ITB 22-0913-57

BID PACKAGE AND PROJECT MANUAL

for

Terminal Parking Expansions

at

NORTHWEST FLORIDA
BEACHES INTERNATIONAL AIRPORT

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT (ECP)

Prepared by:

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September 9, 2022

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B. Geotechnical Engineering Report dated October 7, 2021

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Reference FAA Advisory Circulars

The following FAA Advisory Circulars are not included in the Project Manual but form a part of the executed contract by reference. FAA ACs may be downloaded from www.faa.gov.

- AC 150/5210-5D "Painting, Marking, and Lighting of Vehicles Used on an Airport"
- AC 150/5200-18C "Airport Safety Self-Inspection"
- AC 150/5370-2G "Operational Safety on Airports During Construction"

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INSTRUCTIONS TO BIDDERS

Terminal Parking Expansions Project

at the

Northwest Florida Beaches International Airport
6300 West Bay Parkway
Panama City, Florida 32409
Phone: 850-763-6751

September 9, 2022

The Panama City Bay County Airport and Industrial District dba Northwest Florida Beaches International Airport is seeking sealed bids from qualified firms for all work and materials necessary to complete the Terminal Parking Expansions Project detailed on the Bid Package and Project Manual (Contract Documents) dated September 9, 2022. Interested Bidders may obtain the Contract Documents from DemandStar via the link on the Business Opportunities section of the Airport's website: www.iflybeaches.com.

The work consists of the addition of spaces to existing long term parking (100 spaces) and employee parking (44 spaces) areas. The Work will include lighting and construction of a crosswalk on W. Bay Parkway. The Work will also include the addition of 30 spaces to the cell lot. Alternates for construction of the overflow parking and/or portions thereof will also be included. The complete overflow lot will include 340 spaces, lighting, and an entry gate with revenue control equipment.

The contract time for substantial completion of the work included shall be 180 calendar days from the date of the "Notice to Proceed (NTP)." The final project completion shall be 210 calendar days from the date of the "Notice to Proceed (NTP)."

Beginning on Tuesday, September 13, 2022, Interested Bidders may obtain the Contract Documents from DemandStar through the link on the Business Opportunities section of the Airport's website: www.iflybeaches.com.

Neither the Owner nor its Representative shall assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bid and Project Documents.

Pre-Bid

A non-mandatory Pre-bid meeting will be held on **September 20, 2022, at 2:00 pm Local Time** in the north conference room, 1st floor of the Airport Terminal building. Call in number for this non-mandatory meeting is (712)-432-0900 (access code 225872).

Proposed Schedule

September 13, 2022	Release of Invitation To Bid.
September 20, 2022	Pre-Bid Meeting at 2:00 pm.
September 30, 2022	Deadline to submit questions up to 5:00 pm.
October 7, 2022	Final Addendum issued.
October 13, 2022	Bids due prior to 2:00 pm. Opening will occur at this time. *

*Denotes a public meeting that will be held at Airport Board Room, Panama City, Florida, and all times denote Local Time.

Questions

Questions may be submitted in written form to the Owner's Representative at the following address during the bid period between 8:00 am and 5:00 pm Local Time via email or fax or mail up and until **5:00 pm Local Time, Friday, September 30, 2022**, after which time no questions or clarifications will be received.

David Scruggs, Project Manager
Terminal Parking Expansions Project
Northwest Florida Beaches International Airport
6300 West Bay Parkway, Box A
Panama City, Florida 32409
Email: ecpparkingexpansion@zhaintl.com

It is preferred that all communications with the airport's contact be in written form. However, if verbal communications are utilized, written confirmation of any verbal response shall dictate. All contact shall be documented and any response given shared with all potential bidders by addendum.

Addendum

Should revisions to the bidding and project documents become necessary, addenda information will be provided to those interested bidders who have requested an official copy of the Contract Documents and Bid Package. The last date for issuance of a final addendum will be on or before Friday, October 7, 2022, by 5:00 pm Local Time.

Bid Submittal

Bidders are required to submit two (2) copies—one (1) original written submittal with manual signatures **and** one (1) PDF copy of the complete submittal on a USB flash drive. ***Sealed bids***, subject to the conditions herein, will be ***received until 2:00 pm, Local Time, on October 13, 2022,*** at the Board Room for the Northwest Florida Beaches International Airport, 6300 West Bay Parkway, 2nd Floor, Airport Terminal, Panama City, Florida 32409, at which time bids will be publicly opened and read, for furnishing all labor and materials and performing all work connected with the Terminal Parking Expansions project.

All bids should be addressed as follows:

BID ENCLOSED: TERMINAL PARKING EXPANSIONS
Northwest Florida Beaches International Airport
North Conference Room, 1st Floor Airport Terminal
6300 West Bay Parkway
Panama City, Florida 32409

Bid Proposal Documents

The bid proposal must be made on the forms provided with the contract documents and submitted in the number of copies indicated above. All blank spaces shall be filled in and no interlineations, alterations, or erasures of the text shall be made. Bidders must supply all required information prior to the time of bid openings.

Partial or incomplete bid proposals will not be considered. Each bid proposal shall show the full legal name and business address of the Bidder, including its street address if it differs from its mailing address and shall be signed with the usual signature of the person or persons authorized to bind the Bidder and shall be dated. A Bid Schedule worksheet (Excel format) is included and formulated to facilitate calculation of the base and alternate bids.

The preparation of a bid proposal shall be by and at the expense of the Bidder.

Bid proposals shall be publicly opened and read. If a Bidder's proposal contains a discrepancy between bid prices written in words and bid prices written in numbers, the price written in words shall govern.

Bid Security & Bond Requirements

Bid security in the amount of at least five percent (5%) of the total quote must be submitted with the quote. The quote security may be either a certified check or a proposal guaranty bond executed by a surety company authorized to do business in the State of Florida. Quote security shall be made payable to the Panama City Bay County Airport and Industrial District. The successful contractor must be able to furnish proof of required insurance, a 100% Performance Bond, and a 100% Labor and Materials Payment Bond, and shall begin execution of this contract within ten (10) calendar days following the date of the Notice to Proceed.

Funding Requirements

Funding for this project is being provided by the Florida Department of Transportation and will be subject to all applicable requirements of the State of Florida Public Transportation Grant Agreement (PTGA) grant assurances.

The Northwest Florida Beaches International Airport has a Disadvantaged Business Enterprise (DBE) Program for Airport Improvement Program projects which the successful contract must comply with. The DBE participation goal for this project is 6.3% and compliance requirements are listed in the project documents.

Performance and Payment Securities

The successful Bidder shall deliver to the Owner or the Owner's Authorized Representative no later than ten (10) calendar days after contract award and prior to commencing the Work or entering the Project Site, a Performance and Payment Bond in the form supplied in the bid and project documents and executed, as surety, by a corporation acceptable to the Owner and authorized to issue such bonds in the jurisdiction of Bay County, Florida. Such Performance Bond and Payment Bond shall each be for one hundred percent (100%) of the total as set forth in Bidder's proposal. The cost of such Performance Bond and Payment Bond shall be included in the Guaranteed Maximum Price submitted in the Bidder's Proposal.

Insurance Certificates

The successful Bidder shall deliver to the Owner or the Owner's Authorized Representative no later than ten (10) calendar days after contract award and prior to commencing the Work or entering the Project Site, certificates of insurance, in the form supplied in the bid and project documents and executed, attesting to the fact that the policies of insurance required by the Bid and Project Documents have been obtained.

Sales and Use Taxes

Work under this contract is subject to the provisions of Chapter 212, Florida Statutes, Tax on State, Use and Other Transactions. Other state, local or federal taxes may be applicable. The Bidder is responsible to remit to the appropriate governmental entity all applicable taxes. Any applicable tax shall be included in the total bid price by Bidder. Owner is a public body and eligible for certain sales tax exemptions and intends to implement a Sales Tax Savings Program and the successful Bidder shall be obligated to comply with such a program.

The successful Bidder shall coordinate with the Owner relative to the direct purchase of major material items by the Owner when applicable.

Award of Contract

After consideration of price and other factors, the contract will be awarded to the Bidder whose bid proposal is determined to be the best responsive and responsible Bidder as determined by the Owner.

Owner reserves the right, as the interest of the Owner may require, to reject any or all bid proposals and to waive any informality in Bid Proposals received.

If the Owner intends to accept the successful Bidder's Proposal and enter into the Contract with them, Bidder acknowledges and agrees that unless and until the Owner executes the contract and returns the executed copy to the Bidder, no contract or agreement between the Owner and the Bidder shall exist. If the Owner fails to execute the contract within thirty (30) calendar days of the bid opening, the contract will be deemed withdrawn and Bidder shall be released from its Bid Proposal. The Owner shall issue a Notice to Proceed (NTP), in accordance with Florida law, within thirty (30) calendar days of receipt of bids.

ATTACHMENTS
Attachment 1: Bid Document Forms

1. Bid Proposal
2. Bid Bond Form
3. Public Entity Crimes Statement
4. DBE Program
5. Davis-Bacon Certification
6. Drug Free Workplace Certification
7. Non-Segregated Facilities Certification
8. Buy American Clause
9. Trench Safety Act Certification
10. Form of Non-Collusion Affidavit
11. E-Verify Compliance Certification
12. Construction Contract
13. Payment & Performance Bond Forms
14. Certification of Attorney
15. Release of Liens
16. Advertisement of Completion

Attachment 2: Insurance Certificate

PROJECT DOCUMENTS
NWFBIA General Conditions
NWFBIA Special Conditions
Project Specifications
Contract Drawings

BID DOCUMENTS

BID SCHEDULE - UNIT PRICES
(This is a Unit Price Contract)

BIDDER:_____ DATE:_____

AIRPORT NAME: Northwest Florida Beaches International Airport
PROJECT DESCRIPTION: Terminal Parking Expansions

BID SCHEDULE

Base Bid Schedule

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
LONG-TERM AND EMPLYEE PARKING EXPANSION						
1	101-1	Mobilization – Base Bid	LS	1		
2	102-1	Maintenance of Traffic – Base Bid	LS	1		
3	104-1	Prevention, Control, and Abatement of Erosion and Water Pollution – Base Bid	LS	1		
4	110-1	Stripping and Stockpiling	AC	2		
5	110-2	Miscellaneous Demolition – Base Bid	LS	1		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
6	120-1	Unclassified Excavation and Embankment – Cut	CY	275		
7	120-2	Unclassified Excavation and Embankment – Fill	CY	7,000		
8	160-1	12” Stabilized Subbase (LBR 40)	SY	6,010		
9	285-1	6” Limerock Base Course (LBR 100)	SY	5,720		
10	334-1	2.5” Superpave Asphaltic Concrete	TON	750		
11	425-1	FDOT Type 4 Curb Inlet	EA	3		
12	425-2	FDOT Type 6 (RH) Curb Inlet	EA	1		
13	425-3	FDOT Type ‘P’ Alt A Manhole w/ Solid Top	EA	1		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
14	425-4	36" MES	EA	1		
15	425-5	FDOT Type 'F' DBI	EA	2		
16	425-6	FDOT Type 'F' DBI w/ 4'x4' (inner width) Type 'J' Alt B Bottom	EA	3		
17	425-7	Existing Manhole Modifications	EA	3		
18	430-1	30" ADS, N-12 Pipe	LF	470		
19	430-2	36" ADS, N-12	LF	425		
20	520-1	F-Curb	LF	2,175		
21	522-1	Concrete Sidewalk (6")	SY	110		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
22	546-1	Permanent Raised Rumble Strips – Set	EA	5		
23	570-1	Sodding	SY	4,350		
24	700-1	Signage – Base Bid	LS	1		
25	710-1	Pavement Markings	SF	1,500		
26	711-1	Thermoplastic Markings (within Right-of-Way)	LS	1		
27	LIGHT-1	Site Lighting – Complete	LS	1		
CELL PHONE LOT EXPANSION						
28	110-1	Stripping and Stockpiling	AC	1		
29	110-3	Miscellaneous Demolition – Cell Phone Lot	CY	50		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
30	120-1	Unclassified Excavation and Embankment – Cut	CY	50		
31	120-2	Unclassified Excavation and Embankment – Fill	CY	200		
32	160-1	12” Stabilized Subbase (LBR 40)	SY	1,260		
33	285-2	8” Limerock Base Course (LBR 100)	SY	1,200		
34	334-2	2” Superpave Asphaltic Concrete	TON	130		
35	425-8	FDOT Type ‘C’ DBI	EA	3		
36	430-3	18” RCP	LF	130		
37	520-1	F-Curb	LF	510		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
38	570-1	Sodding	SY	400		
39	700-2	Signage – Cell Phone Lot	LS	1		
40	710-1	Pavement Markings	SF	600		

For all work required to perform the work in accordance with the construction drawings, specifications, and other contract documents, including all costs related to the work, and any required permits, taxes, bonds and insurance, the undersigned submits a Total Base Bid Amount of:

TOTAL BASE BID AMOUNT (in words):

_____ Dollars and _____cents

($_____)
(amount in numbers)

Note: Total Base Bid Amount shall equal the total amount for Bid Items No. 1 through 40.

Bid Additive Alternate No. 1 Schedule

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
41	101-2	Mobilization – Add. Alt. No. 1	LS	1		
42	102-2	Maintenance of Traffic – Add. Alt. No. 1	LS	1		
43	104-2	Prevention, Control, and Abatement of Erosion and Water Pollution – Add. Alt. No. 1	LS	1		
44	110-1	Stripping and Stockpiling	AC	1		
45	110-4	Miscellaneous Demolition – Add. Alt. No. 1	LS	1		
46	120-1	Unclassified Excavation and Embankment – Cut	CY	6,400		
47	120-2	Unclassified Excavation and Embankment – Fill	CY	6,750		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
48	160-1	12” Stabilized Subbase (LBR 40)	SY	13,350		
49	285-1	6” Limerock Base Course (LBR 100)	SY	12,880		
50	334-2	2” Superpave Asphaltic Concrete	TON	1,350		
51	425-7	Existing Manhole Modifications	EA	1		
52	425-8	FDOT Type ‘C’ DBI	EA	13		
53	425-9	FDOT Type ‘P’ Top (Solid Grate) w/ 3’-6” x 10’-0” (inner width) Type ‘J’ Alt B Bottom	EA	3		
54	425-10	24” MES	EA	1		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
55	430-4	18” ADS, N-12 Pipe	LF	390		
56	430-5	24” ADS, N-12 Pipe	LF	1,040		
57	430-6	36” RCP	LF	1,725		
58	520-1	F-Curb	LF	3,650		
59	522-1	Concrete Sidewalk (6”)	SY	680		
60	570-1	Sodding	SY	8,750		
61	700-3	Signage – Add. Alt. No. 1	LS	1		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
62	710-1	Pavement Markings	SF	3,300		
63	ACCESS-1	Site Access Control - Complete	LS	1		
64	LIGHT-2	Site Lighting - Complete	LS	1		
65	WH-1	Wheel Stops	EA	130		

For all work required to perform the work in accordance with the construction drawings, specifications, and other contract documents, including all costs related to the work, and any required permits, taxes, bonds and insurance, the undersigned submits a Total Bid Alternate No. 1 Amount of:

TOTAL BID ADDITIVE ALTERNATE NO. 1 AMOUNT (in words):_____

_____ Dollars and _____cents

($_____)
(Amount in numbers)

Note: Total Bid Additive Alternate No. 1 Amount shall equal the total amount for Bid Items No. 41 through 65.

Bid Additive Alternate No. 2 Schedule

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
66	101-3	Mobilization – Add. Alt. No. 2	LS	1		
67	102-3	Maintenance of Traffic – Add. Alt. No. 2	LS	1		
68	104-3	Prevention, Control, and Abatement of Erosion and Water Pollution – Add. Alt. No. 2	LS	1		
69	110-1	Stripping and Stockpiling	AC	1.5		
70	110-5	Miscellaneous Demolition – Add. Alt. No. 2	LS	1		
71	120-2	Unclassified Excavation and Embankment – Fill	CY	6,900		
72	425-7	Existing Manhole Modifications	EA	1		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
73	425-9	FDOT Type 'P' Top (Solid Grate) w/ 3'-6" x 10'-0" (inner width) Type 'J' Alt B Bottom	EA	3		
74	430-2	36" ADS, N-12 Pipe	LF	1,725		
75	570-1	Sodding	SY	6,660		

For all work required to perform the work in accordance with the construction drawings, specifications, and other contract documents, including all costs related to the work, and any required permits, taxes, bonds and insurance, the undersigned submits a Total Bid Additive Alternate No. 2 Amount of:

TOTAL BID ADDITIVE ALTERNATE NO. 2 SCHEDULE AMOUNT (in words):_____

_____ Dollars and _____cents

($_____)
(Amount in numbers)

Note: Total Bid Additive Alternate No. 2 Schedule Amount shall equal the total amount for Bid Items No. 66 through 75.

Bid Additive Alternate No. 3 Schedule

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
76	101-4	Mobilization – Add. Alt. No. 3	LS	1		
77	102-4	Maintenance of Traffic – Add. Alt. No. 3	LS	1		
78	104-4	Prevention, Control, and Abatement of Erosion and Water Pollution – Add. Alt. No. 3	LS	1		
79	110-1	Stripping and Stockpiling	AC	0.25		
80	110-6	Miscellaneous Demolition – Add. Alt. No. 3	LS	1		
81	120-1	Unclassified Excavation and Embankment – Cut	CY	10		
82	120-2	Unclassified Excavation and Embankment – Fill	CY	190		
83	160-1	12” Stabilized Subbase (LBR 40)	SY	230		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
84	285-1	6" Limerock Base Course (LBR 100)	SY	210		
85	334-2	2" Superpave Asphaltic Concrete	TON	25		
86	520-1	F-Curb	LF	275		
87	570-1	Sodding	SY	1,000		
88	700-3	Signage – Add. Alt. No. 3	LS	1		
89	710-1	Pavement Markings	SF	28		
90	ACCESS-1	Site Access Control – Complete	LS	1		

Bid Item No.	Item No.	Item Description & Unit Price Bid In Words	Unit	Estimated Quantity	Unit Price	Total Amount/ Item
91	LIGHT-2	Site Lighting – Complete	LS	1		

For all work required to perform the work in accordance with the construction drawings, specifications, and other contract documents, including all costs related to the work, and any required permits, taxes, bonds and insurance, the undersigned submits a Total Bid Alternate Np. 3 Schedule Amount of:

TOTAL BID ADDITIVE ALTERNATE NO. 3 SCHEDULE AMOUNT (in words):_____

_____ Dollars and _____cents

($_____)
(Amount in numbers)

Note: Total Bid Additive Alternate No. 3 Schedule Amount shall equal the total amount for Bid Items No. 76 through 91.

BID SUMMARY (amount in numbers)

(A) TOTAL BASE BID: $_____

(B) TOTAL BID ADDITIVE ALTERNATE NO. 1 BID: $_____

(C) TOTAL BID ADDITIVE ALTERNATE NO. 2 BID: $_____

(D) TOTAL BID ADDITIVE ALTERNATE NO. 3 BID: $_____

(E) TOTAL BID AMOUNT*: $_____

** The Total Bid Amount (E) shall equal the sum of (A) through (D). The Basis of Award shall be based on the lowest total of either the Base Bid or combination of the total of the Base Bid and any or all of the Additive Alternates, as finally determined by the owner and the funding agencies based on the availability of funding.*

The Bidder represents that it has examined the site of the Work and informed itself fully in regard to all conditions pertaining to the place where the work is to be done; that it has examined the plans and specifications for the work and other Contract Documents relative thereto and has read all of the Addenda furnished prior to the opening of the Bids, as acknowledged below; and that it has otherwise fully informed itself regarding the nature, extent, scope and details of the Work to be performed.

If provided with a Notice of Intent to Award the Contract by the Owner, the Bidder shall execute and deliver to the Owner all of the documents required by the Contract Documents, including but not limited to, the Addendum to the Agreement and the Performance and Payment Bonds in the form contained in the Contract Documents, furnish the required evidence of the specified insurance coverages, furnish all necessary permits, license, materials, equipment, machinery, maintenance, tools, apparatus, means of transportation and labor necessary to complete the Work.

Dated and signed at _____, _____, this _____ day of _____, 20___.

_____
Name of Bidder

_____
Authorized Signature

_____
Title

_____
Mailing Address

_____
City, State, Zip

_____
(Federal ID No. or SS No.)

BID BOND

CONTRACTOR *(Name and Address):*

_____

_____

_____

SURETY *(Name and Address of Principal Place of Business)*:

_____

_____

_____

OWNER *(Name and Address)*:

Owner: Panama City – Bay County Airport and Industrial District
Address: 6300 West Bay Parkway
Panama City Beach, FL 32409

BID:

BID DUE DATE: October 13, 2022, at 2:00 pm Local Time
PROJECT *(Brief Description Including Location):* The Work to be performed by Contractor comprises the furnishing of all professional and technical services, labor, equipment, materials, and all other functions and operations including, but not limited to, temporary construction facilities, equipment, safety, materials and supplies and related services, and surveying as necessary and required to accomplish the Terminal Parking Expansions project strictly in accordance with all requirements of the Bid Package and Contract Documents.
Northwest Florida Beaches International Airport, Panama City, Florida

BOND:

BOND NUMBER: _____
DATE: *(Not later than Bid Due Date):* _____
PENAL SUM: _____

IN WITNESS WHEREOF, Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR	SURETY
_____(Seal)	_____(Seal)
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature and Title	Signature and Title (Attach Power of Attorney)
Attest: _____	Attest: _____
Signature and Title	Signature and Title

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

EJCDC NO. 1910-28-C (1990 Edition)

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Contractor the penal sum set forth on the face of this Bond.

2. Default of Contractor shall occur upon the failure of Contractor to deliver within the time required by the Project Documents the executed Agreement required by the Project Documents and any performance and payment bonds required by the Project Documents and Contract Documents.

3. This obligation shall be null and void if:

   3.1. OWNER accepts Contractor's Bid and Contractor delivers within the time required by the Project Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Project Documents and any performance and payment bonds required by the Project Documents and Contract Documents, or

   3.2. All Bids are rejected by OWNER, or

   3.3. OWNER fails to issue a notice of award to Contractor within the time specified in the Project Documents (or any extension thereof agreed to in writing by Contractor and, if applicable, consented to by Surety when required by paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Contractor and within 30 calendar days after receipt by Contractor and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by OWNER and Contractor, provided that the time for issuing notice of award including extensions shall not in the aggregate exceed 120 days from Bid Due Date without Surety's written consent.

6. No suit or action shall commence under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Contractor and Surety, and in no case later than one year after Bid Due Date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notice required hereunder shall be in writing and sent to Contractor and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal deliver, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted form this Bond shall be deemed to be included herein as if set forth at length. If any provision of any Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

SWORN STATEMENT UNDER SECTION 287.133 (3)(a)
FLORIDA STATUTES ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICAL AUTHORIZED TO ADMINISTER OATH.

1. This sworn statement is submitted to Panama City – Bay County Airport and Industrial

District by _____ (print individuals name and title)

for _____ (print name

of entity submitting sworn statement) whose business is _____

_____ and (if applicable) its Federal Employer Identification No. (FEIN) is _____ (if entity has no FEIN, include the Social Security No. of the individual signing this sworn statement).

2. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:

A. A predecessor or successor of a person convicted of a public entity crime; or

B. An entity under the control of any natural person, who is active in the management of the entity and who has been convicted of a public entity crime. The "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5. I understand that a "person" as defined in Paragraph 287.133 (1)(e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, and employees, members, and agents who are active in management or an entity.

6. Based on information and belief, the statement which I have marked below is true and in relation to the entity submitting this sworn statement. **(Indicate which statement applies.)**

____Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

____The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members or agents who are active in the management of the entity, or any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

____The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members or agents who are active in the management of the entity, or any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the submitting this sworn statement on the convicted vendor list. **(Attach a copy of the final order).**

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY INDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT HIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTIO 287.107, FLORIDA STATUTES FOR CATEFORY TWO ON ANY CHANCE IN THE INFORMATION CONTAINED IN THIS FORM.

_____
(Signature)

_____
(Date)

STATE OF _____ COUNTY OF _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

_____
(Name of individual signing)

Who, after first being sworn by me, affixed his/her signature in the space provided above on this _____ day of _____, 20___.

Subscribed and sworn to before me this _____ day of _____, 20___.

My Commission Expires:

_____ _____
Notary Public

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

The following bid condition applies to this U.S. Department of Transportation (DOT) assisted contract. Submission of a bid/proposal by a prospective contractor shall constitute full acceptance of these bid conditions.

1. **DEFINITION -** Disadvantaged Business Enterprise (DBE) as used in this contract shall have the same meaning as defined in 49 CFR Part 26.

2. **POLICY -** It is the policy of DOT that DBE's as: defined in 49 CFR Part 26 shall have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds. Consequently, the DBE requirements of 49 CFR Part 26 apply to this contract.

3. **OBLIGATION -** The contractor agrees to ensure that DBE's as defined in 49 CFR Part 26 have the maximum opportunity to participate in the performance of contracts and subcontracts financed in whole or in part with Federal funds. In this regard, all contractors shall take all necessary and reasonable steps in accordance with 49 CFR Part 26 to ensure that DBE's have the maximum opportunity to compete for and perform contracts. Contractors shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of DOT assisted contracts.

4. **COMPLIANCE -** All bidders, potential contractors, or subcontractors for this DOT assisted contract are hereby notified that failure to carry out the DOT policy and the DBE obligation, as set forth above, shall constitute a breach of contract which may result in termination of the contract or such other remedy as deemed appropriate by the owner.

5. **CONTRACT CLAUSE -** All bidders and potential contractors hereby assure that they will include the above clauses in all subcontracts, which offer further subcontracting opportunities.

6. **CONTRACT AWARD -** Bidders are hereby advised that meeting the DBE subcontract goal or making an acceptable good faith effort to meet said goal are conditions of being awarded this DOT assigned contract.

   The owner proposes to award the contract to the lowest responsive and responsible bidder submitting a reasonable bid provided he has met the goal for DBE participation or, if failing to meet the goal, he has made an acceptable good faith effort to meet the established goal for DBE participation. Bidder is advised that the owner reserves the right to reject any or all bids submitted.

7. **DBE PARTICIPATION GOAL -** The attainment of the goal established for this contract is to be measured as a percentage of the total dollar value of the contract. The DBE goal established for this contract is **6.30%.**

8. **AVAILABLE DBE'S -** The owner has on file a DBE program pending approved by the Federal Aviation Administration. This program contains a listing of DBE's (certified and uncertified). Bidders are encouraged to inspect this list to assist in locating DBE's for the work. Other DBE's may be added to the list in accordance with the owner's approved DBE program. Credit toward the DBE goal will not be counted unless the DBE to be used can be certified by the owner.

9. **CONTRACTOR'S REQUIRED SUBMISSION -** The owner requires the submission of the following information with the bid:

DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

MBEs

MBE Subcontractors Names/Addresses/ Identity	Subcontract Work Item	Dollar Value of Subcontract Work

WBEs

Women Subcontractors Names/Addresses/ Identity	Subcontract Work Item	Dollar Value of Subcontract Work

OSEs

Other Socially and Economically Disadvantaged Subcontractors within the DBE Group Names/Addresses/ Identity	Subcontract Work Item	Dollar Value of Subcontract Work

Total Dollar Value of Subcontract Work
Total Dollar Value of Basic Bid _____
Total DBE Percent **%** _____

*(Black, Hispanic, Asian American, American Indian, and other economically disadvantaged.)

If the Contractor fails to meet the contract goal established in Section 7 above, the following information must be submitted prior to contract award to assist the owner in determining whether or not the contractor made acceptable good faith efforts to meet the contract goal. This information (when applicable), as well as the DBE information, should be submitted as specified in Section 9 above.

Suggested guidance for use in determining if good faith efforts were made by a contractor are included in 49 CFR Part 26.

A list of the efforts that a contractor may make, and the owner may use, in making a determination as to the acceptability of a contractor's efforts to meet the goal as included in 49 CFR Part 26 are as follows:

a. Whether the contractor attended any pre-solicitation or pre-bid meetings that were scheduled by the recipient to inform DBE's of contracting and subcontracting opportunities;

b. Whether the contractor advertised in general circulation, trade association, and minority-focus media concerning the subcontracting opportunities;

c. Whether the contractor provided written notice to a reasonable number of specific DBE's that their interest in the contract was being solicited in sufficient time to allow the DBE's to participate effectively;

d. Whether the contractor followed up initial solicitations of interest by contacting DBE's to determine with certainty whether the DBE's were interested;

e. Whether the contractor selected portions of work to be performed by DBE's in order to increase the likelihood of meeting the DBE goal (including, where appropriate, breaking down contracts into economically feasible units to facilitate DBE participation);

f. Whether the contractor provided interested DBE's with adequate information about the plans, specifications, and requirements of the contract;

g. Whether the contractor negotiated in good faith with interested DBE's, not rejecting DBE's as unqualified without sound reasons based on a thorough investigation of their capabilities.

h. Whether the contractor made efforts to assist interested DBE's in obtaining bonding, lines of credit, or insurance required by the recipient or contractor;

and

i. Whether the contractor effectively used the services of available minority community organizations; minority contractors' groups; local and state Federal Minority Business Assistance Offices; and other organizations that provide assistance in the recruitment and placement of DBE's.

NOTE: The nine items set forth above are merely suggested criteria and the owner may specify that you submit information on certain other actions a contractor took to secure DBE participation in an effort to meet the goals. A contractor may also submit to the owner other information on efforts to meet the goals.

10. CONTRACTOR ASSURANCE - The bidder hereby assures that he will meet one of the following as appropriate:

a. The DBE participation goal as established in the General Conditions.

b. The DBE participation percentage as shown in Section 9, which was submitted as a condition of contract award.

Agreements between bidder/proposer and a DBE in which the DBE promises not to provide subcontracting quotations to other bidders/proposers are prohibited. The bidder shall make a good faith effort to replace a DBE subcontract that is unable to perform successfully with another DBE subcontractor. Substitution must be coordinated and approved by the owner.

The bidder shall establish and maintain records and submit regular reports, as required, which will identify and assess progress in achieving DBE subcontract goals and other DBE affirmative action efforts.

11. PROMPT PAYMENT - The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than **10** 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 **10** 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.

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

PANAMA CITY-BAY COUNTY AIRPORT & INDUSTRIAL DISTRICT
MONTHLY REPORT OF SUBCONTRACTOR PARTICIPATION

Name of Prime Contractor _____ Contract Name/Number/Description _____

Original Contract Amount _____ Payments Received _____

Current Contract Amount _____ Retainage Withheld _____

Original Contract DBE Participation _____ Invoice Period From: _____ To: _____

Actual DBE Participation to Date _____ Percentage Original Contracted DBE 0.00%

Current Scheduled DBE Participation _____ Participation Date Report Submitted _____

PLEASE COMPLETE INFORMATION BELOW. ATTACH ADDITIONAL SHEETS IF NECESSARY.

#	SUBCONTRACTOR NAME & ADDRESS	BRIEF DESCRIPTION OF WORK	NAICS CODE	DBE *	MBE	SBE	WBE	OTHER	ORIGINAL SUBCONTRACT AMOUNT	CURRENT SUBCONTRACT AMOUNT	TOTAL PAYMENTS TO DATE	AMOUNT INVOICES THIS MONTH	TOTAL INVOICED TO DATE THIS PROJECT	PERCENT COMPLETE	PERCENT OF PAYMENTS TO DBE
DBEs SUBCONTRACTORS ONLY															
1				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
2				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
3				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
4				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
5				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
			SUBTOTAL - DBEs						$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00		
NON-DBE SUBCONTRACTORS															
1				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
2				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
3				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
4				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
5				☐	☐	☐	☐	☐						0.00%	0.00%
				Comments:											
			SUBTOTAL - NON-DBEs						$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00		
			ALL SUBCONTRACTOR TOTALS						$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00		

* CHECK THIS COLUMN ONLY IF SUBCONTRACTOR IS A CERTIFIED DBE UNDER FEDERAL REGULATIONS, 49 CFR PART 26.

I certify that the information furnished above is correct to the best of my knowledge and represents the current status of the firm's (Prime Contractor) subcontract(s) with the listed firms (Subcontracts) for the designated period covered by this report.

Signed: _____ Title: _____

Print Name: _____ Date: _____

Reset Save

PANAMA CITY-BAY COUNTY AIRPORT & INDUSTRIAL DISTRICT
INSTRUCTIONS AND FORM FOR COMPLETING THE
MONTHLY REPORT OF SUBCONTRACTOR PARTICIPATION

I. USE AUTHORIZED FORMS

These instructions and the approved form "Monthly Report of Subcontractor Participation" are to be used to file monthly reports of subcontractor participation. Do not change or amend the instructions or form in any manner. These documents are available in hard copy or electronically from the Commission's DBELO, Darlene Gordon.

II. TOP PORTION OF FORM

Original Contract Amount. Enter the original amount of the Prime's Contract.

Current Contract Amount. Enter the current amount of the Prime's Contract. If this amount is the same as the entry in "Original Contract Amount", enter it. If this amount is different than the amount entered in "Original Contract Amount", enter the new contract amount.

Invoice Period. Enter the monthly period being reported (e.g., January 1, 20xx to January 31, 20xx). Each report must cover a full month.

Actual DBE Participation to Date. Enter the sum of "Total Payments to Date" made to DBEs as of the date of the report.

Current Scheduled DBE Participation. Enter the sum of "Current Subcontract Amounts" reported for **DBEs only**, i.e, do NOT include current subcontract amounts for non-DBEs even though they appear in the ledger portion of the report.

Total Original Contracted DBE Participation. Enter the original dollar amount of DBE participation. This must be the same dollar amount submitted on the Original Letter of Intent and approved by the District, and that is reported in the ledger portion of the report under "Original Subcontract Amount".

Payments Received. Enter the sum of total of payments received by the Prime Contractor as of the date of the report.

Retainage Withheld. Enter the amount of retainage withheld as of the date of the report. If none, enter 0.

Date Submitted. Enter the date the report is submitted to the District.

Percentage Original Contracted Participation. Enter the original percentage of DBE participation for this contract. This must be the same percentage committed to in the Prime Contractor's proposal and approved by the District.

IMPORTANT NOTE: The Monthly Report of Subcontractor Participation must be attached to each invoice submitted by the Prime Contractor. If an invoice is not being submitted in a particular month, the Monthly Report of Subcontractor Participation must still be submitted each month. The due date of the monthly report is the 15th day of the following month.

III. LEDGER PORTION

Report all subcontractors every month and complete all required information. Please note that some entries

apply only to the sum of DBE contracts. To facilitate accuracy in reporting, the DBE subcontractors section is listed first along with a subtotal and the Non-DBE contracts appear in the second section of the report. If there is no invoice activity for a DBE in any given month, enter "0" in the column, "Amount This Invoice". All other information must be entered, and must be current and correct.

Subcontractor Name and Address. For all subcontractors, enter the subcontractor's name and business address (street address, city, state and zip code). For DBEs, these entries must be the same as comparable information appearing on the original Letter of Intent and the Contract Participation Form/DBE Program Form submitted with the prime contractor's proposal.

Description of Work and NAICS Code. Enter a brief description (e.g., painting, electrical, survey, etc.) of the work each subcontractor is performing and the associated NAICS Code for that work. For DBEs, these entries must be the same as comparable information appearing on the Letter of Intent and the Contract Participation Form/DBE Program Form submitted with the prime contractor's proposal.

Classification of Subcontractor(s). Assign classifications as follows:

DBE-Place an "X" in this column only if the subcontractor has been DBE certified by the Florida Department of Transportation ("FDOT"). Only those subcontractors who have meet the DBE eligibility requirements of 49 CFR Part 26 may be classified as DBEs.

MBE-Place an "X" in this column if the subcontractor is also an FDOT certified minority-owned company. This classification should also be used for subcontractors who have submitted a DBE certification application but have not yet been certified as a DBE. Once DBE certification has been achieved, such firms should be classified as both MBE and DBE.

SBE-Place an "X" in this column if the subcontractor is an FDOT certified small business that has 250 or fewer employees and meets the definition of the Small Business Administration regulations (13 CFR Part 121). This classification should also be used for subcontractors who have submitted a SBE certification application but have not yet been SBE certified. Once certification has been achieved, such firms should be classified only as SBE.

WBE-Place an "X" in this column if the subcontractor is an FDOT certified woman-owned company. This classification should also be used for subcontractors who have submitted a DBE certification application but have not yet been certified as a DBE. Once DBE certification has been achieved, such firms should be classified as both WBE and DBE.

OTHER-Place an "X" in this column for all subcontractors who cannot be classified as either DBE, MBE, WBE or SBE.

Original Subcontract Amount. Enter the original subcontract amount for each subcontractor. For DBEs, this must be the **amount listed on the Original Letter of Intent or the Contract Participation Form/DBE Program Form** submitted for DBEs with the prime contractor's proposal, or the amount listed on the proposal in the Disadvantaged Business Enterprise Program, and approved by the District.

Current Subcontract Amount. Enter the current subcontract amount. If this amount is the same as the entry in "Original Subcontract Amount", enter it. For DBEs, **if this amount is different** than the amount entered in "Original Subcontract Amount", a **Revised Letter of Intent must be on file with and approved by the District**. It is recommended that Revised Letters of Intent be submitted with the Monthly Report of Subcontractor Participation that initially reports the new contract amount.

Total Payments to Date. Enter the sum of payments that have been made to each subcontractor as of the date of the report. This column should not contain diminishing amounts, i.e., a succeeding month's entry lower than the preceding month's entry. If this occurs, the District may request an examination of additional records to verify the correct amount.

Amount of This Invoice. Enter the amount of the subcontractor's invoice being submitted with this report.

Total Invoiced to Date. Enter the total amount invoiced as of the date of the report. This column should not contain diminishing amounts, i.e., a succeeding month's entry lower than the preceding month's entry. If this occurs, the District may request an examination of additional records to verify the correct amount.

Percentage Complete. Enter the percentage that equals the progress of that subcontractor's work.

Percent DBE. This entry depends upon the type of contract and terms stated in the solicitation. The **percentage for non-DBEs is always "0"**. Thus, if the subcontractor does not meet the requirements stated above to be classified as a DBE, the percentage entered in this column **must be "0"**.

DAVIS-BACON CERTIFICATION

This is to certify that I have reviewed the minimum rate wages contained in Special Provision No. 9, which were predetermined for this project by the Secretary of Labor, and I have used these rates in the preparation of this proposal. Furthermore, I agree to abide by these wages and all other provisions of the Davis-Bacon Act as it associates to this project.

_____ _____

Bidder's Signature Date

_____ _____

Title Notary Public

DRUG-FREE WORKPLACE CERTIFICATION

THE BELOW SIGNED BIDDER CERTIFIES that it has implemented a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distributing, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection 1.
4. In the statement specified in subsection 1, notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, to any violation of Chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on or require the satisfactory participation in drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign this statement, I certify that this firm complies fully with the above requirements.

DATE: _____

COMPANY: _____ SIGNATURE: _____

ADDRESS: _____ NAME: _____
(Typed or Printed)

_____

_____ TITLE: _____

PHONE #: _____

CERTIFICATION OF NON-SEGREGATED FACILITIES

(Must be completed and submitted with the Bid)

The Bidder certifies that it does not maintain or provide for its employee any segregated facilities at any segregated facilities at any of its establishments, and that it does not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder certifies further that it will not maintain or provide for its employees segregated facilities at any of its establishments, and that it will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder 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 room, work areas, restrooms and washrooms, restaurants and other eating areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated basis of race, color, religion, or national origin, because of habit, local customs, or any other reason. The Bidder agrees that (except where it has obtained identical certification from proposed subcontractors for the specific time period) it 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 it will retain such certification in its files.

_____
(Name of Bidder)

_____
(Signature)

_____
(Title)

_____
(Dated)

BUY AMERICAN CERTIFICATION

Except for those items listed by the Bidder below or on a separate and clearly identified attachment to this Bid, the Bidder hereby certifies that steel and each manufactured product, is produced in the United States (as defined in the Special Provisions under this section entitle Buy American-Steel and Manufactured Products) and that components of unknown origin are considered to have been produced or manufactured outside the United States.

PRODUCT	COUNTY OF ORIGIN

_____
(Name of Bidder)

By: _____

Title: _____

Dated: _____

TRENCH SAFETY ACT CERTIFICATION

(Under Chapter 553, Florida Statutes)

Bidder recognizes that this Contract includes work for trench excavation in excess of five feet deep. Bidder acknowledges the requirement set forth in Section 553.63 of the Florida Statutes titled Trench Safety Act. Bidder certifies that the required trench safety standards will be in effect during the period of construction of the Project and Bidder agrees to comply with all such required trench safety standards.

The amount of _____dollars ($) has been separately identified for the cost of compliance with the required trench safety standards; said amount is included within the Contract Price.

FORM OF NON-COLLUSION AFFIDAVIT

State of _____

County of _____

_____ being first duly

sworn, deposes and says that he/she is _____

(Sole owner, a partner, president, secretary, etc.) of _____, the party making the foregoing Bid, that such Bid is genuine and not collusive or shame; that said Bidder has not colluded, conspired, connived, or agreed, directly or indirectly, with any Bidder or person, to put in a sham Bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly sought by agreement or collusion, or communications or conference, with any person, to fix the Bid Price, or of that of any other Bidder, or to secure any advantage against Owner any person interested in the proposed Contract; and that all statements in said Bid Proposal or Bid are true; and further, that such Bidder has not, directly or indirectly submitted this Bid, or the contents thereof, or divulged information or date relative thereto to any association or to any member or agent thereof.

_____(Bidder)

Sworn to and subscribed before me this [____] day of _____, 20___.

_____
Notary Public – State of _____ (NOTARY SEAL)

_____
(Name typed, printed or stamped)

My Commission Expires: _____

E-VERIFY COMPLIANCE CERTIFICATION

In accordance with Executive Order Number 11-116 from the office of the Governor of the State of Florida, Bidder hereby certifies that the U.S. Department of Homeland Security's E-Verify system will be used to verify the employment eligibility of all new employees hired by the contractor during the contract term, and shall expressly require any subcontractors performing work or providing services pursuant to the contract to likewise utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by the subcontractor during the contract term; and shall provide documentation of such verification to the OWNER upon request.

As the person authorized to sign this statement, I certify that this company complies/will comply fully with the above requirements.

DATE: _____ SIGNATURE: _____

COMPANY: _____ NAME: _____
(Typed or Printed)

ADDRESS: _____ TITLE: _____

_____

_____

E-MAIL: _____

PHONE NO.: _____

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT
PANAMA CITY – BAY COUNTY AIRPORT AND INDUSTRIAL DISTRICT
CONSTRUCTION CONTRACT

Contractor: **(TBD)**
Address: **(TBD)**
Contact: **(TBD)**
Telephone: **(TBD)**
Facsimile: **(TBD)**

Contact Title: **Terminal Parking Expansions Project**
Work Location: **Northwest Florida Beaches International Airport**
Owner: **Panama City – Bay County Airport and Industrial District**
Address: **6300 West Bay Parkway**
Panama City Beach, FL 32409
Telephone: **(850) 763-6751**

This construction contract (hereinafter the "Contract") is effective as of the **[ ]** day of **[ ], 20[ ]** between Owner and the above named Contractor who hereby agree that all Work specified below shall be performed by the Contractor in accordance with all provisions of this Contract, consisting of the following Project Documents:

1. Contract Form of Agreement, along with all addenda issued prior to execution of this Contract and modifications issued after execution of this Contract, including but not limited to duly issued Change Notices/Orders (as such term is defined in the General Conditions) and Amendments.
2. Exhibit "A" – Bid Proposal dated _____, General Conditions, Special Conditions
3. Exhibit "B" – Scope of Work
4. Exhibit "C" – Drawings and Technical Specifications

Contractor shall commence the Work within ten (10) calendar days after the Notice to Proceed is issued by the Owner, which shall be issued within one hundred twenty (120) calendar days (or such longer period of time the Owner and Contractor may mutually agree to in writing) of the execution of this Contract, Owner shall issue a Notice to Proceed to Contractor.

The Owner's issuance of the Notice to Proceed is expressly conditioned upon the satisfaction of the following condition precedents:

1. The Performance Bond has been delivered and is acceptable to the Owner,
2. The Payment Bond has been delivered and is acceptable to the Owner,
3. The Insurance Certificate has been delivered and is acceptable to the Owner,
4. A Project Schedule for the Work has been delivered and is acceptable to the Owner, and
5. A Schedule of Values for the Work has been delivered and is acceptable to the Owner.

