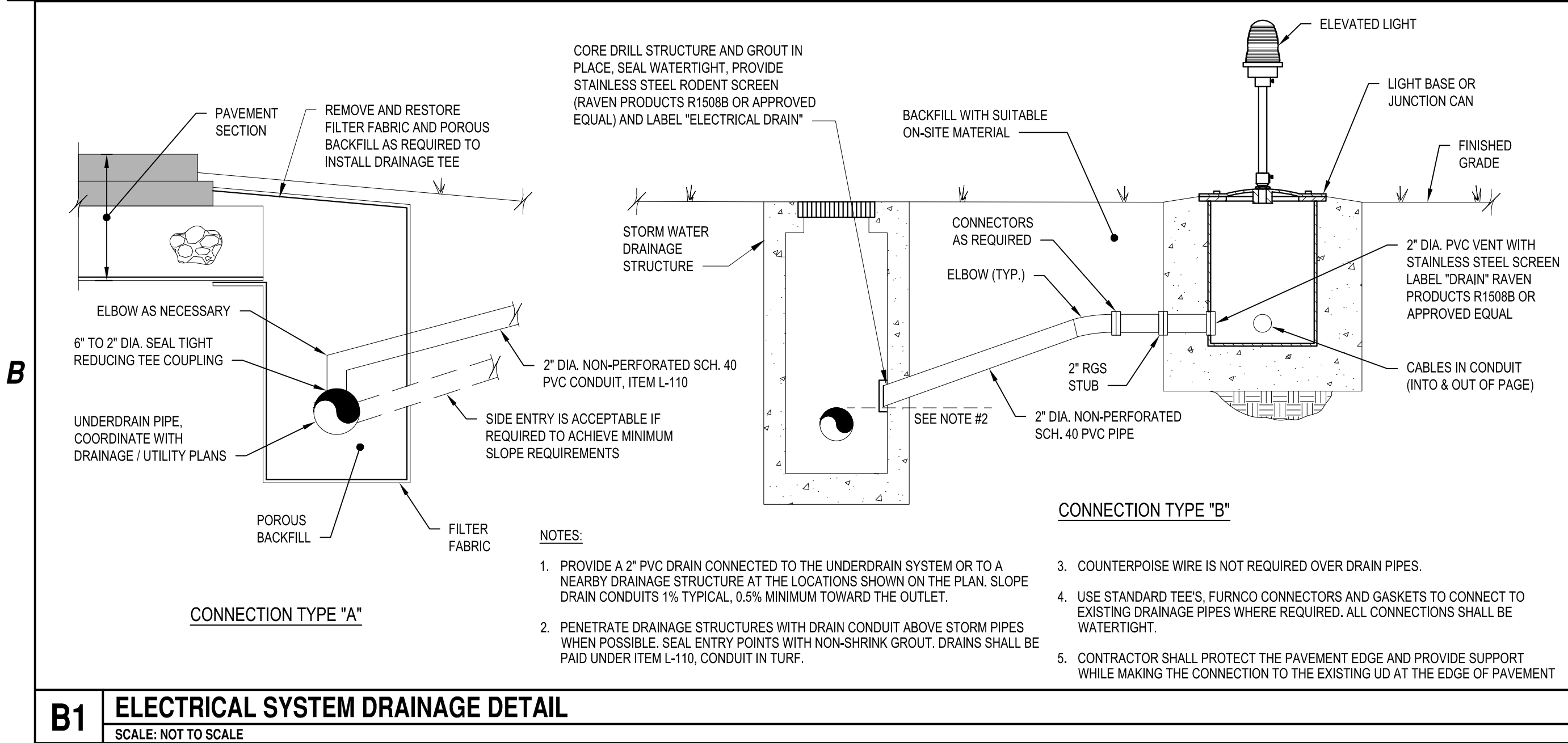
MARK	DATE	DESCRIPTION
REVISIONS		
PROJECT NO:	160.254.001	
DATE:	FEBRUARY 27, 2024	
DRAWN BY:	J.W.P / T.W.L	
DESIGNED BY:	J.W.P / T.W.L	
CHECKED BY:	C.D.B	