Owner shall determine, in its sole discretion, whether these condition precedents have been satisfied, shall be final and binding on the Contractor. Should Owner determine that all such condition precedents have not been satisfied (or otherwise waived in writing by Owner, in its sole discretion), then Owner may send Contractor written notice that Owner has elected to terminate this Contract, in which event this Contract shall automatically be terminated and neither party shall have any further liability or obligation hereunder whatsoever to the other party. In the event of any such termination prior to issuance of the Notice to Proceed, Contractor acknowledges and agrees that it shall not be entitled to and Owner shall not be liable for any payments to Contractor arising out of or relating to this Contract.

Work to Be Performed: Except as specified elsewhere in the contract, Contractor shall furnish all plant; labor; materials; tools; supplies; equipment; transportation; supervision; safety; technical; professional; and other services; and shall perform all operations necessary and required to satisfactorily accomplish the Work all strictly in accordance with all requirements of the Bid and Project Documents.

Security: If awarded a Contract, undersigned may be required to obtain security clearance and SIDA badges for all workers on site.

Schedule: The Work shall be completed in accordance with the construction duration identified in the Notice to Proceed.

Compensation: As full consideration for the satisfactory performance by Contractor of this Contract, Owner shall pay to Contractor compensation in accordance with the prices set forth in the "Bid Proposal" included in Exhibit 'A' and the payment provisions of the Project Documents.

Payment Procedures

The successful Bidder shall be required as a pre-requisite of the Notice to Proceed to provide the Owner a "Schedule of Values", a statement allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing "Contractor's Application for Payment". Only a Contractor's Application for Payment that corresponds directly with the "Schedule of Values" approved by the Owner or its representative will be acceptable for payment consideration.

The Contractor shall submit three (3) signed and notarized original copies of each Application of Payment (AIA Document G702 and G703) on a monthly basis for Work completed and/or stored to date along with waivers of lien, schedule updates, and other pertinent information. The Owner's Representative will review the Application for Payment, evaluate the status of the Work, and recommend the amount to be authorized for payment less 5% retained by the Owner until the project is complete.

The amount authorized for payment will be made to the Contractor by the Owner in accordance with Florida Statutes §218.735. Retained amounts shall be released to the Contractor in accordance with Florida Statutes §218.735 following final acceptance of the Work by the Owner or its representative.

Insurance: The Contactor shall procure and maintain the following described insurance, except for coverage(s) specifically waived by Owner, on policies and with insurers acceptable to Owner. These insurance requirements shall not limit the liability of Contractor.

The insurance coverage(s) and limits required of Contractor under this Contract are designed to meet the minimum requirements of Owner and the Owner does not represent these types or amounts of insurance to be sufficient or adequate to protect the Contractor's interests or liabilities. Contractor alone shall be responsible to the sufficiency of its own insurance program.

The Contractor and the Contractor's subcontractors and sub-subcontractors shall be solely responsible for all of their property, including but not limited to any materials, temporary facilities, equipment and vehicles, and for obtaining adequate and appropriate insurance covering any damage or loss to such property. The Contractor and the Contractor's subcontractors and sub-subcontractors shall expressly waive any claim against the Owner arising out of or relating to any damage or loss of such property, even if such damage or loss is due to the fault or neglect of the Owner or anyone for whom the Owner is responsible. The Contractor is obligated to include, or cause to be included, provisions similar to this paragraph in all of the Contractor's subcontracts and its subcontractor's contracts with their sub-subcontractors.

The Contractor's deductibles/self insurance retention's must be disclosed to Owner and are subject to Owner's approval. The Contractor is responsible of the amount of any deductible or self-insured retention. Any deductible or retention applicable to any claim or loss shall be the responsibility of Contractor and shall not be greater than $25,000, unless otherwise agreed to, in writing, by Owner.

Insurance required of the Contractor or any other insurance of the Contractor shall be considered primary, and insurance of Owner shall be considered excess, as may be applicable to claims or losses which arise out of or relate to the Work or this Project.

A. Workers' Compensation and Employers' Liability Insurance Coverage: The Contractor shall purchase and maintain workers' compensation and employers' liability insurance for all employees engaged in the Work, in accordance with the laws of the State of Florida. Limits of coverage shall not be less than:

$500,000	Limit Each Accident
$500,000	Limit Disease Aggregate
$250,000	Limit Disease Each Employee

B. Commercial General Liability Coverage: Contractor shall purchase and maintain commercial general liability insurance on a full occurrence form. Coverage shall include, but not be limited to, Premises and Operations, Personal Injury, Contractual for this Contract, Independent Contractors, Broad Form Property Damage, Products and Completed Operation Liability Coverage(s) and shall not

exclude coverage for the "X" (Explosion), "C" (Collapse) and "U" (Underground) Property Damage Liability exposures. Limits of coverage shall not be less than:

$1,000,000	Combined Single Limit Each Occurrence
$2,000,000	Aggregate Limit

Contractor shall add Owner as an additional insured through the use of Insurance Service Office Endorsements No. CG 20.20.22.85 wording or equivalent, or broader, an executed copy of which shall be attached to or incorporated by reference on the Certificate of Insurance to be provided by Contractor pursuant to the requirements of the Project Documents.

C. Business Automobile Liability Coverage: The Contractor shall purchase and maintain Business Automobile Liability Insurance as to ownership, maintenance, use, loading and unloading of all of Contractor's owned, non-owned, leased, rented or hired vehicles with limits not less than:

$1,000,000	Combined Single Limit Each Accident

D. Excess or Umbrella Liability Coverage: Contractor shall purchase and maintain Excess Umbrella Liability Insurance or Excess Liability Insurance on a full occurrence form providing the same continuous coverage(s) as required for the underlying Commercial General, Business Automobile and Employers' Liability Coverage(s) with no gaps in continuity of coverage(s) or limits with Owner added by endorsement to the policy as an additional insured in the same manner as is required under the primary policies, and shall not be less than:

$4,000,000	Each Occurrence/Accident

This Contract embodies the entire agreement between Owner and Contractor and supersedes all other writings. The parties shall not be bound by or be liable for any statement, representation, promise, inducement, or understanding not set forth herein.

OWNER	**CONTRACTOR**
Panama City – Bay County Airport and Industrial District	**(TBD)**
By:	**By:**
Authorized Signature: _____	**Authorized Signature:** _____
Print Name: _____	**Print Name:** _____

ATTACHMENT 1

BOND NO. _____

PUBLIC PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That _____ as Principal, and _____, as Surety, located at _____ (Business Address) are held and firmly bound to _____, as Obligee in the sum of ($_____) for the payment whereof we bind ourselves, our heirs, executors, personal representatives, successors and assigns, jointly and severally.

WHEREAS, Principal has entered into a contract dated as of the _____day of _____, 20__, with Obligee for _____, which contract is incorporated by reference and made a part hereof, and is referred to herein as the Contract.

THE CONDITION OF THIS BOND is that if Principal:

1. Promptly makes payment to all claimants as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, services, materials or supplies, used directly or indirectly by Principal in the prosecution of the Work provided for in the Contract, then this bond is void; otherwise it remains in full force; and

2. Any changes in or under the Contract and compliance or noncompliance with any formalities connected with the Contract or the changes do not affect Surety's obligation under this Bond. The Surety and the Principal further agree that any modifications, additions or alterations which may be made in the terms of the Contract or in the work to be done thereunder, or any extensions of the Contract, or other forbearance on the part of either Obligee or the Principal to the other, shall not in any way release the Principal and the Surety or either of them, their heirs, assigns, executors, administrators and successors, from their liability hereunder, notice to Surety of any such modifications, additions, extensions or forbearance being hereby expressly waived; and

3. Any action instituted by a claimant under this Payment Bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes; and

4. The penal sum of this Payment Bond is in addition to the penal sum of the Performance Bond being executed concurrently herewith.

IN WITNESS WHEREOF, the above parties have executed this instrument this _____day of _____, 20__, the name of each party being affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Signed, sealed and delivered

PRINCIPAL:

_____ _____

_____ By: _____
Witnessed as to Principal Name: _____
Its: _____

STATE OF _____
COUNTY OF_____

This foregoing instrument was acknowledged before me this ____day of _____, 20__, by _____,as _____ of _____, a _____corporation, on behalf of the corporation. He/she is personally known to me OR has produced _____as identification.

My Commission Expires:

_____
Notary Public (Signature)

(AFFIX NOTARY SEAL)

_____
(Printed Name)

_____
(Title or Rank)

_____
(Serial Number, if any)

ATTEST:

_____
(Witnessed as to Surety)

_____
_____
Witnesses

SURETY:

_____
(Printed Name)

_____
_____
_____
(Business Address)

_____
(Authorized Signature)

_____
(Printed Name)

OR

_____
As Attorney in Fact
(Attach Power of Attorney)

_____
As Attorney in Fact
(Attach Power of Attorney)

_____
_____
_____
(Business Address)

_____
(Printed Name)

_____
(Telephone Number)

STATE OF _____
COUNTY OF_____

This foregoing instrument was acknowledged before me this ____day of _____, 20__, by _____,as _____ of _____, a _____corporation, on behalf of the corporation. He/she is personally known to me OR has produced _____as identification.

My Commission Expires:

_____
Notary Public (Signature)

(AFFIX NOTARY SEAL)

_____
(Printed Name)

_____
(Title or Rank)

_____
(Serial Number, if any)

ATTACHMENT 2

BOND NO. _____

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That _____ as Principal, and _____, as Surety, located at _____(Business Address) are held and firmly bound to _____, as Obligee in the sum of ($_____) for the payment whereof we bind ourselves, our heirs, executors, personal representatives, successors and assigns, jointly and severally.

WHEREAS, Principal has entered into a contract dated as of the _____day of _____, 20__, with Obligee for _____, which contract is incorporated by reference and made a part hereof, and is referred to herein as the Contract.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the Contract at the times and in the manner prescribed in the Contract; and
2. Pays Obligee any and all losses, damages, expenses, costs and attorneys' fees, including appellate proceedings, that Obligee sustains because of any default by Principal under the Contract, including, but not limited to, all delay damages, whether liquidated or actual, incurred by Obligee; and
3. Performs the guarantee of all work and materials furnished under this Contract for the time specified in the Contract, then this bond is void; otherwise it remains in full force.

Any changes in or under the Contract and compliance or noncompliance with any formalities connected with the Contract or the changes do not affect Surety's obligation under this Bond.

The Surety further agrees that whenever the Principal shall be, and is declared by Obligee to be, in default under the Contract and said default shall be construed to be any breach of any of the provisions of the Contract on the part of the Principal, as directed by Obligee, the Surety shall promptly remedy the default and will complete the Contract in accordance with its terms and conditions and shall fully indemnify and hold harmless Obligee form all costs, damages, and expenses which may arise thereafter (including reasonable attorneys' fees) and which the Obligee may suffer by reason of Surety's failure to so do.

The Surety and the Principal further agree that any modifications, additions, or alternations which may be made in the terms of the Contract or in the work to be performed thereunder, or any extensions of the Contract, or other forbearance on the part of either Obligee or the Principal to the other, shall not in any way release the Principal and the Surety, or either of them, their heirs, assigns, executors, administrators and successors, from their liability hereunder, notice to the Surety of any such modifications, additions, extensions or forbearance being hereby expressly waived.

The penal sum of this Performance Bond is in addition to the penal sum of the Payment Bond being executed concurrently herewith.

This instrument shall be construed in all respects as a common law bond. It is expressly understood that the time provisions and statute of limitations under Section 255.05, Florida Statutes, shall not apply to this bond.

IN WITNESS WHEREOF, the above parties have executed this instrument this _____day of _____, 20__, the name of each party being affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Signed, sealed and delivered

_____

_____
Witnessed as to Principal

PRINCIPAL:

_____

By: _____
Name: _____
Its: _____

STATE OF _____
COUNTY OF_____

This foregoing instrument was acknowledged before me this ____day of _____, 20__, by _____,as _____ of _____, a _____corporation, on behalf of the corporation. He/she is personally known to me OR has produced _____as identification.

My Commission Expires:

(AFFIX NOTARY SEAL)

_____
Notary Public (Signature)

_____
(Printed Name)

_____
(Title or Rank)

_____
(Serial Number, if any)

ATTEST:

SURETY:

_____
(Printed Name)

_____
_____
_____
(Business Address)

_____ (Authorized Signature)

_____ (Printed Name)
(Witnessed as to Surety)

OR

_____ _____
As Attorney in Fact
(Attach Power of Attorney)

_____
Witnesses

_____
As Attorney in Fact
(Attach Power of Attorney)

_____
_____
_____
(Business Address)

_____
(Printed Name)

_____
(Telephone Number)

STATE OF _____
COUNTY OF_____

This foregoing instrument was acknowledged before me this ____day of _____, 20__, by _____,as _____ of _____, a _____corporation, on behalf of the corporation. He/she is personally known to me OR has produced _____as identification.

My Commission Expires:

_____
Notary Public (Signature)

(AFFIX NOTARY SEAL)

_____
(Printed Name)

_____
(Title or Rank)

_____
(Serial Number, if any)

CERTIFICATE OF ATTORNEY – OWNER

I, the undersigned,

_____

the duly authorized and acting legal representative of

PANAMA CITY-BAY COUNTY AIRPORT AND INDUSTRIAL DISTRICT

do hereby certify that I have examined the foregoing contract and the Surety Bond attached thereto and the manner of execution thereof, and that I am of the opinion that each of the aforesaid agreements has been executed by the proper representatives, and that said representatives have respectively the 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.

Signed: _____

Title: _____

Date: _____

RELEASE OF LIENS

STATE OF: _____

COUNTY OF: _____

Before me, the undersigned Notary Public in and for the said County and State personally appeared _____, representing the Contractor _____, who being duly sworn according to law deposes and says that all labor, materials, and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract with _____ _____ (Owner) for _____ (Contract No.) have been paid in full and that for the final payment in the amount of $_____ _____, the Contractor releases and discharges the Owner and his authorized representatives from any liens or claims or any nature because of or arising from this Contract and/or its performance, which it has had, has or may have in the future.

By: _____

Sworn to and subscribed before me this ___ day of _____, 20____.

_____
Notary Public – State of _____ (NOTARY SEAL)

_____
(Name typed, printed or stamped)

My Commission Expires: _____

ADVERTISEMENT OF COMPLETION

_____(Contractor)

_____(Address)

gives notice of completion of_____(Project)

and sets _____ as the date of final settlement.

All persons and firms should file all claims for payment to the below address prior to the settlement date:

Northwest Florida Beaches International Airport
Panama City – Bay County Airport and Industrial District (Owner)
6300 West Bay Parkway
Panama City Beach, FL 32409

By: _____(Name)

_____(Title)

Leg:_____(Publication Dates)

ADDENDA

GENERAL CONDITIONS

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

GENERAL CONDITIONS

GC-1 Independent Contractor

Contractor represents that it is fully experienced, properly qualified, registered, licensed, equipped, organized, and financed to perform the Work under this contract. Contractor shall act as an independent contractor and is not an agent of the Owner in performing this contract, maintaining complete control over its employees and all its suppliers and subcontractors of any tier. Nothing contained in this contract or any lower-tier purchase orders or subcontracts awarded by the Contractor shall create any contractual relationship with the Owner and/or its representative. Contractor shall perform the Work hereunder in accordance with its own methods subject to compliance with the Contract.

GC-2 Authorized Representatives

Before starting the Work, Contractor shall designate in writing an authorized representative acceptable to the Owner or its representative to represent and act for Contractor and shall specify any and all limitations of such representative's authority.

GC-3 Notices

Any notices required hereunder shall be in writing and may be served either personally on the authorized representative of the receiving party at the Jobsite, by facsimile, by courier or express delivery, or by certified mail to the facsimile number or address of that party, or at such facsimile number or address as may have been directed by written notice.

GC-4 Contract Interpretations

All questions concerning interpretation or clarification of this Contract or applicable standards and codes, including the discovery of conflicts, discrepancies, errors or omissions, or the acceptable performance thereof by contractor, shall be immediately submitted in writing to the Owner or its representative for resolution. At all times Contractor shall proceed with the Work in accordance with the determinations, instructions, and clarifications of the Owner or its representative. Contractor shall be solely responsible for requesting instructions, interpretations or clarifications and shall be solely liable for any costs and expense arising from its failure to do so.

GC-5 Order of Precedence

All Project Documents and subsequently issued Change Orders and Amendments are essential parts of this Contract and a requirement occurring in one is binding as though occurring in all. In resolving conflicts, discrepancies, errors or omissions the following order of precedence shall be used

1. Instructions to Bidders
2. Special Conditions
3. General Conditions
4. Scope of Work
5. Specifications

GC-6 Standards and Codes

Wherever references are made in this contract to standards or codes in accordance with which the Work under this Contract is to be performed, the edition or revision of the standards or codes current on the effective date of this contract shall apply unless otherwise expressly stated. In case of conflict between any referenced standards and codes and any Project Documents, the Project Documents shall govern.

GC-7 Laws and Regulations

All applicable laws, ordinances, statutes, rules, regulations, orders or decrees, including Owner's Airport Security Program and other formally adopted rules and regulations, in effect at the time the Work under this Contract is performed shall apply to Contractor and its employees, representative, its subcontractors, sub-subcontractors, material suppliers and others under Contractor's Contract for the Work.

GC-8 Permits

Except as otherwise specified, Contractor shall procure and pay for all permits, licenses, certifications and other applicable governing authority requirements and inspections, other than inspection performed by the Owner or its representative and shall furnish any documentation, bonds, security, or deposits required to permit performance of the Work. Owner shall submit drawings and specifications to Bay County Builder Services on January 5, 2015 to initiate review and expedite review process. Contractor, upon award, shall immediately follow up, submit, secure, procure and pay for required permits with agencies.

GC-9 Taxes

Contractor shall pay all taxes, levies, duties and assessments of every nature due in connection with the Work under this Contract and shall make any and all payroll deductions and withholdings required by law, an hereby indemnifies and holds harmless the Owner and its representative from any liability on account of any and all such taxes, levies, duties, assessments, and deductions.

GC-10 Labor, Personnel and Work Rules

Contractor shall employ only competent and skilled personnel to perform the Work and shall remove from the Jobsite any Contractor personnel determined to be unfit or to be acting in violation of any provision of this Contract. Contractor is responsible for maintaining labor relations in such manner that there is harmony among workers and shall comply with and enforce Project and Jobsite procedures, regulations, work rules, and work hours established by the Owner or its representative.

The Owner may, at its sole discretion, directly or through its representative deny access to the Jobsite to any individual by written notice to Contractor and Contractor shall promptly replace such individual with another who is fully competent and skilled to perform the Work.

Contractor shall, to the extent permissible under applicable law, comply with the provisions of all labor agreement(s) which apply to the Work performed under this Contract. Unless other methods are established by Owner, the rules, regulations, and procedures of the Plan for Settlement of Jurisdictional Disputes in the Construction Industry, or any successor agreement thereto, shall be used to determine work assignments and to resolve jurisdictional disputes on work covered by this Contract.

GC-11 Commercial Activities

Neither Contractor nor its employees shall establish any commercial activity or issue concessions or permits of any kind to third parties for establishing commercial activities on the Jobsite or any other lands owned or controlled by Owner.

GC-12 Publicity and Advertising

Contractor shall not make any announcement, take any photographs, or release any information concerning this Contract, or Project, or any part thereof to any member of the public, press, business entity, or any official body unless prior written consent is obtained from the Owner.

GC-13 Safety and Health

Contractor shall be solely responsible for conducting operations under this Contract to avoid risk of harm to the health and safety of persons and property and for inspecting and monitoring all its equipment, materials and work practices to ensure compliance with its obligations under this contract. Contractor shall assume all responsibility and liability with respect to all matters regarding safety and health of its employees and the employees of Contractor's suppliers and subcontractors of any tier, with respect to the risks under this Contract.

GC-14 Environmental Requirements

Throughout performance of the Work, Contractor shall conduct all operations in such a way as to minimize impact upon the natural environment and prevent any spread or release of contaminated or hazardous substances and comply with all applicable laws, regulations, ordinances, statutes, rules, and codes governing environmental requirements and conduct the Work based on the requirements of this Contract including compliance with permit requirements and Project plans and approvals. Contractor shall indemnify Owner for any penalties, fines, and costs incurred, including costs for environmental studies and remediation, that arise due to Contractor's improper performance of the Work or Contractor's negligence.

GC-15 Site Conditions and Natural Resources

Contractor shall have the sole responsibility for satisfying itself concerning the nature and location of the Work and the general and local conditions, including but not limited to, transportation, access, disposal, handling/storage materials, labor availability, water, electrical power, road conditions, climatic conditions, soil conditions, seasons, hydrology, physical site condition, project area, topography, ground surface conditions, equipment and facilities needed preliminary to and during the performance of the Work. The failure of Contractor to acquaint itself with any applicable conditions will not relieve Contractor of the responsibility for properly estimating the difficulties, time or cost of successfully performing Contractor's obligations under this Contract.

GC-16 Differing Site Conditions

Where the Owner or its representative has made investigations of subsurface, surface and soil conditions in areas where work is to be performed under this Contract, such investigations are made by Owner or its representative for the purpose of study and design. If such records of such investigations are included in the Project Documents, the interpretation of such records shall be the sole responsibility of Contractor and the Owner or its representative assumes any responsibility whatsoever in respect to the sufficiency or accuracy of such investigations, the records thereof, or the interpretations set forth and there is no warranty or guarantee, either express or implied, that the conditions indicated by such investigations or records thereof are representative of those existing throughout such areas, or any part thereof, or that unforeseen developments may not occur, or that materials other than or in proportions different from those indicated may not be encountered.

GC-17 Contractor's Work Area

Contractor shall confine its operations to the areas designated in the plans as the areas of Work or access to the Work or areas designated for storage. Contractor shall coordinate with Owner any planned disruption of operations at, or adjacent to, Worksite. Contractor shall, at all times, keep its work areas in neat, clean and safe conditions. Upon completion of any portion of the Work, Contractor shall promptly remove from the work area all its equipment, storage, temporary structures, surplus materials not to be used at or near the same location during later stages of the Work. Upon completion of the Work and prior to final payment, Contractor shall at its expense satisfactorily dispose of all rubbish, remove all plant, equipment, and materials and leave the premises in a neat, clean and safe condition. If Contractor fails to comply with these foregoing requirements, Owner may accomplish same at Contractor's expense.

GC-18 Cooperation with Others

The Owner may have its employees, representatives, other contractors and other subcontractors working at the Jobsite during the performance of this Contract and Contractor's work or use of certain facilities may be interfered with as a result of such concurrent activities. Owner reserves the right to require Contractor to schedule the order of performance of the Work in such a manner as will minimize the interference with work of any of the parties involved.

GC-19 Responsibility for Work, Security and Property

Contractor shall be responsible for and shall bear any and all risk of loss or damage to work in progress and, pursuant to the Special Condition titled "Title and Risk of Loss," to equipment and materials. Contractor shall be responsible for all receiving and unloading of materials for the Work, storing of materials and equipment subject to degradation by the elements and secure same from other damage or loss. Contractor shall at all times conduct all operations under this Contract in a manner to avoid the risk of loss, theft, or damage by vandalism, sabotage or any other means to any equipment, materials, work or other property at the Jobsite. Contractor shall plan and conduct its operations so as not to enter into lands in their natural state unless pre-authorized by the Owner, damage, close, obstruct or otherwise interfere with any utility installation, ditch, highway, road, structure or other property, and if necessary to do so, receive the Owner's pre-permission prior to such obstruction or interference.

GC-20 Cleaning Up

Contractor shall, at all times, keep its work areas in a neat, clean and safe condition. Upon completion of any portion of the Work, Contractor shall promptly remove from the work area all its equipment, construction plant, temporary structures and surplus materials not to be used at or near the same location during later stages of the Work.

Upon completion of the Work and prior to final payment, Contractor shall at its expense satisfactorily dispose of all rubbish, remove all plant, buildings, equipment and materials belonging to Contractor and return to Owner's warehouse or Jobsite storage area all salvageable Owner supplied materials. Contractor shall leave the premises in a neat, clean and safe condition.

In event of Contractor's failure to comply with the foregoing requirements, Owner may accomplish same at Contractor's expense.

GC-21 Contractor's Plant, Equipment and Facilities

Contractor shall provide and use for the Work only such construction plant and equipment as are capable of producing the quality and quantity of work and materials required by this contract and within the time or times specified in the Contract Documents.

Before proceeding with the Work, Contractor shall furnish Owner's Representative and Owner with information and drawings relative to such equipment, plant and facilities as Owner's Representative or Owner may request. Upon written order of Owner or Owner's Representative, Contractor shall discontinue operation of unsatisfactory plant, equipment or facilities and shall either modify the unsatisfactory items or remove such items from the Jobsite.

GC-22 Use of Completed Portions of Work

Whenever, as determined by Owner, any portion of the Work performed by Contractor is suitable for use, Owner may, upon written notice, occupy and use such portion. Use shall not constitute acceptance, relieve Contractor of its responsibilities, or act as a waiver by Owner of any terms of this contract.

Contractor shall not be liable for normal wear and tear or for repair of damage caused by any misuse during such occupancy or use by Owner. If such use increases the cost or time of performance of remaining portions of the Work, Contractor shall, pursuant to the General Condition titled "Changes," be entitled to an equitable adjustment in its compensation or schedule under this contract.

If, as a result of Contractor's failure to comply with the provisions of this contract, such use proves to be unsatisfactory to Owner, Owner shall have the right to continue such use until such portion of the Work can, without injury to Owner, be taken out of service for correction of defects, errors, omissions or replacement of unsatisfactory materials or equipment as necessary for such portion of the Work to comply with the contract; provided that the period of such operation or use pending completion of appropriate remedial action shall not exceed twelve (12) months unless otherwise mutually agreed in writing between the parties.

Contractor shall not use any permanently installed equipment until such use is approved in writing by Owner. When such use is approved, Contractor shall, at Contractor's expense properly use and maintain and, upon completion of such use, recondition such equipment as required to meet specifications.

If Owner's Representative or Owner furnishes an operator for such permanently installed equipment, all services performed shall be under the complete direction and control of Contractor, and such operator shall be considered Contractor's employee for all purposes other than payment of such operator's wages, Worker's Compensation Insurance or other benefits.

GC-23 Inspection, Quality Surveillance, Rejection of Materials and Workmanship

All material and equipment furnished and work performed shall be properly inspected by Contractor at its expense, and shall at all times be subject to quality surveillance and quality audit by Owner's Representative, Owner or their authorized representatives who, upon reasonable notice, shall be afforded full and free access to the shops, factories or other places of business of Contractor and its suppliers and subcontractors of any tier for such quality surveillance or audit. Contractor shall provide safe and adequate facilities, drawings, documents and samples as requested, and shall provide assistance and cooperation including stoppage of work to perform such examination as may be necessary to determine compliance with the requirements of this contract. Any work covered prior to any quality surveillance or test by Owner's Representative or Owner shall be uncovered and replaced at the expense of contractor if such covering interferes with or obstructs such inspection or test. Failure of Owner's Representative or Owner to make such quality surveillance or to discover defective design, equipment, materials or workmanship shall not relieve Contractor of its obligations under this contract nor prejudice the rights of Owner thereafter to reject or require the correction of defective work in accordance with the provisions of this contract.

If any work is determined by Owner's Representative or Owner to be defective or not in conformance with this contract the provisions of the General Condition titled "Warranty" shall apply.

GC-24 Testing

Unless otherwise provided in the Contract, testing of soils, equipment, materials or work shall be performed by Contractor at its expense and in accordance with the Project Documents. Should tests in addition to those required by this Contract be desired by the Owner or its representative, Contractor will be given reasonable notice by the Owner or its representative for such testing and at the Owner's expense.

GC-25 Expediting

The equipment and materials furnished and work performed under this contract shall be subject to expediting by Owner's Representative and/or Owner or their representative who shall be afforded full and free access to the shops, factories, and other places of business of Contractor and its suppliers and subcontractors of any tier for expediting purposes. As required by Owner's Representative or Owner, Contractor shall provide detailed schedules and progress reports for use in expediting and shall cooperate with Owner's Representative and/or Owner in expediting activities.

GC-26 Excusable Delays

If Contractor's performance of this Contract is prevented or delayed by any unforeseeable cause, existing or future, which is beyond the reasonable control of the parties and without the fault or negligence of Contractor, Contractor shall, within twenty-four (24) hours of the commencement of any such delay, give the Owner or its representative written notice thereof and within seven (7) calendar days of commencement of the delay, a written description of the anticipated impact of the delay on performance of the Work. Delays attributable to within the control of Contractor's suppliers or subcontractors of any tier shall be deemed delays within the control of Contractor. Contractor expressly acknowledges and agrees that it shall receive no damages for delay and Contractor's so remedy, if any, against Owner will be the right to seek an extension of time.

GC-27 Changes

Owner may at any time, without notice to the sureties if any, by written Change Order unilaterally make any change in the Work within the general scope of this Contract, including but not limited to changes in the method, manner

and sequence of Contractor work, in Owner furnished facilities, equipment, materials services or site(s) and directing acceleration or deceleration in performance of the Work and modifying the Contract Schedule or the Contract Milestones.

If the Owner and Contractor are unable to agree on a Change Order for the requested change, Contractor shall, nevertheless, promptly perform the change as directed by the Owner in a written Construction Change Directive. In that event, the Contract Price and Contract Time shall be adjusted in the Construction Change Directive as determined by the Owner. If Contractor disagrees with the Owner's adjustment determination, Contractor must make a claim strictly in accordance with the terms of this General Condition or else be deemed to have waived any claim it might otherwise have had on that matter.

In addition, in the event of an emergency which Owner determines endangers life or property, Owner may use oral orders to Contractor for any work required by reason of such emergency. Contractor shall commence and complete such emergency work as director by the Owner or its representative and such orders will be confirmed by written Change Order.

If at any time Contractor believes that acts or omissions of Owner or its representative constitute a change to the Work not covered by a Change Order or requirements of the Project Documents, Contractor shall within seven (7) calendar days of discovery of such act or omission submit a written Change Order Request explaining in detail the basis for the request. The Owner will either issue a Change Order or deny the request in writing.

If Contractor intends to assert a claim for an equitable adjustment under this clause it must, within ten (10) calendar days after receipt of a Change Order or denial of same provide written notification of such intent and within a further twenty (20) calendar days, submit to Owner or its representative a written proposal setting forth the nature, schedule, impact and monetary extent of such claim in sufficient detail to permit thorough analysis and negotiations.

Change Order Requests from the Contractor shall be presented to the Owner in sufficient detail to allow for evaluation. Minimum information shall include Contractor, Sub-contractor and Sub-sub-contractor itemization of Labor, Materials and Equipment costs included in the Change Order. Labor shall include labor-hours and hourly rates. Hourly rates will be the direct hourly rate of the personnel performing the work plus an allowable labor burden. The labor burden shall either be an audited labor burden or 0.5%, if an audited rate is not available. Material and Equipment shall be included at their direct costs, which shall be supported by itemized invoices for billing. If equipment is rented thru a related company, the rental rate shall be no greater than the average rental rate for similar equipment in Bay County. Related company shall mean a company owned or controlled by any owner or officer of the Contractor and Subcontractor.

Subcontractor's and Sub-sub-contractor's allowable mark-up for overhead and profit on Labor, Material and Equipment in the Change Order shall be individually no greater than 10% and in aggregate no greater than 15%.

Contractor's allowable mark-up for overhead and profit on Labor, Material and Equipment in the Change Order shall be 10%.

Additional General Conditions shall not be included in a Change Order unless the Change Order changes effects the critical path and changes the Time of Completion. Any change order request affecting the critical path shall include a detailed schedule show the change effect on the critical path.

Any delay by Contractor in giving notice or presenting a proposal for adjustment under this clause shall be grounds for rejection and waiver of the claim and in no case shall a claim by Contractor be considered if asserted after final payment under this Contract.

Contractor shall proceed diligently with performance of the Work, pending final resolution of any request for relief, dispute, claim, appeal, or action arising under the Contract, and comply with any direction from the Owner or its representative.

GC-28 Disputes

Contractor shall not be entitled to claim and neither Owner nor its representative shall be liable to Contractor or its suppliers or subcontractors of any tier in tort (including negligence), or contract except as specifically provided in this Contract. Any claim arising out of or attributable to the interpretation or performance of this Contract which cannot be resolved by negotiation shall be considered a dispute within the meaning of this clause. If for any reason Owner and Contractor are unable to resolve a claim for an adjustment, Contractor shall notify Owner or its representative in writing that a dispute exists and request a final determination by Owner. Owner shall, within thirty (30) calendar days of its receipt of any written request by Contractor, provide a written final determination setting for the contractual basis for its decision and defining what contract adjustments it considers equitable. Upon Contractor's written acceptance of Owner's determination, the Contract will be modified and the determination implemented accordingly or, failing agreement, the dispute resolution procedures as set forth in the Special Conditions titled "Dispute Resolution" shall be complied with.

GC-29 Records and Audit

The Contractor shall maintain an acceptable cost accounting system. The Contractor agrees to provide the Sponsor, 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.

Contractor shall maintain records and accounts in connection with the performance of this Contract which will accurately document incurred costs, both direct and indirect, of whatever nature for a period of three (3) years from the Final Acceptance of the Work unless a longer period of time is otherwise specified by applicable law. Owner or its representative shall have the right to examine and copy, at all reasonable times and with advance notification, such records and accounts for the purpose of verifying payments or requests for payment when costs are the basis of such payment and to evaluate the reasonableness of proposed contract price adjustments and claims.

GC-30 Warranty

Contractor warrants to Owner that materials furnished under this contract shall be of clear title and of the most suitable grade of their respective kinds for their intended uses, unless otherwise specified and shall also conform to the requirements of this Contract. All workmanship shall be first class and performed in accordance with sound construction practices acceptable to Owner or its representative.

If at any time prior to Final Acceptance or after Final Acceptance in cases of latent defects, fraud or such gross mistakes as amount to fraud, Owner, Owner's Representative, or Contractor discover any defect in the equipment, materials, workmanship, or Contractor-provided design, immediate written notice shall be given to the other parties. Contractor shall within a reasonable time propose corrective actions to cure such defects.

Owner may at its sole discretion, or through Owner's Representative, direct Contractor in writing and Contractor agrees to:

1. Rework, repair, or remove and replace defective equipment and materials or re-perform defective workmanship to acceptable quality at a time and in a manner acceptable to Owner;
2. Cooperate with others assigned by Owner to correct such defects and pay to Owner all actual costs reasonably incurred by Owner in performing or in having performed corrective actions; or
3. Propose and negotiate in good faith an equitable reduction in the Contract price in lieu of corrective action.

The warranty described by this General Condition is in addition to any more specific warranty required by the Invitation to Bid, the Scope of Work, the Specifications, or provided by the Contractor as part of its bid or as a separate document.

GC-31 Backcharges

Owner may, in addition to any other amounts to be retained as defined in the Contract, retain from any sums otherwise owing to Contractor amounts sufficient to cover the full costs of any Contractor failure to comply with provisions of this Contract or Contractor acts or omissions in the performance of any part of this Contract, including but not limited to, violation of any applicable law, order, rule, or regulation, including those regarding safety, hazardous materials or environmental requirements; correction of defective or nonconforming work by repair, rework, replacement or other appropriate means when Contractor states, or by its actions indicates, that it is unable or unwilling to proceed with corrective action in a reasonable time; and/or the Owner is required to take action or perform work for Contractor, such as cleanup, off-loading or completion of incomplete work.

Owner may also backcharge against Contractor for work done or cost incurred to remedy these or any other Contractor defaults, errors, omissions or failures to perform or observe any part of this Contract. Owner may, but shall not be required to, give Contractor written notice before performing such actions or work or incurring such cost. Cost of backcharge work shall include labor costs including payroll additives, incurred net delivered material costs, incurred lower-tier supplier and subcontractor costs directly related to performing the corrective action, equipment and tool rentals are prevailing rates in the Jobsite area and a factor, determined by the Owner, but not greater than sixty percent (60%), shall be applied to the total of these items for Owner's overhead, supervision, administrative and other related costs.

Owner shall separately invoice or deduct and retain from payments otherwise due to Contractor the cost as provided herein. Owner's right to backcharge is in addition to any and all other rights and remedies provided in this Contract or by law. The performance of backcharge work by Owner shall not relieve Contractor of any of its responsibilities under this Contract including but not limited to express or implied warranties, specified standards for quality, contractual liabilities an indemnifications, and meeting the milestones of the Special Condition titled "Commencement, Progress and Completion of the Work."

GC-32 Indemnity

To the maximum extent permitted by Florida law, Contractor shall indemnify and hold harmless Owner and its officers and employees and its representatives from any and all liabilities, claims, damages, penalties, demands, judgments, actions, proceedings, losses or costs, including, but not limited to, reasonable attorneys' fees and paralegals' fees, whether resulting from (1) any claimed breach of this Contract by Contractor or (2) from personal injury, property damage, direct or consequential damages, or economic loss, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of Contractor or anyone employed or utilized by the Contractor in the performance of this Contract.

GC-33 Consequential Damages

Except as expressly provided below in the second paragraph of this Section GC-33, Contractor and Owner shall waive all claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes damages incurred by Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work. This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with the requirements herein.

Notwithstanding anything in this Section GC-33 or any other term of the Project Documents to the contrary, it is acknowledged and agreed by Contractor that expressly excluded from the above referenced waiver of consequential damages provisions are any consequential damages arising out of or relating to this Contract suffered by Owner for which Contractor otherwise would be liable as provided in the following three (3) sentences. Consequential damages are not waived by Owner to the extent such consequential damages would be covered and paid for by any applicable insurance. Further, with respect to such consequential damages incurred by Owner that are not paid by any applicable insurance, Owner does not waive and Contractor shall be liable to Owner for such consequential damages up to the total cumulative amount of those reasonable amounts expected by Contractor as

profit. Further still, with respect to any consequential damages incurred by Owner that are due to the gross negligence or intentional wrongful acts or omissions of Contractor or anyone for whom Contractor is responsible, Owner does not waive and Contractor shall be liable to Owner for all such consequential damages. Nothing herein shall be construed as a cap or limitation on any liquidated damages Contractor may owe Owner pursuant to the terms of the Project Documents.

GC-34 Assignments and Subcontracts

Any assignment of this Contract or rights hereunder, in whole or part, without the prior written consent of Owner shall be void, except that upon ten (10) calendars days written notice to Owner or its representative, Contractor may assign monies due or to become due under this Contract, provided that any assignment of monies shall be subject to proper set-offs in favor of Owner and any deductions provided for in this Contract. Purchase orders and subcontracts of any tier must include provisions to secure all rights and remedies of Owner provided under this Contract and must impose upon the lower-tier supplier and subcontractor all of the duties and obligations required to fulfill this Contract. No assignment or subcontract shall relieve Contractor or its sureties of the responsibilities under this Contract.

GC-35 Suspension

Owner or its representative may by written notice to Contractor suspend at any time the performance of all or any portion of the Work to be performed under the Contract. After receipt of such notice, Contractor shall immediately discontinue work on the date and to the extent specified in the notice, place no further orders or subcontracts for material, services, or facilities with respect to the suspended work other than to the extent required in the notice, continue to protect and maintain the Work including those portions on which work has been suspended, and take any other reasonable steps to minimize cost associated with such suspension.

Upon receipt of notice to resume suspended work, Contractor shall immediately resume performance under this Contract to the extent required in the notice.

GC-36 Termination for Default

Notwithstanding any other provisions of this contract, Contractor shall be considered in default of its contractual obligations under this Contract if it performs work which fails to conform to the requirements of this Contract; fails to make progress so as to endanger performance of this contract within the required time periods; abandons or refuses to proceed with any of the Work, including modifications or changes directed pursuant to the General Conditions titled "Changes;" fails to fulfill or comply with any of the terms of this Contract' engages in behavior that is dishonest, fraudulent or constitutes a conflict of interest with Contractor's obligations under this Contract; or Contractor becomes insolvent or makes a general assignment for the benefit of creditors or reasonable grounds for insecurity arise with respect to Contractor's performance.

Upon the occurrence of any of the foregoing, Owner shall notify Contractor in writing of the nature of the failure and of Owner's intention to terminate the Contract for default. If Contractor does not cure such failure within seven (7) calendar days from receipt of notification, or sooner if safety is involved, or fails to provide satisfactory evidence that such default will be corrected within a reasonable time, Owner may, by written notice to Contractor, and without notice to Contractor's sureties, if any, terminate in whole or in part Contractor's right to proceed with the Work and Owner may prosecute the Work to completion by contract or by any other method deemed expedient. Owner may take possession of and utilize any data, designs, licenses, equipment, materials, plant, tools, and property to any kind furnished by Contractor and necessary to complete the Work.

Contractor and its sureties, if any, shall be liable for all costs in excess of the Contract price for such terminated work incurred by Owner in the completion of the Work, including cost of administration of any purchase order or subcontract awarded to others for completion.

Upon termination for default, Contractor shall immediately discontinue work on the date and to the extent specified in the notice and place no further purchase orders or subcontracts to the extent that they relate to the performance of the terminated work; inventory, maintain and turn over to Owner all data, designs, licenses, equipment, materials, plant, tools, and property furnished by Contractor or provided by Owner for performance of the terminated work;

promptly obtain cancellation upon terms satisfactory to Owner of all purchase orders, subcontracts, rentals, or any other agreements existing for performance of the terminated work or assign those agreements as director by Owner or its representative; cooperate with Owner or its representative in the transfer of data, designs, licenses, and information and disposition of work in progress so as to mitigate damages; comply with other reasonable requests from Owner or its representative regarding the terminated work; and continue to perform in accordance with all of the terms and conditions of this Contract such portion of the Work that is not terminated.

If, after termination pursuant to this clause, it is determined for any reason that Contractor was not in default, the rights and obligations of the parties shall be the same as if the notice of termination had been issued pursuant to the General Condition entitle Optional Termination.

GC-37 Optional Termination

Owner may, at its option, terminate for convenience any of the Work under this Contract in whole or, from time to time, in part, at any time by written notice to Contractor. Such notice shall specify the extent to which the performance of the Work is terminated and the effective date of such termination.

Upon receipt of such notice Contractor shall immediately discontinue the Work on the date and to the extent specified in the notice and place no further purchase orders or subcontracts for materials, services, or facilities, other than as may be required for completion of such portion of the Work that is not terminated; promptly obtain assignment or cancellation upon terms satisfactory to Owner of all purchase orders, subcontracts, rentals, or any other agreements existing for the performance of the terminated work or assign those agreements as directed by Owner or its representative; assist Owner or its representative in the maintenance, protection and disposition of work in progress, plant, tools, equipment, property and materials acquired by Contractor or furnished by Owner or its representative under this Contract; and complete performance of such portion of the Work which is not terminated.

Upon any such termination, Contractor shall waive any claims for damages including loss of anticipated profits; on account thereof, but as the sole right and remedy of Contractor, Owner shall pay in accordance with (1) the Contract price corresponding to the work performed in accordance with this Contract prior to such notice of termination; (2) all reasonable costs for work thereafter performed as specified in such notice; (3) reasonable administrative costs of settling and paying claims arising out of the termination of work under purchase orders or subcontracts; (4) reasonable increased costs incurred in demobilization and the disposition of residual material, plant, and equipment; and (5) reasonable overhead and profit on items 2 through 4.

Contactor shall submit with thirty (30) calendar days after receipt of notice of termination, a written statement setting forth its proposal for an adjustment to the Contract price to include only the incurred costs described in this clause. Owner and its representative shall review, analyze, and verify such proposal, and negotiate an equitable adjustment, and the Contract shall be modified accordingly.

GC-38 Final Inspection and Acceptance

When Contractor considers the Work, or any Owner identified independent portion of the Work under this Contract to be complete and ready for acceptance, Contractor shall notify Owner or its representative in writing. Owner and its representative, with Contractor's cooperation, will conduct such reviews, inspections and tests as may be reasonably required to satisfy the Owner and its representative that the Work, or identified portion of the Work, conforms to all requirements of the Contract. If all or any part of the Work covered by Contractor's notice does not conform to contract requirements, Owner or its representative shall notify Contractor of such nonconformance and Contractor shall take corrective action and then have the nonconforming work re-inspected until all contract requirements are satisfied.

Owner's written Certification of Final Acceptance of the Work under this Contract shall be final and conclusive except with regard to latent defects, fraud or such gross mistake as amount to fraud, or with regard to Owner's rights under the General Conditions titled "Warranty".