**ELECTRICAL
DETAILS**

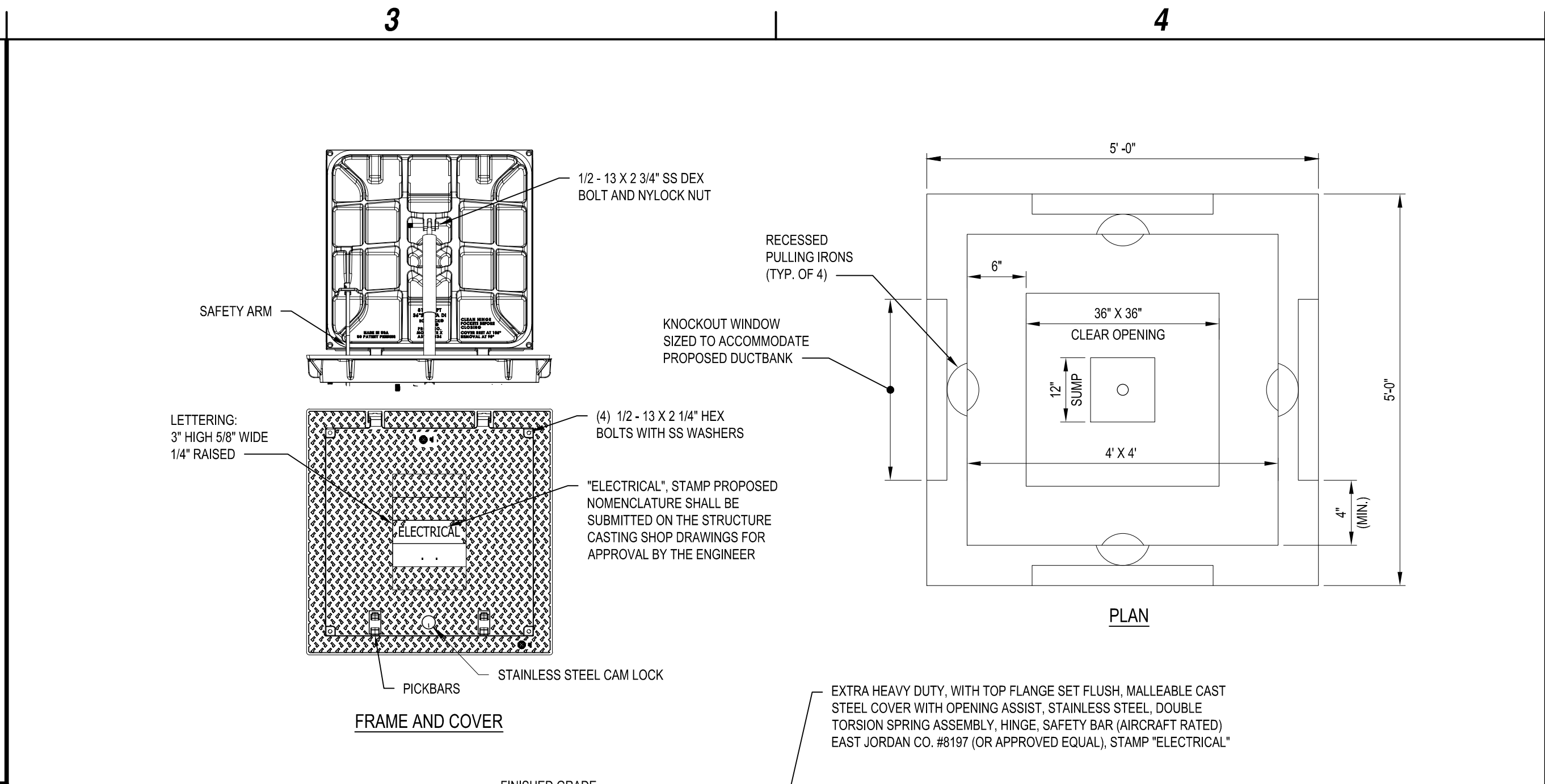
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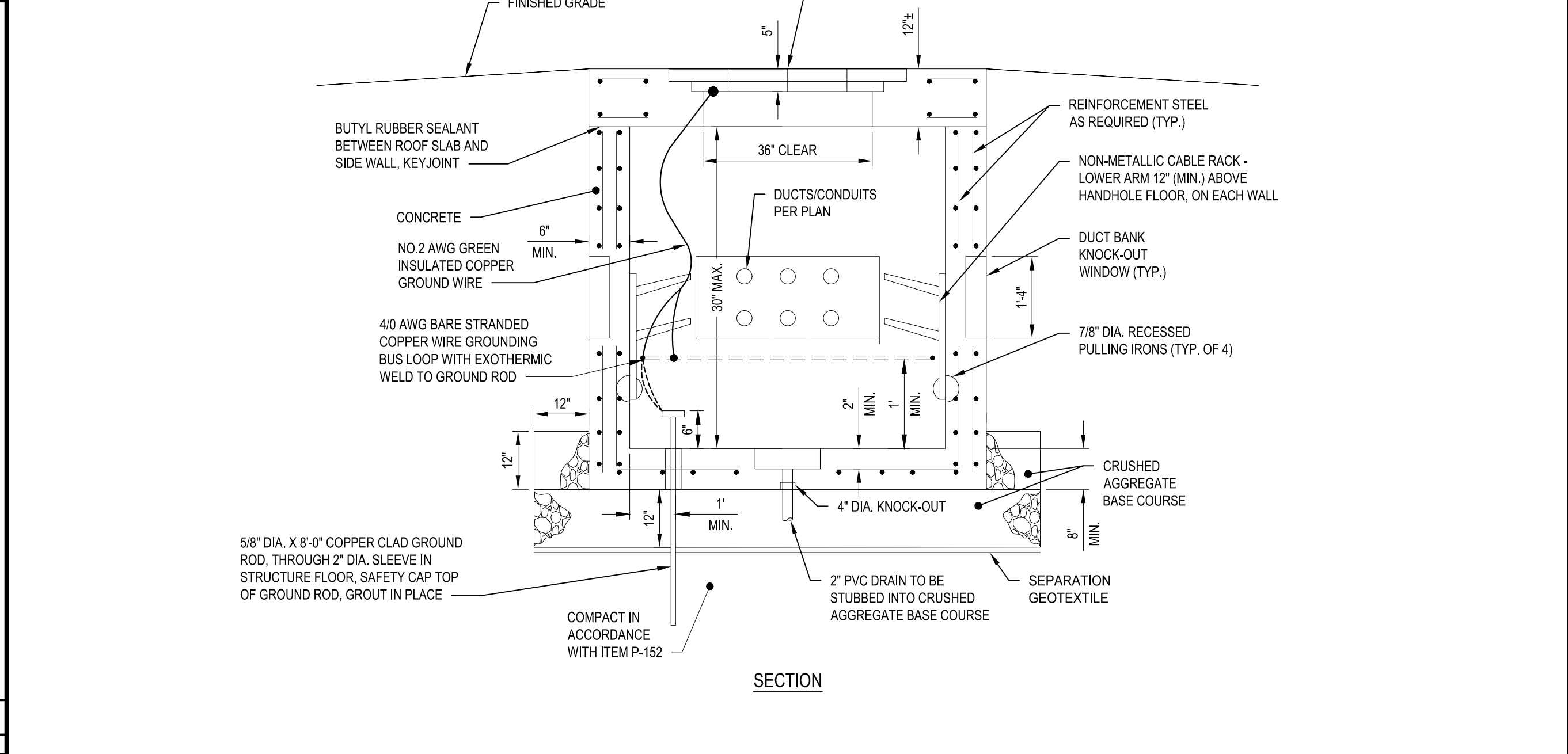
B1 ELECTRICAL SYSTEM DRAINAGE DETAIL
SCALE: NOT TO SCALE