GC-39 Non-Waiver

Failure by Owner to insist upon strict performance of any terms or conditions of this contract, or failure or delay to exercise any rights or remedies herein or by law, or failure to properly notify Contractor in the event of breach, or the acceptance of or payment for any goods or services, hereunder, or the review or failure to review designs shall not release Contractor from any of the warranties or obligations of this Contract and shall not be deemed a waiver of any right of Owner to insist upon strict performance hereof or any of its rights or remedies as to any prior or subsequent default hereunder nor shall any termination of work under this contract by Owner operate as a waiver of any of the terms hereof.

GC-40 Government Restricted Parties and Commodities

Contractor acknowledges that all applicable export rules and regulations of the origin countries shall apply to the exports of commodities, software and technology (technical data and assistance) under this contract. Contractor also acknowledges that other rules and regulations may restrict the use of certain parties under this contract. Such rules and regulations are generally described below.

1. Restricted Parties Lists

   Country governments and international organizations such as the United Nations and European Union publish Restricted Parties List ("Lists") that identify parties (such as known or suspected terrorists, money launderers and drug traffickers) restricted from certain or all types of transactions. Contractor shall review all applicable Lists prior to initiating transactions with any third party for the performance of all or any portion of the Work to ensure such third party is not identified on any applicable Lists. Contractor shall not enter into any transactions with any third party identified on any applicable Lists.

2. Licensing Requirements

   (a) General: Each country has export regulations that control commodities, software and technology for various reasons, such as national security, foreign policy, anti-terrorism, and to avoid the proliferation of weapons and potential weapons, e.g. certain nuclear, chemical or biological agents. Numerous countries have export regulations that specifically address dual-use items, meaning commercial items with the potential to be applied to military and/or weapon proliferation uses. Contractor shall ensure that all necessary export licenses are obtained, or license exceptions confirmed, prior to the export of any commodity, software, or technology.

   (b) United States of America (USA) Export Licensing Requirements: Contractor is solely responsible for obtaining any required USA export licenses for all commodities, software, and technology being supplied in the performance of the Work, except for any commodity, software or technology supplied by Owner. A copy of the export license, or rationale as to why a license is not required, shall be provided to Owner's Representative or Owner upon request.

Contractor shall be responsible for any delay resulting from Contractor's failure to comply fully and timely with any such rule or regulation described above.

Contractor hereby agrees to indemnify, defend and hold Owner's Representative, Owner, each of their respective affiliates and the respective directors, officers, employees and representatives of each harmless from and against any and all claims, legal or regulatory actions, final judgments, reasonable attorneys' fees, civil fines and any other losses which any of them may incur as a result of Contractor's failure to comply with its obligations under this clause.

GC-41 Equal Employment Opportunity

Contractor is aware of and is fully informed of Contractor's obligation under Executive Order 11246 and, where applicable, shall comply with the requirements of such Order and all orders, rules, and regulations promulgated thereunder unless exempted therefrom.

Without limitation of the foregoing, Contractor's attention is directed to 41 Code of Federal Regulations (CFR), Section 60-1.4, and the clause titled "Equal Opportunity Clause" which, by this reference, is incorporated herein.

Contractor is aware of and is fully informed of Contractor's responsibilities under Executive Order No. 11701 "List of Job Openings for Veterans" and, where applicable, shall comply with the requirements of such Order and all orders, rules and regulations promulgated thereunder unless exempted therefrom.

Without limitation of the foregoing, Contractor's attention is directed to 41 CFR section 60-250 et seq. and the clause therein titled "Affirmative Action Obligations of Contractors and Subcontractors for Disabled Veterans and Veterans of the Vietnam Era," which by this reference, is incorporated herein.

Contractor certifies that segregated facilities, including but not limited to washrooms, work areas and locker rooms, are not and will not be maintained or provided for Contractor's employees. Where applicable, Contractor shall obtain a similar certification from any of its subcontractors, vendors, or suppliers performing the Work under this contract.

Contractor is aware of and is fully informed of Contractor's responsibilities under the Rehabilitation Act of 1973 and the Americans with Disabilities Act and, where applicable, shall comply with the provisions of each Act and the regulations promulgated thereunder unless exempted therefrom.

Without limitation of the foregoing, Contractor's attention is directed to 41 CFR Section 60-741 and the clause therein titled "Affirmative Action Obligations of Contractors and Subcontractors for Handicapped Workers," which by this reference, is incorporated herein.

GC-42 Disadvantaged Business Enterprises Program

Contractor shall support Owner's policy and commitment to maximizing, where practical, business opportunities for Disadvantaged Business Enterprises (as identified in the Special Conditions) by actively identifying, encouraging and assisting in their participation and otherwise making a good faith effort to achieve the DBA goals established for this project.

GC-43 Authority of Owner's Representative

The Owner's Representative shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the Work. The Owner's Representative also shall decide all questions that may arise as to the interpretation of the specifications or plans relating to the Work. The Owner's Representative shall determine the amount and quality of the several kinds of Work performed and materials furnished which are to be paid for under the contract.

GC-44 Conformity with Plans and Specifications

All Work and all materials furnished shall be in conformity with the dimensions, quality, quantity, material, and testing requirements that are specified (including specified tolerances) in the Contract Documents.

If the Owner's Representative finds the materials furnished, Work performed, match or the finished product not within conformity with the Contract Documents but that the portion of the Work affected will, in its opinion, result in a finished project having a level of safety, economy, durability, and workmanship acceptable to the Owner, it will advise the Owner of its recommendation that the affected Work be accepted and remain in place. In this event, the Owner's Representative will document its 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. The Owner's Representative determination and recommended contract price adjustments will be based on the Owner's Representative's reasonable judgment and such test or retests of the affected Work as are, in its opinion, needed. Owner may accept or reject the Owner's Representative's recommendation (including any price adjustment recommendation) in its sole discretion. Changes in the contract price shall be covered by Change Order or supplemental agreement, as applicable.

If the Owner's Representative finds the materials furnished, Work performed, or the finished product are not in conformity with the Contract Documents and which Owner has not decided to accept with a price adjustment as provided above, the affected Work or materials shall be removed and replace or otherwise corrected by and at the expense of Contractor in accordance with the Owner's Representative's written orders.

For the purpose of this subsection, nothing herein shall be construed as waiving Contractor's responsibility to complete the Work in accordance with the Invitation to Bid or Bid Specifications.

Neither Owner's Representative nor Owner will be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

GC-45 Authority and Duties of Inspectors

Inspectors employed by the Owner or Owner's Representative shall be authorized to inspect all Work done and all materials furnished. Such inspection may extend to all or any part of the Work and to the preparation, fabrication, or manufacture of the materials used. Inspectors are not authorized to revoke, alter, or waive any provision of the contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors employed by the Owner or Owner's Representative are authorized to notify the Contractor or its 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 Owner's Representative for its initial decision.

GC-46 Source of Supply and Quality Requirements

The materials used in the Work shall conform to the requirements of the Contract Documents. 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, Contractor shall furnish complete statements to the Owner's Representative as to the origin, composition, and manufacture of all materials to be used in the Work. Such statements shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the Owner's Representative's option, materials may be approved at the source of supply before delivery is stated. 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.

GC-47 Samples, Tests, and Cited Specifications

Except for those tests to be performed by Contractor pursuant to the Contract Documents, all materials used in the Work may be inspected, tested, and approved or denied by the Owner's Representative at any time before incorporation in the Work, its decision. Any Work in which untested materials are used at the Contractors risk. Any untested materials used in the Work and are found to not comply with requirements of the Contract Documents, such materials shall be removed and replaced with materials tested and approved by the Owner's Representative at the Contractor's expense. Materials found to be unacceptable will not be paid for.

Unless otherwise designated in the Contract Documents, tests in accordance with the cited standard methods of ASTM, AASHTO, Federal Specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement of the bids, will be made by the Owner's Representative or Owner at the Owner's expense. The testing organizations performing on site field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel including the Contractor's representative at its request. Unless otherwise designated, samples will be taken by a qualified representative of the Owner's Representative. All materials being used are subject to inspection, test, or rejection at any time prior to or after incorporation into the Work. Copies of all tests will be furnished to the Contractor's representative at its request.

The Contractor shall employ a testing organization to perform all Contractor required tests. The Contractor shall submit to the Owner's Representative resumes on all testing organizations and individual persons who will be performing the tests. The Owner's Representative shall have the right, following review of such credentials, to reject any organization or individual persons performing the tests at its decision and require the Contractor to find alternative organizations or individuals acceptable to the Owner's Representative. All the test data shall be reported to the Owner's Representative after the results are known. Legible, printed reports of all test data shall be given to the Owner's Representative within five (5) business days of such tests. After completion of the Work, and prior to final payment, Contractor shall submit a final report to the Owner's Representative showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

GC-48 Certification of Compliance

The Owner's Representative may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance 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.

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 Owner's Representative.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly deliver to the Work. Such certificates 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 Work.

Should the Contractor propose to furnish an "or equal" material or assembly, it shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly prior to and be approved by the Owner's Representative prior to its order and delivery to the Work. Any material or assembly furnished "or equal" not prior approved shall be removed from the Work at the Contractor's cost and shall not be paid for.

GC-49 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 Documents 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 Owner's Representative or Owner at or on an Owner approved site,
b. The Contractor has furnished the Owner's Representative with acceptable evidence of the quantity and quality of such stored or stockpiled materials,
c. The Contractor has furnished the Owner's Representative 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 so stored or stockpiled,
e. The Contractor has furnished the Owner evidence that the material so 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 its responsibility for furnishing and placing such materials in accordance with the requirements of the Contract Documents.

In no case will the amount of partial payments for materials on hand exceed the allocated portion of the contract price for such materials or the contract price for the contract item in which the material is intended to be used, less any applicable retained portions. The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

GC-50 Bid Security

Guarantee will be required with each bid as a certified check on a solvent bank or a bid bond in the amount of five (5) percent of the total amount of the bid, made payable to the Panama City–Bay County Airport and Industrial District.

GC-51 Bonding Requirements

The successful bidder will be required to furnish separate performance and payment bonds each in an amount equal to 100% of the contract price.

GC-52 Performance and Payment Securities

The successful Bidder shall deliver to the Owner or the Owner's Authorized Representative no later than ten (10) calendar days after contract award and prior to commencing the Work or entering the Project Site, a Performance and Payment Bond in the form supplied in the bid and project documents and executed, as surety, by a corporation acceptable to the Owner and authorized to issue such bonds in the jurisdiction of Bay County, Florida. Such Performance Bond and Payment Bond shall each be for one hundred percent (100%) of the total as set forth in Bidder's proposal. The cost of such Performance Bond and Payment Bond shall be included in the Guaranteed Maximum Price submitted in the Bidder's Proposal

END OF GENERAL CONDITION

SPECIAL CONDITIONS

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

SPECIAL CONDITIONS

SC-1 Definitions

Whenever the following terms are used, the intent and meaning shall be interpreted as follows:

AIR OPERATIONS AREA (AOA) means any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft including paved and unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways and/or aprons.

AIRPORT TICKET OFFICE (ATO) means any area of the airport terminal used or intended to be used for the ticketing and baggage check for passengers. This area includes staff work and break areas.

CALENDAR DAY means every day shown on the calendar.

CHANGE ORDER means a written order to the Contactor signed by Owner and its representative covering changes in the plans, specifications, or proposed quantities and establishing a basis of payment and contract time adjustment, if any, for the work affected by such changes.

CONTRACT DOCUMENTS mean all the written and drawn documents comprising the Contract for the Project.

CONTACT SCHEDULE means the Work execution schedule developed by Contactor and approved by Owner for implementation of the Work.

CONTRACTOR means the individual, partnership, Limited Liability Company or corporation, its authorized representatives, successors, and permitted assigns as identified in the Contract.

FAA means the Federal Aviation Administration of the U.S. Dept. of Transportation.

INSPECTOR means authorized representative of Owner assigned to make all necessary inspections and/or tests of the work performed or being performed, or the materials furnished or being furnished by Contractor.

JOBSITE means the designated site for the Project where the Work will be performed by the Contractor.

NOTICE TO PROCEED (NTP) means a written notice to Contractor to begin the actual work for the designated portion thereof by a specified date and date on which the Contract begins.

OWNER means Panama City–Bay County Airport and Industrial District dba Northwest Florida Beaches International Airport.

OWNER'S REPRESENTATIVE means the designated agent of the Owner to administer this Contract for the Owner, which shall be the Owner, unless a change is provided by written notice from Owner to Contractor.

PROJECT means the scope of work (Work) under this **Terminal Parking Expansions** at Northwest Florida Beaches International Airport (ECP), Panama City Beach, Florida.

SPECIFICATIONS mean a part of the Invitation to Bid containing the written directions and requirements for completing the Contract Work.

WORK means all the stated or implied activities to be performed by Contractor as required by the Project Documents.

SC-2 Insurance

The Contactor shall procure and maintain the following described insurance, except for coverage(s) specifically waived by Owner, on policies and with insurers acceptable to Owner. These insurance requirements shall not limit the liability of Contractor.

The insurance coverage(s) and limits required of Contractor under this Invitation to Bid are designed to meet the minimum requirements of Owner and the Owner does not represent these types or amounts of insurance to be sufficient or adequate to protect the Contractor's interests or liabilities. Contractor alone shall be responsible to the sufficiency of its own insurance program.

The Contractor and the Contractor's subcontractors and sub-subcontractors shall be solely responsible for all of their property, including but not limited to any materials, temporary facilities, equipment and vehicles, and for obtaining adequate and appropriate insurance covering any damage or loss to such property. The Contractor and the Contractor's subcontractors and sub-subcontractors shall expressly waive any claim against the Owner arising out of or relating to any damage or loss of such property, even if such damage or loss is due to the fault or neglect of the Owner or anyone for whom the Owner is responsible. The Contractor is obligated to include, or cause to be included, provisions similar to this paragraph in all of the Contractor's subcontracts and its subcontractor's contracts with their sub-subcontractors.

The Contractor's deductibles/self-insurance retention's must be disclosed to Owner and are subject to Owner's approval. The Contractor is responsible of the amount of any deductible or self-insured retention. Any deductible or retention applicable to any claim or loss shall be the responsibility of Contractor and shall not be greater than $25,000, unless otherwise agreed to, in writing, by Owner.

Insurance required of the Contractor or any other insurance of the Contractor shall be considered primary, and insurance of Owner shall be considered excess, as may be applicable to claims or losses which arise out of or relate to the Work or this Project.

A. Workers' Compensation and Employers' Liability Insurance Coverage: The Contractor shall purchase and maintain workers' compensation and employers' liability insurance for all employees engaged in the Work, in accordance with the laws of the State of Florida. Limits of coverage shall not be less than:

$500,000 Limit Each Accident
$500,000 Limit Disease Aggregate
$250,000 Limit Disease Each Employee

B. Commercial General Liability Coverage: Contractor shall purchase and maintain commercial general liability insurance on a full occurrence form. Coverage shall include, but not be limited to, Premises and Operations, Personal Injury, Contractual for this Contract, Independent Contractors, Broad Form Property Damage, Products and Completed Operation Liability Coverage(s) and shall not exclude coverage for the "X" (Explosion), "C" (Collapse) and "U" (Underground) Property Damage Liability exposures. Limits of coverage shall not be less than:

$1,000,000 Combined Single Limit Each Occurrence
$2,000,000 Aggregate Limit

Contractor shall add Owner as an additional insured through the use of Insurance Service Office Endorsements No. CG 20.20.22.85 wording or equivalent, or broader, an executed copy of which shall be attached to or incorporated by reference on the Certificate of Insurance to be provided by Contractor pursuant to the requirements of the Project Documents.

C. Business Automobile Liability Coverage: The Contractor shall purchase and maintain Business Automobile Liability Insurance as to ownership, maintenance, use, loading and unloading of all of Contractor's owned, non-owned, leased, rented or hired vehicles with limits not less than:

$1,000,000 Combined Single Limit Each Accident

D. Excess or Umbrella Liability Coverage: Contractor shall purchase and maintain Excess Umbrella Liability Insurance or Excess Liability Insurance on a full occurrence form providing the same continuous coverage(s) as required for the underlying Commercial General, Business Automobile and Employers' Liability Coverage(s) with no gaps in continuity of coverage(s) or limits with Owner added by endorsement to the policy as an additional insured in the same manner as is required under the primary policies, and shall not be less than:

$4,000,000 Each Occurrence/Accident

SC-3 Owner Furnished Drawings and Specifications

Owner's Representative will furnish specifications and/or design drawings of the Project for each part of the Work under this contract. Such drawings and specifications will give the information required for the preparation of shop detail drawings by Contractor.

Contractor shall, upon receipt thereof, check promptly all specifications and/or drawings furnished and shall notify Owner's Representative and Owner of any omissions or discrepancies in such specifications or drawings found.

All specifications and/or drawings for the Work are identified as the Passenger Boarding Bridges (PBB). Should any addenda be issued or other modifications to the specifications and/or drawings occur prior to NTP of the contract, Owner's Representative will prepare a consolidated and conformed set of specifications and/or drawings marked "Issued for Bid" and issued by Owner's Representative. Contractor shall perform the Work in accordance with the "Issued for Bid" specifications and/or drawings. Contractor shall immediately review the "Issued for Construction" specifications and/or drawings and promptly notify the Owner's Representative and Owner in writing if Contractor believes anything in the "Issued for Bid" specifications and/or drawings represents a material change from what was reflected in the bid documents, addenda, and changes/modifications thereafter accepted by the Contractor with the Contract and prior to the NTP and identify any effects on cost and schedule.

SC-4 Owner Furnished Utilities, Facilities, Materials and Equipment

Owner will not furnish to Contractor any utilities, facilities, materials and/or equipment. Owner shall designate in the Project Documents or in written form to Contractor's request for such designation the location where Contractor facilities for storage may be temporarily placed.

SC-5 Permits

Any required permits shall be provided by Contractor. Except as otherwise specified, Contractor shall procure and pay for all permits, licenses, certifications and other applicable governing authority requirements and inspections, other than inspection performed by the Owner or its representative and shall furnish any documentation, bonds, security, or deposits required to permit performance of the Work. Owner shall submit drawings and specifications to Bay County Builder Services to initiate review and expedite review process. Contractor, upon award, shall immediately follow up, submit, secure, procure and pay for required permits.

SC-6 Contractor Furnished Drawings, Data and Samples

Owner's Representative and Owner's permission to proceed with the Work does not constitute acceptance or approval of submittals including, but not limited to, design details, calculations, analyses, test methods, construction methods, certificates or materials developed or selected by Contractor and does not relieve Contractor from full compliance with the Contract Documents. Drawings required of the Contractor if not specifically identified in the specifications shall include drawings for fabrication of Contractor furnished equipment or materials, installation of Contractor furnished equipment or materials, planning and performance of the Work under this contract, material samples, material certificates and other appropriate data.

DRAWINGS: All drawings required to be submitted by Contractor shall be certified by Contractor to be correct, shall show the contract number and shall be furnished in accordance with the contract drawings and data requirements and forms. The Owner's Representative or its representative shall review Contractor's drawings and a reproducible drawing marked with one of the following codes will be returned to Contractor:

a. Reviewed, No Comments,
b. Reviewed, Comments as Noted (Work May Proceed),
c. Rejected, Revise and Resubmit,
d. No Review Required.

All drawings submitted by Contractor shall be submitted to the Owner's Representative for review at least thirty (30) calendar days before fabrication, installation, or performance is commenced and at Contractor's expense.

SAMPLES: All samples required to be submitted by Contractor shall be certified by Contractor to be representative of materials to be incorporated in the Work, shall show the contract number and shall be furnished in accordance with the contract drawings and data requirements and forms. All samples submitted by Contractor shall be submitted to the Owner's Representative for review at least fifteen (15) calendar days before materials are incorporated into the Work and at Contractor's expense. The Owner's Representative or its representative shall review the sample and return the Contractor's submittal form marked as noted for drawings.

CERTIFICATES AND DATA: Where certificates are required, one (1) copy of each certificate and one (1) computer file of same shall be submitted by and at the expense of Contractor. Such submittal shall be made not less than thirty (30) calendar days prior to the time that the materials represented by such certificates are needed for incorporation into the Work. Certificates shall be subject to review and material represented by such certificates shall not be fabricated, delivered to the Jobsite or incorporated into the Work without such review.

Certificates shall clearly identify the material being certified and shall include, but not be limited to, providing the following information: Contractor's name, project name, contract number, name of item, manufacturer's name, and reference to the appropriate drawing, technical specification section and paragraph number, all as applicable.

AS-BUILT DRAWINGS AND SPECIFICATIONS: During construction, Contractor shall keep a current marked-up controlled set of as-built drawings on the Jobsite as an accurate record of all deviations between work as shown on the drawings and work as installed. These drawings shall be available to the Owner's Representative, Owner or their representatives for inspection at any time during regular business hours. Contractor shall at its expense and no later than thirty (30) calendar days after final acceptance and before final payment furnish to the Owner's Representative a complete set of signed marked-up as-built reproducible (bond paper) drawings with "As-Built" clearly printed on each sheet and a PDF electronic copy of same. Contractor will keep a current marked-up controlled set of as-built specifications on the Jobsite annotated to clearly indicate all substitutions that are incorporated into the Work. Where the selection of more than one product is specified, annotation shall show which product was installed.

SC-7 Commencement, Progress, Completion of the Work and Project Schedule

Contractor shall complete the Work under this Invitation to Bid within six (6) months of Notice to Proceed unless otherwise negotiated, and approved, by the Owner.

Contractor will provide, in a form acceptable to Owner and/or its representative, a project schedule in sufficient detail to clearly outline the Work to be performed under this Contract and milestone dates for major work events such as the start and completion of major components of the Project, as one of the prerequisites to issuance of the Notice to Proceed after the execution of the Contract. The Owner's Representative shall review the Project Schedule and shall accept, accept with comment, or reject with comment. Contractor shall revise the schedule as required by the Owner's Representative and resubmit until accepted.

Contractor shall periodically update the Project Schedule as required and no less than weekly to support the pay-application to promptly reflect the progress of the Work. Should any of the work not be performed as indicated and be later than originally planned to perform, a recovery plan shall be presented to the Owner or its representative for approval.

SC-8 Temporary Access and Haul Roads

Access to Secured Areas will be granted in accordance with the Owner's TSA-approved Airport Security Program. Haul roads and routes will be identified during a scheduled pre-construction meeting with the Contractor.

SC-9 Safety, Health, and Security Requirements

Contractor will comply with all applicable federal, state, and local laws, ordinances, statutes, rules, regulations, orders, or decrees, including the Airport Safety Program and other rules and regulations adopted by Owner, in effect at the time the Work under this Contract is performed shall apply to Contractor and its employees, representative, its subcontractors, sub-subcontractors, material suppliers and others under Contractor's Contract for the Work.

SC-10 Applicable Law

This contract shall be governed by and construed in accordance with the laws of State of Florida excluding its conflict of law rules which may apply the laws of any other jurisdiction, and each party hereto agrees not to assert as a defense in any proceeding that it is not subject to the laws of State of Florida.

SC-11 Invoicing and Payment

Contractor shall prepare and submit invoices monthly or at some other pre-approved interval with estimates submitted for review by Owner and its representative at least ten (10) calendar days prior to formal submittal period for review and field inspection to verify estimated payment amounts requested. Following review and Owner's and its representative's approvals, Contractor will submit invoice (form as specified in the Project Documents) for payment. Owner pays Contractor undisputed amounts submitted and approved, in accordance with the terms of the Project Documents, within forty-five (45) days of the date of submission of the submitted invoice.

Contractor shall certify in each invoice that no known outstanding mechanic's or material-men liens and all due and payable bills have been paid or are included in the application for payment.

Each invoice shall be accompanied by a submission of information regarding Disadvantaged Business Enterprise (DBE) goals and accomplishments during the period covered by the payment application in a format acceptable to OWNER. CONTRACTOR'S payment application shall include the amounts authorized for payment to each DBE firm and its certification number. Failure to submit DBE-related information with the request for payment will result in the payment application being returned to the CONTRACTOR for correction.

Owner shall retain five percent (5%) of that portion of the gross amount of each payment request submitted to Owner for payment, until fifty percent (50%) completion of the Work. Owner reserves the right, at its sole discretion, to further release any potion of such retainage prior to final payment and prior to such release, require

Contractor to submit for itself, its subcontractors of all tiers, and all material suppliers, vendors, laborers and other parties acting through or under it, complete waivers and releases of all claims against Owner or its representative arising under or by virtue of this Contract to the extent of payments made and Contractor, upon request by Owner or its representative, shall in addition furnish acceptable evidence that all such claims have been satisfied.

Any amounts otherwise payable under this Contract may be withheld, in whole or in part, to the extent reasonably necessary to protect Owner's interest, if any claims are filed against Owner for which Contractor is or may become liable, Contractor is in material default of any Contract condition including, but not limited to, the schedule, quality assurance and health and safety requirements, Contractor has not submitted a Project Schedule or required updates or proper insurance certificates and continuous coverage(s) as required by the Project Documents and proof thereof of any required Performance and Payment Bonds, any adjustments that are due from previous overpayment or audit results, or offsets in favor of Owner in other transactions are asserted. Owner will pay such withheld payments if Contractor pays, satisfies, or discharges any claim of Owner against Contractor under or by virtue of this Contract or cures all defaults in the performance of this Contract.

Contractor agrees to pay each of its subcontractors under this contract for satisfactory performance of its subcontract in accordance with section 218.70, Florida Statutes, Florida's Prompt Payment Act.

Owner shall make final payment to Contractor in accordance with section 218.735, Florida Statues, following Final Acceptance of the Work and after submittal of such final invoice, provided that Contractor shall have furnished Owner or its representative for itself, its subcontractors of all tiers, and all material suppliers, vendors, laborers and other parties acting through or under it, waivers and releases of all claims against Owner arising under or by virtue of this Contract, except such claims, if any, as may with the consent of Owner be specifically excepted by Contractor from the operation of the release in stated amounts to be set forth therein.

SC-12 Owner's Representative

Owner has designated a Representative to act for and on behalf of Owner for carrying out certain contract activities as expressly designated herein and may, by contract change order, modify its representative authority, replace the representative or dispense with the representative's services without relieving Contractor of any of its obligations under this Contract. Contractor acknowledges and agrees that the Owner's Representative has no authority to authorize or approve changes to the Contract.

Owner, after consultation with the Owner's Representative, shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the matter of performance and rate of progress of the Work. Owner, after consultation with the Owner's Representative shall decide all questions which may arise as to the interpretation of the specifications and drawings relating to the Work, the fulfillment of the contract on the part of Contractor, and the rights of different contractors on the Project. Owner, after consultation with the Owner's Representative shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for under this contract.

SC-13 Nondisclosure

Contractor agrees not to divulge to third parties, without the written consent of Owner, any information obtained from or through Owner or its representative in connection with the performance of this Contract unless the information is (1) known to Contractor prior to obtaining the same from Owner or its representative, (2) disclosed to Contractor in the public domain, or (3) obtained by Contractor from a third party who did not receive same, directly or indirectly from Owner or its representative and who has no obligation of secrecy with respect thereto.

SC-14 Dispute Resolution

In the event of a dispute between the parties arising out of or relating to their responsibilities under this Contract, the party claiming the dispute shall provide the other party promptly written notice of such dispute, as required by the terms of the Contract. The parties hereby agree that they shall first negotiate dispute to resolve the dispute in good faith in an attempt to prevent the need for mediation or litigation. Accordingly, within seven (7) calendar days of receipt of the initial written dispute notice, the parties shall commence discussions between the on-site

project managers. In the event the parties are unable to reach a resolution of the dispute within seven (7) calendar days after such commencement of the discussions between the on-site managers, the parties shall commence discussions between Contractor's President and the Owner's Executive Director. In the event that such parties are unable to reach a resolution of the dispute within fourteen (14) calendar days after such commencement of the discussions between the President and Executive Director, the parties shall submit the dispute to non-binding mediation before a mutually agreed mediator who shall conduct such mediation proceedings. All costs of mediation shall be shared equally by the parties, except that each party shall be responsible for its own attorney's fees.

If the parties are unable to resolve the dispute through mediation and litigation proves necessary, either party may initiate such litigation. In the event of any such litigation, the prevailing party shall be entitled to recover its reasonable attorneys' fees and costs through all trial and appellate levels of such litigation. Any litigation between Owner and Contractor (which term for the purposes of this subparagraph shall include Contractor's surety), whether arising out of any claim or arising out of the Contract or any breach thereof, shall be brought, maintained and pursued only in the appropriate State of Florida Courts for Bay County, Florida, and Owner and Contractor each hereby waive and renounce any and all rights and options which they, or either of them, have or might have to bring or maintain any such litigation or action in the Federal Court system of the United States or in any United States Federal District Court. Owner and Contractor expressly waive all rights to trial by jury regarding any such litigation.

In the event of a dispute between the parties arising out of or relating to their responsibilities under this Contract, the party claiming the dispute shall provide the other party promptly written notice of such dispute, as required by the terms of the Contract. The parties hereby agree that they shall first negotiate dispute to resolve the dispute in good faith in an attempt to prevent the need for mediation or litigation. Accordingly, within seven (7) calendar days of receipt of the initial written dispute notice, the parties shall commence discussions between the on-site project managers. In the event the parties are unable to reach a resolution of the dispute within seven (7) calendar days after such commencement of the discussions between the on-site managers, the parties shall commence discussions between Contractor's President and the Owner's Executive Director. In the event that such parties are unable to reach a resolution of the dispute within fourteen (14) calendar days after such commencement of the discussions between the President and Executive Director, either party may initiate such litigation. In the event of any such litigation, the prevailing party shall be entitled to recover its reasonable attorneys' fees and costs through all trial and appellate levels of such litigation, including the fees and costs incurred to litigate the amount of attorney's fees and costs due under said action. Any litigation between Owner and Contractor (which term for the purposes of this subparagraph shall include Contractor's surety), whether arising out of any claim or arising out of the Contract or any breach thereof, shall be brought, maintained and pursued only in the appropriate State of Florida Courts for Bay County, Florida, and Owner and Contractor each hereby waive and renounce any and all rights and options which they, or either of them, have or might have to bring or maintain any such litigation or action in the Federal Court system of the United States or in any United States Federal District Court. Owner and Contractor expressly waive all rights to trial by jury regarding any such litigation.

A company that, at the time of bidding or submitting a proposal for a new contract or renewal of an existing contract, is on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to s. 215.473, or is engaged in business operations in Cuba or Syria, is ineligible for, and may not bid on, submit a proposal for, or enter into or renew a contract with an agency or local governmental entity for goods or services of $1 million or more.

SC-15 Liquidated Damages

The parties hereby agree that the damages which Owner will sustain as a result of Contractor's failure to meet the Project Schedule are difficult or impossible to determine with certainty and therefore, have in good faith estimated as fair compensation (and not as a penalty) the liquidated damages of Four Hundred Forty dollars ($440.00) per calendar day. If the Contractor fails to deliver the Work within the time specified in the Contract, or any extensions evidenced by Change Order or duly executed contract Amendment, Contractor shall pay Owner as fixed, agreed, and liquidated damages for each calendar day of delay. If the Project is not yet complete, Owner shall offset such liquidated damages from subsequent payment to Contractor. Nothing in this clause operates to restrict any other rights and remedies available to Owner at law or under this Contract.

SC-16 Drugs, Alcohol and Weapons

Contractor's personnel, subcontractor's personnel at any tier, material supplier's personnel or any other's personnel at any time shall not bring onto the Jobsite, or any other location where the provisions of this Contract apply any firearm of whatsoever nature or any other object which in the judgment of the Owner or its representative is determined to be a potential weapon, or alcoholic beverages of any nature, illegal or Owner prohibited non-prescription drugs of any nature without exception.

SC-17 Owner Directed Purchase (ODP)

Contractor agrees that Owner at its sole election **may** have Contractor assign some or all of its purchase orders and subcontracts directly to Owner in accordance with the provisions set forth herein.

Material suppliers shall be selected by Contractor using competitive bidding/proposals. Supply contracts shall be awarded by Contractor to the supplier whose bid/proposal is most advantageous to Owner, price and other factors considered. Contractor shall include the price of all materials in his bid and shall include all Florida State sales and other taxes normally applicable to such material and equipment. Owner may consider purchasing any item but does not expect to issue purchase orders to less than five thousand dollars ($5,000.00). Owner purchase of selected materials and equipment will be administered on a deductive Change Order basis.

Contractor shall provide Owner a list of all intended suppliers, vendors and material men for consideration as ODP. Contractor shall submit price quotes from the vendors, as well as a description of the materials to be supplied, estimated quantities and prices.

Upon request from Owner, and in a timely manner, Contractor shall prepare Purchasing Requisition Request Form which shall, in form and detail acceptable to Owner, specifically identify the materials which Owner may, in its discretion, elect to purchase directly. The Purchasing Requisition Request Form shall include:

a. the name, address, telephone number and contact person for the material supplier,
b. manufacturer or brand, model, or specification number of the item,
c. quantity needed as estimated by Contractor,
d. the price quoted by the supplier for the materials identified therein,
e. any sales tax associated with such quote,
f. delivery dates as established by Contractor,
g. any reduction in Contractor's cost for both the Payment Bond and Performance Bond,
h. shipping, handling and insurance costs,
i. detail concerning bonds or letters of credit provided by the supplier if included in his/her proposal,
j. special terms and conditions which have been negotiated with the supplier relative to payment terms, discounts, rebates, warranty, credits or other terms and conditions which revert to Owner.

Contractor shall include copies of vendors' quotations and specifically reference any terms and conditions, which have been negotiated with the vendors concerning letters of credit, terms, discounts, or special payments.

After receipt of the Purchasing Requisition Request Form, Owner shall prepare a Purchase Order for all items of material, which Owner chooses to purchase directly. The purchase order shall be sent to the vendor with a copy sent to Contractor. Pursuant to the Purchase Order, the vendor will provide the required quantities of material at the price established in the vendor's quote to Contractor, excluding any sales tax associated with such price. The Purchase Order shall also require the delivery of the ODP on the delivery dates provided by Contractor in the Purchasing Requisition Request Form.

In conjunction with the execution of the Purchase orders by the suppliers, Contractor shall execute and deliver to Owner one or more deductive Change Orders, referencing the full value of all ODP to be provided by each supplier from whom Owner elected to purchase material directly, plus all sales taxes associated with such materials in Contractor's bid to Owner, plus any savings to Contractor in the cost of Payment and Performance Bonds associated

with such ODP. To compensate Contractor for the warranty enforcement obligation Contractor's overhead and profit associated with ODP shall not be deducted from the Contract.

Contractor shall be fully responsible for all matters relating to the procurement of materials furnished by and incorporated into the Project in accordance with these Supplementary Conditions including, but not limited to, assuring the correct quantities, placing the order in a timely manner, and assuring coordination of purchases, providing and obtaining all warranties and guarantees required by the Project Documents, inspection and acceptance of the goods at the time of delivery. Contractor shall coordinate delivery schedules, sequence of delivery, loading orientation, and other arrangements normally required by Contractor for the particular materials furnished. Contractor shall provide all services required for the unloading, handling and storage of materials through installation.

Owner assumes the risk of loss of materials through their incorporation into the installation.

As ODP are delivered to the Jobsite, Contractor shall visually inspect all shipments form the suppliers, and sign off on the receiving reports for material delivered. Contractor shall assure that each delivery of ODP is accompanied by documentation adequate to identify the Purchase Order against which the purchase is made. This documentation may consist of a delivery ticket and an invoice from the supplier conforming to the Purchase Order together with such additional information as Owner may require. Contractor will then forward the receiving report to Owner to match up with invoice for payment.

Contractor shall insure that ODP conform to the Specifications and determine prior to incorporation into the Work if such materials are patently defective, and whether such materials are identical to the materials ordered and match the description on the bill of lading. If Contractor discovers defective or non-conformities in ODP upon such visual inspection, Contractor shall not utilize such nonconforming or defective materials in the Work and instead shall promptly notify Owner of the defective or nonconforming condition so that repair or replacement of those materials can occur without any undue delay or interruption to the Project. If Contractor fails to perform such inspection and otherwise incorporates into the work such defective or nonconforming ODP, the condition of which it either knew or should have known by performance of an inspection, Contractor shall be responsible for all damages to Owner resulting from Contractor's incorporation of such materials into the Project including liquidated or delay damages.

Contractor shall maintain records of all ODP it incorporates into the Work from the stock of ODP in its possession. Contractor shall account monthly to Owner for any ODP delivered into Contractor's possession, indicating portions of all such materials which have been incorporated into the Work.

Contractor shall be responsible for obtaining and managing all warranties and guarantees for all materials and products as required by the Project Documents. All repair, maintenance or damage-repair calls shall be forwarded to Contractor for resolution with the appropriate supplier, vendor, or subcontractor. Additionally, ODP items shall be warranted by Contractor as part of Contractor's warranty. Contractor agrees and understands that it shall undertake all warranty enforcement and other related duties of Owner for its ODP equipment and materials. To that end, Contractor expressly agrees it shall make no distinction in discharging such warranty duties between ODP equipment and materials and equipment and materials otherwise supplied by Contractor.

Notwithstanding the transfer of ODP by Owner to Contractor's possession, Owner shall retain legal and equitable title to any and all ODP.

The transfer of possession of ODP from Owner to Contractor shall constitute a bailment for the mutual benefit of Owner and Contractor. Owner shall be considered the bailor and Contractor the bailee of the ODP. ODP shall be considered returned to Owner for purposes of their bailment at such time as they are incorporated into the Project.

Owner shall purchase and maintain builder's risk insurance sufficient to protect against any loss of or damage to ODP. Such insurance shall cover the full value of any ODP not yet incorporated into the Project during the

period between the time the Owner first takes title to any of such ODP and the time when the last of such is incorporated into the Project. Contractor shall purchase and maintain builder's risk, all risk, insurance based on the completed value of Project, less the Owner's ODP values. Contractor must name Owner as additional insured on its policy.

Owner shall in no way be liable for any interruption or delay in the Project, for any defects or other problems with the Project, or for any extra costs resulting from any delay in the delivery of, or defects in, ODP. Contractor's sole or exclusive remedy shall be an extension of the Contract Time for such reasonable time as determined by Owner or its representative.

Contractor shall be required to review invoices submitted by all suppliers of ODP delivered to the project site and either concur or object to Owner's issuance of payment to the suppliers, based upon Contractor's records of materials delivered to the site and any defects detected in such materials.

In order to arrange for the prompt payment to the supplier, prompt submittal of a copy of the applicable Purchase Order as receiving report, invoices, delivery tickets, written acceptance of the delivered items, and such other documentation as may be reasonably required by Owner. Upon receipt of the appropriate documentation, Owner shall prepare a check drawn to the supplier based upon the data provided. This check will be released and remitted directly to the supplier. Contractor agrees to assist Owner to immediately obtain partial or final release of waivers as appropriate.

At the end of the Project, Contractor will be provided with a deductive Change Order for the costs incurred by Owner to provide all ODP, not covered by previous change orders. Salvage materials shall be stored or removed from the site at Owner or its representative's direction or may be turned over to Contractor by Owner for salvage or disposal at Owner's option.

SC-18 Risk of Loss

Contractor shall be responsible for risk of loss or damage in progress and all goods furnished until Final Acceptance, including any losses resulting from inclement weather or erosion.

SC-19 Component Warranties

In addition to the General Condition title "WARRANTY," Contractor shall obtain and provide, for the benefit of owner and its successors in interest, warranties or guarantees for the equipment, materials, and work furnished by suppliers and subcontractors of any tier for the period customarily provided by the supplier. Contractor shall use its best efforts to enforce such lower-tier warranties or guarantees on its own behalf or, if requested by Owner or Owner's Representative, on behalf of Owner. Contractor shall provide warranty documentation by Final Acceptance or as otherwise required by this contract.

SC-20 Procedures to Minimize Risk to Stormwater System and Environment

Contractor acknowledges GC-14 Environmental Requirements and will have no significant impact on the stormwater system or environment while completing the Work.

SC-21 Miscellaneous Federal Provisions

The work performed under this Contract shall be governed by the following Federal provisions, statutes, and regulations:

Disadvantaged Business Enterprise – 49 CFR Part 26: Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contract. In accordance with 49 CFR Part 26.45, the sponsor shall establish a contract goal of participation for small business concerns owned and controlled by certified socially and economically disadvantaged enterprise (DBE). Contractor shall make and document good faith efforts, as defined in Appendix A of 19 CFR Part 26, to meet his established goal.

Davis-Bacon Act, as amended – 29 CFR Part 5: Contractor is required to comply with wage and labor provisions and to pay minimum wages in accordance with the current schedule of wage rates established by the United States Department of Labor.

Debarment, Suspension, Ineligibility and Voluntary Exclusion – 49 CFT Part 29: Contractor certifies, by submission of a proposal or acceptance of a contract, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. Individuals or companies listed in the General Services Administration's "Excluded Parties Listing System" will not be considered for award of contract.

Certification Regarding Debarment and Suspension (Non-Procurement) – Title 2 CFR Part 180 & Title 2 CFR Part 1200: This Agreement is a "covered transaction" as defined by Title 2 CFR Part 180. Contractor has agreed that at the time it submitted its proposal and throughout the duration of this Agreement that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction. Contractor further agrees to comply with Title 2 CFR Part 1200 and Title 2 CFR Part 180, Subpart C by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction".

Certification Regarding Debarment and Suspension (Non-Procurement) – Title 2 CFR Part 1200 and Title 2 CFR Part 180, Subpart C: Contractor 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. Contractor shall accomplish this by:

i. Checking the System for Award Management at website: http://www.sam.gov
ii. Collecting a certification statement similar to paragraph a.
iii. Inserting a clause or condition in the covered transaction with the lower tier contract

If the FAA later determines that an individual failed to tell a higher tier that they were excluded or disqualified at the time they entered the covered transaction with that person, the FAA may pursue any available remedy, including suspension and debarment

Foreign Trade Restrictions – 49 CFR Part 30: Contractor and its subcontractors shall not be owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms published by the Office of the United States Representative (USTR)' shall not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list; and shall not procure any product nor subcontract for the supply of any product for use on the project that is produced in a foreign country on said list.

Buy American Certificate – Aviation Safety and Capacity Act of 1990: This contract is subject to the "Buy American Preferences" of the Aviation Safety and Capacity Act of 1990.

SC-22 Certifications

Contractor shall execute, in the presence of a Notary Public (where required), and return the certifications noted below:

1. Bid Affidavit
2. Non-Collusion Affidavit
3. Sworn Statement under Section 287.133(3)(A), Florida Statutes, On Public Entity Crimes
4. DBE Certificate of Compliance Affidavit
5. Davis Bacon Certification
6. Drug Free Workplace Certification
7. Certification of Non-Segregated Facilities

8. Buy American Certification
9. Trench Safety Act Certification under Chapter 553, Florida Statutes

SC-23 Clean Air and Water Pollution Control

Contractors and subcontractors agree:

a. That any facility to be used in the performance of the contract or subcontract or to benefit from the contract is not listed on the Environmental Protection Agency (EPA) List of Violating Facilities;

b. To comply with all the requirements of Section 114 of the Clean Air Act, as amended, 42 U.S.C. 1857 et seq. and Section 308 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq. relating to inspection, monitoring, entry, reports, and information, as well as all other requirements specified in Section 114 and Section 308 of the Acts, respectively, and all other regulations and guidelines issued thereunder;

c. That, as a condition for the award of this contract, the contractor or subcontractor will notify the awarding official of the receipt of any communication from the EPA indicating that a facility to be used for the performance of or benefit from the contract is under consideration to be listed on the EPA List of Violating Facilities;

d. To include or cause to be included in any construction contract or subcontract which exceeds $ 100,000 the aforementioned criteria and requirements.

SC-24 Airport and Airway Improvement Act of 1982, Section 520 - General Civil Rights Provisions

The contractor assures that it will comply with pertinent statutes, Executive orders and such rules as are promulgated to assure that no person shall, on the grounds of race, creed, color, national origin, sex, age, or handicap be excluded from participating in any activity conducted with or benefiting from Federal assistance. This provision obligates the tenant/concessionaire/lessee or its transferee for the period during which Federal assistance is extended to the airport a program, except where Federal assistance is to provide, or is in the form of personal property or real property or interest therein or structures or improvements thereon. In these cases, the provision obligates the party or any transferee for the longer of the following pe39riods:

(a) The period during which the property is used by the airport sponsor or any transferee for a purpose for which Federal assistance is extended, or for another purpose involving the provision of similar services or benefits or

(b) The period during which the airport sponsor or any transferee retains ownership or possession of the property. In the case of contractors, this provision binds the contractors from the bid solicitation period through the completion of the contract. This provision is in addition to that required of Title VI of the Civil Rights Act of 1964.