A1 CABLE CONNECTOR DETAIL
SCALE: NOT TO SCALE



A3 PRECAST ELECTRICAL PULL BOX DETAIL (AIRCRAFT RATED)
SCALE: NOT TO SCALE



- ELECTRICAL PULL BOX NOTES:**
- PULL BOX SHALL BE CONSTRUCTED TO SUPPORT A 72,000 LB AIRCRAFT WITH DUAL MAIN GEAR, 175 PSI MAX. TIRE PRESSURE. ALL PRECAST STRUCTURES SUBMITTED SHALL BE ACCOMPANIED WITH THE DESIGN CALCULATIONS SHOWING THAT THE STRUCTURE MEETS THE INTENDED LOADING. THE DRAWINGS & CALCULATIONS SHALL BE STAMPED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER.
 - ALL CONCRETE SHALL CONFORM TO ACI 318-89, F_c=4000 PSI.
 - REINFORCING STEEL IS NOT SPECIFICALLY SHOWN & SHALL BE DESIGNED BY THE PRECAST MANUFACTURER AND INCLUDED IN THE SHOP DRAWING SUBMITTALS.
 - ALL REINFORCING STEEL SHALL CONFORM TO ASTM-615, GRADE 60.
 - THE MINIMUM REBAR COVER SHALL BE 2" FROM ANY SURFACE.
 - ALL CONNECTIONS TO STRUCTURES SHALL BE SEALED WATERTIGHT.
 - CONDUIT LOCATIONS VARY. SEE LIGHTING PLAN SHEET FOR DIRECTIONS.
 - INSTALL 3 LOOPS OF CABLE IN EACH PULL BOX.
 - GROUND ALL METALLIC PARTS OF THE PULL BOX, INCLUDING CASTING, WITH A NO.6 AWG GREEN INSULATED STRANDED COPPER WIRE.
 - DUCT BANKS SHALL DRAIN TOWARD THE PULL BOXES WITH THE CROWN OF THE DUCT BANK MIDWAY BETWEEN STRUCTURES. THE DUCT SLOPE SHALL BE THREE (3) INCHES MINIMUM PER ONE HUNDRED (100) FEET, UNLESS OTHERWISE SPECIFIED.
 - TWO 2" PVC SLEEVES SHALL BE INSTALLED IN EACH WALL OF EVERY PULL BOX WHERE DUCT BANKS AND CONDUITS ARE NOT SHOWN ON THE PLANS. THE SLEEVES SHALL BE POSITIONED 24" MINIMUM BELOW THE GROUND LEVEL TO THE TOP OF THE SLEEVE. THESE SLEEVES ARE FOR FUTURE USE.
 - INSTALL PVC PLUGS IN ALL EMPTY SLEEVES AND DUCTS.
 - CONTRACTOR SHALL CORE DRILL WITH A DIAMOND BIT DRILL. IF REQUIRED FOR OPENINGS FOR NEW CONDUIT. CORED OPENINGS AND CONDUIT PENETRATIONS SHALL BE SEALED WATERTIGHT PRIOR TO BACKFILL.
 - PULL BOXES SHALL BE LOCATED AS SHOWN ON THE PLANS. THE PLACEMENT DEPTH OF THE PULL BOX MAY VARY TO ACCOMMODATE THE DUCT BANKS.
 - ALL PULL BOXES SHALL BE PROVIDED WITH A HEAVY DUTY NON-METALLIC CABLE RACK. LOWER ARM OF CABLE RACK SHALL BE LOCATED 12" ABOVE THE FLOOR OF THE PULL BOX. PROVIDE TWO 6" ARMS PER CABLE RACK AS MANUFACTURED BY UNDERGROUND DEVICES INCORPORATED OR APPROVED EQUAL. BOTTOM SHALL BE A 3" SADDLE AND TOP A 6" ARM MOUNT USING STAINLESS STEEL HARDWARE AS SPECIFIED BY THE MANUFACTURER.
 - A PULLING IRON SHALL BE PROVIDED IN EACH PULL BOX OPPOSITE EACH CONDUIT ENTRANCE AND KNOCKOUT. THE PULLING IRON WILL BE POSITIONED 4" BELOW THE LEVEL OF CONDUIT OR KNOCKOUT.
 - IN THE EVENT ANY PULL BOX COVER IS NOT INSTALLED WHEN BOX IS PLACED, THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO ASSURE SAFETY. THE SAFETY MEASURES SHALL INCLUDE, BUT NOT LIMITED TO BARRICADING THE PULL BOX SITE AND COVERING THE HOLE.
 - ALL PULL BOX STRUCTURES SHALL BE SET SLIGHTLY ABOVE THE FINISHED GRADE FOR THE SURROUNDING AREA. ASPHALT OR TURF, AS CALLED FOR ON THE PLANS, SHALL BE PLACED FLUSH WITH THE TOP OF CASTING AND GENTLY SLOPED AWAY FROM THE STRUCTURE TO PREVENT THE PONDING OR INFILTRATION OF WATER.
 - EACH PULL BOX SHALL INCLUDE A 5/8" DIAMETER BY 8'-0" MIN. LONG GROUND ROD. EACH GROUND ROD SHALL INDIVIDUALLY TESTED BY THE CONTRACTOR PRIOR TO CONNECTION TO THE COUNTERPOISE TO ENSURE A NOT-TO-EXCEED EARTH RESISTANCE OF 25 OHMS. ADDITIONAL SECTIONS OF GROUND ROD SHALL BE ADDED TO OR A GROUND GRID INSTALLED TO ACHIEVE THE 25 OHM REQUIREMENT.
 - ALL L-824 CABLES AND L-823 CONNECTORS SHALL BE RACKED AND TIED ABOVE HANDHOLE FLOOR. THE CONNECTORS AND CABLES SHALL BE EASILY ACCESSIBLE TO THE AIRFIELD MAINTENANCE ELECTRICIANS FROM THE EXTERIOR OF THE HANDHOLE.
 - SEE TECHNICAL SPECIFICATION L-115 AND CIVIL DRAWINGS FOR ADDITIONAL PRECAST STRUCTURE REQUIREMENTS.
 - THE MAXIMUM DEPTH FOR STRUCTURES SHALL BE 42" MEASURED FROM THE SURFACE TO THE BOTTOM OF THE STRUCTURE.
 - CONNECTION OF EXISTING OR PROPOSED CONDUITS OR DUCT BANK TO PULL BOX, INCLUDING CONCRETE, CONDUIT, CONNECTIONS AND BACKFILL SHALL BE INCIDENTAL TO ITEM L-115.
 - ALL MATERIALS AND COMPONENTS SHOWN ARE INCIDENTAL TO THE ELECTRICAL PULL BOX, ITEM L-115