SC-25 Lobbying and Influencing Federal Employees

(1) No Federal appropriated funds shall be paid, by or on behalf of the contractor, 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 the making of any Federal grant and the amendment or modification of any Federal grant.

(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 any Federal grant, the contractor shall complete and submit Standard Form-LLL, "Disclosure of Lobby Activities," in accordance with its instructions.

SC-26 Energy Conservation Requirements

The contractor agrees to comply with mandatory standards and policies relating to energy efficiency that are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

SC-27 Rights to Inventions

All rights to inventions and materials generated under this contract are subject to regulations issued by the FAA and the Sponsor of the Federal grant under which this contract is executed.

SC-28 Trade Restriction Clause

The contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

a. 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 published by the Office of the United States Trade Representative (USTR);
b. 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 on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;
c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

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 a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

The contractor shall provide immediate written notice to the sponsor if the contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The subcontractor agrees to provide written notice to the contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

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

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.

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, United States Code, Section 1001.

SC-29 Web-Based Project Information Management

The Contractor shall work with the Owner's web-based project information management system as directed. The project documentation requirements are described in Appendix A – Section 01322, Web-Based Project Information Management.

END OF SPECIAL CONDITIONS

SC-28 Trade Restriction Clause

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a. 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 published by the Office of the United States Trade Representative (USTR);

b. 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 on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;

c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

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 a contractor or subcontractor who is unable to certify to the above. If the contractor knowingly procures or subcontracts for the supply of any product or service of a foreign country on said list for use on the project, the Federal Aviation Administration may direct through the Sponsor cancellation of the contract at no cost to the Government.

Further, the contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in each contract and in all lower tier subcontracts. The contractor may rely on the certification of a prospective subcontractor unless it has knowledge that the certification is erroneous.

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END OF SPECIAL CONDITIONS

GENERAL PROVISIONS

GENERAL PROVISIONS

ARTICLE 1 – DEFINITIONS

Wherever used in these General Provisions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

1.1 **AASHTO** – The American Association of State Highway and Transportation Officials, the successor association AASHO.

1.2 **ACCESS ROAD** – The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public highway.

1.3 **Addenda** – Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the Bidding Requirements or the Contract Documents.

1.4 **ADVERTISEMENT** – A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.

1.5 **Agreement** – The written contract between Owner and Contractor covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

1.6 **AIP** – The Airport Improvement Program, a grant-in-aid program, administered by the Federal Aviation Administration.

1.7 **AIR OPERATIONS AREA** – For the purpose of these specifications, the term air operations area 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.

1.8 **AIRPORT** – Airport means the area of land or water which is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

1.9 **Application for Payment** – The form accepted by Engineer which is to be used by Contractor in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

1.10 **Asbestos** – Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

1.11 **ASTM** – The American Society for Testing and Materials.

1.12 **AWARD** – The acceptance, by the Owner, of the successful bidder's proposal.

1.13. **Bid** – The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

1.14 **BIDDER** – Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

1.15 **Bidding Documents** – The advertisement or invitation to Bid, instructions to bidders, the Bid form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

1.16 **Bidding Requirements** – The advertisement or invitation to Bid, instructions to bidders, and the Bid form.

1.17 **BUILDING AREA** – An area on the airport to be used, considered, or intended to be used for airport buildings, or other facilities or rights-of-way together with all airport buildings and facilities located thereon.

1.18 **Bonds** – Performance and Payment bonds and other instruments of security.

1.19 **CALENDAR DAY** – Every day shown on the calendar.

1.20 **CERTIFICATES OF COMPLIANCES** – Written statements by the manufacturer stating the material furnished is in conformance with the Specifications.

1.21 **Change Order** – A document recommended by Engineer, which is signed by Contractor and Owner and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement. The work covered by a change order shall be within the scope of the contract.

1.22 **Contract Documents** – The Agreement, Addenda (which pertain to the Contract Documents), Contractor's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Provisions, the Supplementary and Special Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders and Engineer's written interpretations and clarifications issued pursuant to paragraphs 3.5, 3.6.1, and 3.6.3 on or after the Effective Date of the Agreement. Shop Drawing submittals approved pursuant to paragraphs 6.26 and 6.27 and the reports and drawings referred to in paragraphs 4.2.1.1 and 4.2.2.2 are not Contract Documents.

1.23 **Contract Price** – The money payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

1.24 **Contract Times** – The numbers of days or the dates stated in the Agreement: (i) to achieve Substantial Completion, and (ii) to complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment in accordance with paragraph 14.13.

1.24 **CONTRACT ITEM (PAY ITEM)** – A specific unit of work for which a price is provided in the Contract.

1.25 **Contractor** – The person, firm or corporation with whom Owner has entered into the Agreement.

1.26 **Defective** – An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, in that it does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with paragraph 14.8 or 14.10).

1.27 **DRAINAGE SYSTEM** – The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.

1.28 **Drawings** – The drawings which show the scope, extent, and character of the Work to be furnished and performed by Contractor and which have been prepared or approved by Engineer and are referred to in the Contract Documents. Shop drawings are not Drawings as so defined.

1.29 **Effective Date of the Agreement** – The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

1.30 **Engineer** – The person, firm, or corporation named as such in the Agreement.

1.31 **Engineer's Consultant** – A person, firm, or corporation having a contract with Engineer to furnish services as Engineer's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions. The following list of independent professional associates and consultants are considered the Engineer's consultant for this Construction Contract: AVCON, Inc.

1.32 **EQUIPMENT** – All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

1.33 **EXTRA WORK** – An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which if found by the Engineer to be necessary to complete the work within the intended scope of the contract as previously modified.

1.34 **FAA** – The Federal Aviation Administration of the U.S. Department of Transportation. When used to designate a person, FAA shall mean the Administrator or his duly authorized representative.

1.35 **FEDERAL SPECIFICATIONS** – The Federal Specifications and Standards, and supplements, amendments, and indices thereto are prepared and issued by the General Services Administration of the Federal Government. They may be obtained from the Specifications Activity, Printed Materials Supply Division, Building 197, Naval Weapons Plant, Washington, D.C. 20407.

1.36 **Field Order** – A written order issued by Engineer which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Times.

1.37 **General Requirements** – Sections of Division 1 of the Specifications.

1.38 **Hazardous Waste** – The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

1.39 **INSPECTOR** – An authorized representative of the Engineer assigned to make all necessary inspections and/or tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

1.40 **INTENTION OF TERMS** – Whenever, in these specifications or on the plans, the words, "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of the like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer 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, subject in each case to the final determination of the Owner.

1.41 **LABORATORY** – The official testing laboratories of the Owner or such other laboratories as may be designated by the Engineer.

1.42 **Laws and Regulations; Laws or Regulations** – Any and all applicable laws, rules, regulations, ordinances, codes and orders of any and all governmental bodies, agencies, authorities and courts having jurisdiction.

1.43 **Liens** – Liens, charges, security interests, or encumbrances upon real property or personal property.

1.44 **LIGHTING** – 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.

1.45 **MAJOR AND MINOR CONTRACT ITEMS** – 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 25 percent of the total amount of the award contract. All other items shall be considered minor contract items.

1.46 **MATERIALS** – Any substance specified for use in the construction of the Contract work.

1.47 **MIL SPECIFICATIONS** – The Military Specifications and Standard, and indices thereto, that are prepared and issued by the Department of Defense.

1.48 **Milestone** – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

1.49 **Notice of Award** – The written notice by Owner to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, Owner will sign and deliver the Agreement.

1.50 **Notice to Proceed** – A written notice given by Owner to Contractor (with a copy to Engineer) fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform Contractor's obligations under the Contract Documents.

1.51 **FDOT** – The Florida State Department of Transportation. When used to designate a person, FDOT shall mean the commissioner or his duly authorized representative.

1.52 **Owner** – The public body or authority, corporation, association, firm, or person with whom Contractor has entered into the Agreement and for whom the Work is to be provided.

1.53 **Partial Utilization** – Use by Owner of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

1.54 **PAVEMENT** – The combined surface course, base course, and subbase course, if any, considered as a single unit.

1.55 **PAYMENT BOND** – The approved form of security furnished by the Contractor and his/her surety as a guaranty that he will pay in full all bills and accounts for materials and labor used in the construction of the work.

1.56 **PCBs** – Polychlorinated biphenyls.

1.57 **PERFORMANCE BOND** – The approved form of security furnished by the Contractor and his/her surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.

1.58 **Petroleum** – Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Wastes and crude oils.

1.59 **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.

1.60 **Project** – The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

1.61 **PROPOSAL** – (See Bid).

1.62 **Radioactive Material** – Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

1.63 **Resident Project Representative** - The authorized representative of Engineer who may be assigned to the site or any part thereof.

1.64 **RUNWAY** – The area on the airport prepared for the landing and takeoff of aircraft.

1.65 **Samples** – Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

1.66 **Shop Drawings** – All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

1.67 **SPECIAL PROVISIONS** – The specific clauses setting forth conditions or requirements peculiar to the project under consideration, covering work or materials involved in the proposal and estimate, which are not thoroughly or satisfactorily stipulated in these specifications.

1.68 **Specifications** – Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

1.69 **SPONSOR** – For AIP Contracts, the term Sponsor shall have the meaning as the term Owner.

1.70 **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; flexible and rigid pavements; navigational aids; buildings; vaults; and other manmade features of the airport that may be encountered in the work and not otherwise classified herein.

1.71 **Subcontractor** – An individual, firm, or corporation having a direct contract with Contractor or with any other Subcontractor for performance of a part of the Work at the site.

1.72 **SUBGRADE** – The soil which forms the pavement foundation.

1.73 **SUPERINTENDENT** – The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instruction from the Engineer, and who shall supervise and direct the construction.

1.74 **Substantial Completion** – The Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer as evidenced by Engineer's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if no such certificate is issued, when the Work is complete and ready for final payment as evidenced by Engineer's written recommendation of final payment in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

1.75 **SUPPLEMENTAL AGREEMENT** – A written agreement between the Contractor and the Owner covering: (1) work that would increase or decrease the total amount of the awarded contract, or any major contract item, by more than 25 percent, such increased or decreased work being within the scope of the originally awarded contract; or (2) work that is not within the scope of the originally awarded contract.

1.76 **Supplementary Conditions** – The part of the Contract Documents which amends or supplements these General Provisions.

1.77 **Supplier** – A manufacturer, fabricator, supplier, distributor, materialman, or vendor having direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

1.78 **SURETY** – The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds which are furnished to the Owner by the Contractor.

1.79 **TAXIWAY** – For the purpose of this document, the term taxiway means 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 or aircraft parking areas.

1.80 **Underground Facilities** – All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone, or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

1.81 **Unit Price Work** – Work to be paid for on the basis of unit prices.

1.82 **Work** – The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishings and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

1.83 **Work Change Directive** - A written directive to Contractor, issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.23. A Work Change Directive will not change the Contract Price or the Contract Times, but is evidence that the parties expect that the change directed or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times as provided in paragraph 10.2.

1.84 **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 6 hours toward completion of the Contract. Unless work is suspended for causes beyond the Contractor's control, Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work, requiring the presence of an inspector, will be considered as working days.

1.85 **WORK PERIOD** – A work period shall consist of any designated block of time on which the normal working forces of the Contractor may proceed with regular work for at least 5 hours toward completion of the contract. Unless work is suspended for causes beyond the Contractor's control, work occurring on any day, regardless of it being a weekend or holiday, which requires an Inspector, will be considered a work period. Work periods are limited to between 7:00 a.m. and 5:00 p.m. local time Monday through Friday. Weekend work will not be permitted unless contractor obtains written permission from Owner.

1.86 **Written Amendment** – A written amendment of the Contract Documents, signed by Owner and Contractor on or after the Effective Date of the Agreement and normally dealing with the non-engineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

ARTICLE 2 – PRELIMINARY MATTERS

Delivery of Bonds:

2.1. When Contractor delivers the executed Agreements to Owner, Contractor shall also deliver to Owner such Bonds as Contractor may be required to furnish in accordance with paragraph 5.1.

Copies of Documents:

2.2. Owner shall furnish to Contractor up to five copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

Commencement of Contract Times; Notice to Proceed:

2.3. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement, or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within thirty days after the Effective Date of the Agreement. In no event will the Contract Time commence to run later than the *one hundred twentieth (120th)* day after the day of Bid opening or the *ninetieth (90th)* day after the Effective Date of the Agreement, whichever date is earlier.

Starting the Work:

2.4. Contractor shall start to perform the Work on the date when the Contract Times commence to run, but no Work shall be done at the site prior to the date on which the Contract Times commence to run.

Before Starting Construction:

2.5. Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby; however, Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity or discrepancy in the Contract Documents, unless Contractor knew or reasonably should have known thereof.

2.6. Within ten days after the Construction Notice to Proceed contractor shall submit to Engineer for review:

2.6.1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2.6.2. a preliminary schedule of Shop Drawings and Sample submittals which will list each required submittal and the times for submitting, reviewing and processing such submittal;

2.6.3. a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include and appropriate amount of overhead and profit applicable to each item of Work.

2.7. Before any Work at the site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with paragraphs 5.4, 5.6, and 5.7.

Preconstruction Conference:
2.8. Before any Work at the site is started, a conference attended by Contractor, Engineer and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.6, procedures for handling Shop Drawings, and other submittals, processing Applications for Payment and maintaining required records.

Initially Acceptable Schedules:
2.9. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with paragraph 2.6. Contractor shall have an additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until the schedules are submitted to and acceptable to Engineer as provided below. The progress schedule will be acceptable to Engineer as providing an orderly progression of the Work to completion within any specified Milestones and the Contract Times, but such acceptance will neither impose on Engineer responsibility for the sequencing, scheduling, or progress of Work nor interfere with or relieve Contractor from Contractor's full responsibility therefore, Contractor's schedule of Shop Drawing and Sample submissions will be acceptable to Engineer as providing a workable arrangement for reviewing and processing the required submittals. Contractor's schedule of values will be acceptable to Engineer as to form and substance.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

Intent:
3.1. The Contract Documents comprise the entire agreement between Owner and Contractor concerning the Work. The Contract Documents are complementary: what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be furnished and performed whether or not specifically called for. When words or phrases, which have a well-known technical or construction industry or trade meaning are used to describe Work, materials, or equipment, such words or phrases shall be interpreted in accordance with the meaning. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in paragraph 9.4.

3.3. **Reference to Standards and Specifications of Technical Societies: Reporting and Resolving Discrepancies:**

3.3.1. Reference to standards, specifications, manuals or codes of any technical society, organization, or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard, specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

3.3.2. If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any such Law or Regulation applicable to the performance of the Work or of any such standard, specification, manual, or code or of any instruction of any Supplier referred to in paragraph 6.5., Contractor shall report it to Engineer in writing at once, and, Contractor shall not proceed with the Work affected thereby (except in an emergency as authorized by paragraph 6.23) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.5 or 3.6; provide, however, that Contractor shall not be liable to Owner or Engineer for failure to report any such conflict, error, ambiguity or discrepancy unless Contractor knew or reasonably should have known thereof.

3.3.3. Except as otherwise specifically stated in the Contract Documents or as may be provided by amendment or supplement thereto issued by one of the methods indicated in paragraph 3.5 or 3.6, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

3.3.3.1. the provisions of any such standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents): or

3.3.3.2. the provisions of any such Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

No provision of any such standard, specification, manual, code, or instruction shall be effective to change the duties and responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Owner, Engineer, or any of Engineer's Consultants, agents, or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of paragraph 9.13 or any other provision of the Contract Documents.

3.3.4. Whenever the plans or specifications are in conflict, resolution of such conflict shall be in the following order of precedence subject to agreement by Engineer:

Contract Agreement
Addenda, with those of later date having precedence over those of earlier dates
Bidding Documents
Supplementary Conditions
General Provisions
Construction Drawings

Technical Specifications
General Provisions
Florida DOT Standard Specifications

In case of our inconsistency within the Contract Drawings, the order of procedure is as follows:
Schedules
Specific Details
Typical Details
Construction Drawings

3.4. Whenever in the Contract Documents the terms "as ordered," "as directed," "as required," "as allowed," "as approved" or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of Engineer as to the Work, it is intended that such requirement, direction, review, or judgment will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Engineer any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.13 or any other provision of the Contract Documents.

Amending and Supplementing Contract Documents:

3.5. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways:

3.5.1. a formal Written Amendment.

3.5.2. a Change Order (pursuant to paragraph 10.4) or

3.5.3. a Work Change Directive (pursuant to paragraph 10.1).

3.6. In addition, the requirements of the Contract Documents may be supplemented, and minor variations, and deviations of the Work may be authorized, in one or more of the following ways:

3.6.1. a Field Order (pursuant to paragraph 9.5).

3.6.2. Engineer's approval of a Shop Drawing or Sample (pursuant to paragraphs 6.26 and 6.27), or

3.6.3. Engineer's written interpretation or clarification (pursuant to paragraph 9.4).

Reuse of Documents:
3.7. Contractor and any Subcontractor or Suppler or other person or organization performing or furnishing any of the Work under a direct or indirect contract with Owner (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's Consultant, and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies on extensions of the Project or any other

project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

ARTICLE 4 – AVAILABILITY OF LANDS: SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

Availability of Lands:
4.1.Owner shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of Contractor. Upon reasonable written request, Owner shall furnish Contractor with a correct statement of record legal title and legal description of the lands upon which the Work it to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's lien against such lands in accordance with applicable Laws and Regulations. Owner shall identify any encumbrances or restrictions not of general application but specifically related to use of lands so furnished with which Contractor will have to comply in performing the Work. Easements for permanent structures or permanent in existing facilities will be obtained and paid for by Owner, unless otherwise provided in the Contract Documents. If Contractor and Owner are unable to agree on entitlement to or the amount or extent of any adjustments in the Contract Price or the Contract Times as a result of any delay in Owner's furnishing these lands, rights-of-way or easements. Contractor may make a claim therefore as provided in Articles 11 and 12. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2. SubSurface and Physical Conditions:

4.2.1. **Reports and Drawings:** Reference is made to the *Information Available to Bidders* for identification of:

4.2.1.1. **Subsurface Conditions:** Those reports of explorations and tests of subsurface conditions at or contiguous to the site that have been utilized by Engineer in preparing the Contract Documents; and

4.2.1.2. **Physical Conditions:** Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) that have been utilized by Engineer in preparing the Contract Documents.

4.2.2. **Limited Reliance by Contractor Authorized; Technical Data:** Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the *Information Available to Bidders*. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner, Engineer, or any of Engineer's Consultants with respect to:

4.2.2.1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto, or

4.2.2.2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings, or

4.2.2.3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such data, interpretations, opinions, or information.

4.2.3. **Notice of Differing Subsurface or Physical Conditions:** If Contractor believes that any subsurface or physical condition at or contiguous to the site that is uncovered or revealed either:

4.2.3.1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is materially inaccurate, or

4.2.3.2. is of such a nature as to require a change in the Contract Documents, or

4.2.3.3. differs materially from that shown or indicated in the Contract Documents, or

4.2.3.4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.23), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such conditions or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

4.2.4. **Engineer's Review:** Engineer will promptly review the pertinent conditions, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

4.2.5. **Possible Contract Documents Change:** If Engineer concludes that a change in the Contract Documents is required as a result of a condition that meets one or more of the categories in paragraph 4.2.3., a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of such change.

4.2.6. **Possible Price and Times Adjustments:** An equitable adjustment in the Contract Price or in the Contract Times, or both, will be allowed to the extent that the existence of such uncovered or revealed condition causes an increase or decrease in Contractor's cost of, or time required for performance of the Work; subject, however, to the following:

4.2.6.1. such condition must meet any one or more of the categories described in paragraphs 4.2.3.1 through 4.2.3.4. inclusive;

4.2.6.2. a change in the Contract Documents pursuant to paragraph 4.2.5 will not be an automatic authorization of nor a condition precedent to entitlement to any such adjustment:

4.2.6.3. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract price will be subject to the provisions of paragraphs 9.10 and 11.9; and

4.2.6.4. Contractor shall not be entitled to any adjustment in the Contract Price or Times if;

4.2.6.4.1. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner in respect of Contract Price and Contract Times by the submission of a bid or becoming bound under a contract: or

4.2.6.4.2. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

4.2.6.4.3. Contractor failed to give the written notice within the time and as required by paragraph 4.2.3.

If Owner and Contractor are unable to agree on entitlement to or as to the amount or length of any such equitable adjustment in the Contract Price or Contract Times, a claim may be made therefore as provided in Articles 11 and 12. However, Owner, Engineer, and Engineer's Consultants shall not be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

4.3. Physical Conditions – Underground Facilities:

4.3.1. **Shown or Indicated:** The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the *Information Available to Bidders*:

4.3.1.1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

4.3.1.2. The cost of all of the following will be included in the Contract Price and Contractor shall have full responsibility for: (i) reviewing and checking all such information and data, (ii) locating all Underground Facilities shown or indicated in the Contract Documents, (iii) coordination of the Work with the owners of such Underground Facilities during construction, and (iv) the safety and protection of all such Underground Facilities as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work.

4.3.2. **Not Shown or Indicated:** If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents. Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.23), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence of the Underground Facility. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued as provided in Article 10 to reflect and document such consequences. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or the amount or length of any such adjustment in Contract Price or Contract Times, Contractor may make a claim, therefore, as provided in Articles 11 and 12. However, Owner, Engineer, and Engineer's Consultants shall not be liable

to Contractor for any claims, costs, losses or damages incurred or sustained by Contractor on or in connection with any other project or anticipated project.

Reference Points:

4.4. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of Owner, Contractor shall report to Engineer whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by professionally qualified personnel.

4.5. Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material:

4.5.1. Owner shall be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. Owner shall not be responsible for any such materials brought to the site by Contractor, Subcontractor, Suppliers, or anyone else for whom Contractor is responsible.

4.5.2. Contractor shall immediately: (i) stop all Work in connection with such hazardous condition and in any area affected thereby (except in an emergency as required by paragraph 6.23), and (ii) notify Owner and Engineer (and thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such hazardous condition to take corrective action, if any. Contractor shall not be required to resume Work in connection with such hazardous condition or in any such affected area until after Owner has obtained any required permits related thereto and delivered to Contractor special written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of such Work stoppage or such special conditions under which Work is agreed by Contractor to be resumed, either party may make a claim therefore as provided in Articles 11 and 12.

4.5.3. If after receipt of such special written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order such portion of the Work that is in connection with such hazardous condition or in such affected area to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a claim therefore as provided in Articles 11 and 12. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

4.5.4. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, Engineer, Engineer's Consultants and the officers, directors, employees, agents, other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages arising out of or resulting from such hazardous condition, provided that: (i) any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or

destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) nothing in this subparagraph 4.5.4. shall obligate Owner to indemnify any person or entity from and against the consequences of that person's or entity's own negligence.

4.5.5. The provisions of paragraphs 4.2 and 4.3 are not intended to apply to Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site.

ARTICLE 5 – BONDS AND INSURANCE

Performance, Payment, and Other Bonds:

5.1. Contractor shall furnish Performance and Payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff. Bureau of Government Financial Operations, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

5.2. If the surety on any Bond furnished by Contractor is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1. Contractor shall within ten days thereafter substitute another bond and surety, both of which must be acceptable to Owner.

5.3. Licensed Sureties and Insurers; Certificates of Insurance:

5.3.1. All Bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.3.2. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain in accordance with paragraph 5.4.

Contractor's Liability Insurance:

5.4. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance and furnishing of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed or furnished by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

5.4.1. claims under workers' compensation, disability benefits and other similar employee benefit acts;

5.4.2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

5.4.3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

5.4.4. claims for damages insured by customary personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or by any other person for any other reason;

5.4.5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

5.4.6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The policies of insurance so required by this paragraph 5.4 to be purchased and maintained shall:

5.4.7. with respect to insurance required by paragraphs 5.4.3 through 5.4.6 inclusive, include as additional insureds Owner, Engineer, Engineer's Consultants and any other persons or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers and employees of all such additional insureds;

5.4.8. include the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

5.4.9 *be provided in not less than the amounts established in the Insurance Requirements section of the bidding documents (pages INS-1 to INS-3);*

5.4.10. include contractual liability insurance covering Contractor's indemnity obligations under paragraphs 6.12, 6.16, and 6.31 through 6.33;

5.4.11. contain a provision or endorsement that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to paragraph 5.3.2 will so provide);

5.4.12. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing or replacing **defective** Work in accordance with paragraph 13.12; and

5.4.13. with respect to completed operations insurance, and any insurance coverage written on an occurrence basis, remain in effect for at least two years after final payment (and Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter).

Owner's Liability Insurance:

5.5. In addition to the insurance required to be provided by Contractor under paragraph 5.4, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents. Any liability insurance carried by Owner is excess and non-contributory to any and all other coverage whether collectable or not.

Property Insurance:

5.6 Contractor shall purchase and maintain property insurance upon the Work at the site in amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by Laws and Regulations). This insurance shall:

5.6.1 include the interests of Owner, Contractor, Subcontractors, Engineer, Engineer's Consultants and any other persons or entities identified in the Supplementary Conditions each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

5.6.2 include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

5.6.3 Cover materials and equipment in transit for incorporation in the Work or stored at the site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer; and

5.6.4 be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with thirty days written notice to each other additional insured to whom a certificate of insurance has been issued.

5.7. NOT USED

5.8. NOT USED

5.9. Owner shall not be responsible for purchasing and maintaining any property insurance to protect the interests of Contractor, Subcontractors or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount, will be borne by Contractor, Subcontractor, or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.10. NOT USED

5.11. NOT USED

Receipt and Application of Insurance Proceeds:

5.12. Any insureds loss under the policies of insurance required by paragraphs 5.6 and 5.7 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may

appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.13. Owner shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

5.13. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

Acceptance of Bonds and Insurance; Option to Replace:

5.14. If either party (Owner or Contractor) has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within ten days after receipt of the certificates (or other evidence requested) required by paragraph 2.7. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

Partial Utilization – Property Insurance:

5.15. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be cancelled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

Supervision and Superintendence:

6.1. Contractor shall supervise, inspect and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but Contractor shall not be responsible for the negligence of others in the design or specification of a specific means, method, technique, sequence or procedure of construction which is shown or indicated in and expressly required by the Contract

Documents. Contractor shall be responsible to see that the completed Work complies accurately with the Contract Documents.

6.2. Contractor shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to Owner and Engineer except under extraordinary circum- stances. The superintendent will be Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications to the superintendent shall be as binding as if given to CONTRACTOR.

Labor, Materials and Equipment:

6.3. Contractor shall provide competent, suitably qualified personnel to survey, lay out and construct the Work as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the site. Except as otherwise required for the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours and Contractor will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without Owner's written consent given after prior written notice to Engineer.

6.4. Unless otherwise specified in the General Requirements, Contractor shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

6.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

Progress Schedule:

6.6. Contractor shall adhere to the progress schedule established in accordance with paragraph 2.9 as it may be adjusted from time to time as provided below:

6.6.1. Contractor shall submit to Engineer for acceptance (to the extent indicated in paragraph 2.9) proposed adjustments in the progress schedule that will not change the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

6.6.2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of paragraph 12.1. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.7. Substitutes and "Or-Equal" Items:

6.7.1. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be accepted by Engineer under the following circumstances:

6.7.1.1. "Or-Equal": If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for acceptance of proposed substitute items.

6.7.1.2. Substitute Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under subparagraph 6.7.1.1, it will be considered a proposed substitute item. Contractor shall submit sufficient information as provided below to allow 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 as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor. If Contractor wishes to furnish or use a substitute item of material or equipment, Contractor shall first make written application to Engineer for acceptance thereof, certifying that the proposed 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 proposed substitute will prejudice Contractor's achievement of Substantial 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 in the provisions of any other direct contract with Owner for work on the Project) to adapt the design to the proposed 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. All variations of the proposed 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 Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish additional data about the proposed substitute.

6.7.1.3. Contractor's Expense: All data to be provided by Contractor in support of any proposed "or-equal" or substitute item will be at Contractor's expense.

6.7.2. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence or procedure of construction is shown or indicated in an expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence or procedure of construction acceptable to Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by Engineer will be similar to that provided in subparagraph 6.7.1.2.

6.7.3. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.7.1.2 and 6.7.2. Engineer will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized without Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any "or-equal" or substitute. Engineer will record time required by Engineer and Engineer's Consultants in evaluating substitutes proposed or submitted by Contractor pursuant to paragraphs 6.7.1.2 and 6.7.2 and in making changes in the Contract Documents (or in the provisions of any other direct contract with Owner for work on the Project) occasioned thereby. Whether or not Engineer accepts a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the changes of Engineer and Engineer's Consultants for evaluating each such proposed substitute item.

6.8. Concerning Subcontractors, Suppliers and Others:

The Contractor shall submit a list of Subcontractors and major Material Suppliers for the Owner's approval within (24) hours after Bid Opening. Such list shall be accompanied by an experience statement with pertinent information as to similar projects and other evidence of qualifications from each such Subcontractor, person and organization requested by Owner. If Owner, after due investigation has reasonable objections to any proposed Subcontractor, other person or organization, the Owner may before giving the Notice of Award request the apparent successful Bidder to submit an acceptable Subcontractor without an increase in Bid Price. If the apparent successful Bidder declines to make any such substitution, the Contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any Subcontractor, other person or organization so listed and to whom Owner does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner.

6.8.1. Contractor shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to Owner and Engineer as indicated in paragraph 6.8.2), whether initially or as a substitute, against whom Owner or Engineer may have reasonable objection. Contractor shall not be required to employ any subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom Contractor has reasonable objection.

6.8.2. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials or equipment) to be submitted to Owner in advance of the specified date prior to the Effective Date of the Agreement for acceptance by Owner and Engineer, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's or Engineer's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case Contractor shall submit an acceptable substitute, the Contract Price will be adjusted by the difference in the cost occasioned by such substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by Owner or Engineer of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of Owner or Engineer to reject **defective** Work.

6.9.1. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other person or organization any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

6.9.2. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor. Contractor shall require all Subcontractors, Suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with the Engineer through Contractor.

6.10. The divisions and sections of the Specifications and the identifications of any drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

6.11. All Work performed by Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.6. or 5.7. the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, Engineer's Consultants and all other additional insureds for all losses and damages caused by, arising out of or resulting from any of the perils covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

Patent Fees and Royalties:

6.12. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Engineer, Engineer's Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product or device not specified in the Contract Documents.

Permits:

6.13. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Contractor shall pay all charges of utility owners for connections to the Work, and Owner shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

6.14 Laws and Regulations:

6.14.1. Contractor shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

6.14.2. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses and damages caused by, arising out of or resulting therefrom: however, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor or Contractor's obligations under paragraph 3.3.2.

Taxes:

6.15. Contractor shall pay all sales, consumer, use and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

Use of Premises:

6.16. Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the site and land and areas identified in and permitted by the Contract Documents, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law. Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner, Engineer, Engineer's Consultant and anyone directly or indirectly employed by any of them from and against all claims costs, losses and damages arising out of or resulting from any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

6.17. During the progress of the Work, Contractor shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials. Contractor shall leave

the site clean and ready for occupancy by Owner at Substantial Completion of the Work. Contractor shall restore to original condition all property not designated for alteration by the Contract Documents.

6.18. Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

Record Documents:

6.19. Contractor shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples and Shop Drawings will be delivered to Engineer for Owner.

Safety and Protection:

6.20. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.20.1. all persons on the Work site or who may be affected by the Work;

6.20.2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3. other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

Contractor shall comply with all applicable Laws and Regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury of loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2. or 6.20.3. caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or Engineer's Consultant or anyone employed by any of them or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier or other person or organization directly or indirectly employed by any of them). Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with paragraph 14.13. that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

Safety Representative:

6.21. Contractor shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

Hazard Communication Programs:

6.22. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the site in accordance with Laws or Regulations.

Emergencies:

6.23. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, Contractor, without special instruction or authorization from Owner or Engineer, is obligated to act to prevent threatened damage, injury or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued to document the consequences of such action.

6.24. Shop Drawings and Samples:

6.24.1. Contractor shall submit Shop Drawings to Engineer for review and approval in accordance with the accepted schedule of Shop Drawings and Sample submittals (see paragraph 2.9.). All submittals will be identified as Engineer may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to shown Engineer the materials and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by paragraph 6.26.

6.24.2. Contractor shall also submit Samples to Engineer for review and approval in accordance with said accepted schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended and otherwise as Engineer may require to enable Engineer to review the submittal for the limited purposes required by paragraph 6.26. The numbers of each Sample to be submitted will be as specified in the Specifications.

6.25. Submittal Procedures:

6.25.1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

6.25.1.1 all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto,

6.25.1.2. all materials with respect to intended use, fabrication, shipping, handling storage, assembly and installation pertaining to the performance of the Work, and

6.25.1.3. all information relative to Contractor's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.

Contractor shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

6.25.2 Each submittal will bear a stamp or specific written indication that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

6.25.3. At the time of each submission, Contractor shall give Engineer specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to Engineer for review and approval of each such variation.

6.26. Engineer will review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals accepted by Engineer as required by paragraph 2.9. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer's review and approval will not extend to means, methods, techniques, sequences or procedures of construction (except where a particular means, method, technique, sequence or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. Contractor shall make corrections required by Engineer, and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.27. Engineer's review and approval of Shop Drawings or Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in writing called Engineer's attention to each such variation at the time of submission as required by paragraph 6.25.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying Shop Drawing or Sample approval; nor will any approval by Engineer relieve Contractor from responsibility for complying with the requirements of paragraph 6.25.1.

6.28. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submissions accepted by Engineer as required by paragraph 2.9, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

Continuing the Work:

6.29. Contractor shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as Owner and Contractor may otherwise agree in writing.

6.30. Contractor's General Warranty and Guarantee:

6.30.1. Contractor warrants and guarantees to Owner, Engineer and Engineer's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

6.30.1.1. abuse, modification or improper maintenance or operation by persons other than Contractor, Subcontractors or Suppliers; or

6.30.1.2. normal wear and tear under normal usage.

6.30.2. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

6.30.2.1. observations by Engineer;

6.30.2.2. recommendation of any progress or final payment by Engineer;

6.30.2.3. the issuance of a certificate of Substantial Completion or any payment by Owner to Contractor under the Contract Documents;

6.30.2.4. use or occupancy of the Work or any part thereof by Owner;

6.30.2.5. any acceptance by Owner or any failure to do so;

6.30.2.6. any review and approval of Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer pursuant to paragraph 14.13;

6.30.2.7. any inspection, test or approval by others; or

6.30.2.8. any correction of **defective** Work by Owner.

Indemnification:

6.31. To the fullest extent permitted by Laws and Regulations. Contractor shall indemnify and hold harmless Owner, Engineer, Engineer's Consultants and the officers, directors, employees, agents and other consultants of each and any of them from and against all claims, costs, losses and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals and all court or arbitration or other dispute resolution costs) caused by, arising out of or resulting from the performance of the Work, provided that any such claim, cost, loss or damage: (i) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) is caused in whole or in part by any negligent act or omission of Contractor, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or

anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of a person or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such person or entity.

6.32. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.31 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any such Subcontractor, Supplier or other person or organization under workers' compensation acts, disability benefit acts or other employee benefit acts.

6.33. The indemnification obligations of Contractor under paragraph 6.31 shall not extend to the liability of Engineer and Engineer's Consultants, officers, directors, employees or agents caused by the professional negligence, errors or omissions of any of them.

Survival of Obligations:

6.34. All representations, indemnifications, warranties and guarantees made in, required by or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion and acceptance of the Work and termination or completion of the Agreement.

ARTICLE 7 – OTHER WORK

Related Work at Site:

7.1. Owner may perform other work related to the Project at the site by Owner's own forces, or let other direct contracts therefore which shall contain General Provisions similar to these, or have other work performed by utility owners. If the fact that such other work is to be performed was not noted in the Contract Documents, then; (i) written notice thereof will be given to Contractor prior to starting any such other work, and (ii) Contractor may make a claim therefore as provided in Articles 11 and 12 if Contractor believes that such performance will involve additional expense to Contractor or requires additional time and the parties are unable to agree as to the amount or extent thereof.

7.2. Contractor shall afford each other contractor who is a party to such a direct contract and each utility owner (and Owner if Owner is performing the additional work with Owner's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly connect and coordinate the Work with theirs. Unless otherwise provided in the Contract Documents. Contractor shall do all cutting, fitting, and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

7.3. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7. Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure so to report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent or non-apparent defects and deficiencies in such other work.

Coordination:

7.4. If Owner contracts with others for the performance of other work on the Project at the site, the following will be set forth in Supplementary Conditions:

7.4.1. the person, firm or corporation who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified;

7.4.2. the specific matters to be covered by such authority and responsibility will be itemized: and

7.4.3. the extent of such authority and responsibilities will be provided.

Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility in respect of such coordination.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.1. Except as otherwise provided in these General Provisions, Owner shall issue all communications to Contractor through Engineer.

8.2. In case of termination of the employment of Engineer, Owner shall appoint an engineer, whose status under the Contract Documents shall be that of the former Engineer.

8.3. Owner shall furnish the data required of Owner under the Contract Documents promptly and shall make payments to Contractor promptly when they are due as provided in paragraphs 14.4 and 14.13.

8.4. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions at the site and drawings of physical conditions in existing structures at or contiguous to the site that have been utilized by Engineer in preparing the Contract Documents.

8.5. Owner's responsibilities in respect of purchasing and maintaining liability and property insurance are set forth in paragraphs 5.5 through 5.10.

8.6. Owner is obligated to execute Change Orders as indicated in paragraph 10.4.

8.7. Owner's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.

8.8. In connection with Owner's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with Owner's right to terminate services of Contractor under certain circumstances.

8.9. The Owner shall not supervise, direct or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences or procedures of construction or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the furnishing or performance of the Work. Owner will not be responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

8.10. Owner's responsibility in respect of undisclosed Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Materials uncovered or revealed at the site is set forth in paragraph 4.5.

8.11. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

Owner's Representative:

9.1. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of Owner and Engineer.

Visits to Site:

9.2. Engineer will make visits to the site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer will endeavor for the benefit of Owner to determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and on-site observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work. Engineer's visits and on-site observations are subject to all the limitations on Engineer's authority and responsibility set forth in paragraph 9.13, and particularly, but without limitation, during or as a result of Engineer's on-site visits or observations of Contractor's Work Engineer will not supervise, direct, control or have authority over or be responsible for Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the furnishing or performance of the Work.

Project Representative:

9.3. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more continuous observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.13 and in the Supplementary Conditions. If Owner designates another representative or agent to represent Owner at the site who is not Engineer's Consultant, agent or employee, the

responsibilities and authority and limitations thereon of such other person will be as provided in the Supplementary Conditions.

9.3.1 Engineer may furnish a Resident Project Representative, assistants and other field staff as needed, to assist Owner in observing performance of the Work. The Resident Project Representative is to observe and inspect, in the Owner's interest, the materials furnished and the work done as the work progresses in order to insure full and complete compliance with the contract and to verify quantities of work completed.

9.3.2 Owner may also designate one of its employees to represent Owner for these purposes.

9.3.3 Engineer, Resident Project Representative, Owner and all such other persons referred to shall have unrestricted access to all parts of the Work. Contractor shall cooperate by supplying necessary facilities and assistance required by above persons to carry out their work of observation and inspection.

9.3.4 It is not the function of the Engineer, Resident Project Representative or Owner to supervise or direct the manner in which the work to be done under this Contract is carried on or conducted. The Engineer, Resident Project Representative or Owner is not responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the work, and they will not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents. Nevertheless, Contractor agrees that any method or procedure, which in the opinion of the Engineer or Owner does not achieve the required results or quality of the work specified, shall be discontinued immediately upon the order of the Engineer.

9.3.5 All communications between Contractor and Engineer or Contractor and Owner are to be through the Owner's Project Representative (RPR).

9.3.6 Duties and Responsibilities of Resident Project Representative (RPR):

1) RPR will act as directed by and under the supervision of Engineer and/or Owner, and will confer with Engineer and Owner regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with Engineer and Contractor keeping Owner advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor.

2) Review progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with Engineer and Owner concerning acceptability.

3) Attend meetings with Contractor, such as pre-construction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

4) Serve as Engineer's and Owner's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of the Contract Documents.

5) Advise Engineer, Owner and Contractor of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by Engineer.

6) Conduct on-site observations of the Work in progress to assist Engineer and Owner in determining if the Work is in general proceeding in accordance with the Contract Documents. Report to Engineer and Owner whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer and Owner of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

7) Report to Engineer and Owner when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

8) Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to Engineer and Owner. Transmit to Contractor decisions as issued by Engineer and/or Owner.

9) Maintain orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.

10) Keep a diary or log book, recording Contractor hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or Changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer and Owner.

11) Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment.

12) Furnish Engineer and Owner periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.

13) Draft proposed Change Orders and Work Directive Changes, obtaining backup material from Contractor and recommend to Engineer and Owner Change Orders, Work Directive Changes, and Field Orders.

14) Report immediately to Engineer and Owner upon the occurrence of any accident.

15) Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

16) During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by Contractor are applicable to

the items actually installed and in accordance with the Contract Documents, and have this material delivered to Engineer for review and forwarding to Owner prior to final payment for the work.

17) Before Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.

18) Conduct final inspection in the company of Engineer, Owner and Contractor and prepare a final list of items to be completed or corrected.

19) Observe that all items on final list have been completed or corrected and make recommendations to Engineer and Owner concerning acceptance.

9.3.7 Limitations of Authority of Resident Project Representative (RPR):

1) Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by Engineer or Owner.

2) Shall not exceed limitations of Engineer's authority as set forth in the Contract Documents.

3) Shall not undertake any of the responsibilities of Contractor, subcontractors or Contractor's superintendent.

4) Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.

5) Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.

6) Shall not accept Shop Drawing or sample submittals from anyone other than Contractor.

9.3.8 The Engineer and or Owner shall have the authority to reject any work, or materials, or any part thereof, which does not in his opinion conform to the plans, drawings, specifications and contract, and it shall be permissible for him to do so at any time during the progress of the work and until its acceptance.

No material of any kind shall be used upon the work until it has been inspected and accepted by the Engineer. All materials rejected shall be removed immediately from the work and not again offered for inspection. Any materials or workmanship found at any time to be defective or not of the quality or character required by the plans and specifications shall be remedied at once regardless of previous inspection.

Such inspection shall not relieve the Contractor from any obligation to perform said work strictly in accordance with the plans and specifications and work not so constructed shall be removed and made good by the Contractor at his own expense, and free from all expense to the Owner whenever so ordered by the Owner without reference to any previous oversight or error in inspection.

Clarifications and Interpretations:

9.4. Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as Engineer may determine necessary, which shall be consistent with the intent of and reasonably inferable from Contract Documents. Such written clarifications and interpretations will be binding on Owner and Contractor. If Owner or Contractor believes that a written clarification or interpretation justifies an adjustment in the Contract Price or the Contract Times and the parties are unable to agree to the amount or extent thereof, if any, Owner or Contractor may make a written claim therefore as provided in Article 11 or Article 12.

Authorized Variations in Work:

9.5. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or the Contract Times and the parties are unable to agree as to the amount or extent thereof, Owner or Contractor may make a written claim therefore as provided in Article 11 or 12.

Rejecting Defective Work:

9.6. Engineer will have authority to disapprove or reject Work which Engineer believes to be defective, or that Engineer believes will not produce a complete Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

Shop Drawings, Change Orders and Payments:

9.7. In connection with Engineer's authority as to Shop Drawings and Samples, see paragraphs 6.24 through 6.28 inclusive.

9.8. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

9.9. In connection with Engineer's authority as to Applications for Payment, see Article 14.

Determinations for Unit Prices:

9.10. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding upon Owner and Contractor, unless, within ten days after the date of any such decision, either Owner or Contractor delivers to the other and to Engineer written notice of intention to appeal from Engineer's decision and, a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction to exercise such rights or remedies as the appealing party may have with respect to Engineer's decision, unless otherwise agreed in writing by Owner and Contractor. Such appeal will not be subject to procedures of paragraph 9.11.