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**ELECTRICAL
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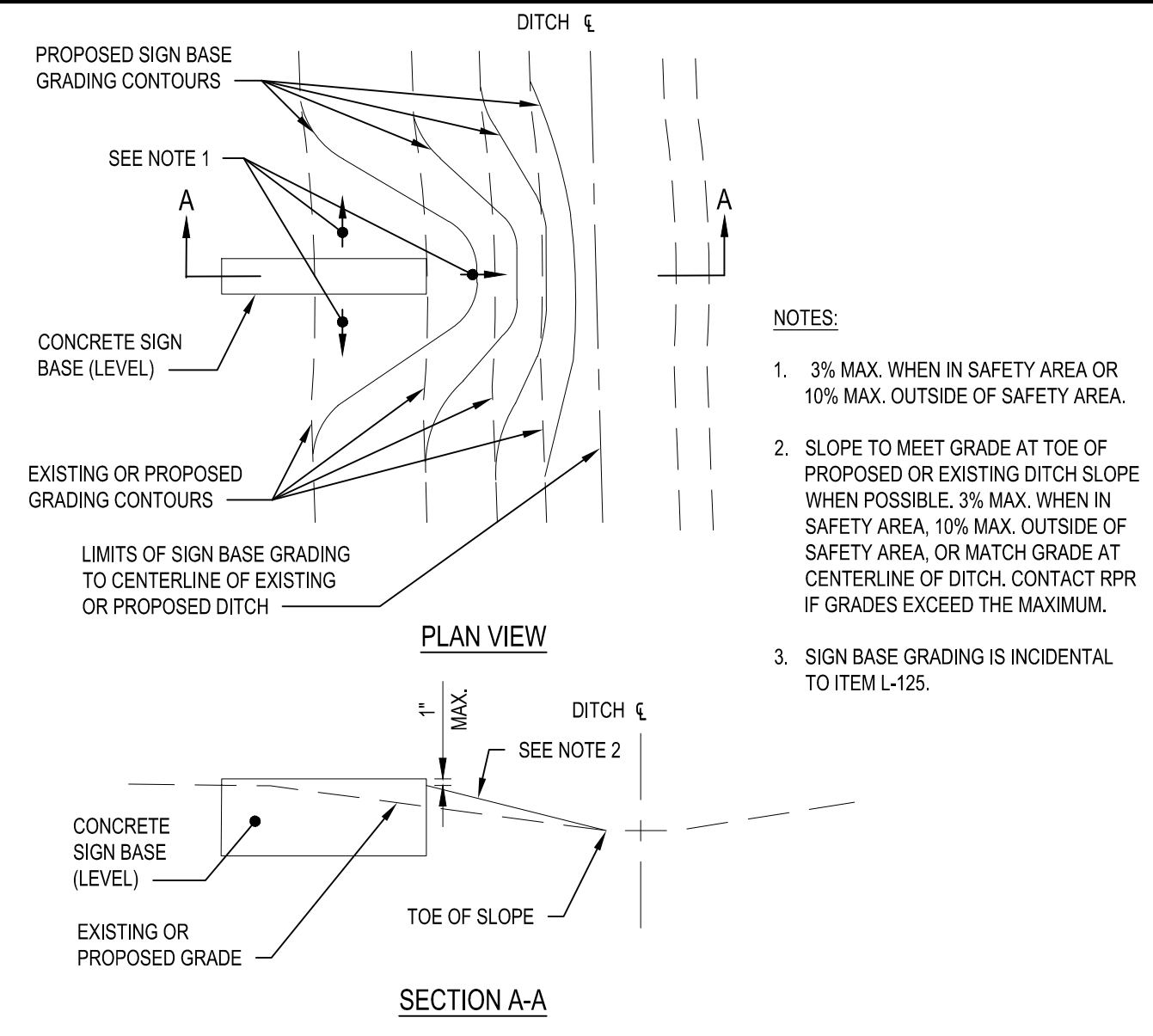
EL502
SHEET 24 OF 27