Decisions on Disputes:

9.11. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work there under. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and Claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Times will be referred initially to Engineer in writing with a request for a formal decision in accordance with this paragraph. Written notice of each such claim, dispute or other matter will be delivered by the claimant to Engineer and the other party to the Agreement promptly (but in no event later than thirty days) after the start of the occurrence or event giving rise thereto, and written supporting data will be submitted to Engineer and the other party within sixty days after the start of such occurrence or event unless Engineer allows an additional period of time for the submission of additional or more accurate data in support of such claim, dispute or other matter. The opposing party shall submit any response to Engineer and the claimant within thirty days after receipt of the claimant's last submittal (unless Engineer allows additional time). Engineer will render a formal decision in writing within thirty days after receipt of the opposing party's submittal, if any, in accordance with this paragraph. Engineer's written decision on such claim, dispute or other matter will be final and binding upon Owner and Contractor unless: a written notice of intention to appeal from Engineer's written decision is delivered by Owner or Contractor to the other and to Engineer within thirty days after the date of such decision and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction to exercise such rights or remedies as the appealing party may have with respect to such claim, dispute or other matter in accordance with applicable Laws and Regulations within sixty days of the date of such decision, unless otherwise agreed in writing by Owner and Contractor.

9.12. When functioning as interpreter and judge under paragraphs 9.10 and 9.11, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by Engineer pursuant to paragraphs 9.10 or 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.15) will be a condition precedent to any exercise by Owner or Contractor of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter.

9.13. Limitations on Engineer's Authority and Responsibilities:

9.13.1. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise or performance of any authority or responsibility by Engineer shall create, impose or give rise to any duty owed by Engineer to Contractor, any Subcontractor, and Supplier, any other person or organization, or to any surety for employee or agent of any of them.

9.13.2. Engineer will not supervise, direct, control or have authority over or be responsible for Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the furnishing or performance of the Work. Engineer will not be responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

9.13.3. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

9.13.4. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection, tests, and approvals and Other documentation required to be delivered by paragraph 4.12 will only be to determine generally that their content complies with the requirements of, and in the case of, certificates of inspections, tests and approvals that the results certified indicate compliance with the Contracted Documents.

9.13.5. the limitations upon authority and responsibility set forth in this paragraph 9.13 shall also apply to Engineer's Consultants, Resident Project Representative and assistants.

ARTICLE 10 – CHANGES IN THE WORK

10.1. Without invalidating the Agreement and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions or revisions in the Work. Such additions, deletions or revisions will be authorized by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.2. If Owner and Contractor are unable to agree as to the extent, if any, of an adjustment in the Contract Price or an adjustment of the Contract Times that should be allowed as a result of a Work Change Directive, a claim may be made therefore as provided in Article 11 or Article 12.

10.3. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.5 and 3.6 except in the case of an emergency as provided in paragraph 6.23 or in the case of uncovering Work as provided in paragraph 13.9.

10.4. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

10.4.1. changes in the Work which are (i) ordered by Owner pursuant to paragraph 10.1, (ii) required because of acceptance of defective Work under paragraph 13.13 or correcting defective Work under paragraph 13.14, or (iii) agreed to by the parties;

10.4.2. changes in the Contract Price or Contract Times which are agreed to by the parties; and

10.4.3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to paragraph 9.11;

Provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.29.

10.5. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be Contractor's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 11 – CHANGE OF CONTRACT PRICE

11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at Contractor's expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order. Any claim for an adjustment in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to Engineer promptly (but in no event later than ten days) after the start of the occurrence or event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within thirty days after the start of such occurrence or event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the adjustment claimed covers all known amounts to which the claimant is entitled as a result of said occurrence or event. All claims for adjustment in the Contract Price shall be determined by Engineer in accordance with paragraph 9.11 if Owner and Contractor cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

11.3 The value of any Work covered by a Change Order or of any claim for an adjustment in the Contract Price will be determined as follows:

11.3.1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1. through 11.9.3. inclusive);

11.3.2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2):

11.3.3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 11.3.2, on the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a Contractor's fee for overhead and profit (determined as provided in paragraph 11.6).

Cost of the Work Covered by a Change Order:

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by Contractor in the proper performance of the Work. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5.

11.4.1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include without limitation superintendents, foremen and other personnel employed full-time at the site. Payroll costs for employees not employed full-time on the Work shall be apportioned on the basis

of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by Owner.

11.4.2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

11.4.3. Payments made by Contractor to the Subcontractors for Work performed or furnished by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner who will then determine, with the advice of Engineer, which bids, if any, will be accepted. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in paragraphs 11.4, 11.5, 11.6 and 11.7. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

11.4.5. Supplemental costs including the following:

11.4.5.1. The proportion of necessary transportation, travel and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

11.4.5.2. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of Contractor.

11.4.5.3. Rentals of all construction equipment and machinery and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, installation, dismantling and removal thereof – all in accordance with the terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.

11.4.5.4. Sales, consumer, use or similar taxes related to the work, and for which Contractor is liable, imposed by Laws and Regulations.

11.4.5.5. Deposits lost for causes other than negligence of Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

11.4.5.6. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by Owner in accordance with paragraph 5.9), provided they have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee. If, however, any such loss or damage requires reconstruction and Contractor is placed in charge thereof, Contractor is placed in charge thereof, Contractor shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work.

11.5. The term Cost of the Work Covered by a Change Order shall not include any of the following:

11.5.1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks and other personnel employed by Contractor whether at the site or in Contractor's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4 – all of which are to be considered administrative costs covered by the Contractor's fee.

11.5.2. Expenses of Contractor's principal and branch offices other than Contractor's office at the site.

11.5.3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not Contractor is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph 11.4.5.9 above).

11.5.5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of **defective** Work, disposal of materials or equipment wrongly supplied and making good any damage to property.

Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

11.6. The Contractor's fee allowed to Contractor for overhead and profit shall be determined as follows:

11.6.1. a mutually acceptable fixed fee; or

11.6.2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

11.6.2.1. for costs incurred under paragraphs 11.4.1 and 11.4.2, the Contractor's fee shall be ten percent;

11.6.2.2. for costs incurred under paragraph 11.4.3, the Contractor's fee shall be five percent.

11.6.2.3. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraphs 11.4.1, 11.4.2, 11.4.3 and 11.6.2 is that the Subcontractor who actually performs or furnishes the Work, at whatever tier, will be paid a fee of ten percent of the costs incurred by such Subcontractor under paragraphs 11.4.1 and 11.4.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor:

11.6.2.4. no fee shall be payable on the basis of costs itemized under paragraphs 11.4.4, 11.4.5 and 11.5;

11.6.2.5. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

11.6.2.6. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with paragraphs 11.6.2.1 through 11.6.2.5, inclusive.

11.7. Whenever the cost of any work is to be determined pursuant to paragraphs 11.4 and 11.5, Contractor
will establish and maintain records thereof in accordance with generally accepted accounting practices and
submit in form acceptable to Engineer an itemized cost breakdown together with supporting data.

Cash Allowances:

11.8. NOT USED

11.9. Unit Price Work:

11.9.1. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer in accordance with paragraph 9.10.

11.9.2. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

11.9.3. Owner or Contractor may make a claim for an adjustment in the Contract Price in accordance with Article 11 if:

11.9.3.1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

11.9.3.2. there is no corresponding adjustment with respect to any other item of Work; and

11.9.3.3. if Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT TIMES

12.1. The Contract Times (or Milestones) may only be changed by a Change Order or a Written Amendment. Any claim for an adjustment of the Contract Times (or Milestones) shall be based on written notice delivered by the party making the claim to the other party and to Engineer promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless Engineer allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Times (or Milestones) shall be determined by Engineer in accordance with paragraph 9.11 if Owner and Contractor cannot otherwise agree. No claim for an adjustment in the Contract Times (or Milestones) will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2. All time limits stated in the Contract Documents are of the essence of the Agreement.

12.3. Where Contractor is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of Contractor, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a claim is made therefore as provided in paragraph 12.1. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions or acts of God. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

12.4. Where Contractor is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both Owner and Contractor, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be Contractor's sole and exclusive remedy for such delay. In no event shall Owner be liable to Contractor, any Subcontractor, any Supplier, any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from (i) delays caused by or within the control of Contractor, or (ii) delays beyond the control of both parties including but not limited to fires, floods,

epidemics, abnormal weather conditions, acts of God or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

12.5. Extensions of contract time for delays caused by the effects of inclement weather are justified only when rain or other inclement weather conditions or related adverse soil or base conditions resulting from inclement weather prevent the Contractor from productively performing controlling items of work resulting in:

> ***12.5.1. The Contractor being unable to work at least 50% of the normal work day on predetermined controlling work items; or***
>
> ***12.5.2. The Contractor must make major repairs to work damaged by weather, providing the damage was not attributable to a failure to preform or neglect by the Contractor.***

The Construction Inspector or Engineer shall continually monitor the effects of weather and when found justified, recommend to the Owner time extensions on a monthly basis. At the beginning of each week, the Contractor shall submit a weekly construction schedule to the Engineer which identifies the intended work for that week, thus determining the scheduled work days and the controlling items of work. The Engineer and Contractor's representative must agree ahead of time as to the controlling items of work and the number of days of the week to be worked. Weather days will be granted only during the authorized contract time period.

If it is reasonable to conclude, based on the weather forecast, that there is little likelihood of productive work being accomplished on a controlling work item for 50% of that day, a time extension shall be granted and the Contractor shall not be expected to mobilize labor and equipment that day.

Time extensions shall be granted by adding to the contract time additional work days equal to the number of days delayed by inclement weather.

ARTICLE 13 – TESTS AND INSPECTION: CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.1. **Notice of Defects:** Prompt notice of all defective Work of which Owner or Engineer have actual knowledge will be given to Contractor. All defective Work may be rejected, corrected or accepted as provided in this Article 13.

Access to Work:

13.2. Owner, Engineer, Engineer's Consultants, other representatives and personnel of Owner, independent testing laboratories and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's site safety procedures and programs so that they may comply therewith as applicable.

Tests and Inspections:

13.3. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests or approvals, and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

13.4. Contractor shall employ and pay for services of an independent testing laboratory to perform all Quality Control inspections, test or approvals required by the contract documents. Contractor shall allow the Engineer access to all work done in the project for Acceptance Testing by the owner. This testing will be in addition to Quality Control Testing required by the Contractor. Owner shall arrange and pay all costs associated with Acceptance Testing done by an independent testing laboratory of the Owners choosing except:

13.4.1. for inspections, tests or approvals covered by paragraph 13.5 below.

13.4.2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.9 below shall be paid as provided in said paragraph 13.9; and

13.4.3. as otherwise specifically provided in the Contract Documents.

13.4.4 Owner shall perform the following test as part of quality assurance / acceptance testing:

All material testing included in the Bidding Documents.

All other required testing is to be completed by the contractor as part of the contractor's quality control procedures and submittals. This section shall take precedence over all other sections that describe testing requirements.

13.5. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection, or approval. Contractor shall also be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work, or of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Quality Control Testing of materials and equipment shall be the responsibility of the Contractor who shall pay all costs associated with the required testing. Contractor shall provide the Engineer adequate advance notice of intended tests to allow the Engineer to be present during the Testing.

13.6. If any Work (or the work of others) that is to be inspected, tested or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

13.7. Uncovering Work as provided in paragraph 13.6 shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

Uncovering Work:

13.8. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

13.9. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose or otherwise make available for observation, inspection or testing as Engineer may require that portion of the Work in

question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective, Contractor shall pay all claims, costs, losses and damages caused by, arising out of or resulting from such uncovering, exposure, observation, inspection and testing and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others; and Owner shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefore as provided in Article 11. If, however, such Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement and reconstruction; and, if the parties are unable to agree as to the amount or extent therefore, Contractor may make a claim therefore as provided in Articles 11 and 12.

Owner May Stop the Work:

13.10. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor or any surety or other party.

Correction or Removal of Defective Work:

13.11. If required by Engineer, Contractor shall promptly, as directed, either correct all defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by Engineer, remove it from the site and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses and damages caused by or resulting from such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.12. Correction Period:

13.12.1. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instruction: (i) correct such defective Work, or, if it has been rejected by Owner, remove it from the site and replace it with Work that is not defective, and (ii) satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Contractor does not promptly comply with the terms of such instructions, or in any emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or the rejected Work removed and replaced, and all claims, costs, losses and damages caused by or resulting from such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

13.12.2. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

13.12.3. Where defective Work (and damage to other Work resulting therefrom) has been corrected, removed or replaced under this paragraph 13.12, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

Acceptance of Defective Work:

13.13. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, also Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness). If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, Owner may make a claim therefore as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

Owner May Correct Defective Work:

13.14. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with paragraph 13.11, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days' written notice to Contractor, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph Owner shall proceed expeditiously. In connection with such corrective and remedial action, Owner may exclude Contractor from all or part of the site, take possession of all or part of the Work, and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representative, agents and employees, Owner's other contractors and Engineer and Engineer's Consultants access to the site to enable Owner to exercise the rights and remedies under this paragraph. All claims, costs, losses and damages incurred or sustained by Owner in exercising such rights and remedies will be charged against Contractor and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, Owner may make a claim therefore as provided in Article 11. Such claims, costs, losses and damages will include but not be limited to all costs of repair or replacement of work of others destroyed or damaged by correction, removal or replacement of Contractor's defective Work. Contractor shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies hereunder.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

Schedule of Values:

14.1. The schedule of values established as provided in paragraph 2.9 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

Application for Progress Payment:

14.2. At least ten days before the date established for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect Owner's interest therein, all of which will be satisfactory to Owner. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

Contractor's Warranty of Title:

14.3. Contractor warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

Review of Applications for Progress Payment:

14.4. Engineer will, within *fifteen (15)* days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application. *Thirty (30)* days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.7) become due and when due will be paid by Owner to Contractor.

14.5. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's on-site observations of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

14.5.1. the Work has progressed to the point indicated.

14.5.2. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities

and classifications for Unit Price Work under paragraph 9.10, and to any other qualifications stated in the recommendation), and

14.5.3. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

However, by recommending any such payment Engineer will not thereby be deemed to have represented that: (i) exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents or (ii) that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

14.6. Engineer's recommendation of any payment, including final payment, shall not mean that Engineer is responsible for Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the furnishing or performance of Work, or for any failure of Contractor to perform or furnish Work in accordance with the Contract Documents.

14.7. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner referred to in paragraph 14.5. Engineer may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

14.7.1. the Work is defective, or completed Work has been damaged requiring correction or replacement.

14.7.2. the Contract Price has been reduced by Written Amendment or Change Order.

14.7.3. Owner has been required to correct defective Work or complete Work in accordance with paragraph 13.14. or

14.7.4. Engineer has actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.4 inclusive.

Owner may refuse to make payment of the full amount recommended by Engineer because:

14.7.5. claims have been made against Owner on account of Contractors performance or furnishing of the Work.

14.7.6. Liens have been filed in connection with the Work, except where Contractor has delivered a specific Bond satisfactory to Owner to secure the satisfaction and discharge of such Liens,

14.7.7. there are other items entitling Owner to a set-off against the amount recommended, or

14.7.8. Owner has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.7.1 through 14.7.3 or paragraphs 15.2.1 through 15.2.4 inclusive;

but Owner must give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

Substantial Completion:

14.8. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion. Within a reasonable time thereafter, Owner, Contractor and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefore. If Engineer considers the Work substantially complete, Engineer will prepare and deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within fourteen days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefore. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said fourteen days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner. At the time of delivery of the tentative certificate of Substantial Completion Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

14.9. Owner shall have the right to exclude Contractor from the Work after the date of Substantial Completion, but Owner shall allow Contractor reasonable access to complete or correct items on the tentative list.

Partial Utilization:

14.10. Use by Owner at Owner's option of any substantially completed part of the Work which: (i) has specifically been identified in the Contract Documents, or (ii) Owner, Engineer and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1. Owner at any time may request Contractor in writing to permit Owner to use any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, Owner, Contractor and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer

will notify Owner and Contractor in writing giving the reasons therefore. If Engineer considers that part of the Work to be substantially complete, the provisions of paragraphs 14.8 and 14.9 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

14.10.2. No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.15 in respect of property insurance.

Owner may at any time request Contractor in writing to permit Owner to take over operation of any such part of the work although it is not substantially complete. A copy of such request will be sent to Engineer and within a reasonable time thereafter Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If Contractor does not object in writing to Owner and Engineer that such part of the Work is not ready for separate operation by Owner, Engineer will finalize the list if items to be completed or corrected and will deliver such lists to Owner and Contractor together with a written recommendation as to the division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work which will become binding upon Owner and Contractor at the time when Owner takes over such operation (unless they shall have otherwise agreed in writing and so informed Engineer). During such operation and prior to Substantial Completion of such part of the Work, Owner shall allow Contractor reasonable access to complete or correct items on said list and to complete other related Work.

Final Inspection:

14.11. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or **defective.** Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

Final Application for Payment:

14.12. After Contractor has completed all such corrections to the satisfaction of Engineer and delivered in accordance with the Contract Documents all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by paragraph 5.4, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents, Contractor may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied (except as previously delivered) by:

(i) consent of the surety, if any, to final payment.

(ii) complete and legally effective releases or waivers (satisfactory to Owner) of all Liens arising out of or filed in connection with the Work. In lieu of such releases or waivers of Liens and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and (ii) all payrolls, material and equipment bills and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any

Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a Bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

(iii) certification from surety that payment and performance bond shall remain in effect one (1) year following final payment.

(iv) contractor's advertisement of completion – advertisement for a period of four (4) successive weeks in the newspaper or largest circulation published within the county where the work is performed.

(v) certification from insurance company that any insurance coverage written on a claims-made basis, remain in effect for at least two (2) years following final payment.

Final Payment and Acceptance:

14.13. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of paragraph 14.15 Otherwise, Engineer will return the Application to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application. Thirty days after the presentation to Owner of the Application and accompanying documentation, in appropriate form and substance and with Engineer's recommendation and notice of acceptability, the amount recommended by Engineer will become due and will be paid by Owner to Contractor

14.14. If, through no fault of Contractor, final completion of the Work is significantly delayed and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment and recommendation of Engineer, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

Waiver of Claims:

14.15. The making and acceptance of final payment will constitute:

14.15.1. a waiver of all claims by Owner against Contractor, except claims arising from unsettled Liens, from **defective** Work appearing after final inspection pursuant to paragraph 14.11, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

14.15.12. a waiver of all claims by Contractor against Owner other than those previously made in writing and still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

Owner May Suspend Work:

15.1. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes an approved claim therefore as provided in Articles 11 and 12.

Owner May Terminate:

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. if Contractor persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as adjusted from time to time pursuant to paragraph 6.6);

15.2.2. if Contractor disregards Laws or Regulations of any public body having jurisdiction;

15.2.3. if Contractor disregards the authority of Engineer; or

15.2.4. if Contractor otherwise violates in any substantial way any provisions of the Contract Documents;

15.2.5 if Contractor commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if Contractor takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

15.2.6 if a petition is filed against Contractor under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against Contractor under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

15.2.7 if Contractor makes a general assignment for the benefit of creditors;

15.2.8 if a trustee, receiver, custodian, or agent of Contractor is appointed under applicable law or under contract, whose appointment or authority to take charge of property of Contractor is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of Contractor's creditors;

15.2.9 if Contractor admits in writing an inability to pay its debts generally as they become due.

Owner may, after giving Contractor (and the surety, if any,) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of Contractor, exclude Contractor from the site and take possession of the Work and of all Contractor's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by Contractor (without

liability to Contractor for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses and damages sustained by Owner arising out of or resulting from completing the Work such excess will be paid to Contractor. If such claims, costs, losses and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and when so approved by Engineer incorporated in a Change Order, provided that when exercising any rights or remedies under this paragraph Owner shall not be required to obtain the lowest price for the Work performed.

15.3. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

15.4. Upon seven days' written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, elect to terminate the Agreement. In such case, Contractor shall be paid (without duplication of any items):

15.4.1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

15.4.2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

15.4.3. for all claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and other; and

15.4.4. for reasonable expenses directly attributable to termination.

Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

Contractor May Stop Work or Terminate:

15.5. If, through no act or fault of Contractor, the Work is suspended for a period of more than ninety days by Owner or under an order of court or other public authority, or Engineer fails to act on any Application for Payment within thirty days after it is submitted or Owner fails for thirty days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days' written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Agreement and recover from Owner payment on the same terms as provided in paragraph 15.4. In lieu of terminating the Agreement and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within thirty days after it is submitted, or Owner has failed for thirty days to pay Contractor any sum finally determined to be due, Contractor may upon seven day's written notice to Owner and Engineer stop the Work until payment of all such amounts due Contractor, including interest thereon. The provisions of this paragraph 15.5 are not intended to preclude Contractor from making claim under Articles 11 and 12 for an increase in Contract Price or Contract Times

or otherwise for expenses or damage directly attributable to Contractor's stopping Work as permitted by this paragraph.

ARTICLE 17 – MISCELLANEOUS

Giving Notice:

17.1. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.2 Computation of Times:

17.2.1. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.2.2. A calendar day of twenty-four (24) hours measured from midnight to the next midnight will constitute a day.

Notice of Claim:

17.3. Should Owner or Contractor suffer injury or damage to person or property because of any error, omission or act of the other part or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

Cumulative Remedies:

17.4. The duties and obligations imposed by these General Provisions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Contractor by paragraphs 6.12, 6.16, 6.30, 6.31, 6.32, 13.1, 13.12, 13.14, 14.3 and 15.2 and all of the rights and remedies available to Owner and Engineer thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

Professional Fees and Court Costs Included:

17.5. Whenever reference is made to "claims, costs, losses and damages," it shall include in each case, but not be limited to, all fees and charges of engineers, architects, attorneys and other professionals and all court or other dispute resolution costs.

Labor Records and Schedules:

17.6 The Department of Jurisdiction on such public work shall require all Contractors and Subcontractors to keep the following records on the site of the public work project on which such Contractors, and Subcontractors are engaged:

17.6.1 Record of hours worked by each worker, laborer, and mechanic on each day.

17.6.2 Record of days worked each week by each worker, laborer, and mechanic.

17.6.3 Schedule of occupation or occupations at which each worker, laborer, and mechanic on the project is employed during each workday and week.

17.6.4 Schedule of hourly wage rates and supplements paid to each worker, laborer, and mechanic for each occupation.

Wage Schedules:

17.7 Pursuant to Sections 220.3 and 220-d of the Labor Law, each laborer, worker, or mechanic employed by the Contractor, Subcontractor, or other person shall be paid not less than the prevailing rate of wages for a legal day's work and shall be provided supplements not less than the prevailing supplements as determined by the prevailing Federal Wage Rates.

The Contractor and every Subcontractor shall post in a prominent and accessible place on the site of the work a legible statement of all wage rates and supplements as specified in the Contract to be paid or provided, as the case may be, for the various classes of mechanics, workers, and laborers employed on the work.

The Owner does not represent or warrant that the accompanying schedule of wage rates and supplements with the classification of workers, mechanics, and laborers, as required by Section 220 of the Labor Law, is complete, and it reserves the right to revise such schedule when required. If any occupation is not mentioned in the schedule of wage rates and supplements it shall be requested from the Industrial Commissioner, by the Contractor through the Engineer and such schedules, shall, upon notice to the Contractor, become and be a part of the wage and supplement schedules embodied in the Contract.

Also included is the Federal Wage Rate Determination. Laborers, workmen, and mechanics employed on the work done in performance of said Contract shall be paid not less than the rate of wages listed thereon for the trade or occupation of such laborer, etc.

SPECIAL PROVISIONS

SPECIAL PROVISION NO. 1
UTILITIES

A. Description

The Contractor shall be responsible for the coordination and associated costs to protect existing facilities, utilities and features that may be impacted by the project.

B. General

Existing facilities, utilities and features depicted on the construction plans are not guaranteed to be accurate with respect to location, depth, condition or characteristics. Also, there may be additional facilities and features existing that could affect the construction of this project, which are not depicted or described in the construction plans. Prior to bidding, the Contractor shall make a thorough investigation of the project area to satisfy himself/herself as to the location, condition and characteristics of any and all facilities and features, which may affect the work. No additional compensation will be made for any extra expense relating to an existing facility or feature. The Contractor hereby agrees to make no claims against the Owner, the Engineer, and their representatives relating to the existence or lack thereof, location, condition and/or characteristics of any existing facilities or features

C. Protection of Existing Utilities

Airfield lighting cables; electric power lines; telephone lines; computer cables; airport power and control cables; transmission and distribution water lines; and sanitary force mains may be located in the areas of construction. Disruption of these utilities could seriously disrupt the operation of the airport. Actual locations are uncertain, and the Contractor is required to verify all locations.

Power and control cables leading to and from any Navaids and other facilities shall be protected from any possible damage, including crossing with unauthorized equipment, etc. No grading will be permitted over the cables under any conditions unless shown on the drawings or approved by the Engineer. These provisions intend to make perfectly clear the need for protection of Navaids and other facility cables by the Contractor at all times.

If damage occurs to any utilities, the Contractor may be assessed a fee of $2,000 liquidated damages per cut, which shall only represent the expense incurred by the Owner in coordinating the repair, and which shall not prevent the Owner or others from recovering from the Contractor costs or expenses of any other nature due to damages to utilities. The Contractor will also reimburse the appropriate utility owner for all material and labor costs to repair damaged utilities.

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 exhibits or encountered in the work. Any inaccuracy or omission in such information will not relieve Contractor of his 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 Owner of all utility services or other facilities of his plan of operations. Such notification shall be in writing addressed to the appropriate point-of-contact as provided herein. A copy of each notification shall be given to the Engineer.

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 his plan of operation that would affect such Owners.

Prior to commencing the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner in writing, through the Project Manager, of the plan of operations. 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 written notification. Such notification shall be given through the Project Manager by the most expeditious means to reach the utility Owners point-of-contact no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor's failure to give two (2) days notice shall be cause for the Project Manager to suspend construction 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 excavation methods acceptable to the Project Manager within three (3) feet of the outside limits, at such points as may be required to insure protection from damage due to the Contractors operations. Excavation methods could include the use of hand digging tools, the use of non-ferrous hand tools and could exclude the use of long-handled metal spades.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, he shall immediately notify the proper utility company and the Project Manager 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 Project Manager continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility Owner.

The Contractor shall bear all direct and indirect costs of damage and restoration of service to any utility service or facility due to his operations, whether or not 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 his surety.

Airport owned facilities and properties and privately owned facilities located on airport property, including underground cables, pavements, piping, buildings, turfed areas, vehicles and other facilities/improvements, that are damaged by the Contractor shall, at the election of the Owner, (1) be replaced/repaired by the Contractor to the satisfaction of the Owner or (2) be replaced/repaired by the Owner at the Contractor's expense.

All utilities not shown in the plans and found by the Contractor shall be recorded by the Contractor and submitted to the Airport Manager or Project Manager as Record Drawings. Refer to Special Provision No. 7 for additional requirements for Record Drawings.

END OF SP-1

SPECIAL PROVISION NO. 2
AIRPORT SAFETY AND SECURITY REQUIREMENTS

A. General

The provisions of this safety and security plan and associated procedures are applicable within the boundaries of Northwest Florida Beaches International Airport. A complete understanding of all procedures and requirements contained herein is required to ensure safety and security during construction. Satisfying these safety and security requirements is a part of this contract and deviations from the requirements established herein will be sufficient cause for contract termination.

Required reference material associated with this safety plan includes:

FAA AC 150/5200-18C (or latest edition), Airport Safety Self Inspection
FAA AC 150/5370-2H (or latest edition), Operational Safety on Airport During Construction
FAA AC 150/5210-5D (or latest edition), Painting, Marking, and Lighting of Vehicles Used on an Airport

Copies of each of these documents may be examined through coordination with the Engineer.

B. Airport Safety and Security Coordinator

A qualified individual shall act as the duly authorized representative of the Contractor to coordinate safety and security issues for the duration of the contract. This individual will be responsible for the overall coordination of safety and security matters during construction and ensuring that all procedures and requirements are followed. The individual shall be physically present on the airport at all times during the period of construction when activity related to fulfilling the Contractor's responsibilities is taking place.

The individual shall be the Owner's point of contact and is also responsible for coordinating all construction activity with any organizations prior to the start of construction at any location within the Project Area, at any time the construction schedule or procedure that would affect safety or security is altered and upon completion of work. In addition, the Owner's point of contact shall maintain a file of all advisories issued; periodically review advisories issued to assure currency and appropriately cancel portions of previously issued advisories when construction covered by that advisory is completed or otherwise terminated.

C. Contractor Safety and Security Coordinator

The Contractor shall appoint a qualified individual as its duly authorized representative to coordinate safety and security issues for the duration of the contract. The Contractor's point of contact shall thoroughly understand the safety and security requirements of the contract and shall have sufficient authority to implement its provisions without significant deviation.

The Contractor shall be accountable for safety and security requirement compliance. The Contractor's point of contact for safety and security shall be especially knowledgeable regarding the requirements of FAA AC's 150/5200-18C and 150/5370-2G, Airport Self Inspection Guide and Operational Safety on Airports During Construction, respectively. The Contractor shall be thoroughly familiar with all contract requirements relevant to the handling of hazardous materials and all applicable trade practices related to maintain safety and security during construction.

D. Construction Sequence

The construction sequence defined in the plans and specifications has been developed to minimize possible adverse safety and security impacts. The Contractor may deviate from this sequence provided the Engineer authorizes the deviation in writing.

E. Traffic Control

1. Vehicle Identification - The Contractor shall establish and maintain a list of the minimum number of vehicles believed to be necessary for completing the work required in each area of construction. This list shall be submitted to the Owner for permission to operate each vehicle on the list. To be authorized to operate on Northwest Florida Beaches International Airport each vehicle shall:

   a. be marked/flagged for high daytime visibility and lighted for nighttime operations. These vehicles shall display in full view above the vehicle a 3'x3' or larger orange and white checkerboard flag, each check being 1' square, for daytime identification. For nighttime identification, each vehicle shall be equipped with a flashing amber (yellow) dome light, mounted on top of the vehicle and have an intensity that conforms to the requirement for maintenance or emergency vehicles. Vehicles that are not marked and/or lighted shall be escorted by a vehicle appropriately marked and/or lighted.

      In addition, vehicles authorized to operate on any portion of the airport operations area other than the approved haul route for this contract shall also be equipped with a two-way radio capable of communicating on the Airport frequency.

   All marking, lighting, installation of radios and similar safety and/or security measures including providing escort vehicles and properly trained radio operators shall be provided by the Contractor.

   b. be identified with the name and/or logo of the Contractor and be of sufficient size to be identified at a distance. Vehicles needing intermittent identification could be marked with tape or with commercially available magnetically attached markers. Vehicles that are not appropriately identified shall be escorted by a vehicle that conforms to this requirement. Vehicles requiring an escort shall be identified on the list.

   c. be operated in a manner that does not compromise the safety of either landside or airside airport operations. If, in the opinion of Airport staff or the Engineer, any vehicle is operated in a manner not fully consistent with these requirements, the Owner has the right to restrict operation of the vehicle or prohibit its use on the airport.

2. Access to the Site of Construction

   a. General Construction - the Contractor's access to the airport, employee parking and marshalling area(s) and route across the airport to the construction sites shall be as designated by the Owner. No other airport access point or cross-airport route shall be permitted unless approved in advance by the Owner. In addition, the following requirements are applicable:

(1) All Contractor traffic authorized to travel on the airport shall have been briefed as part of the Contractor's construction safety and security orientation program, be thoroughly familiar with the access procedures and route for travel or be escorted by personnel authorized by the Owner.

(2) The Contractor shall install work site identification signs at the authorized access point(s) if required by the Owner. If in the opinion of the Owner, directional signs are needed for clarity they shall be installed along the route authorized for access to each construction site.

(3) Under no circumstance will Contractor personnel be permitted to drive their individually owned vehicles to any construction on the airport. All vehicles must be parked in the area designated for employee parking; transportation to the work site shall be provided by the Contractor for those employees that are not otherwise occupying authorized vehicles.

(4) In addition to the periodic cleanup of the site, the Contractor is responsible for the immediate cleanup of any debris generated along the construction site access route(s) as a result of construction related traffic or operations whether or not created by Contractor personnel.

(5) There shall be no travel by foot within an active aircraft operational area. The Contractor shall arrange transportation for all employees between the designated marshalling area and each construction site, as necessary.

3. Material Suppliers, Subcontractors and Visitors - All material suppliers, subcontractors and visitors to the work site are obligated to follow the same safety and security operating procedures as the prime contractor. All material suppliers shall make their deliveries using the same access points and routes as the Contractor and shall be advised of the appropriate delivery procedures at the time the materials order is placed. If it is not practical to conform to the vehicle identification and/or safety and security orientation program requirements, the Contractor shall be prepared to escort all suppliers, subcontractors and visitors while they are on the work site or within a secured area.

F. Basis of Payment

No separate payment shall be made for airport safety and security measures or personnel or materials related to this item and incidentally required to satisfy the specified objective(s). Adequate compensation shall be included by the Contractor in the lump sum price for Mobilization. This compensation shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item. This compensation shall also be full compensation for adhering to Northwest Florida Beaches International Airport access requirements which include application for badges, time to procure a badge, and time required to badge subcontractors.

END OF SP-2

SPECIAL PROVISION NO. 4
STAGING AND PHASING PROVISIONS FOR CONTRACTOR OPERATIONS

The Contractor shall prepare a written plan for his staging and phasing procedures in conformance with the Contract Drawings for all work. It shall be understood that the outline requirements presented are the minimum requirements. The Contractor is expected to provide added detailing as appropriate to fully inform the Project Manager of his/her intended method of operations and his/her schedules for proposed work.

The Engineer reserves the right to make changes to this plan to facilitate changes to the airport operations, which are in the best interest of the airport.

All costs associated with preparing the storage and staging area site shall be borne by the Contractor. This includes, but is not limited to, clearing and grading of the site, desired stabilization of the work yard surface, construction of any temporary utilities, access roads, all security fencing, etc.

END OF SP-4

SPECIAL PROVISION NO. 6
TIME OF COMPLETION

A. General

This project consists of several project elements, which are defined throughout the contract documents. The specific details pertaining to contract sequence and time are an important aspect of the project for planning of the various operational requirements of the airport. The Contractor shall be required to comply with the general intent of the phasing, scheduling and duration of the project as outlined in the contract documents or as otherwise approved by submittals allowed by the documents.

B. Construction Time

1. The construction plans and specifications set forth the time allocated to each of the elements of work required as part of this contract. The work shall be completed within the times established or as otherwise approved or liquidated damages in the amounts specified hereafter shall be assessed.

2. The Contractor must request and receive written approval from the Project Manager for acceptance of the work included in each of the phases or work prior to satisfying the requirements of being "complete."

3. The specified times for each of the project phases shall be outlined in these specifications or as otherwise agreed to in writing among the Owner, Project Manager and Contractor based upon the actual contract work awarded.

   Substantial Completion contract time = **180 Calendar Days** (This is a calendar day contract);
   Total contract time = **210 Calendar Days**

C. Construction Schedule

1. The Contractor shall prepare and submit a detailed schedule for his operations within the general limits and phasing restrictions included in the contract documents. This schedule shall be based upon the actual work ultimately awarded. This schedule shall be reviewed with the Owner, Project Manager and Contractor in order to establish the final approved schedule as it relates to this Special Provision.

END OF SP-6

SPECIAL PROVISION NO. 7
AIRPORT PROJECT PROCEDURES

A. Permits

Contractor shall be required to procure and pay for all construction permits if required, and arrange for all inspections and similar procedural items as required by the code enforcement authorities having jurisdiction.

B. Airport Operations

Airport operations shall be maintained throughout this Contract. The Contractor shall in no way curtail or handicap normal operational characteristics of the airport facility except as specifically indicated and specified in these Contract Documents.

C. Limits of Construction

Any surface graded or disturbed outside the construction limits as shown on the plans will be restored and sodded or seeded and mulched as directed by the Engineer at the Contractor's expense.

D. Construction Layout and Stakes

Contractor shall furnish all lines, grades and measurements necessary for the proper prosecution and control of the work and contracted for under these specifications. The Contractor will establish horizontal and vertical control points only. Contractor is thereafter responsible to maintain these control points for use by subsequent contractors.

E. Verification of Existing Conditions

Prior to bidding and commencing with construction, the Contractor shall familiarize himself as to the existing conditions. Should the Contractor discover any inaccuracies, errors or omissions between the actual existing conditions and the Contract Documents, he shall within seven (7) calendar days prior to Bid Opening, notify the Engineer in writing. Submission of Bid by the Contractor shall be held as an acceptance of the existing conditions by the Contractor.

F. Safety and Protection

1. Safety: Inasmuch as each work area will be accessible to and used by the public, the Owner and other companies doing business at the Airport during the construction period, it is the Contractor's responsibility to maintain each work area in a safe, hazard free condition at all times. Should the Owner find the area unsafe at any time, they will notify the Contractor, and the Contractor shall take whatever steps necessary to remedy the unsafe condition. Should the Contractor not be immediately available for corrective action, the Owner will remedy the problem and the Contractor shall reimburse the Owner for the expense of such correction.

2. Protection of Property: Fixed structures, equipment, paving, landscaping and vehicles (automobiles, trucks, etc.) shall be protected with drop cloths, shielding and other appropriate measures to ensure maximum protection of all property and vehicles.

G. Pre-Construction Conference

Before beginning work at the site, the Contractor shall attend a pre-construction conference and bring with him the superintendent employed for this project. In the event the Contractor is unable to attend, he shall send a letter of introduction with the superintendent in which he advises the superintendent's full name and states that he is assigned to the project and will be in full responsible charge. This conference will be called by the Engineer, who will arrange for the Owner's representative and other interested parties to be present.

At this time, all parties will discuss the project under contract and prepare a program of procedure in keeping with requirements of the drawings and specifications. The superintendent will henceforth make every effort to expeditiously coordinate all phases of the work, including the required reporting procedure, to obtain the end result within the full purpose and intent of the drawings and specifications for the project.

H. Coordination and Progress Meetings

1. Weekly Coordination and Progress Meetings: The Contractor / Engineer will hold weekly general project coordination and progress meetings at regularly scheduled times convenient for all parties involved. These meetings are in addition to specific meetings held for other purposes, such as special project meetings and special pre-installation meetings. The Engineer will require representation at each meeting by every party currently involved in coordination or planning for the work of the entire project. Meetings will be conducted in a manner which will resolve coordination problems.

2. The Engineer will record results of the meeting and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

I. Administrative/Supervisory Personnel

The Contractor shall provide a full-time Project Management Team consisting of a Contractor’s Engineer, Project Superintendent and other supervisory personnel for the duration of the Project. The names and qualifications of this team for this work shall be submitted to the Owner as part of the Qualification of Bidders in the General Provisions Section 20-02. They shall have a minimum of five (5) years of experience on suitable projects of equal difficulty. Either the Contractor’s Engineer or the Project Superintendent shall be at the construction site at all periods when work is in progress. This person shall have full authority to act in the Contractor's behalf. It is agreed and understood that, if requested in writing by the Owner, the Contractor shall replace any member of the team with another meeting the required qualifications within three (3) days of the receipt of the request.

J. Special Reports

1. Reporting Unusual Events: When an event of an unusual and significant nature occurs at the site, the Contractor shall prepare and submit a special report to the Engineer. List chain of events, persons participating, response by the Contractor's personnel, an evaluation of the results or effects and similar pertinent information. Advise the Owner and Engineer as soon as possible when such events are known.

2. Submit special reports directly to the Owner within one day of occurrence. Submit a copy of the report to the Engineer and other entities that are affected by the occurrence within one day of the occurrence.

K. Schedule of Work

1. Prepare and submit, in triplicate, for the Engineer's information, progress schedules for the work.

2. Progress schedules shall relate to the entire project to the extent required by the Contract Documents and shall provide for expeditious and practicable execution of the work.

3. Progress schedules shall be updated monthly.

4. Percent complete shall be based on actual construction in place or dollar volume of the work. If dollar volume of the work reflects the greater percent complete, the maximum percent complete shall in no case exceed 5 percent of the value of the in-place construction.

L. Progress Schedule

1. Preliminary Schedule: Within 15 days after date of Notice of Award and Acceptance or at the Pre-Construction Conference, whichever is earlier, the Contractor shall submit his preliminary network phasing diagram (Preliminary Schedule) indicating a comprehensive overview of the Project including an activity line for each of the work segments to be performed at the site.

   a. Arrange the schedule to indicate required sequencing of work and to show time allowances for submittals, inspections, and similar time margins.

   b. The submitted schedule will be reviewed by the Engineer and Owner for conformance to Critical Dates and overall project completion time criteria. Lack of this information will be cause for rejection of the schedule.

   c. Following initial submittal of the schedule to and response by the Engineer, print and distribute the Progress Schedule to entities with a need-to-know responsibility, including three (3) copies to the Engineer. Revise at intervals matching payment requests, and redistribute and repost. Provide the copies required with payment requests.

M. Maintenance of Schedule

The Contractor's Progress Schedule must be updated on a weekly basis, and a copy thereof submitted with each of the Contractor's Applications for Payment. The updated Progress Schedule shall not only indicate revisions to the Schedule for upcoming work but show "as-built" schedule progress data. The Engineer will not recommend for payment by the Owner an Application for Payment without the Contractor's submission of the Weekly Schedule Updates.

1. If the Contractor's Weekly Schedule Updates reflect, or the Engineer determines, that the Contractor is at least ten percent (10%) behind the original Progress Schedule or fourteen (14) or more calendar days behind the original Progress Schedule for:

   a. the work as a whole;
   b. a major Contract item;
   c. an item of work which is on the critical path; or

d. an item of work not on the original critical path that, because of the delay or anticipated delay became a critical path item; then the Contractor must submit with the Monthly Schedule Update his proposed plan for bringing the work back on schedule and completing the Work within the Contract time.

2. The Progress Schedule shall be coordinated by the Owner's Project Administrator with the overall schedule for the Airport Projects. The Contractor is required to revise the Progress Schedule promptly in accordance with the conditions of the work, subject to approval by the Owner's Project Coordinator and the Engineer.

3. The Contractor shall comply fully with all time and other requirements of the Contract Documents. Recommendation of an Application of Payment by the Engineer and payment thereon by the Owner, without the submission of a Monthly Schedule Update, shall not constitute a waiver of the requirements of such updates, nor shall it relieve the Contractor from the obligation to complete the Work within the Contract Time.

4. Should a review of work indicate a critical path (milestone) item has fallen behind the approved schedule, at the option of the Engineer, funds equal to the established liquidated damages for the number of calendar days behind schedule will be withheld until that critical path item is brought back on schedule.

N. Changes in the Schedule

1. Minor Changes: Each week, prior to the weekly coordination meeting during the time of the contract, the Contractor shall notify the Engineer and Engineer of any minor changes that are anticipated in the schedule for the following week.

2. Major Changes: If for any reason a major change in the approved schedule is anticipated, the Contractor shall make the necessary changes to the schedule and resubmit the revised schedule for approval.

   Copies of the approved schedule shall be posted in the Contractor's field office with completed work identified in colored pencil.

O. Maintenance of Traffic

1. The Contractor shall not obstruct nor create a hazard to any traffic during the prosecution of the work and shall be responsible for repair of all damage to existing pavement or facilities caused by his operations.

2. Beginning date of Contractor's Responsibility: The Contractor's responsibility for maintenance of traffic shall begin on the day he starts the work and continue until Final Completion and Acceptance of the Project.

3. Sections Not Requiring Traffic Maintenance: The Contractor will not be required to maintain traffic over those portions of the Project where no work is to be accomplished or where construction operations will not affect aircraft operations. The Contractor, however, shall not obstruct nor create a hazard to any traffic during the prosecution of the work and shall

be responsible for repair of any damage to existing pavement or facilities caused by his operations.

4. Traffic During Construction: All construction vehicles are required to use existing traffic routes. Normal traffic lanes are not to be used as staging areas for arriving delivery vehicles. The Contractor's employees shall utilize the designated Contractor employee parking area.

5. Contractor Signing: The Contractor may furnish and install construction traffic directional signs along the existing traffic route. The signs shall depict Contractor's logo or name, directional arrows and "deliveries". Signs shall be of sufficient size to have 6" high message and shall be located at each decision point. All signs and their locations shall be approved by the Engineer. NO OTHER SIGNS ARE PERMITTED.

6. Material Deliveries: The Contractor shall make his own material and equipment deliveries. No deliveries shall be made by vendors or suppliers without escort by a representative of the Contractor.

7. Notification: On days when construction traffic is expected to be extra heavy or when oversized pieces of equipment are to be delivered, give minimum forty-eight (48) hours notice to the Engineer.

8. All Contractor material orders for the work site shall be delivered to the areas designated as the Contractor's receiving area. All deliveries shall be made only during the Contractor's working hours.