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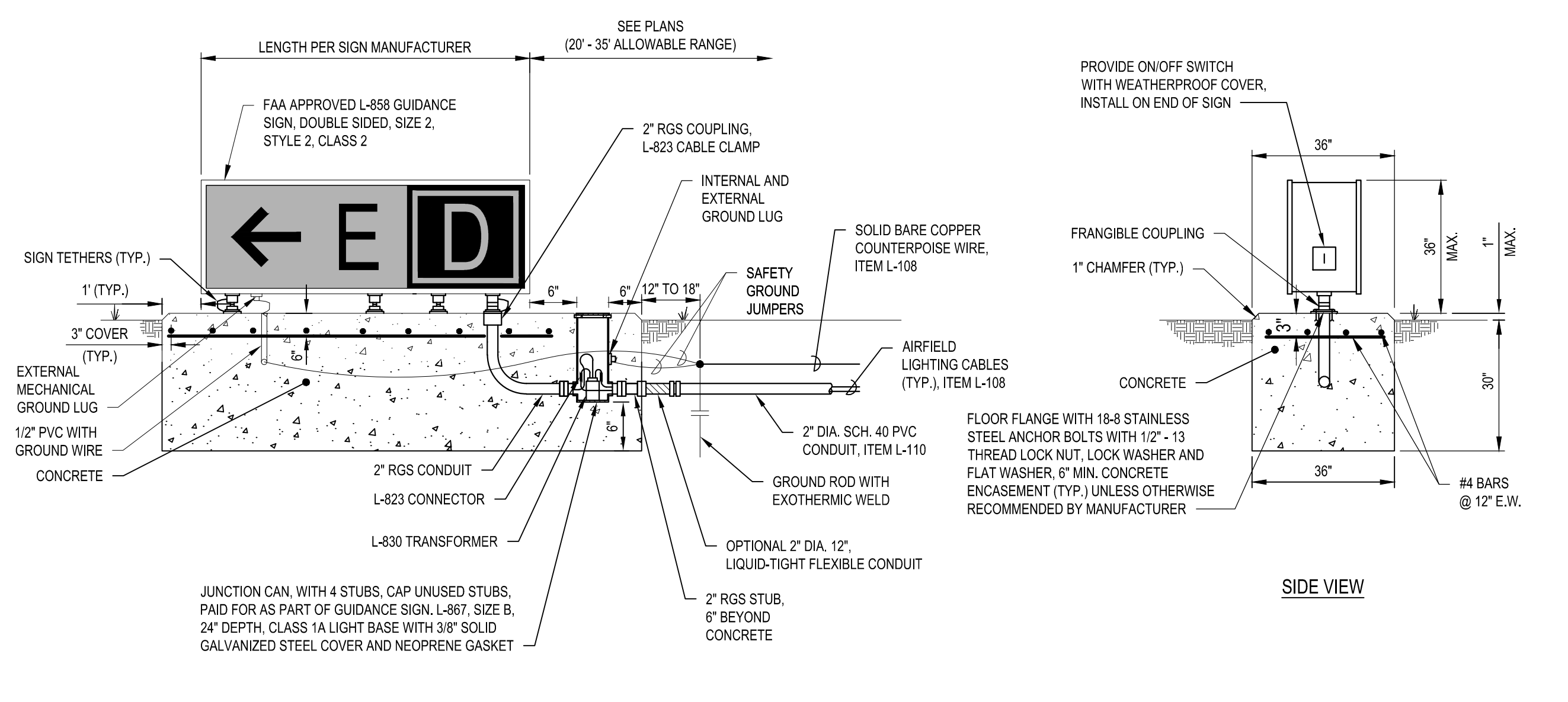
- NOTES:**
- 3% MAX. WHEN IN SAFETY AREA OR 10% MAX. OUTSIDE OF SAFETY AREA.
 - SLOPE TO MEET GRADE AT TOE OF PROPOSED OR EXISTING DITCH SLOPE WHEN POSSIBLE. 3% MAX. WHEN IN SAFETY AREA, 10% MAX. OUTSIDE OF SAFETY AREA, OR MATCH GRADE AT CENTERLINE OF DITCH. CONTACT RPR IF GRADES EXCEED THE MAXIMUM.
 - SIGN BASE GRADING IS INCIDENTAL TO ITEM L-125.