9. Interference Request:

    a. The Contractor shall be responsible for notifying the Owner in writing and securing approval for any and all interruptions or interference with traffic (pedestrian, automobile or other necessary function of the Airport.

    b. The request shall include a traffic control plan indicating barricades, lighting and flagger where required.

    c. Such notification shall be made as soon as possible but in no case less than 48 hours prior to interference.

    d. It is suggested that the Contractor utilize a standard form addressed to the Owner with a blank space for a description of the interference, the exact area affected, the exact times and dates the interference will take place and blanks for the Owner's approval. The forms shall be submitted in duplicate. No interference will be allowed until the Contractor has received back a copy of the approved interference request form.

10. Personnel Traffic:
    a. General: All construction personnel shall be restricted to construction areas. They shall wear shirts with sleeves and long pants at all times.

b. Use of Public Areas: The Contractor's workmen shall not utilize public areas for taking their "work breaks" or "lunch breaks." Areas for this purpose can be designated by the Owner upon request. No Public Toilets shall be used by any workmen at any time.

P. Daily Clean-Up and Trash Removal

1. Debris from this work shall be promptly removed from the site at least daily. It shall not be allowed to become a hazard to the safety of the public.

2. The Contractor shall be responsible for clean-up and trash removal. Accumulation of trash and debris will not be allowed, and the Engineer may at any time direct the Contractor to immediately remove his trash and debris from the site of the work when in the opinion of the Owner such trash constitutes a nuisance or in any way hinders the work or the Airports operations. If the Contractor should fail to remove his trash and debris from the site of the work in a timely manner, the Owner may have this work performed and deduct the cost of such from Contractor's payment.

Q. Cleaning and Protection

1. General: During handling and installation of work at the project site, clean and protect work in progress and adjoining work on the basis of continuous daily maintenance. Apply protective covering on installed work to ensure freedom from damage or deterioration.

2. Clean and perform maintenance on installed work as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

3. Limiting Exposures of Work: To the extent possible through appropriate control and protection methods, supervise performance of the work in such a manner and by such means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period. Such exposures include, where applicable, but not by way of limitation the following:
   a. Excessive static or dynamic loading
   b. Excessive internal or external pressures
   c. Solvents
   d. Chemicals
   e. Light
   f. Puncture
   g. Abrasion
   h. Heavy Traffic
   i. Soiling
   j. Combustion
   k. High speed operation, improper lubrication, unusual wear
   l. Improper shipping or handling
   m. Theft
   n. Vandalism

4. Protection at Openings: The Contractor shall provide protection at all openings in structures and finishes to maintain the building weather and dust tight. All protection shall be of solid material and substantial so that it will not be disturbed by wind and weather normal to the area and season, and also tight fitting to prevent noise infiltration.

5. Protection of Improvements:
   a. Damage to Existing Facilities: Existing surfaces and materials of the Owner's property not requiring work by the Contract Documents that is damaged by the Contractor's operations shall be immediately repaired. Repaired surfaces and materials shall match existing adjacent undamaged surfaces and materials. Repair work shall be coordinated with the Engineer and Owner with regard to time and method.

   b. Accidental Demolition: All structures or parts thereof that may become damaged due to accident or Contractor's error shall be restored to their original condition at no cost to the Owner. Materials and equipment being used in the repair or replacement resulting from damage shall be new and shall perform at the manufacturer's published capacities. If the existing equipment or materials cannot be identified, or if unavailable, the selection of the replacement will be subject to approval by the Engineer in writing.

6. Overhead Protection
   a. No cranes or other construction equipment shall cross over non-construction personnel, their travel ways or ride systems.

   b. The plan of operation of cranes and other hoisting equipment shall be established in writing by the Contractor. This plan of operation shall be subject to approval by the Engineer.

R. Conservation and Salvage

1. General: It is a requirement for supervision and administration of the Work that construction operations be carried out with the maximum possible consideration given to conservation of energy, water and materials. In addition, maximum consideration shall be given to salvaging materials and equipment involved in performance of the work but not incorporated therein. Refer to other sections for required disposition of salvaged materials which are the Owner's property.

S. Testing Cost Borne by Owner

Unless otherwise specified herein, all initial construction "Quality Assurance" testing costs shall be borne by the Owner. An independent testing laboratory selected and responsible to the Engineer shall perform all "Quality Assurance" testing required by the technical specifications or as directed by the Owner and/or the Engineer.

T. Testing Cost Borne by Contractor

The Contractor shall bear the cost of all “Quality Control” testing to include the following conditions:

1. If substitute materials or equipment are proposed by the Contractor, he shall pay the cost of all tests which may be necessary to satisfy the Engineer that specification requirements are satisfied. The Contractor shall pay for the Engineer's time spent in review and administrating such proposed substitution.

2. If materials or workmanship are used which fail to meet specification requirements, the Contractor shall pay the cost of all re-testing, including laboratory costs, deemed necessary by the Engineer to determine the safety or suitability of the material or element. The Contractor shall make arrangements with the Owner's Testing Laboratory to have all re-testing costs billed directly to the Contractor, or deducted from amounts due to the Contractor unless otherwise directed by the Engineer in writing. The Contractor shall take prompt action to insure that all re-testing costs are paid in a reasonable time period.

3. The Contractor shall pay for all testing costs including, but not limited to, power, fuel, and equipment cost, which may be required for complete testing of all equipment and systems for proper operation.

4. The Contractor shall pay for all testing required for materials, job mix designs, equipment, structures and related items included in all shop drawings and other submittals as required by the Technical Specifications to be submitted and approved by the Engineer prior to construction.

5. The Contractor shall bear all costs necessary for the Quality Control testing as stipulated in General Provisions Section 100.

U. Project Documentation

1. Project Drawings: The successful Contractor will be furnished, at no charge, four (4) copies of drawings and specifications. Additional copies may be purchased at actual cost of reproduction.

   A field set of drawings and specifications shall remain on the job site at all times and shall be available at all times to the Engineer. The field set shall be continuously updated to reflect the "as-built" condition of all work included in this Contract.

   The Contractor shall immediately include plainly and conspicuously on the field set of drawings, and at appropriate paragraphs in the specifications, all changes or corrections made by addenda and change orders as they are issued.

   Approved copies of all shop drawings and other submittals are to be kept on the job site at all times and shall be available at all times to the Engineer.

   Changes and deviations from the existing conditions shall be submitted in writing for approval prior to installation. In no case shall any unspecified equipment or materials be installed without prior approval by the Engineer.

2. Record Documents:

a. Definition: Record copies are defined to include those documents or copies relating directly to performance of the work, which the Contractor is required to prepare or maintain for the Owner's records, recording the work as actually performed. In particular, record copies show changes in the work in relation to the way in which work was shown and specified by the original contract documents and show additional information of value to the Owner's records but not indicated by the original Contract Documents.

Record copies include newly-prepared drawings (if any are specified), marked-up copies of contract drawings, shop drawings, specifications, addenda and change orders, marked-up product data submittals, record samples, field records for variable and concealed conditions such as excavations and foundations, and miscellaneous record information on work which is otherwise recorded only schematically or not at all.

b. Record Drawings: The Contractor shall maintain a set of Record Drawings at the job site. These shall be kept legible and current and shall be available for inspection at all times by the Engineer. Show all changes or work added on these Record Drawings in a contrasting color.

(1) Mark-up Procedure: During progress of the work, maintain a white-print set (blue-line or black-line) of contract drawings and shop drawings, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whatever drawing is most capable of showing actual physical condition, fully and accurately. Where shop drawings are marked up, mark cross-reference on contract drawings at corresponding location. Mark with erasable colored pencil, using separate colors where feasible to distinguish between changes for different categories of work at the same general location. Mark-up important additional information, which was either shown schematically or omitted from original drawings. Give particular attention to information on work concealed, which would be difficult to identify or measure and record at a later date. Note alternate numbers, change order numbers and similar identification. Require each person preparing the mark-up to initial and date the mark-up and indicate the name of the firm. Label each sheet "PROJECT RECORD" in 1-1/2 inch high letters.

In showing changes in the work, use the same legends as used on the original drawings. Indicate exact locations by dimensions and exact elevations by job datum. Give dimensions from a permanent point.

(2) Preparation of Transparencies: In preparation for certification of substantial completion on the last major portion of the work, review the completed mark-up of record drawings and shop drawings with the Engineer. The Engineer will then proceed with preparation of a full set of corrected transparencies for contract drawings. The Engineer will date

each updated drawing and label each sheet "PROJECT RECORD" in 1-1/2 inch high letters. Printing as required herein is the responsibility of the Engineer.

(3) Copies, Distribution: Upon completion of transparency record drawings, the Engineer shall prepare three blueline or blackline prints of each drawing, regardless of whether changes and additional information were recorded thereon. The Engineer shall then organize each of the three copies into manageable sets, bind with durable paper cover sheets, and print suitable titles and dates. The mark-up set of prints maintained during the construction period shall be bound in the same manner. The Engineer will retain one copy set. At the completion of the project, the Engineer shall submit one set of mylars and one set of prints with changes noted thereon to the Owner.

c. Record Drawings shall contain the names, addresses and phone numbers of the General Contractor and the major subcontractors.

d. The Engineer shall be the sole judge of the acceptability of the Record Drawings. Receipt and acceptance of the As-Built drawings is a pre-requisite for Final Payment.

3. Record Specifications

a. During the progress of the work, maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction. Mark-up variations (of substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data where applicable. Upon completion of the mark-up, submit to the Engineer for the Owner's records. Label the front cover "PROJECT RECORD" in 1-1/2 inch high letters.

b. Where the manual is printed on one side of the page only, mark variations on the blank left-hand pages of the Project Manual, facing printed right-hand pages containing original text affected by variation.

4. Record Product Data

During progress of the work, maintain one copy of each product data submittal and mark up significant variations in the actual work in comparison with submitted information. Include both variations in product as delivered to site and variations from the manufacturer's instructions and recommendations for installation. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned at a later date by direct observation. Note related change orders and mark-ups of record drawings and specifications. Upon completion of the mark-up, submit a complete

set of product data submittals to the Engineer for the Owner's records. Label each data submittal "PROJECT RECORD" in 1-1/2 inch high letters.

5. Record Sample Submittal
Immediately prior to the date(s) of substantial completion, the Engineer and Owner's personnel will meet with the Contractor on site and will determine if any of the submitted samples maintained by the Contractor during progress of the work are to be transmitted to the Owner for record purposes. Comply with the Engineer's instructions for packaging, identification marking and delivery to the Owner's sample storage space. Dispose of other samples in the manner specified for disposal of surplus and waste materials, unless otherwise indicated by the Engineer.

6. Miscellaneous Record Submittals
Refer to other sections of these specifications for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to the date(s) of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records. Categories of requirements resulting in miscellaneous work records are recognized to include, but are not limited to, the following:

   a. Required field records on excavations, foundations, underground construction, wells and similar work.

   b. Accurate survey showing locations and elevations of underground lines, including invert elevations of drainage piping, valves, tanks and manholes.

   c. Surveys by a Registered Land Surveyor establishing lines and levels of finished construction.

   d. Soil treatment certification.

   e. Inspection and Test Reports: Where not processed as shop drawings or product data.

   f. Asphalt or PCC concrete pavement or structural mix design record.

   g. Concrete block certification.

7. Project Closeout
Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by the Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in other sections. Time of closeout is directly related to substantial completion, and therefore may be a single time period for the entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates. The time variation, if any, shall be applicable to other provisions of this section.

8. Prerequisites to Substantial Completion

   a. Prior to requesting the Engineer's inspection for certification of substantial completion, for either the entire work or portions thereof, complete the following and list known exceptions in request:

      (1) In the progress payment request coincident with or first following the date claimed, show 100% completion for the portion of work claimed as "substantially completed", or list incomplete items, value of incompletion, and reasons for being incomplete.

      (2) Include supporting documentation for completion as indicated in the Contract Documents.

      (3) Submit statement showing accounting of changes to the Contract Sum.

      (4) Advise the Owner of pending insurance change-over requirements.

      (5) Obtain and submit releases enabling the Owner's full and unrestricted use of the work and access to services and utilities, including, where required, occupancy permits, operating certificates, and similar releases.

      (6) Deliver tools, spare parts, extra stocks of materials, and similar physical items to the Owner.

      (7) Make the final change-over of locks and transmit keys to the Owner and advise Owner's personnel of change-over in security provisions.

      (8) Complete start-up testing of systems and instructions of Owner's operating-maintenance personnel. Discontinue or change over and remove from the project site, temporary facilities and services, along with construction tools and facilities, mock-ups and similar elements.

   b. Inspection Procedures: Upon receipt of the Contractor's request, the Engineer will proceed with inspection or advise the Contractor of prerequisites not fulfilled. Following initial inspection, the Engineer will prepare a Certificate of Substantial Completion or advise the Contractor of the work which must be performed prior to issuance of the Certificate and will perform a repeat inspection when requested and assured by the Contractor that the work has been substantially completed. Results of the completed inspection will form the initial "punchlist" for final acceptance.

9. Prerequisites to Final Acceptance

   a. Prior to requesting the Engineer's final inspection for certification of final acceptance as required by the General Provisions, the Contractor shall complete the following and list known exceptions in the request:

(1) Submit a certified copy of the Engineer's final punchlist of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the Engineer.

(2) Submit final meter readings for utilities, measured record of stored fuel, and similar data as of time of substantial completion or when the Owner took possession of and responsibility for corresponding elements of the work.

(3) Complete final cleaning up requirements, including touch-up of marred surfaces.

(4) Touch up and otherwise repair and restore marred exposed finishes.

b. Re-inspection Procedures: Following Substantial Completion, the Contractor shall correct or remedy all Punchlist items to the satisfaction of the Engineer and Owner within a two (2) week period after the Date of Substantial Completion. If subsequent inspections are necessary after the two-week period in order to eliminate all deficiencies, the cost of all subsequent inspections with respect to the Owner and Engineer's time shall be paid by the Contractor. When ready, the Contractor shall request in writing a final inspection of the work. Upon completion of re-inspection, the Engineer will prepare a Certificate of Final Acceptance or advise the Contractor of work not completed or obligations not fulfilled as required for Final Acceptance. If necessary, the procedures will be repeated.

10. Prerequisites to Final Payment

a. Final Payment: Final Payment will be made after final acceptance of the project by the Engineer and Owner upon request by the Contractor on condition that the Contractor:

(1) Furnish properly executed complete releases of lien from all materialmen and subcontractors who have furnished materials or labor for the Work and submit supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

(2) Furnish the Contractor's Affidavit of Release of Liens (2 copies) that all materialmen and subcontractors have been paid in full. In the event they have not been paid in full, the Owner shall retain a sufficient sum to pay them in full and at his option may make direct payment as provided in Chapter 84, Florida Statutes, as amended, to obtain complete releases of lien.

(3) Furnish Contractor's Affidavit of Debts and Claims (2 copies).

(4) Furnish required sets of record drawings and maintenance and operating instructions of new mechanical equipment.

(5) Furnish guarantees signed by subcontractors, material suppliers, and countersigned by the Contractor for operating equipment.

(6) Submit specific warranties, workmanship-maintenance bonds, maintenance agreements, final certifications and similar documents.

(7) Furnish a signed guarantee, in form acceptable to the Engineer and Owner agreeing to repair or replace as decided by the Engineer, all work and materials that prove defective within one (1) year (or more) from the date of final acceptance, including restoration of all other work damaged in making such repairs or replacements.

(8) Furnish Consent of Surety to final payment.

(9) Submit updated final statement, accounting for final changes to Contract Sum.

(10) Submit evidence of final, continuing insurance coverage complying with insurance requirements.

(11) Certify that all Social Security, Unemployment and all other taxes (City, State, Federal Government) have been paid.

(12) Provide receipt, as applicable, of affidavits certifying all labor standards of local, State, or Federal requirements have been complied with by the Contractor.

(13) Submit actual DBE participation percentages.

11. Record Document Submittals

Specific requirements for record documents are shown in the section, PROJECT RECORD DOCUMENTS. Other requirements are indicated in the General Provisions. General submittal requirements are indicated in "Submittals" sections. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Engineer's reference during normal working hours.

a. Record Drawings: The Engineer shall organize record drawing sheets into manageable sets, bind with durable paper cover sheets and print suitable titles, dates and other identification on the cover of each set.

b. Record Specifications: Upon completion of mark-ups, submit to the Engineer for the Owner's records.

c. Record Product Data: Upon completion of mark-ups, submit complete sets to the Engineer for the Owner's records.

d. Record Sample Submittal: Comply with the Engineer's instructions for packaging, identification, marking and delivery to the Owner's sample storage space.

e. Miscellaneous Record Submittals: Complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records.

f. Maintenance Manuals: Complete, place in order, properly identify and submit to the Engineer for the Owner's records.

12. Closeout Procedures
General Operating and Maintenance Instructions: Arrange for each installer of work requiring continuing maintenance or operation, to meet with the Owner's personnel at the project site to provide basic instructions needed for proper operation and maintenance of the entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuel, identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy, efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain bonds, and similar continuing commitments.

V. Final Cleaning

1. Provide final cleaning of the work, at the time indicated, consisting of cleaning each surface or unit of work to normal "clean" condition in a manner acceptable to the Engineer and Owner.

2. Removal of Protection: Remove temporary protection devices and facilities which were installed during the course of the work to protect previous completed work during the remainder of the construction period.

3. Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, bury debris or excess materials on the Owner's property. Do not discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from site and dispose of in a lawful manner.

Where extra materials of value remaining after the completion of the associated work have become the Owner's property, dispose of these as directed by the Owner.

END OF SP-7

TECHNICAL SPECIFICATIONS

SECTION 101

MOBILIZATION

101-1 Description

Perform preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, and sanitary and other facilities.

Include the costs of bonds and any required insurance and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials.

101-2 Basis of Payment

101-2.1 When a Separate Item is Included in the Proposal: When the proposal includes a separate item of payment for this work, the work and incidental costs specified as being covered under this Section will be paid for at the Contract lump sum price for the item of Mobilization.

Payment will be made under:

Item No. 101-1	***Mobilization – Base Bid***	***- per Lump Sum (LS)***
Item No. 101-2	***Mobilization – Add. Alt. No. 1***	***- per Lump Sum (LS)***
Item No. 101-3	***Mobilization – Add. Alt. No. 2***	***- per Lump Sum (LS)***
Item No. 101-4	***Mobilization – Add. Alt. No. 3***	***- per Lump Sum (LS)***

101-2.2 Partial Payments: When the proposal includes a separate pay item for Mobilization and the Notice to Proceed has been issued, partial payments will be made in accordance with the following:

For contracts of 120 contract days duration or less, partial payment will be made at 50% of the bid price per month for the first two months.

For contracts in excess of 120 contract days duration, partial payment will be made at 25% of the bid price per month for the first four months. In no event shall more than 50% of the bid price be paid prior to commencing construction on the project site.

Total partial payments for Mobilization on any project, including when more than one project or job is included in the Contract, will be limited to 10% of the original Contract amount for that project. Any remaining amount will be paid upon completion of all work on the Contract.

Retainage, as specified in the Contract Documents, will be applied to all partial payments.

Partial payments made on this item will in no way act to preclude or limit any of the provisions for partial payments otherwise provided for by the Contract.

101-2.3 When No Separate Item is Included in the Proposal: When the proposal does not include a separate item for Mobilization, all work and incidental costs specified as being covered under this Section will be included for payment under the several scheduled items of the overall Contract, and no separate payment will be made therefore.

END OF SECTION 101

SECTION 102

MAINTENANCE OF TRAFFIC

102-1 Description
Maintain traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. Construct and maintain detours. Provide facilities for access to residences, businesses, etc., along the project. Furnish, install and maintain traffic control and safety devices during construction. Furnish and install work zone pavement markings for maintenance of traffic (MOT) in construction areas. Provide any other special requirements for safe and expeditious movement of traffic specified in the Plans. MOT includes all facilities, devices and operations as required for safety and convenience of the public within the work zone.

Do not maintain traffic over those portions of the project where no work is to be accomplished or where construction operations will not affect existing roads. Do not obstruct or create a hazard to any traffic during the performance of the work and repair any damage to existing pavement open to traffic. Basis of Payment

102-2 Materials.
Meet the following requirements:

Bituminous Adhesive.....Section 970
Temporary Raised Pavement Markers.....Section 990
Paint.....Section 971
Removable Tape.....Section 990
Glass Spheres.....Section 971
Temporary Traffic Control Device Materials.....Section 990
Retroreflective and Nonreflective Sheeting for Temporary Traffic Control Devices.....Section 994

102-2.1 Temporary Traffic Control Devices: Use only the materials meeting the requirements of Section 990, Section 994, Standard Plans and the Manual on Uniform Traffic Control Devices (MUTCD).

102-2.2 Detour: Provide all materials for the construction and maintenance of all detours.

102-2.3 Commercial Materials for Driveway Maintenance: Provide materials of the type typically used for base, including reclaimed asphalt pavement (RAP) material, and having stability and drainage properties that will provide a firm surface under wet conditions.

102-3 Specific Requirements.

102-3.1 Beginning Date of Contractor's Responsibility: Maintain traffic starting the day work begins on the project or on the first day Contract Time is charged, whichever is earlier.

102-3.2 Worksite Traffic Supervisor: Provide a Worksite Traffic Supervisor who is responsible for initiating, installing, and maintaining all temporary traffic control devices as described in this Section and the Contract Documents. Provide all equipment and materials needed to set up, take down, maintain traffic control, and handle traffic-related situations. Use approved alternate Worksite Traffic Supervisors when necessary.

The Worksite Traffic Supervisor must meet the personnel qualifications specified in Section 105. The Worksite Traffic Supervisor is to perform the following duties:

1. On site direction of all temporary traffic control on the project.

2. Is on site during all set up and take down, and performs a drive through inspection immediately after set up.

3. Is on site during all nighttime operations ensuring proper temporary traffic control.

4. Immediately corrects all safety deficiencies and corrects minor deficiencies that are not immediate safety hazards within 24 hours.

5. Is available on a 24 hour per day basis and present at the site within 45 minutes after notification of an emergency situation and is prepared to respond to maintain temporary traffic control or to provide alternate traffic arrangements.

6. Conducts daily daytime and weekly nighttime inspections of projects with predominately daytime work activities, and daily nighttime and weekly daytime inspections of projects with predominantly nighttime work activities of all traffic control devices, traffic flow, pedestrian, bicyclist, and business accommodations.

   Advise the project personnel of the schedule of these inspections and give them the opportunity to join in the inspection as deemed necessary. Pedestrians are to be accommodated with a safe, accessible travel path around work sites separated from mainline traffic in compliance with the Americans with Disabilities Act (ADA) Standards for Transportation Facilities. Maintain existing or detour bicycle facilities satisfactorily throughout the project limits. Existing businesses in work areas are to be provided with adequate entrances for vehicular and pedestrian traffic during business hours.

The Owner may disqualify and remove from the project a Worksite Traffic Supervisor who fails to comply with the provisions of this Section. The Owner may temporarily suspend all activities, except traffic, erosion control and such other activities that are necessary for project maintenance and safety, for failure to comply with these provisions.

102-3.3 Lane Closures: Approval for all lane closures, mobile operations, and traffic pacing operations is required. Submit routine requests to the Engineer fourteen calendar days in advance of planned lane closures, mobile operations, and traffic pacing operations. For unforeseen events that require cancelling or rescheduling lane closures, mobile operations, and traffic pacing operations, revise the lane closure request as soon as possible.

102-4 Alternative Traffic Control Plan.

The Contractor may propose an alternative traffic control plan (TCP) to the plan presented in the Contract Documents. The Contractor's Engineer of Record must sign and seal the alternative plan and submit to the Engineer. Prepare the TCP in conformance with and in the form outlined in the current version of the FDOT Design Manual. Indicate in the plan a TCP foreach phase of activities. Take responsibility for identifying and assessing any potential impacts to a utility that may be caused by the alternate TCP proposed by the Contractor, and notify the Owner in writing of any such potential impacts to utilities.

For projects with nighttime lane closure restrictions where paving is expected to extend into the winter months, the Contractor may propose an alternative TCP allowing for daytime lane closures for friction course paving. The alternative TCP must be a lane closure analysis based on actual traffic counts and prepared in accordance with the FDOT Design Manual.

Engineer's approval of the alternate TCP does not relieve the Contractor of sole responsibility for all utility impacts, costs, delays or damages, whether direct or indirect, resulting from Contractor initiated changes in the design or construction activities from those in the original Contract Specifications, Design Plans (including TCPs) or other Contract Documents and which effect a change in utility work different from that shown in the Utility Plans, joint project agreements or utility relocation schedules.

The Owner reserves the right to reject any alternative TCP. Obtain the Engineer's written approval before beginning work using an alternate TCP. The Engineer's written approval is required for all modifications to the TCP. The Engineer will only allow changes to the TCP in an emergency without the proper documentation.

102-5 Traffic Control.

102-5.1 Standards: FDOT Standard Plans are the minimum standards for the use in the development of all TCPs. The MUTCD, Part VI is the minimum national standard for traffic control for highway construction, maintenance, and utility operations. Follow the basic principles and minimum standards contained in these documents for the design, application, installation, maintenance, and removal of all traffic control devices, warning devices and barriers which are necessary to protect the public and workers from hazards within the project limits.

102-5.2 Maintenance of Roadway Surfaces: Maintain all lanes that are being used for the MOT, including those on detours and temporary facilities, under all weather conditions. Keep the lanes reasonably free of dust, potholes and rutting. Provide the lanes with the drainage facilities necessary to maintain a smooth riding surface under all weather conditions.

102-5.3 Number of Traffic Lanes: Maintain one lane of traffic in each direction. Maintain two lanes of traffic in each direction at existing four (or more) lane cross roads, where necessary to avoid undue traffic congestion. Construct each lane used for MOT at least as wide as the traffic lanes existing in the area before commencement of construction. Do not allow traffic control and warning devices to encroach on lanes used for MOT.

The Engineer may allow the Contractor to restrict traffic to one-way operation for short periods of time provided that the Contractor employs adequate means of traffic control and does not unreasonably delay traffic. When a construction activity requires restricting traffic to one-way operations, locate the flaggers within view of each other when possible. When visual contact between flaggers is not possible, equip them with 2-way radios, official, or pilot vehicles, or use traffic signals.

102-5.4 Crossings and Intersections: Provide and maintain adequate accommodations for intersecting and crossing traffic. Do not block or unduly restrict any median opening, road or street crossing the project unless approved by the Engineer. Before beginning any construction, submit to the Engineer the names and phone numbers of persons that can be contacted when signal operation malfunctions.

102-5.5 Access for Residences and Businesses: Provide continuous access to all residences and all places of business.

102-5.6 Protection of the Work from Injury by Traffic: Where traffic would be injurious to a base, surface course, or structure constructed as a part of the work, maintain all traffic outside the limits of such areas until the potential for injury no longer exists.

102-5.7 Flagger: Provide flaggers to control traffic when traffic in both directions must use a single lane and in other situations as required. All flaggers must meet the personnel qualifications specified in Section 105.

102-5.8 Conflicting Pavement Markings: Where the lane use or where normal vehicle or pedestrian paths are altered during construction, remove all pavement markings (paint, tape, thermoplastic, raised pavement markers, etc.) that will conflict with the adjusted vehicle or pedestrian paths. Use of paint to cover conflicting pavement markings is prohibited. Remove conflicting pavement markings using a method that will not damage the surface texture of the pavement and which will eliminate the previous marking pattern regardless of weather and light conditions.

Remove all pavement markings that will be in conflict with “next phase of operation” vehicle pedestrian paths as described above, before opening to vehicle traffic or use by pedestrians.

Cost for removing conflicting pavement markings (paint, tape, thermoplastic, raised pavement markers, etc.) to be included in Maintenance of Traffic, lump sum.

102-5.9 Vehicle and Equipment Visibility: Equip all pickups and automobiles used on the project with a minimum of one Class 2 warning light that meets the Society of Automotive Engineers Recommended Practice SAE J595, dated November 1, 2008, or SAE J845, dated December 1, 2007, and incorporated herein by reference. Existing lights that meet SAE J845, dated March, 1992, or SAE J1318, dated April, 1986, may be used to their end of service life. The warning lights must be a high intensity amber or white rotating, flashing, oscillating or strobe light. Lights must be unobstructed by ancillary vehicle equipment such as ladders, racks or booms and be visible 360 degrees around the vehicle. If the light is obstructed, additional lights will be required. The lights must be operating when the vehicle is in a work area where a potential hazard exists, when operating at less than the average speed for the facility while performing work activities, making frequent stops or called for in the Plans or Standard Plans.

Equip all other vehicles and equipment with a minimum of 4 square feet of retroreflective sheeting or warning lights.

102-5.10 No Waiver of Liability: Conduct operations in such a manner that no undue hazard results due to the requirements of this Article. The procedures and policies described herein in no way acts as a waiver of any terms of the liability of the Contractor or his surety.

102-6 Detours.

102-6.1 General: Construct and maintain detour facilities wherever it becomes necessary to divert traffic, including pedestrians and bicyclists, from any existing facility, or wherever construction operations block the flow of traffic.

102-6.2 Construction: Plan, construct, and maintain detours for the safe passage of traffic in all conditions of weather. Provide the detour with all facilities necessary to meet this requirement.

Where pedestrian facilities are detoured, blocked or closed during the work, provide safe alternate accessible routes through or around the work zone meeting the requirements of the ADA Standards for Transportation Facilities. When temporary walkway surfaces and ramps are required to be constructed, ensure surfaces are stable, firm, slip resistant, and kept free of any obstructions and hazards such as holes, debris, mud, construction equipment and stored materials.

When the Plans call for the Owner to furnish detour bridge components, construct the pile bents in accordance with the Plans, unless otherwise authorized by the Engineer.

Provide two Contractor representatives, who will be directly involved in the erection of Owner-owned temporary bridging, to attend a mandatory one-day training session to be conducted at the Owner's storage facility. No bridging will be released to the Contractor prior to the completion of this training.

Submit the following: company name, phone number, office address, project contact person, names of the representatives who will attend the training described above, project number, detour bridge type, bridge length, span length, location and usage time frames, to the Engineer at least 30 calendar days before the intended pick-up date, to obtain the storage facility location and list of components for the project. Upon receipt, the Engineer will, within 10 calendar days submit an approved material list to the Contractor and the appropriate Owner storage yard.

Submit the name of the representative with authority to pick up components, to the Engineer at least 10 calendar days before the proposed pick-up date. The Owner is not obligated to load the bridge components without this notice. Take responsibility and sign for each item loaded at the time of issuance.

Provide timber dunnage, and transport the bridge components from the designated storage facility to the job site. Unload, erect, and maintain the bridge, then dismantle the bridge and load and return the components to the designated storage facility.

Notify the Engineer in writing at least 10 calendar days before returning the components. Include in this notice the name of the Contractor's representative authorized to sign for return of the bridge components. The yard supervisor is not obligated to unload the bridge components without this notice.

The Owner will provide equipment and an operator at the Owner's storage facility to assist in loading and unloading the bridge components. Furnish all other labor and equipment required for loading and unloading the components.

The Owner's representative will record all bridge components issued or returned on the Detour Bridge Issue and Credit Ticket. The tickets must be signed by a Owner and a Contractor representative, after loading or unloading each truck to document the quantity and type of bridging issued or returned.

Bind together all bridge components to be returned in accordance with the instructions given by the storage facility. The yard supervisor will repack components that are not packed in compliance with

these instructions. Upon request, written packing instructions will be made available to the Contractor, before dismantling of the bridge for return to the Owner's storage facility.

Assume responsibility for any shortage or damage to the bridge components. Monies due the Contractor will be reduced at the rate of $35.00 per hour plus materials for repacking, repairs or replacement of bridge components.

The skid resistance of open steel grid decking on the detour bridge may decrease gradually after opening the bridge to traffic. The Owner will furnish a pneumatic floor scabbler machine for roughening the roadway surface of the detour bridge decking. Provide an air compressor at the job site with 200 cubic feet per minute capacity, 90 psi air pressure for the power supply of the machine, and an operator. Transport the scabbler machine to and from the Owner's structures shop. Repair any damage to the scabbler machine caused by operations at no expense to the Owner. Perform scabbling when determined necessary by the Engineer. The Owner will pay for the cost of scabbling as Unforeseeable Work in accordance with 4-4.

Return the bridge components to the designated storage facility beginning no later than 10 calendar days after the date the detour bridge is no longer needed, the date the new bridge is placed in service, or the date Contract Time expires, whichever is earliest. Return the detour bridging at an average of not less than 200 feet per week. Upon failure to return the bridge components to the Owner within the time specified, compensate the Owner for the bridge components not returned at the rate of $5.00 per 10 feet, per day, per bridge, for single lane; and $10.00 per 10 feet, per day, per bridge, for dual lane until the bridge components are returned to the Owner.

102-6.3 Construction Methods: Select and use construction methods and materials that provide a stable and safe detour facility. Construct the detour facility to have sufficient durability to remain in good condition, supplemented by maintenance, for the entire period that the detour is required.

102-6.4 Removal of Detours: Remove detours when they are no longer needed and before the Contract is completed. Take ownership of all materials from the detour and dispose of them, except for the materials on loan from the Owner with the stipulation that they are returned.

102-6.5 Detours Over Existing Roads and Streets: When the Owner specifies that traffic be detoured over roads or streets outside the project area, do not maintain such roads or streets. However, maintain all signs and other devices placed for the purpose of the detour.

102-6.6 Operation of Existing Movable Bridges: The Owner will maintain and operate existing moveable bridges that are to be removed by the Contractor until such time as they are closed to traffic. During this period, make immediate repairs of any damage to such structures caused by use or operations related to the work at no expense to the Owner, but do not provide routine repairs or maintenance. In the event that use or operations result in damage to a bridge requiring repairs, give such repairs top priority to any equipment, material, or labor available.

102-6.7 Special Detour: A special detour is defined as a diversion or lane shift for vehicular traffic that requires temporary pavement.

102-6.8 Pedestrian Special Detour: A pedestrian special detour is defined as a temporary pedestrian way that requires temporary pavement or other stable, firm, slip-resistant surface.

102-7 Traffic Control Officer.
Provide uniformed law enforcement officers, including marked law enforcement vehicles, to assist in controlling and directing traffic in the work zone when the following types of work is necessary on projects:

1. When directing traffic/overriding the signal in a signalized intersection.

2. When Standard Plans, Index 102-619 is used on freeway facilities (interstates, toll roads, and expressways) at nighttime for work within the travel lane.

3. When Standard Plans, Index 102-655 Traffic Pacing is called for in the Plans or approved by the Engineer.

4. When pulling conductor/cable above an open traffic lane on limited access facilities, when called for in the Plans or approved by the Engineer.

5. When Standard Plans, Index 102-625 Temporary Road Closure 5 Minutes or Less is used.

6. When performing lane closures during nighttime operations on roadways with posted speed limits 55 mph or greater.

At the Contractor's option, traffic control officers may be used for operations other than those listed above.

Cost for traffic control officers will be paid for as described in 102-11.2.

The Owner will not consider any claim arising from the failure of a traffic control officer to be present or available on the project. A noncompensable time extension may be granted when a state or local emergency requires all area law enforcement officers to be on-duty and not available for hire.

102-8 Driveway Maintenance.

102-8.1 General: Ensure that each residence and business has safe, stable, and reasonable access.

102-8.2 Construction Methods: Place, level, manipulate, compact, and maintain the material, to the extent appropriate for the intended use. As permanent driveway construction is accomplished at a particular location, the Contractor may salvage and reuse previously placed materials that are suitable for reuse on other driveways.

102-9 Temporary Traffic Control Devices.

102-9.1 General: Use only devices that are listed on the APL. Immediately remove or cover, using any method of covering approved by the Engineer, any existing or temporary devices that do not apply to current conditions.

The use of NCHRP Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Features devices purchased prior to January 1, 2020 is permitted on projects let prior to January 1, 2030. All devices manufactured or purchased on or after January 1, 2020 must be MASH compliant in accordance with Section 990.

The APL number is to be permanently marked on the device at a readily visible location. Sheeting used on devices and pavement markings are exempt from this requirement.

Notify the Engineer in writing of any scheduled operation that will affect traffic patterns or safety sufficiently in advance of commencing such operation to permit review of the plan for the proposed installation of temporary traffic control devices.

Assign an employee the responsibility of maintaining the position and condition of all temporary traffic control devices throughout the duration of the Contract. Keep the Engineer advised at all times of the identification and means of contacting this employee on a 24 hour basis.

Maintain temporary traffic control devices in the correct position, properly oriented, clearly visible and clean, at all times. All applicable temporary traffic control devices must meet the classification category of Acceptable as defined in the American Traffic Safety Services Association (ATSSA) Quality Guidelines for Temporary Traffic Control Devices and Features. Temporary concrete barriers must meet the classification category of Acceptable defined in the FDOT's Temporary Concrete Barrier Evaluation Guide, which may be viewed at the following URL: https://fdotwww.blob.core.windows.net/sitefinity/docs/defaultsource/programmanagement/implemented/urlinspecs/files/docs/default-source/contentdocs/programmanagement/implemented/urlinspecs/files/temporaryconcretebarrierguide.pdf.pdf?_sfvrsn=343b4c97_10. Pedestrian longitudinal channelizing devices (LCDs) must meet the classification category of Acceptable as defined in the Pedestrian LCD Evaluation Guide, which may be viewed at the following URL: https://fdotwww.blob.core.windows.net/sitefinity/docs/defaultsource/programmanagement/implemented/urlinspecs/files/lcdevaluationguide.pdf?sfvrsn=166e0f16_2. Immediately repair, replace or clean damaged, defaced or dirty devices. Traffic control devices must not be cleaned while installed/used. Use of warning lights on any temporary traffic control device is prohibited, with the exception of the trailer mounted portable regulatory signs.

Employ an approved independent Channelizing Device Supplier (CDS) to provide and maintain the condition of the following non-fixed channelizing devices: drums, cones, vertical panels, barricades, tubular markers, and longitudinal channelizing devices. Cones may be provided and maintained by the Contractor.

The CDS shall not be affiliated with the Contractor and shall be approved by the Engineer in accordance with 102-9.1.1. The CDS shall submit a monthly certification on letterhead that the channelizing devices mentioned above installed/used within the work zone meet classification category of Acceptable as defined in the Pedestrian LCD Evaluation Guide and the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features. The CDS shall submit the monthly certification on letterhead for channelizing devices installed/used within the work zone. The CDS certification shall include the following statement, "I certify that I have provided and maintained the following devices <list devices covered under the certification> in accordance with Pedestrian LCD Evaluation Guide and the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features." If the Contractor chooses to provide and maintain cones, the Contractor must submit a monthly Contractor certification on letterhead that all cones installed/used within the work zone meet acceptable standards as outlined in the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features. The Contractor certification shall include the following statement, "I certify that I have provided and maintained cones in accordance with the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features."

102-9.1.1 Approved Independent Channelizing Device Supplier (CDS) Requirements: Submit the following documents to the Engineer for independent CDS approval at the preconstruction

conference. A CDS may elect to provide a one-time submittal of this information to the State Construction Office for review and pre-approval. FDOT approved CDSs are listed on the State Construction Office website. Inform the Engineer at the preconstruction conference of this approval.

1. A letter on company letterhead signed and dated by the owner of the company or company officer with the following information and statements:

    a. The company's owners, stockholders, and officers.

    b. A statement declaring that the company will not perform as a CDS on any project where there is common ownership, directly or indirectly, between the company and the Contractor.

    c. A statement declaring that the company will furnish and maintain the condition of all channelizing devices with the exception of cones as required in 1029.1 with its own forces.

    d. A statement declaring at least five years of experience in providing channelizing device supplier services, with its own inventory of channelizing devices.

    e. On a separate sheet, list a sample project history of the company's experience as a channelizing device supplier for the five years declared in item 1(d) above including the following information:

        1. Project name and number and a brief description of CDS work performed,

        2. Beginning and ending date of CDS project activities,

        3. Location of project (city, state),

        4. Monetary amount of CDS work on project,

        5. Owner of project, contact person and phone number with area code,

        6. Name of Contractor (client) that the work was performed for and phone number with area code.

2. A maintenance plan for approval by the Owner that outlines the frequency and methods for maintaining the condition of all channelizing devices, except cones owned and maintained by the Contractor, installed/used in the work zone.

102-9.2 Work Zone Signs: Furnish, install, maintain, remove and relocate signs in accordance with the Plans and Standard Plans, Index 102-600.

102-9.2.1 Post Mounted Signs: Meet the requirements of 990-8.

102-9.2.2 Portable Signs: Use only approved systems, which includes sign stands and attachment hardware (nuts, bolts, clamps, brackets, braces, etc.), meeting the vendor requirements specified on the APL drawings.

102-9.2.3 Barrier Mounted Signs: If post mounting criteria cannot be achieved in accordance with Standard Plans, Index 102-600 and a barrier or traffic railing exists, use temporary sign criteria provided in Standard Plans, Index 700-013.

102-9.3 Business Signs: Provide and place signs in accordance with the Plans and Standard Plans, Index 102 series. Furnish signs having retroreflective sheeting meeting the requirements of Section 990.

102-9.4 Project Information Signs: Provide and place signs in accordance with the Plans and Standard Plans, Index 102 series. Furnish signs having retroreflective sheeting meeting the requirements of Section 990.

102-9.5 Channelizing Devices: Furnish, install, maintain, remove and relocate channelizing devices in accordance with the Plans and Standard Plans.

102-9.5.1 Retroreflective Collars for Traffic Cones: Use collars for traffic cones listed on the APL that meet the requirements of Section 990. Use cone collars at night designed to properly fit the taper of the cone when installed. Place the upper 6 inch collar a uniform 3-1/2 inches distance from the top of the cone and the lower 4 inch collar a uniform 2 inches distance below the bottom of the upper 6 inch collar. Collars must be capable of being removed for temporary use or attached permanently to the cone in accordance with the manufacturer's recommendations. Provide a white sheeting having a smooth outer surface and that has the property of a retroreflector over its entire surface.

102-9.5.2 Longitudinal Channelizing Devices (LCDs): Use LCDs listed on the APL and meeting the requirements of Section 990 and the Standard Plans. LCDs must be interlocked except for the stand-alone unit placed perpendicular to a sidewalk. For LCDs requiring internal ballasting, an indicator that clearly identifies the proper ballast level will be required. For LCDs requiring external ballasting, the ballasting methods must be detailed in the APL drawings including ballasting type and minimum weight.

Ensure that joints on the pedestrian LCDs are free of sharp edges and have a maximum offset of 1/2 inch in any plane.

Use alternating orange and white solid color vehicular LCDs. Vehicular LCDs may be substituted for drums, vertical panels, or barricades.

102-9.6 Temporary Barrier: Furnish, install, maintain, remove and relocate temporary barrier in accordance with the Plans and Standard Plans. Obtain and use precast temporary concrete barrier from a manufacturing plant that is on the FDOT's Production Facility Listing. Temporary concrete barrier must meet the material and construction requirements of Section 521 unless noted otherwise in the Standard Plans. Proprietary temporary concrete, steel, or water filled barrier used must be listed on the APL.

The maximum allowable height increase between consecutive temporary barrier units in the direction of traffic is 1 inch.

Temporary barrier must comply with Standard Plans, Index 102-100 or 102-120. Install temporary barriers as either anchored or freestanding as shown in the Plans or the Standard Plans. An

anchored unit is defined as having at least one stake or bolt into the underlying pavement or bridge deck. All other units, including those with keeper pins, are considered freestanding.

Remove temporary asphalt pads and repair all attachment scars to permanent structures and pavements after barrier removal. Make necessary repairs due to defective material, work, or Contractor operations at no cost to the Owner. Restore barrier damaged by the traveling public within 24 hours after notification as authorized by the Engineer.

Trailer mounted barriers listed on the APL may be used at the option of the Contractor. Trailer mounted barriers listed on the APL must have an FHWA eligibility letter and be successfully crash tested in accordance with MASH TL-3 criteria. All trailer mounted barriers must be equipped with an APL listed truck mounted attenuator, an APL listed vehicle mounted arrow board and vehicle warning lights in accordance with this Section.

102-9.6.1 Temporary Barrier Meeting the Requirements of Standard Plans, Index 102-120 and 102-110: Ensure the marking requirements of the respective Index are met.

102-9.6.2 Proprietary Precast Temporary Concrete Barrier Fabricated prior to 2005: Submit a certification stating that all unmarked barrier units meet the requirements of the Specifications and the Standard Plans. Certifications will be project specific and non-transferable.

102-9.6.3 Proprietary Precast Temporary Concrete Barrier Fabricated in 2005 or later: Ensure each barrier unit has permanent clear markings, showing the manufacture date, serial number, manufacturer's name or symbol, and the APL number. Label the markings on a plate, plaque, or cast in the unit. Proprietary barrier fabricated prior to 2016 and marked with the "INDX 521" in lieu of the APL number will be permitted.