SIGN NO.	NO. OF MODULES	DESIGNATION	SIDE 1	SIDE 2
1	3	TYPE	← A D A ↗ Y L Y	D L L
2	3	TYPE	← E D B ↘ Y L Y	D L L
3	4	TYPE	↙ D E B D ↗ Y Y L Y	B L L L

- L - INDICATES L-858L LOCATION SIGN (YELLOW INSCRIPTION ON A BLACK BACKGROUND)
- Y - INDICATES L-856Y DIRECTION SIGN (BLACK INSCRIPTION ON A YELLOW BACKGROUND)
- - INDICATES BLANK PANEL OR BLANK AREA OF PANEL

B1 AIRFIELD GUIDANCE SIGN GRADING DETAIL
 SCALE: NOT TO SCALE

B2 AIRFIELD GUIDANCE SIGN TABLE INDEX
 SCALE: NOT TO SCALE



A1 AIRFIELD GUIDANCE SIGN DETAIL
 SCALE: NOT TO SCALE

- SIGNS SHALL BE CENTERED ON CONCRETE PAD.
- SIGNS THAT CONSIST OF MULTIPLE SEPARATE MODULES NOT CONNECTED TOGETHER MUST HAVE A MINIMUM OF ONE TETHER PER MODULE.
- SIGNS THAT USE MULTIPLE MODULES CONNECTED TOGETHER IN A CONTINUOUS FRAME MUST USE A TETHER AT BOTH ENDS.
- SIGN, FOUNDATION, JUNCTION CAN, CONDUIT AND WIRE BETWEEN SIGN AND JUNCTION CAN, FLEXIBLE CONDUIT, TRANSFORMER AND ANCHOR BOLTS SHALL BE INCLUDED IN COST OF THE SIGN.
- THE SIGN MODULES ARE BASED ON TWO CHARACTERS PER MODULE. WHEN DETERMINING THE NUMBER OF CHARACTERS IN A GUIDANCE SIGN, THE FIGURES 1 AND - SHALL BE CONSIDERED ONE-HALF OF A CHARACTER. THE NUMBER OF MODULES MAY VARY BASED ON MANUFACTURER. IF A PARTICULAR VENDOR REQUIRES MORE OR LESS MODULES, NO ADDITIONAL PAYMENT SHALL BE MADE FROM WHAT IS SHOWN.
- THE OWNER RESERVES THE RIGHT TO CHANGE SIGN MESSAGE INFORMATION PRIOR TO FINAL APPROVAL.
- FLEXIBLE CONDUIT MAY BE USED WHERE NECESSARY, OTHERWISE USE STANDARD PVC TO RGS CONNECTORS.
- CONTRACTOR IS ADVISED THAT L-830 TRANSFORMERS WILL VARY WITH EACH INDIVIDUAL SIGN AS A RESULT OF WATTAGE AND CURRENT RATINGS FOR THE VARIOUS SIGN SIZE (MODULES) AND CIRCUIT TO BE INSTALLED ON, IT IS THE CONTRACTOR'S RESPONSIBILITY TO WORK WITH THE SIGN MANUFACTURER TO SUPPLY THE APPROPRIATE L-830 ISOLATION TRANSFORMER FOR EACH NEW SIGN. CONTRACTOR SHALL SUBMIT ISOLATION TRANSFORMER SIZE WITH SIGN SUBMITTAL PACKAGE FOR APPROVAL FROM THE ENGINEER PRIOR TO ACCEPTANCE ON THE PROJECT.
- THE CONTRACTOR IS ADVISED THAT FOUNDATION SIZES FOR NEW SIGNS WILL VARY AS A RESULT OF THE NUMBER OF SIGN MODULES, SIGN MANUFACTURE REQUIREMENTS, SIZE OF JUNCTION CAN, AND SPECIFIED FOUNDATION OVERHANGS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY THE VARIABLE FOUNDATION LENGTHS REQUIRED FOR EACH SIGN AND ACCOUNT FOR THE COSTS UNDER THE RESPECTIVE AIRFIELD GUIDANCE SIGN AND RUNWAY DISTANCE REMAINING SIGN BID ITEMS.
- SIGN FOUNDATIONS SHALL BE INSTALLED WITH THE JUNCTION CAN NEAREST THE EDGE OF PAVEMENT.
- THE SIGN TOP SHALL BE REMOVABLE FOR MAINTENANCE AND ALLOW FOR VERTICAL UPWARDS SIGN PANEL REMOVAL/REINSTALLATION.
- SIGN PANELS SHALL BE MODULAR AND NOT FORMED IN ONE CONTINUOUS PIECE.
- PROVIDE THE STRONGEST PANELS PRODUCED BY THE PARTICULAR MANUFACTURER.