102-9.6.4 Temporary Concrete Barrier Repair: Before beginning the repair, remove all laitance, loose material, and any other deleterious matter to sound concrete or a minimum depth of one inch. Additionally, when reinforcing bars, inserts or weldments are exposed, remove the concrete to provide a minimum one inch clearance all around. Fill the repair area with an approved high performance concrete repair material in accordance with 930-5 and the manufacturer's recommendations. Restore surfaces and edges to the original dimensions and shape of the barrier.

Repairs are not allowed on barrier units that have one or more of the following deficiencies: structural cracking or cracks that exist through the entire cross-section; unit-to-unit connection assemblies or anchor slots are broken or no longer in a fixed position.

Do not paint repaired barriers.

102-9.7 Barrier Delineators: Install barrier delineators on top of temporary barrier and vehicular LCDs meeting the requirements of Section 705.

102-9.8 Temporary Glare Screen: Use temporary glare screens listed on the APL that meet the requirements of Section 990. Furnish, install, maintain, remove and relocate glare screen systems in conjunction with temporary barrier at locations identified in the Plans.

The anchorage of the glare screen to the barrier must be capable of safely resisting an equivalent tensile load of 600 pounds per foot of glare screen, with a requirement to use a minimum of three fasteners per barrier section.

When glare screen is utilized on temporary barrier, barrier delineators will not be required.

102-9.9 Temporary Crash Cushion (Redirective or Gating): Furnish, install, maintain and subsequently remove temporary crash cushions in accordance with the details and notes shown in the Plans, Standard Plans, and requirements of the pre-approved alternatives listed on the APL.

Temporary crash cushions can be either new or used functionally sound refurbished devices. Performance of intended function is the only condition for acceptance. All metallic components must be galvanized in accordance with Section 967.

Anchor abutting temporary barrier in accordance the Standard Plans or APL drawings, as required. Bidirectional installations must have a transition panel installed between the crash cushion and the abutting barrier. Delineate the crash cushion in accordance with Section 544. Maintain the crash cushions until their authorized removal. Do not place any materials or equipment within the length of the crash cushion.

Remove temporary asphalt or concrete pads and repair all attachment scars to permanent structures and pavements after crash cushion removal. Make necessary repairs due to defective material, work, or Contractor operations at no cost to the Owner. Restore crash cushions damaged by the traveling public within 24 hours after notification as authorized by the Engineer.

102-9.10 Temporary Guardrail: Furnish temporary guardrail in accordance with the Plans and Standard Plans. Meet the requirements of Section 536.

102-9.11 Arrow Board: Furnish arrow boards that meet the requirements of Section 990 as required by the Plans and Standard Plans to advise approaching traffic of lane closures or shoulder work. Ensure that the arrow board display panel is raised to a fully upright position and is fully visible to motorists. Type B arrow boards may be used on low to intermediate speed (0 mph to 50 mph) facilities or for maintenance or moving operations on any speed facility. Type C arrow boards must be used for all other operations on high-speed (50 mph and greater) facilities and may be substituted for Type B arrow boards on any speed facility.

102-9.12 Portable Changeable Message Sign (PCMS): Furnish PCMSs or truck mounted changeable message signs that meet the requirements of Section 990 as required by the Plans and Standard Plans to supplement other temporary traffic control devices used in work zones. Ensure that the PCMS display panel is raised to a fully upright position and is fully visible to motorists.

Messages must have no more than two phases. The display time for each phase must be at least two seconds but no more than three seconds. The sum of the display time must be a maximum of six seconds.

102-9.13 Portable Regulatory Signs (PRS): Furnish PRSs that meet the requirements of Section 990 as required by the Plans and Standard Plans. Ensure that the PRS sign panel is raised to a fully upright position and is fully visible to motorists.

Activate portable regulatory signs only during active work activities and deactivate when no work is being performed.

102-9.14 Radar Speed Display Unit (RSDU): Furnish RSDUs that meet the requirements of Section 990 as required by the Plans and Standard Plans to inform motorists of the posted speed and their actual speed. Ensure that the RSDU display panel is mounted in accordance with the manufacturer's recommendations.

Activate the radar speed display unit only during active work activities and deactivate when no work is being performed.

102-9.15 Temporary Signalization and Maintenance: Provide temporary signalization and maintenance at existing, temporary, and new intersections including but not limited to the following:

1. Installation of temporary poles and span wire assemblies as shown in the Plans,

2. Temporary portable traffic signals as shown in the Plans,

3. Adding or shifting signal heads,

4. Trouble calls,

5. Maintaining intersection and coordination timing and preemption devices. Coordination timing will require maintaining functionality of system communications.

Restore any loss of operation within 12 hours after notification. Provide alternate temporary traffic control until the signalization is restored.

Provide traffic signal equipment that meets the requirements of the Standard Plans and 603-2. The Engineer may approve used signal equipment if it is in acceptable condition. Replacement components for traffic signal cabinet assemblies will be provided by the maintaining agency. For temporary signals used for lane closure operations on two-lane, twoway roadways meet the requirements in 102-9.21.

102-9.16 Temporary Traffic Detection and Maintenance: Provide temporary traffic detection and maintenance at existing, temporary, and new signalized intersections. Provide temporary traffic detection equipment listed on the APL. Restore any loss of detection within 12 hours. Ensure 90% accuracy per signal phase, measured at the initial installation and after any lane shifts, by comparing sample data collected from the detection system with ground truth data collected by human observation. Collect the sample and ground truth data for a minimum of five minutes during a peak and five minutes during an off-peak period with a minimum three detections for each signal phase. Perform the test in the presence of the Engineer.

102-9.17 Truck Mounted Attenuators and Trailer Mounted Attenuators: Furnish, operate and maintain APL listed truck mounted and trailer mounted attenuators in accordance with the manufacturer's recommendations.

For posted speeds of 50 mph or greater, use either truck mounted attenuators or trailer mounted attenuators that meet TL-3 criteria. For posted speeds of 45 mph or less, use either truck mounted attenuators or trailer mounted attenuators that meet TL-2 or TL-3 criteria.

Attenuators will not be paid for separately. Include the cost of the truck with either a truck mounted attenuator or a trailer mounted attenuator in Maintenance of Traffic, lump sum. Payment includes all costs, including furnishing, operating maintaining and removal when no longer required, and all materials, labor, tools, equipment and incidentals required for attenuator maintenance.

102-9.18 Temporary Raised Rumble Strip Set: Furnish, install, maintain, remove, and reinstall temporary raised rumble strips per the manufacturer's recommendations and in accordance with Standard Plans, Index 102-603.

The temporary raised rumble strip may be either a removable polymer striping tape or a molded engineered polymer material.

102-9.19 Automated Flagger Assistance Devices (AFAD): Furnish, install, maintain, remove, and relocate AFADs in accordance with the Plans, Standard Plans, Index 102-603, and APL vendor drawings.

Position AFADs where they are clearly visible to oncoming traffic. AFADs may be placed on the centerline if they have been successfully crash tested in accordance with MASH TL-3 criteria. A gate arm is required in accordance with Section 990 if a single AFAD is used on the shoulder to control one direction of traffic.

The devices may be operated either by a single flagger at one end of the traffic control zone, from a central location, or by a separate flagger near each device location. Use only flaggers trained in accordance with Section 105 and in the operation of the AFAD. When in use, each AFAD must be in view of, and attended at all times by, the flagger operating the device.

Provide two flaggers on-site and use one of the following methods in the deployment of AFADs:

1. Place an AFAD at each end of the temporary traffic control zone, or

2. Place an AFAD at one end of the temporary traffic control zone and a flagger at the opposite end.

A single flagger may simultaneously operate two AFADs as described in (1) or a single AFAD as described in (2) if all of the following conditions are met:

1. The flagger has an unobstructed view of the AFAD(s),

2. The flagger has an unobstructed view of approaching traffic in both directions,

3. For two AFADs, the AFADs are less than 800 feet apart. For one AFAD, the AFAD and the flagger are less than 800 feet apart.

4. Two flaggers are available on-site to provide normal flagging operations should an AFAD malfunction.

AFADs may be either a remotely controlled Stop/Slow AFAD mounted on either a trailer or a movable cart system, or a remotely controlled Red/Yellow Lens AFAD.

Illuminate the flagging station when the AFAD is used at night. When the AFAD is not in use, remove or cover signs and move the AFAD device outside the clear zone or shield it with a barrier.

AFADs will not be paid for separately. AFADs may be used as a supplement or an alternate to flaggers in accordance with the Plans, Standard Plans, Index 102-603, and the APL vendor drawings. Include the cost for AFADs in Maintenance of Traffic, Lump Sum.

102-9.20 Temporary Lane Separator: Furnish, install, maintain, remove and relocate temporary lane separator in accordance with the Plans and Standard Plans, Index 102-600. Anchor the portable temporary lane separator with a removable anchor bolt. Use epoxy on bridge decks where anchoring is not allowed. Remove the epoxy from the bridge deck by hydroblasting or other method approved by the Engineer.

102-9.21 Temporary Signals for Lane Closures on Two-Lane, Two-Way Roadways: Furnish, install, maintain, remove, and relocate temporary signals for lane closure operations on two-lane, two-way roadways at the locations shown in the Plans. Temporary signals may be used, at the Contractor's option, as an alternate to flaggers for lane closure operations on twolane, two-way roadways in accordance with Standard Plans, Index 102-606. Temporary signals can either be portable signals or span wire signals and must be listed on the APL.

102-10 Work Zone Pavement Marking.

102-10.1 Description: Furnish and install work zone pavement markings for MOT in construction areas and in close conformity with the lines and details shown in the Plans and Standard Plans. Centerlines, lane lines, edge lines, stop bars, standard crosswalks, and turn arrows will be required in work zones prior to opening the road to traffic.

102-10.2 Painted Pavement Markings:

102-10.2.1 General: Use painted pavement markings meeting the requirements of Section 710. Use standard paint unless otherwise identified in the Plans or approved by the Engineer.

102-10.3 Removable Tape:

102-10.3.1 General: Use removable tape listed on the APL as shown in the Plans and meeting the requirements of 990-4.

102-10.3.2 Application: Apply removable tape with a mechanical applicator to provide pavement lines that are neat, accurate and uniform. Equip the mechanical applicator with a film cut-off device and with measuring devices that automatically and accumulatively measure the length of each line placed within an accuracy tolerance of plus or minus 2%. Ensure removable tape adheres to the road surface. Removable tape may be placed by hand on short sections, 500 feet or less, if it is done in a neat accurate manner.

102-10.3.3 Retroreflectivity: Apply white and yellow pavement markings that will attain an initial retroreflectivity of not less than 300 mcd/lx·m2 for white and contrast markings and not less than 250 mcd/lx·m2 for yellow markings. Black portions of contrast tapes and black masking tapes must be non-reflective and have a reflectance of less than 5 mcd/lx m2. At the end of the

six month service life, the retroreflectance of white and yellow removable tape shall not be less than 150 mcd/lx·m2.

102-10.3.4 Removability: Provide removable tape capable of being removed from bituminous concrete and portland cement concrete pavement intact or in substantially large strips, either manually or by a mechanical roll-up device, at temperatures above 40ºF, without the use of heat, solvents, grinding or blasting.

102-10.4 Temporary Raised Pavement Markers (RPMs): Use Class B RPMs except for work that consists of ground-in rumble strips at centerline locations. For ground-in rumble strips at centerline locations, use temporary RPMs in accordance with Section 710. Provide only temporary RPMs listed on the APL. Install all markers in accordance with the manufacturer's recommendations, the Standard Plans, and Section 706. After initial installation, replace broken or missing temporary RPMs in locations where more than three consecutive temporary RPMs are broken or missing at no expense to the Owner.

102-11 Method of Measurement.

No separate measurement shall be made for Maintenance of Traffic. Include the cost of any work and all materials, including signage, barricades, informational signage, and any other materials necessary to meet the requirements of the Florida Department of Transportation per the contract documents for maintenance of traffic under the lump sum price for Maintenance of Traffic.

102-12 Submittals.

102-12.1 Submittal Instructions: Prepare a certification of quantities for certified MOT payment items for each project in the Contract. Submit the certification of quantities to the Engineer. The Owner will not pay for any disputed items until the Engineer approves the certification of quantities.

102-12.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O'clock noon Monday after the estimate cut-off date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification consists of the following:

1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.

2. The basis for arriving at the amount of the progress certification, less payments previously made and less an amount previously retained or withheld. The basis will include a detail breakdown provided on the certification of items of payment in accordance with 102-13. After the initial setup of the MOT items and counts, the interval for recording the counts will be made weekly on the certification sheet unless there is a change. This change will be documented on the day of occurrence. Some items may necessitate a daily interval of recording the counts.

102-13 Basis of Payment.

102-13.1 Maintenance of Traffic (General Work): When an item of work is included in the proposal, price and payment will be full compensation for all work and costs specified under this Section except as may be specifically covered for payment under other items.

102-13.2 Traffic Control Officers: Price and payment will be full compensation for the services of the traffic control officers.

102-13.3 Special Detours: Price and payment will be full compensation for providing all detour facilities shown in the Plans and all costs incurred in carrying out all requirements of this Section for general MOT within the limits of the detour, as shown in the Plans.

102-13.4 Commercial Materials for Driveway Maintenance: Price and payment will be full compensation for all work and materials specified for this item, including specifically all required shaping and maintaining of driveways.

102-13.5 Work Zone Signs: Price and payment will be full compensation for all work and materials for furnishing signs, supports and necessary hardware, installation, relocating, maintaining and removing signs.

102-13.6 Business Signs: Price and payment will be full compensation for all materials and labor required for furnishing, installing, relocating, maintaining, and removing the signs as well as the cost of installing any logos provided by business owners.

102-13.7 Project Information Signs: Price and payment will be full compensation for all materials and labor for furnishing, installing, relocating, maintaining and removing signs.

102-13.8 Channelizing Devices: Prices and payment will be full compensation for furnishing, installing, relocating, maintaining and removing the channelizing devices.

102-13.9 Temporary Barrier: Price and payment will be full compensation for furnishing, installing, maintaining, and removing the barrier and asphalt pad. When called for, temporary barrier (relocate) will be full compensation for relocating the barrier.

102-13.10 Temporary Glare Screen: Price and payment will be full compensation for furnishing, installing, maintaining, and removing the glare screen certified as installed/used on the project. When called for, glare screen (relocate) will be full compensation for relocating the glare screen.

102-13.11 Temporary Crash Cushion (Redirective or Gating): Price and payment will be full compensation for furnishing, installing, maintaining, and removing crash cushions and concrete or asphalt pads.

102-13.12 Temporary Guardrail: Price and payment will be full compensation for furnishing all materials required for a complete installation, including end anchorage assemblies and any end connections to other structures and for installing, maintaining and removing guardrail.

102-13.13 Arrow Board: Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing arrow boards.

102-13.14 Portable Changeable Message Sign: Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing portable changeable message signs.

102-13.15 Portable Regulatory Signs: Price and payment will be full compensation for furnishing, installing, relocating, operating, maintaining and removing a completely functioning system as described in these Specifications.

Payment will include all labor, materials, incidentals, repairs and any actions necessary to operate and maintain the unit at all times that work is being performed or traffic is being affected by construction and/or MOT operations.

102-13.16 Radar Speed Display Unit: Price and payment will be made only for a completely functioning system as described in these Specifications. Payment will include all labor, hardware, accessories, signs, and incidental items necessary for a complete system. Payment will include any measurements needed to ensure that the unit conforms to all Specification requirements.

Payment will include all labor, materials, incidentals, repairs and any actions necessary to operate and maintain the unit at all times that work is being performed or traffic is being affected by construction and MOT operations. Price and payment will be full compensation for furnishing, installing, operating, relocating, maintaining and removing radar speed display unit.

102-13.17 Temporary Signalization and Maintenance: Price and payment will constitute full compensation for furnishing, installing, operating, maintaining and removing temporary traffic control signals including all equipment and components necessary to provide an operable traffic signal. Payment will be withheld for each day at each intersection where the temporary signalization is not operational within 12 hours after notification.

102-13.18 Temporary Traffic Detection and Maintenance: Price and payment will constitute full compensation for furnishing, installing, operating, maintaining and removing temporary traffic detection including all equipment and components necessary to provide an acceptable signalized intersection. Take ownership of all equipment and components. Payment will be withheld for each day at each intersection where the temporary detection is not operational within 12 hours after notification.

102-13.19 Work Zone Pavement Markings: Price and payment will be full compensation for all work specified including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

Removable tape or durable paint may be substituted for standard paint at no additional cost to the Owner.

Payment for temporary RPMs used to supplement line markings will be paid for under temporary raised pavement markers. Install these RPMs as detailed in the Standard Plans.

102-13.20 Temporary Raised Rumble Strips: Price and payment will be full compensation for all work and materials described in this Section, including all cleaning and preparing of surfaces, disposal of all debris, furnishing of all materials, application, curing, removal, reinstalling and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work.

102-13.21 Temporary Lane Separator: Price and payment will be full compensation for all work specified in this Section.

102-13.22 Temporary Signals for Lane Closures on Two-Lane, Two-Way Roadways: Price and payment will be full compensation for furnishing, installing, operating, maintaining and removing temporary traffic signal including all equipment and components necessary to provide an operable portable traffic signal.

102-13.23 Temporary Highway Lighting: Price and payment will be full compensation for providing all temporary highway lighting shown in the Plans.

102-13.24 Pedestrian Special Detours: Price and payment will be full compensation for providing all pedestrian special detours shown in the Plans.

102-13.25 Payment Items: Payment will be made under:

Item 102-1	***Maintenance of Traffic – Base Bid***	***-per Lump Sum (LS)***
Item 102-2	***Maintenance of Traffic – Add. Alt. No. 1***	***-per Lump Sum (LS)***
Item 102-3	***Maintenance of Traffic – Add. Alt. No. 2***	***-per Lump Sum (LS)***
Item 102-4	***Maintenance of Traffic – Add. Alt. No. 3***	***-per Lump Sum (LS)***

END OF SECTION 102

SECTION 104

PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION

104-1 Description.
Provide erosion control measures where work is accomplished in conjunction with the project, to prevent erosion, pollution of water, detrimental effects to public or private property adjacent to the project right-of-way and damage to work on the project.

104-2 General.
Coordinate the installation of temporary erosion control devices with the construction of the permanent erosion control devices to ensure economical, effective, and continuous control of erosion and water pollution throughout the life of the Contract.

104-3 Control of Contractor's Operations Which May Result in Water Pollution.
Prevent contaminants, pollutants or hazardous substances, as defined in Section 376.301, Florida Statutes, from migrating from the construction site or from materials and equipment into any surface waters, wetlands, groundwater or property beyond the project limits. Conduct and schedule operations to avoid and minimize pollution or siltation from the project to surface waters, wetlands, groundwater, or property beyond the project limits.

Do not drive in, operate, or place construction equipment or materials in surface waters, wetlands, groundwater, or property beyond the project limits without permitted authority for permanent or temporary impacts. Water crossings or other wetlands impacts must be authorized by permit. Obstructing or impeding the water flow or movement of the water or wildlife must be authorized by permit.

Where pumps are used to remove highly turbid waters from enclosed construction areas such as cofferdams or forms, treat the water by one or more of the following methods prior to discharge from the project: pumping into grassed swales or appropriate upland vegetated areas or constructed sediment basins, or confined by an appropriate enclosure such as turbidity barriers when other methods are not practical. Do not discharge, water that does not meet State water quality standards or does not meet the criteria specified in any applicable permit.

Remove sediment accumulated during construction from all existing or newly constructed stormwater facilities prior to final acceptance. Ensure that all stormwater conveyances and stormwater facilities meet final grade requirements at final acceptance. Remove silt or regrade as necessary to comply with the lines and grades shown in the Plans.

Do not enter onto lands or waters outside the limits of construction as staked, except as authorized by the Engineer. Do not allow water that does not meet state water quality standards or does not meet the permitted criteria to exit the project limits.

Obtain the Engineer's approval for the location and method of operation in borrow pits, material pits, and disposal areas furnished for waste material from the project (other than commercially operated sources) such that erosion during and after completion of the work will not result in detrimental siltation or water pollution.

104-4 Materials for Temporary Erosion Control.
The Engineer will not require testing of materials used in construction of temporary erosion control devices other than as provided for geotextile fabric in 985-3 unless such material is to be incorporated into the completed project. When no testing is required, the Engineer will base acceptance on visual inspection.

The Contractor may use new or used materials for the construction of temporary silt fence, staked turbidity barriers, and floating turbidity barrier not to be incorporated into the completed project, subject to the approval of the Engineer.

104-5 Preconstruction Requirements.
Prior to the Preconstruction Conference, submit an Erosion and Sediment Control Plan meeting the requirements or special conditions of all permits authorizing project construction. If no permits are required or the approved permits do not contain special conditions or specifically address erosion and water pollution, the project's Erosion and Sediment Control Plan will be governed by 7-1.1, 7-2.2, 7-8.1, 7-8.2, and Section 104.

When a DEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities permit is issued, the Contractor's Erosion and Sediment Control Plan shall be prepared to accompany the Owner's Stormwater Pollution Prevention Plan. Ensure the Erosion and Sediment Control Plan includes procedures to control off-site tracking of soil by vehicles and construction equipment and a procedure for cleanup and reporting of non-storm water discharges, such as contaminated groundwater or accidental spills. Do not begin any soil disturbing activities before receiving the Engineer's written approval of the Erosion and Sediment Control Plan, including the required signed certification statements.

Failure to sign and submit any required documents or certification statements will be considered a default of the Contract. Any soil disturbing activities performed without the required signed documents or certification statements is considered a violation of the DEP Generic Permit for Stormwater Discharge from Large and Small Construction Activities.

Prepare a site-specific Erosion and Sediment Control Plan in accordance with the planned sequence of operations and present it in a format acceptable to the Owner. The Erosion and Sediment Control Plan shall describe, but not be limited to, the following items or activities:

1. For each phase of construction operations or activities, supply the following information:
    a. Locations of all erosion control devices
    b. Types of all erosion control devices
    c. Estimated time erosion control devices will be in operation
    d. Monitoring schedules for maintenance of erosion control devices
    e. Methods of maintaining erosion control devices
    f. Dewatering plan
    g. Locations of all stored fuel or other containments, pollutants or hazardous waste
    h. Spill prevention and response measures and disposal and removal methods
    i. Submit any changes to the Erosion and Sediment Control Plan within seven calendar days
2. The name and telephone number of the person responsible for monitoring and maintaining the erosion control devices.
3. Submit for approval the Erosion and Sediment Control Plans meeting paragraphs 3a, 3b, or 3c below:

a. Projects permitted by the Southwest Florida Water Management District (SWFWMD), require the following:

   Submit the Erosion and Sediment Control Plan to the Engineer for review and to the appropriate SWFWMD Office for review and approval. Include the SWFWMD permit number on all submitted data or correspondence.

   The Contractor may schedule a meeting with the appropriate SWFWMD Office to discuss the Erosion and Sediment Control Plan in detail, to expedite the review and approval process. Advise the Engineer of the time and place of any meetings scheduled with SWFWMD.

   Do not begin construction activities until the Erosion and Sediment Control Plan receives written approval from both SWFWMD and the Engineer.

b. Projects permitted by the South Florida Water Management District or the St. Johns River Water Management District, require the following:

   Obtain the Engineer's approval of the Erosion and Sediment Control Plan.

   Do not begin construction activities until the Erosion and Sediment Control Plan receives written approval from the Engineer.

c. Projects authorized by permitting agencies other than the Water Management Districts or projects for which no permits are required require the following:

   The Engineer will review and approve the Contractor's Erosion and Sediment Erosion Control Plan.

   Do not begin construction activities until the Erosion and Sediment Control Plan receives written approval from the Engineer.

104-6 Construction Requirements.

104-6.1 Limitation of Exposure of Erodible Earth: Do not allow the surface area of erodible earth that clearing and grubbing operations, excavation and filling operations, or other earth disturbing activities to exceed 750,000 square feet without specific prior written approval by the Engineer. This limitation applies separately to clearing and grubbing operations and excavation and filling operations.

The Engineer may further limit the surface areas of unprotected erodible earth exposed by the construction operation and may direct the Contractor to provide additional erosion or pollution control measures to prevent contamination of any surface waters, wetlands, or groundwater or to prevent detrimental effects on property outside the project limits or damage to the project.

104-6.2 Incorporation of Erosion and Sediment Control Devices: Incorporate permanent erosion and sediment control devices into the project at the earliest practical time. Complete the installation of temporary erosion and sediment control devices prior to the commencement of any earthwork. Use temporary erosion and sediment control devices found in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (E&SC Manual) to control erosion and sediment generated by construction operations, to correct unforeseen conditions during construction, and to control

erosion and sediment prior to the incorporation of permanent erosion and sediment control devices. An electronic version of the E&SC Manual can be found at the following URL: https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/FLErosionSedimentManual.shtm

104-6.3 Scheduling of Successive Operations: Schedule operations such that the area of unprotected erodible earth exposed at any one time is not larger than the minimum area necessary for efficient construction operations, and the duration of exposure of uncompleted construction to the elements is as short as practicable.

Schedule and perform clearing and grubbing such that grading operations can be incorporated immediately thereafter. Schedule and perform grading operations so that permanent erosion control devices can follow immediately thereafter if conditions on the project permit.

104-6.4 Details for Temporary Erosion and Sediment Control Devices:

104-6.4.1 General: Use temporary erosion, sediment and water pollution control devices found in the E&SC Manual. These devices consist of, but are not limited to, temporary sod, rolled erosion control products, sediment containment systems, runoff control structures, sediment barriers, inlet protection systems, silt fences, turbidity barriers, and chemical treatment. For design details for some of these devices, refer to the E&SC Manual. Perform installation, inspection, maintenance, and removal of all temporary erosion and sediment control devices in accordance with applicable permits, manufacturer's directions, and the Contract Documents.

104-6.4.2 Temporary Sod: The Engineer may designate certain areas of sod constructed in accordance with Section 570, as a temporary erosion control device. Do not use seed as a temporary erosion control device. The Engineer may waive the turf establishment requirements of Section 570 for areas of temporary sod that will not be a part of the permanent construction.

104-6.4.3 Runoff Control Structures: Construct runoff control structures in accordance with the details shown in the Contract Documents.

104-6.4.4 Sediment Containment Systems: Construct sediment containment systems in accordance with the details shown in the Contract Documents. Clean out sediment containment systems as necessary in accordance with the Contract Documents.

104-6.4.5 Sediment Barriers: Provide and install sediment barriers according to details shown in the Contract Documents or, as directed by the Engineer to protect against downstream accumulation of sediment. Sediment Barriers include, but are not limited to synthetic bales, silt fence, fiber logs and geosynthetic barriers. Reusable barriers that have had sediment deposits removed may be reinstalled on the project as approved by the Engineer.

104-6.4.6 Silt Fence:

104-6.4.6.1 General: Furnish, install, maintain, and remove silt fences, in accordance with the applicable permits, the manufacturer's directions, and the Contract Documents.

104-6.4.6.2 Materials and Installation: Use a geotextile fabric made from woven or nonwoven fabric, meeting the physical requirements of Section 985 according to those applications for erosion control.

Choose the type and size of posts and wire mesh reinforcement (if required). Do not use products which have a separate layer of plastic mesh or netting. Provide a durable and effective silt fence that controls sediment in accordance with the Contract Documents.

Erect silt fence at upland locations and at temporary locations shown in the Contract Documents or where continuous construction activities change the natural contour and drainage runoff. Do not attach silt fence to existing trees unless approved by the Engineer.

104-6.4.6.3 Inspection and Maintenance: Inspect all silt fences in accordance with any applicable permit. If the project does not have a permit, inspect within 24 hours after each rain event and at least daily during prolonged rainfall. Immediately correct any deficiencies. In addition, make a daily review of the location of silt fences in areas where construction activities have changed the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, repair or replace silt fences in accordance with the Contract Documents or as directed by the Engineer.

Remove sediment deposits when the deposit reaches approximately 1/2 the height of the silt fence or as directed by the Engineer. Shape any remaining sediment deposits to conform with the finished grade and prepare the area for turf in accordance with Section 570.

104-6.4.7 Floating Turbidity Barriers and Staked Turbidity Barriers: Furnish, install, maintain, and remove floating turbidity barriers in accordance with the applicable permits, the manufacturer's directions, and the Contract Documents. The Contractor may need to deploy turbidity barriers around isolated areas of concern (such as, seagrass beds, coral communities) both within as well as outside the project limits. The Engineer will identify such areas. Place the barriers prior to the commencement of any work that could impact the area of concern. Ensure that the type of barrier used and the deployment and maintenance of the barrier will minimize dispersion of turbid waters from the project. The Engineer may approve alternate methods or materials.

Install and maintain turbidity barriers to avoid or minimize the degradation of the water quality of the surrounding waters and minimize damage to areas where the floating barriers are installed.

104-6.4.8 Inlet Protection System: Furnish and install inlet protection systems as shown in the Contract Documents.

104-6.4.9 Rolled Erosion Control Products (RECPs):

104-6.4.9.1 General: Install RECPs in locations where temporary protection from erosion is needed. Two common applications are described below.

1. Use RECPs composed of natural or synthetic fiber mats, plastic sheeting, or netting as protection against erosion, when directed by the Engineer, during temporary pauses in construction caused by inclement weather or other circumstances. Remove the material when construction resumes.

2. Use RECPs as erosion control blankets, at locations shown in the Plans, to facilitate plant growth while permanent grassing is being established. For the purpose described, use non-toxic, biodegradable, natural or synthetic woven fiber mats. Install erosion control

blankets capable of sustaining a maximum design velocity of 6.5 ft/sec as determined from tests performed by Utah State University, Texas Transportation Institute or an independent testing laboratory approved by the Owner. Submit to the Engineer, certified test reports from the manufacturer showing that the erosion control blankets meet the requirements of this Specification. Certification must be attested, by a person having legal authority to bind the manufacturing company. Also, furnish two 4 by 8 inch samples for product identification. The manufacturers test records shall be made available to the Owner upon request. Leave the material in place, as installed, to biodegrade.

104-6.4.10 Chemical Treatment: Provide chemical treatment in accordance with the Contract Documents. Chemical treatment may be used to clarify turbid or sediment laden water that does not meet state water quality standards or to supplement other erosion and sediment control devices to aid in their performance. The contractor must provide the required toxicity testing information in accordance with the Contract Documents to the Engineer for review and acceptance prior to using any chemical treatment on the project site.

104-6.5 Removal of Temporary Erosion Control Devices: In general, remove or incorporate into the soil any temporary erosion control devices upon incorporation of the permanent erosion control devices into the project. The Engineer may direct that temporary devices be left in place.

104-7 Maintenance of Erosion and Sediment Control Devices.

104-7.1 General: Provide routine maintenance of permanent and temporary erosion and sediment control devices, at no expense to the Owner, until the project is complete and accepted. If reconstruction or replacement of erosion and sediment control devices is necessary due to the Contractor's negligence or carelessness or, in the case of temporary erosion and sediment control devices, improper installation, lack of maintenance, excessive wear, design-life exceedance or failure by the Contractor to install permanent erosion control devices as scheduled, the Contractor shall repair or replace such erosion control devices at no expense to the Owner. If reconstruction of permanent or temporary erosion and sediment control devices is necessary due to factors beyond the control of the Contractor, the Owner will pay for replacement under the appropriate Contract pay item or items.

Inspect all erosion and sediment control devices at least once every seven calendar days and within 24 hours of the end of a storm event that is 0.50 inches or greater. Maintain all erosion and sediment control devices as required in the Stormwater Pollution Prevention Plan, the Contractor's Erosion and Sediment Control Plan, and if applicable, as specified in the State of Florida Department of Environmental Protection Generic Permit for Stormwater Discharge from Large and Small Construction Activities.

104-8 Protection During Suspension of Contract Time.

Initiate stabilization measures within seven calendar days upon suspension of construction activities. If it is necessary to suspend the construction operations for any appreciable length of time, shape the disturbed areas to facilitate stormwater runoff and construct earthen berms along the top edges of embankments to intercept stormwater runoff. Provide temporary slope drains in areas that are highly erodible to avoid pollution of surface waters, wetlands, groundwater, or property beyond the project limits. Locate slope drains at intervals of approximately 500 feet and stabilize by paving or covering with waterproof materials. Should such preventive measures fail, immediately take action as necessary to

effectively prevent erosion and siltation. During suspension of operations, the Engineer may direct the Contractor to perform additional erosion and sediment control work as necessary.

104-9 Method of Measurement.
Erosion Control shall be measured based on percent complete of the total project. Erosion control measures are required until the project area has been fully stabilized. No separate measurement for individual erosion control devices shall be provided.

Upon acceptance by the Engineer, the quantity of floating turbidity barriers, sediment barriers, staked turbidity barriers, and inlet protection devices will be paid for regardless of whether materials are new, used, or relocated from a previous installation on the project. Protection of newly constructed inlets and drainage systems is incidental to their installation. No separate payment will be made for temporary erosion control devices used to protect newly constructed drainage systems.

104-10 Basis of Payment.
Prices and payments will be full compensation for all work specified in this Section, including construction and routine maintenance of temporary erosion control devices.

Any additional costs resulting from compliance with the requirements of this Section, other than construction, routine maintenance, and removal of temporary erosion control devices, will be included in the Contract unit prices for the item or items to which such costs are related. Temporary sod used as a temporary erosion control device in accordance with 104-6.4.2 will be paid for under Section 570.

Separate payment will not be made for the cost of constructing temporary earth berms along the edges of the roadways to prevent erosion during grading and subsequent operations. The Contractor shall include these costs in the Contract prices for grading items.

In case of repeated failure on the part of the Contractor to control erosion, pollution, or siltation, the Engineer reserves the right to employ outside assistance or to use the Owner's own forces to provide the necessary corrective measures. Any such costs incurred, including engineering costs, will be charged to the Contractor and appropriate deductions made from the monthly progress estimate.

Payment will be made under:

Item No. 104-1 Prevention, Control, and Abatement of Erosion and Water Pollution – Base Bid - per Lump Sum (LS)

Item No. 104-2 Prevention, Control, and Abatement of Erosion and Water Pollution – Add. Alt. No. 1 - per Lump Sum (LS)

Item No. 104-3 Prevention, Control, and Abatement of Erosion and Water Pollution – Add. Alt. No. 2 - per Lump Sum (LS)

Item No. 104-4 Prevention, Control, and Abatement of Erosion and Water Pollution – Add. Alt. No. 3 - per Lump Sum (LS)

END OF SECTION 104

SECTION 105

CONTRACTOR QUALITY CONTROL GENERAL REQUIREMENTS

105-1 General.

105-1.1 Quality Control Documentation.

105-1.1.1 Submission of Materials Certification and Reporting Test Results: Submit certifications prior to placement of materials. Report test results at completion of the test and meet the requirements of the applicable Specifications.

105-1.1.2 Worksheets: Make available to the Owner, when requested, worksheets used for collecting test information. Ensure the worksheets at a minimum contain the following:

1. Project Identification Number,

2. Time and Date,

3. Laboratory Identification and Name,

4. Training Identification Numbers (TIN) and initials,

5. Record details as specified within the test method.

105-1.2 Inspections to Assure Compliance with Acceptance Criteria.

105-1.2.1 General: The Owner is not obligated to make an inspection of materials at the source of supply, manufacture, or fabrication. Provide the Engineer with unrestricted entry at all times to such parts of the facilities that concern the manufacture, fabrication, or production of the ordered materials. Bear all costs incurred in determining whether the material meets the requirements of these Specifications.

105-1.2.2 Quality Control (QC) Inspection: Provide all necessary inspection to assure effective QC of the operations related to materials acceptance. This includes but is not limited to sampling and testing, production, storage, delivery, construction and placement. Ensure that the equipment used in the production and testing of the materials provides accurate and precise measurements in accordance with the applicable Specifications. Maintain a record of all inspections, including but not limited to, date of inspection, results of inspection, and any subsequent corrective actions taken. Make available to the Owner the inspection records, when requested.

105-1.2.3 Notification of Placing Order: Order materials sufficiently in advance of their incorporation in the work to allow time for sampling, testing and inspection. Notify the Engineer prior to placing orders for materials.

Submit to the Engineer a fabrication schedule for all items requiring commercial inspection at least 30 days before beginning fabrication. These items include steel bridge components, moveable bridge components, pedestrian bridges, castings, forgings, structures erected either partially or completely over the travelled roadway or mounted on bridges as overhead traffic signs (some of these may be further classified as cantilevered, overhead trusses, or monotubes)

or any other item identified as an item requiring commercial inspection in the Contract Documents.

105-2 Additional Requirements for Lump Sum Projects.
Prepare and submit to the Engineer a project-specific list of material items and quantities to be used on the project as a Job Guide Schedule in the same format as the current Sampling, Testing, and Reporting Guide 21 calendar days prior to commencement of construction. Submit up-to-date quantities for the items on the Job Guide Schedule to the Engineer with each monthly progress estimate. The Owner may not authorize payment of any progress estimate not accompanied by updated Job Guide Schedule quantities. Maintain the Job Guide Schedule throughout the project including the quantity placed since the previous submittal, and total to date quantity and any additional materials placed. Do not commence work activities that require testing until the Job Guide Schedule has been reviewed and accepted by the Engineer. At final acceptance, submit a final Job Guide Schedule that includes all materials used on the project in the same format as the monthly reports.

105-3 Quality Control Program.
Certain operations require personnel with specific qualifications. Certain materials require production under an approved Quality Control (QC) Plan to ensure that these materials meet the requirements of the Contract Documents. Applicable materials include hot mix asphalt, portland cement concrete (Structural), earthwork, cementitious materials, timber, steel and miscellaneous metals, galvanized metal products, prestressed and/or precast concrete products, drainage products, and fiber reinforced polymer products. For all applicable materials included in the Contract, submit a QC Plan prepared in accordance with the requirements of this Section to the Engineer. Do not incorporate any of these materials into the project prior to the Engineer's approval of the QC Plan.

Steel and Miscellaneous Metal products, including aluminum, are defined as the metal components of bridges, including pedestrian and moveable bridges, overhead and cantilevered sign supports, ladders and platforms, bearings, end wall grates, roadway gratings, drainage items, expansion joints, roadway decking, shear connectors, handrails, galvanized products, fencing, guardrail, light poles, high mast light poles, standard mast arm assemblies and Monotube assemblies, stay in-place forms, casing pipe, strain poles, fasteners, connectors and other hardware.

105-4 Producer Quality Control Program.

105-4.1 General: When accreditation or certification is required, make supporting documents from the two previous inspections performed by the accrediting or certifying agency available to the Owner upon request.

Obtain Owner approval prior to beginning production. Meet and maintain the approved Producer Quality Control Program requirements at all times. Production of these products without the Owner's prior acceptance of the Producer Quality Control Program may result in rejection of the products. Continued approval will be subject to satisfactory results from Owner evaluations, including the Independent Assurance program. In cases of noncompliance with the accepted Producer Quality Control Program, identify all affected material and do not incorporate or supply to the Owner projects. The following conditions may result in suspension of a Producer Quality Control Program

1. Failure to timely supply information required.

2. Repeated failure of material to meet Standard Specification requirements.

3. Failure to take immediate corrective action relative to deficiencies in the performance of the Producer Quality Control Program.

4. Certifying materials that are not produced under an accepted Producer Quality Control Program for use on Owner projects.

5. Failure to correct any deficiencies related to any requirement of the Producer Quality Control Program, having received notice from the Owner, within the amount of time defined in the notice.

105-4.2 Producer Quality Control Program Requirements:

105-4.2.1 Hot Mix Asphalt, Portland Cement Concrete (Structural), Earthwork, Cementitious Materials, Timber, Steel and Miscellaneous Metals, Galvanized Metal Products, Prestressed and/or Precast Concrete Products, Drainage Products, and Fiber Reinforced Polymer Products Quality Control Program: Have an accepted Producer Quality Control Program, developed in accordance with this Section, during the production of materials to be used on Owner projects.

105-4.2.2 Prestressed Concrete Quality Control Program: Have a current certification from a FDOT approved precast prestressed concrete plant certification agency and a FDOT accepted Producer Quality Control Plan, meeting the requirements of this Section. The list of FDOT approved certification agencies is available on the website of the State Materials Office (SMO).

105-4.2.3 Steel and Miscellaneous Metals Quality Control Program: Have an accepted Producer Quality Control Plan, developed in accordance with this Section and a current American Institute for Steel Construction (AISC) certification, provided that AISC certification program is available for the category of the fabrication products.

105-4.3 Submittal: Depending on the type of products, producers shall submit their proposed Producer Quality Control Programs to the SMO or to the District Materials Office, as described below:

105-4.3.1 State Materials Office (SMO): Producers of cementitious materials, steel and miscellaneous metals, galvanized metal products, aggregates, and fiber reinforced polymer products must submit their proposed Producer Quality Control Program to the SMO for review and acceptance.

105-4.3.2 District Materials Office: Producers of hot mix asphalt, portland cement concrete (structural), earthwork, timber, prestressed and/or precast concrete products and drainage products must submit their proposed Producer Quality Control Program to the local District Materials Office for acceptance. Producers located outside the State must contact the SMO for address information of the District Materials Office responsible for the review of the proposed Quality Control Program.

105-4.4 Compliance with the Materials Manual.

Producers of Flexible Pipe shall meet the requirements of Section 6.1, Volume II of the FDOT's Materials Manual, which may be viewed at the following URL:

https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section61V2.shtm.

Producers of Precast Concrete Pipe shall meet the requirements of Section 6.2, Volume II of the FDOT's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section62V2.shtm.

Producers of Precast Concrete Drainage Structures shall meet the requirements of Section 6.3, Volume II of the FDOT's Materials Manual, which may be viewed at the following URL: https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section63V2.shtm.

Producers of Precast/Prestressed Concrete Products shall meet the requirements of Sections 8.1 and 8.3 of the FDOT's Materials Manual, which may be viewed at the following URLs:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section81V1.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section83V2.shtm.

Producers of Precast Prestressed Concrete Products using Self Consolidating Concrete shall meet the requirements of Section 8.4, Volume II of the FDOT's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section84V2.shtm.

Producers of Incidental Precast/Prestressed Concrete Products shall meet the requirements of Section 8.2, Volume II of the FDOT's Materials Manual, which may be viewed at the following URL: https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section82V2.shtm.

Producers of Portland Cement Concrete shall meet the requirements of Section 9.2, Volume II of the FDOT's Materials Manual, which may be viewed at the following URL:
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section92V2.shtm.

Producers of Structural Steel and Miscellaneous Metal Components shall meet the requirements of Sections 11.1, 11.2, 11.3, 11.4, 11.5 and 11.6 of the FDOT's Materials Manual, which may be viewed at the following URLs:

https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section111V1.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section112V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section113V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section114V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section115V2.shtm.
https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section116V2.shtm.

Producers of Fiber Reinforced Polymer Composites shall meet the requirements of Section 12-1, Volume II of the FDOT's Materials Manual, which may be viewed at the following URL:

https://www.fdot.gov/programmanagement/Implemented/URLinSpecs/Section121V2.shtm.

105-4.5 Producer Quality Control (QC) Plan Review and Acceptance: The Owner will respond to the producer within 21 calendar days of receipt of the proposed Producer Quality Control Program. The Owner may perform evaluation activities to verify compliance with submitted documents prior to acceptance.

If the Producer Quality Control Program must be revised for any reason, including non-compliance, submit the revision to the Owner. The Owner will respond to the producer within seven calendar days of receipt of the revised Producer Quality Control Program.

105-4.6 Producer's Quality Control (QC) Plan: Submit detailed policies, methods and procedures to ensure the specified quality of all applicable materials and related production operations. Include other items in addition to these guidelines as necessary.

105-4.6.1 Personnel:

105-4.6.1.1 Qualifications: Submit the Training Identification Numbers (TINs) or any other information which will be traceable to the certification agency's training location and dates for all technicians performing sampling, testing and inspection for both field and laboratory tests. Submit the names of the Construction Training and Qualification Program (CTQP) certifications and other pertinent certifications held and the expiration dates for each certification for each technician. Include employed and subcontracted technicians.

105-4.6.1.2 Level of Responsibility: Identify the primary contact for the Owner. Identify roles and responsibilities of various personnel involved in the QC process.

105-4.6.2 Raw Materials:

105-4.6.2.1 Source: Identify the sources of raw materials. Submit locations and plant or mine numbers when applicable.