A3 AIRFIELD GUIDANCE SIGN NOTES
 SCALE: NOT TO SCALE

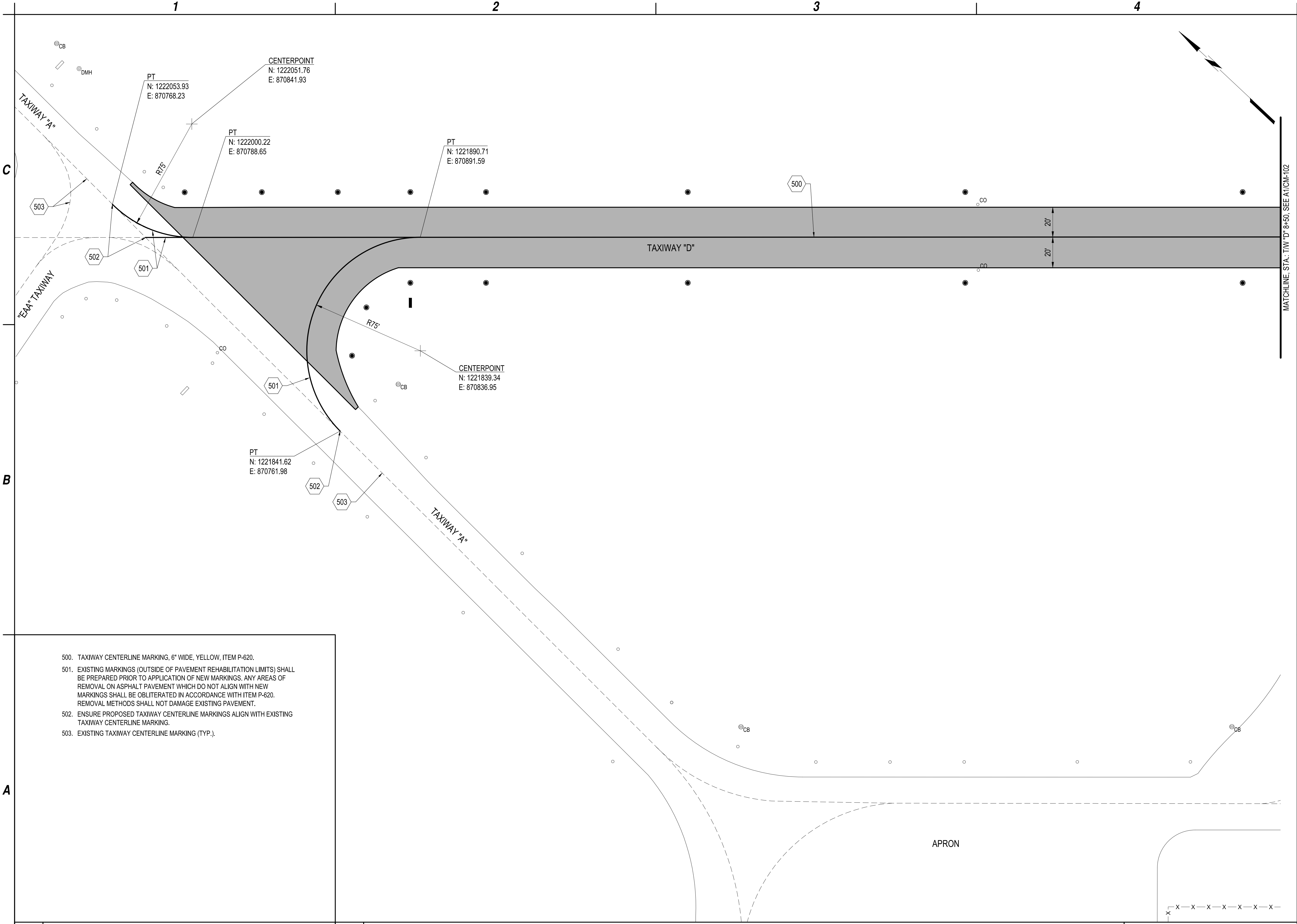
- SIGN MANUFACTURER SHALL MOUNT ALL POWER, CONTROL, AND CIRCUIT BOARDS IN A PROTECTED LOCATION WITHIN THE SIGN HOUSING.
- PROVIDE ONE SET TOTAL OF STANDARD SPARE PARTS, ITEM L-125 SPARE SIGN PARTS, LUMP SUM, INCLUDING:
 - CONTROLLER / CONTROL BOARDS 1 EA
 - LAMPS / LIGHT STRIP 1 EA OR
 - LIGHT STRIPS 1 EA OR
 - LIGHT BULBS / LAMPS 3 EA
 - ISOLATION TRANSFORMERS 1 EA
 - FRANGIBLE COUPLINGS 2 EA
 - FLOOR FLANGES / SIGN LEGS 2 EA
 - SURGE PROTECTOR (IF USED BY MANUFACTURER) 1 EA

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SIGNAGE DETAILS
EL503
 SHEET 25 OF 27

Feb. 25, 2024 - 9:34am
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MATCHLINE STA: TW "D" 8+50, SEE A1/CM-102



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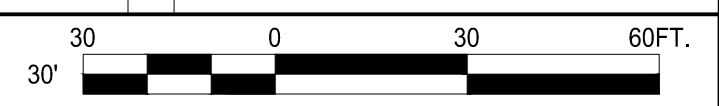
MARKING PLAN

CM101

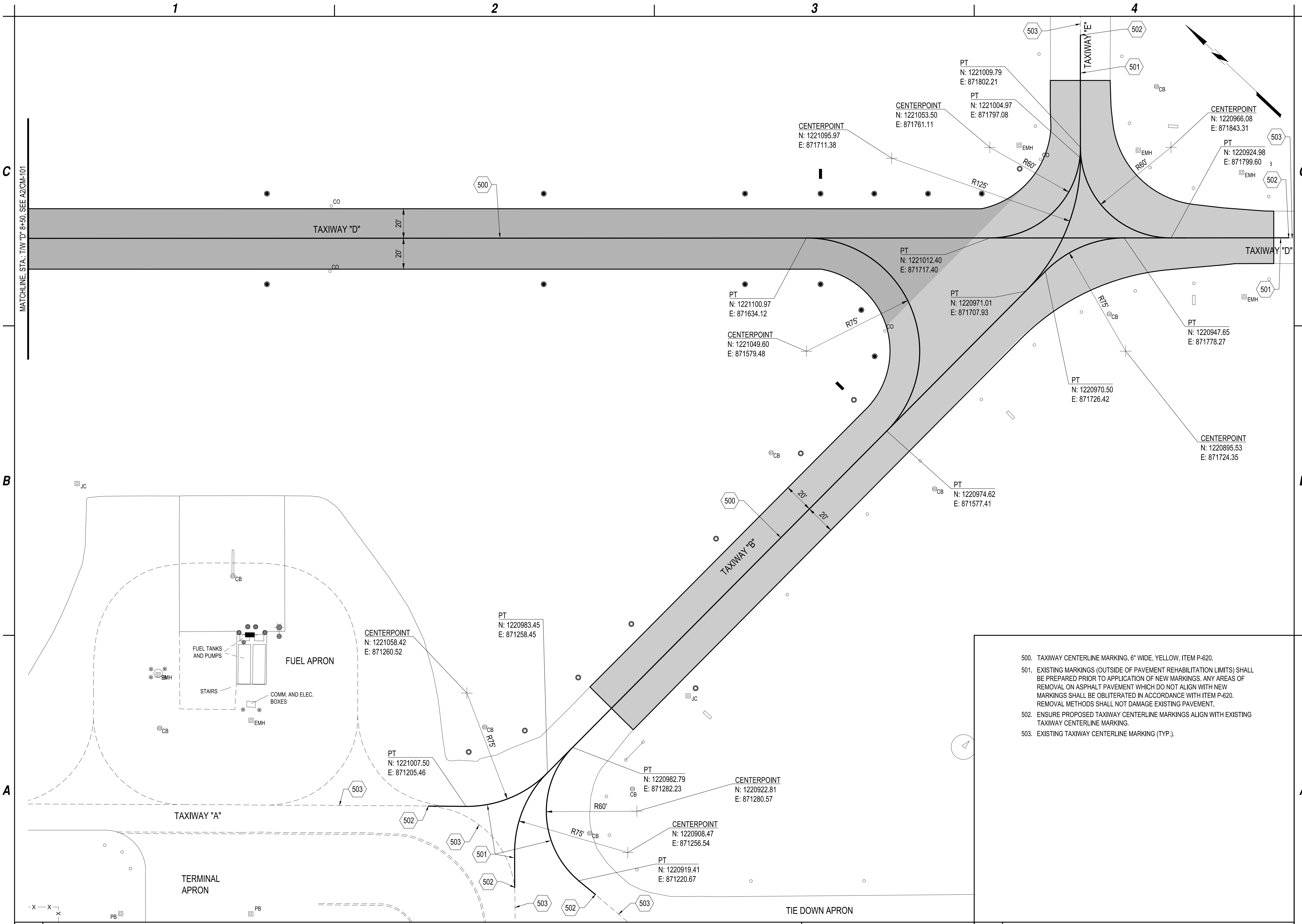
SHEET 26 OF 27

A1 KEYED NOTES
 SCALE: NOT TO SCALE

A2 MARKING PLAN
 SCALE: 1" = 30'



Feb. 24, 2024 - 11:56am
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A1 MARKING PLAN
 SCALE: 1" = 30'

- A4 KEYED NOTES**
 SCALE: NOT TO SCALE
- 500. TAXIWAY CENTERLINE MARKING, 6" WIDE, YELLOW, ITEM P-620.
 - 501. EXISTING MARKINGS (OUTSIDE OF PAVEMENT REHABILITATION LIMITS) SHALL BE PREPARED PRIOR TO APPLICATION OF NEW MARKINGS. ANY AREAS OF REMOVAL ON ASPHALT PAVEMENT WHICH DO NOT ALIGN WITH NEW MARKINGS SHALL BE OBLITERATED IN ACCORDANCE WITH ITEM P-620. REMOVAL METHODS SHALL NOT DAMAGE EXISTING PAVEMENT.
 - 502. ENSURE PROPOSED TAXIWAY CENTERLINE MARKINGS ALIGN WITH EXISTING TAXIWAY CENTERLINE MARKING.
 - 503. EXISTING TAXIWAY CENTERLINE MARKING (TYP.).



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MARKING PLAN

CM102