105-4.6.2.2 Certification: Submit methods of verifying compliance of certification with the Specifications.

105-4.6.2.3 Disposition of Failing Materials: Describe the system for controlling non-conforming materials, including procedures for identification, isolation and disposition.

105-4.6.3 Storage Facilities for Raw Materials: Describe measures and methods, including bedding details, for preventing segregation, contamination and degradation. Describe methods of identifying individual materials. Where applicable, submit a site plan showing the locations of various materials.

105-4.6.4 Production Equipment: Describe calibration frequencies, maintenance schedule and procedures for production equipment.

105-4.6.5 Plant Requirements:

105-4.6.5.1 Plant Identification: For those facilities producing materials listed in 105-3, submit the mailing address, physical address including county and X,Y (latitude and longitude) coordinates of the plant, telephone and fax numbers, email address, primary contact at the plant, responsible person in charge, facility number provided by the Owner, owner information including parent company, vendor number, designed production capacity, and other information as required.

105-4.6.5.2 Process Control System: Describe the methods and measures established to ensure Contract compliance for the produced materials that are supplemental to the QC sampling and testing program described in the Contract Documents. These methods and

measures will include, but are not limited to, inspection schedule, additional sampling and testing, maintenance schedule, etc.

105-4.6.5.3 Loading and Shipping Control: Describe the methods and measures for preventing segregation, contamination and degradation during loading and shipping operations. Describe the methods established for materials to be in compliance with the Specifications at the point of use.

105-4.6.5.4 Types of Products Generated: Describe the products the plant is approved to produce under Owner guidelines.

105-4.7 Other Requirements:

105-4.7.1 Submittal of Certification: Submit certifications issued by the plant/Contractor for the applicable products approved by the Owner.

105-4.7.2 Statement of Compliance: Include a statement of compliance with all quality requirements set forth by the Owner in the Contract Documents and FDOT manuals.

105-4.7.3 Documentation Storage: Identify location of document storage to enable Owner review. Include QC charts, qualification and accreditation records, inspection reports, and other pertinent supporting documents.

105-4.8 Final Manufactured Product - Plant Operations: Describe inspection schedule and methods for identifying defects and non-compliance with the Specifications. Describe corrective actions and methods to resolve them.

105-4.8.1 Storage: When storage of the produced materials is required and it is not defined in the Contract Documents, describe the methods and duration for storage. Include measures and methods for preventing segregation, contamination and degradation during storage.

105-4.8.2 Disposition of Failing Materials: When not described in the Specifications, describe the methods and measures for identifying and controlling the failing materials. Include preventive and corrective measures. Describe disposition of failing materials.

105-4.9 Testing Laboratories: Identify the laboratories performing testing. Ensure that the testing laboratories comply with the Laboratory Qualification Program requirements of this Section or other applicable requirements.

105-4.10 Owner Inspection Access: Include a statement in the Quality Control Plan allowing the Owner inspectors access to the production facility to perform the inspections of the production process and the products produced for the Owner.

105-5 Contractor Quality Control (QC) Plan.

105-5.1 General: Submit the Contractor QC Plan seven days prior to beginning work on any QC material as defined in this Section. The QC Plan may be submitted as a whole or in portions for the work related to the Contract.

Update the QC Plan at least five working days prior to the implementation of any changes.

If at any time the Work is not in compliance with the Contract Documents, the Engineer may suspend operations in accordance with 8-6.1.

105-5.2 Personnel Qualification: Submit the Training Identification Numbers for all technicians performing sampling, testing and inspection for field tests. Include employed and subcontracted technicians.

105-5.3 Production Facilities: Identify the producers of materials listed in 105-4.4 for the project. Include the FDOT's facility ID number as part of the identification. All producers must have accepted Producer's Quality Control Program and be listed on the FDOT's Production Facility Listing.

105-5.3.1 Structural Concrete Mix Designs: Identify the approved structural concrete mix designs for each structural concrete production facility for review and approval by the Engineer. Do not begin work on the material without the Engineer's approval. The Engineer will review and respond within five calendar days of submittal.

105-5.4 Testing Laboratories: Identify the laboratories performing testing. Ensure that the testing laboratories comply with the Laboratory Qualification Program requirements of this Section.

105-6 Contractor Certification of Compliance.
Provide the Engineer with a notarized monthly certification of compliance with the Contract Documents, to accompany each progress estimate, on a form provided by the Engineer. The Owner may not authorize payment of any progress estimate not accompanied by an executed certification document.

Final payment in accordance with 9-8 will not be made until a final notarized certification summarizing all QC exceptions has been submitted.

105-7 Lab Qualification Program.
Testing laboratories participating in the FDOT's Acceptance Program must have current FDOT qualification when testing materials that are used on Owner projects. In addition, they must have one of the following:

1. Current AASHTO (AAP) accreditation.

2. Inspected on a regular basis per ASTM D 3740 for earthwork, ASTM D 3666 for asphalt and ASTM C 1077 for concrete for test methods used in the Acceptance Program, with all deficiencies corrected, and under the supervision of a Specialty Engineer.

3. Current Construction Materials Engineering Council (CMEC) program accreditation or other independent inspection program accreditation acceptable to the Engineer and equivalent to (1) or (2) above.

After meeting the criteria described above, submit a Laboratory Qualification Application to the Owner. Obtain the Owner's qualification prior to beginning testing. The Owner may inspect the laboratory for compliance with the accreditation requirements prior to issuing qualification.

Meet and maintain the qualification requirements at all times. Testing without Owner's qualification may result in a rejection of the test results. Continued qualifications are subject to satisfactory results from Owner evaluations, including Independent Assurance evaluations. In case of suspension or

disqualification, prior to resumption of testing, resolve the issues to the Owner's satisfaction and obtain reinstatement of qualification. The following conditions may result in suspension of a laboratory's qualified status:

1. Failure to timely supply required information.

2. Loss of accredited status.

3. Failure to correct deficiencies in a timely manner.

4. Unsatisfactory performance.

5. Changing the laboratory's physical location without notification to the accrediting agency and the Engineer.

6. Delays in reporting the test data in the Owner's database.

7. Incomplete or inaccurate reporting.

8. Using unqualified technicians performing testing.

Should any qualified laboratory falsify records, the laboratory qualification will be subject to revocation by the Engineer. Falsification of project-related documentation will be subject to further investigation and penalty under State and Federal laws.

It is prohibited for any contract laboratory or staff to perform Contractor QC testing and any other Acceptance Program testing on the same contract.

105-8 Personnel Qualifications.

105-8.1 General: Provide qualified personnel for sampling, testing and inspection of materials and construction activities. Ensure that qualifications are maintained during the course of sampling, testing and inspection.

Construction operations that require a qualified technician must not begin until the Owner verifies that the technician is on the CTQP list of qualified technicians. The CTQP lists are subject to satisfactory results from periodic Independent Assurance evaluations.

105-8.2 Quality Control (QC) Manager: Designate a QC Manager who has full authority to act as the Contractor's agent to institute any and all actions necessary to administer, implement, monitor, and as necessary, adjust quality control processes to ensure compliance with the Contract Documents. The QC Manager must speak and understand English. The QC Manager must be on-site at the project on a daily basis or always available upon four hours notice. Ensure that the QC Manager is qualified as such through the Construction Training and Qualification Program. The QC Manager and the Superintendent must not be the same individual.

Under the direction of the QC Manager summarize the daily QC activities including testing and material sampling. Since erasures are strictly prohibited on all reports and forms, use blue or colored ink. Do not use black ink. If manual corrections to original data are necessary, strike through, correct, and date the entry, including the initials of the person making the correction. Make copies of the completed forms available for the Owner to review daily unless otherwise required in the

Specifications. Ensure that the QC test data is entered into the Owner's database on a daily basis. Maintain all QC related reports and documentation for a period of three years from final acceptance of the project. Make copies available for review by the Owner upon request.

105-8.3 Temporary Traffic Control (Maintenance of Traffic) Personnel: Worksite Traffic Supervisors, flaggers, and other personnel responsible for work zone related transportation management and traffic control must obtain training and certification in accordance with the FDOT's Temporary Traffic Control (Maintenance of Traffic) Training Handbook located at the following URL address: https://www.fdot.gov/roadway/TTC/Default.shtm.

105-8.4 Earthwork Quality Control (QC) Personnel:

105-8.4.1 Earthwork Level I: Ensure the technician who samples soil and earthwork materials from the roadway project, takes earthwork moisture and density readings, and records those data in the Density Log Book holds a CTQP Earthwork Construction Inspection Level I qualification.

105-8.4.2 Earthwork Level II: Ensure the technician responsible for determining the disposition of soil and earthwork materials on the roadway, and for interpreting and meeting Contract Document requirements holds a CTQP Earthwork Construction Inspection Level II qualification.

105-8.5 Asphalt Quality Control (QC) Personnel:

105-8.5.1 Plant Technicians: For asphalt plant operations, provide a QC technician, qualified as a CTQP Asphalt Plant Level II Technician, available at the asphalt plant at all times when producing mix for the Owner. Perform all asphalt plant related testing with a CTQP Asphalt Plant Level I Technician. As an exception, measurements of temperature may be performed by someone under the supervision of a CTQP Plant Level II technician.

105-8.5.2 Paving Technicians: For paving operations (with the exception of miscellaneous or temporary asphalt), keep a qualified CTQP Asphalt Paving Level II Technician on the roadway at all times when placing asphalt mix for the Owner, and perform all testing with a CTQP Asphalt Paving Level I Technician. As an exception, measurements of cross-slope, temperature, and yield (spread rate) can be performed by someone under the supervision of a CTQP Paving Level II Technician at the roadway.

105-8.5.3 Mix Designer: Ensure all mix designs are developed by individuals who are CTQP qualified as an Asphalt Hot Mix Designer.

105-8.5.4 Documentation: Document all QC procedures, inspection, and all test results and make them available for review by the Engineer throughout the life of the Contract. Identify in the asphalt producer's QC Plan the QC Managers and Asphalt Plant Level II technicians responsible for the decision to resume production after a quality control failure.

105-8.6 Concrete QC Personnel:

105-8.6.1 Concrete Field Technician - Level 1: Ensure technicians performing plastic property testing on concrete for materials acceptance are qualified CTQP Concrete Field Technicians Level 1. Plastic property testing will include but not be limited to slump, temperature, air content, water-to-cementitious materials ratio calculation, and making and curing concrete cylinders. Duties will include initial sampling and testing to confirm specification compliance prior to beginning concrete placements, ensuring timely placement of initial cure and providing for the

transport of compressive strength samples to the designated laboratories. Ensure that personnel performing plastic property testing on self-consolidating concrete (SCC) possess an ACI Self-Consolidating Concrete Testing Technician Certification.

105-8.6.2 Concrete Field Inspector - Level 2: Ensure field inspectors responsible for the quality of concrete being placed on the following structure types are qualified CTQP Concrete Field Inspectors Level 2:

1. Moveable bridges
2. Bridges over a water opening of 1,000 feet or more
3. Bridges with a span of 190 feet or more
4. Cable supported or cable stayed bridges
5. Post-tensioned bridges
6. Steel girder or steel truss bridges
7. Multi-level roadways

With the exception of concrete traffic railing placements, a Level 2 Inspector must be present on the jobsite during all concrete placements. Prior to the placement of concrete, the inspector will inspect the element to be cast to ensure compliance with Contract Documents. A Level 2 Inspector's duties may include ensuring that concrete testing, inspection, and curing in the field are performed in accordance with the Contract Documents. The QC Inspector will inform the Verification Inspector of anticipated concrete placements and LOT sizes.

105-8.6.3 Concrete Laboratory Technician – Level 1: Ensure technicians testing cylinders and recording concrete strength for material acceptance are qualified CTQP Concrete Laboratory Technicians Level 1. Duties include final curing, compressive strength testing, and the recording/reporting of all test data.

105-8.7 Structural Concrete Production Facility Quality Control (QC) Personnel:
Ensure that each portland cement structural concrete production facility (plant), has designated personnel including plant manager of QC, concrete mix designer, concrete batch plant operator, and testing technicians to provide QC inspections and testing.

Upon Owner approval, the functions of the above positions may be performed by the same person when it can be demonstrated that the plant's operation and quality of concrete will not be detrimentally affected and personnel have the qualifications required herein.

105-8.7.1 Plant Manager of QC: Ensure that the plant manager of QC has at least three years of concrete related experience and the following training certifications:

1. CTQP Concrete Laboratory Technician - Level 1 certificate.
2. CTQP Concrete Field Technician - Level 1 certificate.

3. Concrete Batch Plant Operator certification in accordance with 1058.7.4.

As alternatives to these certifications, the Owner will accept, one of the following:

a. Prestressed Concrete Institute (PCI) QC Personnel Certification Level III.

b. Precast Concrete Pipe, Box Culverts, Drainage Structures or Incidental Precast Concrete Plants Level II QC Inspector Certifications.

c. National Ready Mixed Concrete Association (NRMCA) Certified Concrete Technologist Level 2.

105-8.7.2 Concrete Mix Designer: Ensure that the concrete mix designer has the CTQP Concrete Laboratory Technician Level 2 certification. As an alternative, the Owner will accept any of the following qualifications:

1. PCI QC Personnel Level III Certification, for concrete mix designs of prestressed concrete products.

2. National Ready Mix Concrete Association (NRMCA) Certified Concrete Technologist Level 3.

3. Any of the Level II QC certifications in accordance with 105-8.9.2.2.

105-8.7.3 Qualified Testing Technicians: Ensure that the testing technicians have the following certifications:

1. ACI Concrete Field Testing Technician Grade I, for personnel performing concrete plastic property tests and ACI Self-Consolidating Concrete Testing Technician if testing self-consolidating concrete (SCC).

2. ACI Concrete Strength Testing Technician, for personnel performing tests on hardened properties of concrete.

105-8.7.4 Concrete Batch Plant Operator: Ensure that the concrete batch plant operator has a CTQP Concrete Batch Plant Operator Certification. As an alternative, the Owner will accept the following certifications:

a. Precast Concrete Structures Association (PCSA) Batch Plant Operator,

b. NRMCA Certified Concrete Technologist Level 3, or

c. NRMCA Plant Manager Certification.

For dry cast concrete pipe and dry cast drainage structures, the Owner will accept American Concrete Pipe Association (ACPA) Quality School Level II Certification.

105-8.8 Prestressed Concrete Plant Quality Control (QC) Personnel: Obtain personnel certifications from Owner accredited training providers. The list of FDOT approved courses and their accredited providers is available on the SMO website at the following URL:

https://www.fdot.gov/materials/administration/resources/training/structural/concreteprestressed.shtm.

Ensure each prestressed concrete plant has an onsite production manager, an onsite plant QC manager, a plant engineer, and adequate onsite QC inspectors/technicians to provide complete QC inspections and testing.

Ensure the plant manager for QC has at least five years of related experience and the following certifications:

1. ACI Concrete Field Testing Technician Grade I certification.

2. PCI QC Personnel Certification Level III.

3. Certificate of completion of Section 450 Specification examination.

Ensure that the QC inspector/technician has the following certifications:

1. ACI Concrete Field Testing Technician Grade I certification.

2. Certificate of completion of Section 450 Specification examination.

105-8.8.1 Additional Requirements for Quality Control (QC) Personnel of Prestressed Manufacturing Facilities:

105-8.8.1.1 Testing Personnel: Ensure that testing technicians meet the requirement of 105-8.7.3.

105-8.8.1.2 Batch Plant Operator: Ensure that the batch plant operator meets the requirement of 105-8.7.4.

105-8.9 Pipe and Precast Concrete Products Manufacturing Facilities Quality Control (QC) Personnel:

105-8.9.1 General: Obtain personnel certifications from FDOT accredited training providers. The list of FDOT approved courses and their accredited providers is available on the SMO website at the following URL:
https://www.fdot.gov/materials/administration/resources/training/structural/index.shtm.

105-8.9.2 Precast Concrete Drainage Structures, Precast Concrete Box Culvert, Precast Concrete Pipe, and Incidental Precast Concrete Manufacturing Facilities Quality Control (QC) Personnel:

105-8.9.2.1 Level I Quality Control Inspectors: Ensure that the Level I Inspectors have the following certifications:

105-8.9.2.1.1 Precast Concrete Drainage Technician Level I: PCI Quality Control Technician Level I certification. As an alternative, a current Precast Concrete Quality Control Technician Level I certification in the respective work area will be accepted.

105-8.9.2.1.2 Incidental Precast Concrete Technician Level I: PCI Quality Control Technician Level I certification. As an alternative, a current Precast Concrete Quality Control Technician Level I certification in the respective work area will be accepted.

105-8.9.2.1.3 Precast Concrete Pipe Technician Level I: Precast Concrete Pipe Technician Level I certification.

105-8.9.2.2 Level II Quality Control Inspectors: Ensure that Level II Inspectors have the following certifications:

105-8.9.2.2.1 Precast Concrete Drainage Technician Level II:

1. Precast Concrete Drainage Technician Level I, in accordance with 105-8.9.2.1.1.

2. PCI Quality Control Technician Level II certification. As an alternative, a current Precast Concrete Quality Control Technician Level II certification in the respective work area will be accepted.

3. CTQP Concrete Field Technician Level 1, if the plant produces structural concrete in accordance with Section 346.

105-8.9.2.2.2 Incidental Precast Concrete Technician Level II:

1. Incidental Precast Concrete Technician Level I, in accordance with 105-8.9.2.1.2.

2. PCI Quality Control Technician Level II certification. As an alternative, a current Precast Concrete Quality Control Technician Level II in the respective work area will be accepted.

3. CTQP Concrete Field Technician Level 1.

4. Level II technicians who will perform quality control of incidental prestressed products must have a current certificate of completion of Section 450 Specification examination.

105-8.9.2.2.3 Precast Concrete Pipe Technician Level II:

1. Precast Concrete Pipe Technician Level I, in accordance with 105-8.9.2.1.3.

2. Precast Concrete Pipe Technician Certification Level II.

105-8.9.2.3 Plant Quality Control Manager: Ensure that the QC manager has a minimum of two years construction related experience in the specific work area and has the following certifications:

105-8.9.2.3.1 Precast Concrete Drainage Facilities: Precast Concrete Drainage Technician Level II in accordance with 105-8.9.2.2.1.

105-8.9.2.3.2 Incidental Precast Concrete Facilities:

1. Incidental Precast Concrete Technician Level II in accordance with 105-8.9.2.2.2.

2. Section 450 Specification Certification if the plant produces incidental prestressed products.

105-8.9.2.3.3 Precast Concrete Pipe Facilities: Precast Concrete Pipe Technician Level II in accordance with 105-8.9.2.2.3.

105-8.9.2.4 Additional Requirements for Quality Control (QC) Personnel of Precast Concrete Drainage Structures and Box Culverts, Precast Concrete Pipe, and Incidental Precast Concrete Manufacturing Facilities:

105-8.9.2.4.1 Testing Personnel: Ensure testing technicians meet the requirement of 105-8.7.3.

105-8.9.2.4.2 Batch Plant Operator: Ensure the batch plant operator meets the requirement of 105-8.7.4.

105-8.10 Supervisory Personnel – Post-Tensioned and Movable Bridge Structures:

105-8.10.1 General: Provide supervisory personnel meeting the qualification requirements only for the post-tensioned and movable bridge types detailed in this Article. Submit qualifications to the Engineer at the pre-construction conference. Do not begin construction until the qualifications of supervisory personnel have been approved by the Engineer.

105-8.10.2 Proof of License or Certification: Submit a copy of the Professional Engineer license current and in force issued by the state in which registration is held. The license must be for the field of engineering that the construction work involves such as Civil, Electrical or Mechanical. Under certain circumstances Florida registration may be required.

Submit a copy of the license issued by the State of Florida for tradesmen that require a license indicating that the license is in force and is current. Submit a copy of the certification issued by the International Society of Automation for each Certified Control Systems Technician.

105-8.10.3 Experience Record: Submit the following information for supervisory personnel to substantiate their experience record. The supervisor (project engineer, superintendent/manager or foreman) seeking approval must provide a notarized certification statement attesting to the completeness and accuracy of the information submitted. Submit the following experience information for each individual seeking approval as a supervisor:

Project owner's name and telephone number of an owner's representative, project identification number, state, city, county, highway number and feature intersected.

Detailed descriptions of each bridge construction experience and the level of supervisory authority during that experience. Report the duration in weeks, as well as begin and end dates, for each experience period.

The name, address and telephone number of an individual that can verify that the experience being reported is accurate. This individual should have been an immediate supervisor unless the supervisor cannot be contacted in which case another individual with direct knowledge of the experience is acceptable.

105-8.10.4 Concrete Post-Tensioned Segmental Box Girder Construction: Ensure the individuals filling the following positions meet the minimum requirements as follows:

105-8.10.4.1 Project Engineer-New Construction: Ensure the project engineer is a registered Professional Engineer with five years of bridge construction experience. Ensure a minimum of three years of experience is in segmental box girder construction engineering

and includes a minimum of one year in segmental casting yard operations and related surveying, one year in segment erection and related surveying, including post-tensioning and grouting of longitudinal tendons and a minimum of one year as the project engineer in responsible charge of segmental box girder construction engineering. Ensure this individual is present at the site of construction, at all times while segmental box girder construction or segment erection is in progress.

105-8.10.4.2 Project Engineer-Repair and Rehabilitation: Ensure the project engineer is a registered Professional Engineer with five years of bridge construction experience. Ensure a minimum of three years of experience is in segmental box girder construction engineering and includes one year of post-tensioning and grouting of longitudinal tendons and a minimum of one year as the project engineer in responsible charge of segmental box girder rehabilitation engineering or segmental box girder new construction engineering.

105-8.10.4.3 Project Superintendent/Manager-New Construction: Ensure the project superintendent/manager has a minimum of ten years of bridge construction experience or is a registered Professional Engineer with five years of bridge construction experience. Ensure that a minimum of three years of experience is in segmental box girder construction operations and includes a minimum of one year in the casting yard operations and related surveying, one year in segment erection and related surveying including post-tensioning and grouting of longitudinal tendons and a minimum of one year as the project superintendent/manager in responsible charge of segmental box girder construction operations. Ensure this individual is present at the site of construction, at all times while segmental box girder construction or segment erection is in progress.

105-8.10.4.4 Project Superintendent/Manager-Repair and Rehabilitation: Ensure the project superintendent/manager has a minimum of five years of bridge construction experience or is a registered Professional Engineer with three years of bridge construction experience. Ensure that a minimum of two years of experience is in segmental box girder construction operations and includes a minimum of one year of experience performing post-tensioning and grouting of longitudinal tendons and a minimum of one year as the project superintendent/manager in responsible charge of segmental box girder rehabilitation operations or segmental box girder new construction operations.

105-8.10.4.5 Foreman-New Construction: Ensure that the foreman has a minimum of five years of bridge construction experience with two years of experience in segmental box girder operations and a minimum of one year as the foreman in responsible charge of segmental box girder new construction operations. Ensure this individual is present at the site of construction, at all times while segmental box girder construction or segment erection is in progress.

105-8.10.4.6 Foreman-Repair and Rehabilitation: Ensure the foremen has a minimum of five years of bridge construction experience with two years of experience in segmental box girder operations and a minimum of one year as the foreman in responsible charge of segmental box girder rehabilitation operations or segmental box girder new construction operations.

105-8.10.4.7 Geometry Control Engineer/Manager: Ensure that the geometry control engineer/manager for construction of cast-in-place box segments is a registered

Professional Engineer with one year of experience, a non-registered Engineer with three years of experience or a registered Professional Land Surveyor with three years of experience in geometry control for casting and erection of cast-in-place box segments. Credit for experience in cast-in-place box girder geometry control will be given for experience in precast box girder geometry control but not vice versa.

Ensure that the geometry control engineer/manager for precast box segments is a registered Professional Engineer with one year of experience or non-registered with three years of experience in casting yard geometry control of concrete box segments.

The geometry control engineer/manager must be responsible for and experienced at implementing the method for establishing and maintaining geometry control for segment casting yard operations and segment erection operations and must be experienced with the use of computer programs for monitoring and adjusting theoretical segment casting curves and geometry. This individual must be experienced at establishing procedures for assuring accurate segment form setup, post-tensioning duct and rebar alignment and effective concrete placement and curing operations as well as for verifying that casting and erection field survey data has been properly gathered and recorded. Ensure this individual is present at the site of construction, at all times while cast-in-place segmental box girder construction is in progress or until casting yard operations and segment erection is complete.

105-8.10.4.8 Surveyor: Ensure that the surveyor in charge of geometry control surveying for box segment casting and/or box segment erection has a minimum of one year of bridge construction surveying experience. Ensure this individual is present at the site of construction, at all times while segmental box girder construction or segment erection is in progress.

105-8.10.5 Movable Bridge Construction: Ensure the individual filling the following positions meet the minimum requirements as follows:

105-8.10.5.1 Electrical Journeyman: Ensure the electrical journeyman holds, an active journeyman electrician's license and has at least five years' experience in industrial electrical work, or is a certified control systems technician. A certified control systems technician will not be permitted to perform electrical power work including, but not limited to, conduit and wire-way installation or power conductor connection. Ensure the electrical journeyman has successfully completed the installation of one similar movable bridge electrical system during the last three years.

105-8.10.5.2 Control Systems Engineer and Mechanical Systems Engineer: Ensure the control systems engineer and mechanical systems engineer are both registered Professional Engineers with a minimum of 10 years supervisory experience each in movable bridge construction. Ensure the engineers have working knowledge of the movable bridge leaf motion control techniques, mechanical equipment and arrangements specified for this project. Ensure that each engineer has been in responsible control of the design and implementation of at least three movable bridge electrical control and machinery systems within the past 10 years of which, at least one of the three bridges was within the last three years. Ensure that a minimum of one of the three bridge designs incorporated the same type of leaf motion control and machinery systems specified for this project.

105-8.10.6 Concrete Post-Tensioned Other Than Segmental Box Girder Construction: Ensure the individual filling the following positions meet the minimum requirements as follows:

105-8.10.6.1 Project Engineer: Ensure the project engineer is a registered Professional Engineer with five years of bridge construction experience. Ensure that a minimum of three years of experience is in concrete post-tensioned construction. Ensure that the three years of experience includes experience in girder erection, safe use of cranes, stabilization of girders; design of false work for temporary girder support, post-tensioning and grouting operations, and a minimum of one year as the project engineer in responsible charge of posttensioning related engineering responsibilities.

105-8.10.6.2 Project Superintendent/Manager: Ensure the project superintendent/manager has a minimum of ten years of bridge construction experience or is a registered Professional Engineer with five years of bridge construction experience and has a minimum of three years of supervisory experience in girder erection, safe use of cranes, stabilization of girders; design of falsework for temporary girder support post-tensioning, grouting operations and a minimum of one year as the project superintendent/manager in responsible charge of post-tensioning related operations.

105-8.10.6.3 Foreman: Ensure the foremen has a minimum of five years of bridge construction experience with two years of experience in post-tensioning related operations and a minimum of one year as the foreman in responsible charge of post-tensioning related operations.

105-8.10.7 Post-Tensioning (PT) and Filler Injection Personnel Qualifications: Perform all stressing and filler injection operations in the presence of the Engineer and with personnel meeting the qualifications of this article. Coordinate and schedule all PT and filler injection activities to facilitate inspection by the Engineer.

105-8.10.7.1 Post-Tensioning: Perform all PT field operations under the direct supervision of a Level II CTQP Qualified PT Technician who must be present at the site of the post-tensioning work during the entire duration of the operation. For the superstructures of bridges having concrete post-tensioned box or I girder construction, provide at least two CTQP Qualified PT Technicians, Level I or II, on the work crew. The supervisor of the work crew, who must be a Level II CTQP Qualified PT Technician, may also be a work crew member, in which case, the supervisor shall count as one of the two CTQP qualified work crew members. For PT operations other than the superstructures of post-tensioned box or I girder construction, perform all PT operations under the direct supervision of a Level II CTQP Qualified PT Technician who must be present at the site of the PT work during the entire duration of the operation. Work crew members are not required to be CTQP qualified.

105-8.10.7.2 Grouting: Perform all grouting field operations under the direct supervision of a Level II CTQP Qualified Grouting Technician who must be present at the site of the grouting work during the entire duration of the operation. For the superstructures of bridges having concrete post-tensioned box or I girder construction, provide at least two CTQP Qualified Grouting Technicians, Level I or II, on the work crew. The supervisor of the work crew, who must be a Level II CTQP Qualified Grouting Technician, may also be a work crew member, in which case, the supervisor shall count as one of two CTQP qualified work crew members. For grouting operations other than the superstructures of post-tensioned

box or I girder construction, perform all grouting operations under the direct supervision of a Level II CTQP Qualified Grouting Technician who must be present at the site of the grouting work during the entire duration of the operation. Work crew members are not required to be CTQP qualified.

Perform all vacuum grouting operations under the direct supervision of a crew foreman who has been trained and has experience in the use of vacuum grouting equipment and procedures. Submit the crew foreman's training and experience records to the Engineer for approval prior to performing any vacuum grouting operation.

105-8.10.7.3 Flexible Filler Injection: Perform all filler injection operations under the direct supervision of a filler injection foreman who has American Segmental Bridge Institute (ASBI) certification in the flexible filler process. Provide at least two CTQP Qualified Grouting Technicians with ASBI certification in the flexible filler process, one of whom must be a Level II CTQP Qualified Grouting Technician. Both technicians must be present at the site of the flexible filler injection work during the entire duration of the operation.

Provide a filler injection quality control (QC) inspector who has ASBI certification in the flexible filler process. The filler injection QC inspector must be present at the site of the flexible filler injection work during the entire duration of the operation.

Verifiable experience performing injection of similar flexible filler on at least two projects is acceptable in lieu of ASBI certification in the flexible filler process.

Perform all flexible filler repair operations under the direct supervision of a crew foreman who has been trained and has verifiable experience in the use of vacuum flexible filler repair equipment and procedures. Submit the crew foreman's training and experience records to the Engineer prior to performing any flexible filler operation.

105-8.10.8 Failure to Comply with Bridge Qualification Requirements: Make an immediate effort to reestablish compliance. If an immediate effort is not put forth as determined by the Engineer, payment for the bridge construction operations requiring supervisors to be qualified under this Specification will be withheld up to 60 days. Cease all bridge construction and related activities (casting yard, etc.) if compliance is not met within 60 days, regardless of how much effort is put forth. Resume bridge construction operations only after written approval from the Engineer stating that compliance is reestablished.

105-8.11 Signal Installation Inspector: Provide an inspector trained and certified by the International Municipal Signal Association (IMSA) as a traffic signal inspector to perform all signal installation inspections. Ensure all equipment, materials, and hardware is in compliance with Owner Specifications and verify that all equipment requiring certification is listed on the FDOT's Approved Product List (APL). Submit the completed signal inspection report forms, certified by the IMSA traffic signal inspector to the Engineer. The FDOT's approved inspection report forms are available at the following URL: http://www.fdot.gov/traffic/.

105-8.12 Structural Steel and Miscellaneous Metals Fabrication Facility Quality Control Personnel: Ensure each fabrication facility has an onsite production manager, an onsite facility manager for QC, a plant engineer, and onsite QC inspectors/technicians to provide complete QC inspections and testing.

Ensure that the facility manager for QC and QC inspectors/technicians meet the certification requirements set forth in the latest version of AASHTO/NSBA Steel Bridge Collaboration S 4.1, Steel Bridge Fabrication QC/QA Guide Specification, including the years of experience required in Table 105-1 below. The facility manager for QC must meet the requirements of Table 105-1 for every structural steel member type produced by a plant with QC being managed by the facility manager for QC. The facility manager for QC will report directly to the plant manager or plant engineer and must not be the plant production manager nor report to or be the subordinate of the plant production manager. QC inspectors/technicians must be the employees of, and must report directly to the facility manager for QC. Perform preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, and sanitary and other facilities.

TABLE 105-1
Experience Requirements for QC Inspectors/Technicians and Facility Manager for Quality Control

Structural Steel Member Type	Minimum Years of Experience Required	
	QC Inspector/Technician	Facility Manager for QC
Rolled beam bridges	1 year	3 years
Welded plate girders (I sections, box sections, etc.)	2 years	4 years
Complex structures, such as trusses, arches, cable stayed bridges, and moveable bridges	3 years	5 years
Fracture critical (FC) members	3 years	5 years

END OF SECTION 105

SECTION 110

CLEARING AND GRUBBING

110-1 Description.
Clear and grub within the areas shown in the Plans. Remove and dispose of all trees, stumps, roots and other such protruding objects, buildings, structures, appurtenances, existing flexible asphalt pavement, and other facilities necessary to prepare the area for the proposed construction. Remove and dispose of all product and debris not required to be salvaged or not required to complete the construction.

Perform miscellaneous work necessary for the complete preparation of the overall project site as specified in 110-10.

110-2 Standard Clearing and Grubbing.

110-2.1 Work Included: Completely remove and dispose of all buildings, timber, brush, trees, stumps, roots, rubbish, debris, existing flexible pavement and base, drainage structures, culverts, and pipes. Remove all other obstructions resting on or protruding through the surface of the existing ground and the surface of excavated areas.

Perform standard clearing and grubbing within the following areas:

1. All areas where excavation is to be done, including borrow pits, lateral ditches, right-of-way ditches, etc.

2. All areas where roadway embankments will be constructed.

3. All areas where structures will be constructed, including pipe culverts and other pipe lines.

110-2.2 Depths of Removal of Roots, Stumps, and Other Debris: In all areas where excavation is to be performed, or roadway embankments are to be constructed, remove roots and other debris to a depth of 12 inches below the ground surface. Remove roots and other debris from all excavated material to be used in the construction of roadway embankment or roadway base. Plow the surface to a depth of at least 6 inches, and remove all roots thereby exposed to a depth of at least 12 inches. Completely remove and dispose of all stumps within the roadway right-of-way.

Remove all roots, etc., protruding through or appearing on the surface of the completed excavation within the roadway area and for structures, to a depth of at least 12 inches below the finished excavation surface.

Remove or cut off all stumps, roots, etc., below the surface of the completed excavation in borrow pits, material pits, and lateral ditches.

In borrow and material pits, do not perform any clearing or grubbing within 3 feet inside the right-of-way line.

Within all other areas where standard clearing and grubbing is to be performed, remove roots and other debris projecting through or appearing on the surface of the original ground to a depth of 12 inches below the surface, but do not plow or harrow these areas.

110-2.3 Boulders: Remove any boulders encountered in the roadway excavation (other than as permitted under the provisions of 120-7.2) or found on the surface of the ground. When approved by the Engineer place boulders in neat piles inside the right of way. The Contractor may stockpile boulders encountered in Department-furnished borrow areas, which are not suitable for use in the embankment construction, within the borrow area.

110-2.4 Asbestos Containing Materials (ACM) Not Identified Prior to the Work: When encountering or exposing any condition indicating the presence of asbestos, cease operations immediately in the vicinity and notify the Engineer, in accordance with 110-6.5.

110-3 Selective Clearing and Grubbing.

110-3.1 General: Remove and dispose of vegetation, obstructions, etc., as shown in the Plans. Provide acceptable fill material, and grade and compact holes or voids created by the removal of the stumps. Perform all selective clearing and grubbing in accordance with ANSI A300.

No staging, storing, stockpiling, parking or dumping will be allowed in selective clearing and grubbing areas. Only mechanical equipment related to selective clearing and grubbing activities will be allowed in selective clearing and grubbing areas. Protect trees to remain from trunk, branch and root damage.

110-3.2 Trees to Remain: Protect trees as shown in the Plans or directed by the Engineer.

At the driplines of areas designated as trees to remain, construct a tree protection barrier in accordance with Standard Plans, Index 110-100.

When pruning cuts or root pruning to existing trees is shown in the Plans, work is to be supervised on site by an International Society of Arboriculture (ISA) Certified Arborist performed in accordance with ANSI A300.

110-3.3 Protection of Plant Preservation Areas: Areas to remain natural may be designated in the Plans. Protect these areas with a tree protection barrier in accordance with Standard Plans, Index 110-100. No clearing and grubbing, staging, storage, stockpiling, parking or dumping is allowed in these areas. Do not bring equipment into these areas.

110-4 Protection of Property Remaining in Place.

Protect property to remain in place in accordance with 7-11.

110-5 Removal of Buildings.

110-5.1 Parts to be Removed: Completely remove all parts of the buildings, including utilities, plumbing, foundations, floors, basements, steps, connecting concrete sidewalks or other pavement, septic tanks, and any other appurtenances, by any practical manner which is not detrimental to other property and improvements.

Remove utilities to the point of connection to the utility authority's cut-in. After removing the sewer connections to the point of cut-in, construct a concrete plug at the cut-in point, as directed by the Engineer, except where the utility owners may elect to perform their own plugging. Contact the appropriate utility companies prior to removal of any part of the building to ensure disconnection of services.

Submit demolition schedule 15 working days before beginning any demolition or renovation of a building.

110-5.2 Removal by Others: Where buildings within the area to be cleared and grubbed are so specified to be removed by others, remove and dispose of any foundations, curtain walls, concrete floors, basements or other foundation parts which might be left in place after such removal of buildings by others.

110-6 Removal of Existing Bridges.

110-6.1 General: The work under this Article includes bridges, as defined in 1-3.

Remove and dispose of the materials from existing bridges. Remove

1. those bridges and approach slabs, or portions of bridges, shown in the Plans to be removed,

2. those bridges and approach slabs, or portions of bridges, found within the limits of the area to be cleared and grubbed, and directed by the Engineer to be removed,

3. those bridges and approach slabs, or portion of bridges, which are necessary to be removed in order to complete the work, and

4. other appurtenances or obstructions which may be designated in the Contract Documents to be included as an item of payment for the work under this Article.

Submit schedule information and demolition plan for approval 15 working days before beginning any demolition or renovation of any structures.

110-6.2 Method of Removal:

110-6.2.1 General: Remove the structures in such a way so as to leave no obstructions to any proposed new bridge or to any waterways. Pull, cut off, or break off pilings to the requirements of the permit or other Contract Documents, or if not specified, not less than 2 feet below the finish ground line. In the event that the Plans indicate channel excavation to be done by others, consider the finish ground line as the limits of such excavation. For materials which are to remain the property of the Department or are to be salvaged for use in temporary bridges, avoid damage to such materials, and entirely remove all bolts, nails, etc. from timbers to be so salvaged. Mark structural steel members for identification as directed.

110-6.2.2 Removal of Steel Members with Hazardous Coatings: Submit to the Engineer for approval the "Contractor's Lead in Construction Compliance Program", QP2 certification from the Society for Protective Coatings (SSPC) from the firm actually removing and disposing of these steel members before any members are disturbed.

Vacuum power tool clean any coated steel member to bare metal as defined by SSPC-SP11 a minimum of 4 inches either side of any area to be heated (e.g. torch cutting, sawing, grinding, etc.) in accordance with 29 CFR 1926.354. Abrasive blasting is prohibited.

110-6.3 Partial Removal of Bridges: On concrete bridges to be partially removed and widened, remove concrete by manually or mechanically operated pavement breakers, by concrete saws, by chipping hammers, or by hydro-demolition methods. Do not use explosives. Where concrete is to be removed

to neat lines, use concrete saws or hydro-demolition methods capable of providing a reasonably uniform cleavage face. If the equipment used will not provide a uniform cut without surface spalling, first score the outlines of the work with small trenches or grooves. For all demolition methods, submit for review and approval of the Engineer, a demolition plan that describes the method of removal, equipment to be used, types of rebar splices or couplers, and method of straightening or cutting rebar. In addition, for hydrodemolition, describe the method for control of water or slurry runoff and measures for safe containment of concrete fragments that are thrown out by the hydro-demolition machine.

110-6.4 Authority of U.S. Coast Guard: For bridges in navigable waters, when constructing the project under authority of a U.S. Coast Guard permit, the U.S. Coast Guard may inspect and approve the work to remove any existing bridges involved therein, prior to acceptance by the Department.

110-6.5 Asbestos Containing Materials (ACM) Not Identified Prior to the Work: When encountering or exposing any condition indicating the presence of asbestos, cease operations immediately in the vicinity and notify the Engineer.

Make every effort to minimize the disturbance of the ACM. Immediately provide provisions for the health and safety of all jobsite personnel and the public that may be exposed to any ACM. Provisions shall meet all applicable Federal, State, and Local Rules and Regulations regarding potentially hazardous conditions due to ACM.

The Engineer will notify the District Contamination Impact Coordinator (DCIC) who will engage the services of the Department's Contamination Assessment/Remediation Contractor (CAR). Provide access to the potential contamination area. Preliminary investigation by the CAR Contractor will determine the course of action necessary for site security and the steps necessary to resolve the contamination issue.

The CAR Contractor will perform an asbestos survey to delineate the asbestos areas, and identify any staging or holding areas that will be needed for assessment or abatement of the asbestos material. The CAR Contractor will maintain jurisdiction over activities within areas contaminated with ACM including staging and holding areas.

The CAR Contractor will be responsible for the health and safety of workers within these delineated areas. Provide continuous access to these areas for the CAR Contractor and representatives of regulatory or enforcement agencies having jurisdiction.

Coordinate with the CAR Contractor and Engineer to develop a work plan with projected completion dates for the final resolution of the contamination, in coordination with any regulatory agencies as appropriate. Use the work plan and schedule as a basis for planning the completion of all work efforts. The Engineer may grant Contract Time extensions according to the provisions of 8-7.3.2.

Cooperate with the CAR Contractor to expedite integration of the CAR Contractor's operations into the construction project. Adjustments to quantities or to Contract unit prices will be made according to work additions or reductions on the part of the Prime Contractor in accordance with 4-3.

The Engineer will inform the Prime Contractor when operations may resume in the affected area.

110-7 Removal of Existing Concrete.
Remove and dispose of existing rigid portland cement concrete pavement, sidewalk, slope pavement, ditch pavement, curb, and curb and gutter, etc., where shown in the Plans.

Remove all gravity walls, noise/sound walls, retaining walls, MSE walls, perimeter walls, and roadway concrete barriers, where shown in the Plans. All ancillary elements of these concrete features being removed including, but not limited to, leveling pads, copings, reinforcing steel or straps, footings, etc, are incidental and included in the cost of the removal.

110-8 Ownership of Materials.
Except as may be otherwise specified in the Contract Documents, take ownership of all buildings, structures, appurtenances, and other materials removed and dispose of them in accordance with 110-9.

110-9 Disposal of Materials.

110-9.1 General: Either stack materials designated to remain the property of the Department in neat piles within the right-of-way, load onto the Department's vehicles, or deliver to location designated in the Plans.

Dispose of timber, stumps, brush, roots, rubbish, and other material resulting from clearing and grubbing in areas and by methods meeting the applicable requirements of all Federal, State and Local Rules and Regulations. Do not block waterways by the disposal of debris.

With the approval of the Engineer, wood chips may be evenly distributed to a depth of no more than one inch in designated areas in the Department's right-of-way.

110-9.2 Burning Debris: Where burning of such materials is permitted, perform all such burning in accordance with the applicable Federal, State and Local rules and regulations. Perform all burning at locations where trees and shrubs adjacent to the cleared area will not be harmed.

110-9.3 Timber and Crops: The Contractor may sell any merchantable timber, fruit trees, and crops that are cleared under the operations of clearing and grubbing for his own benefit, subject to the provisions of 7-1.2, which may require that the timber, fruit trees, or crops be burned at or near the site of their removal, as directed by the Engineer. The Contractor is liable for any claims which may arise pursuant to the provisions of this Subarticle.

110-9.4 Disposal of Treated Wood: Treated wood must be handled and disposed of properly during removal. Treated wood should not be cut or otherwise mechanically altered in a manner that would generate dust or particles without proper respiratory and dermal protection. The treated wood must be disposed of in at least a lined solid waste facility or through recycling/reuse. Treated wood shall not be disposed by burning or placement in a construction and demolition (C&D) debris landfill.

110-9.5 Hazardous Materials/Waste: Handle, transport, and dispose of hazardous materials/waste in accordance with all Federal, State, and Local Rules and Regulations including, but not limited to, the following:

1. SSPC Guide 7
2. Federal Water Pollution Control Act, and
3. Resource Conservation and Recover Act (RCRA).

Accept responsibility for the collection, sampling, classification, packaging, labeling, accumulation time, storage, manifesting, transportation, treatment and disposal of hazardous materials/waste, both solid and liquid. Separate all solid and liquid waste and collect all liquids used at hygiene stations and handle as hazardous materials/waste. Obtain written approval from the Engineer for all hazardous materials/waste stabilization methods before implementation.

Obtain an EPA/FDEP Hazardous Waste Identification Number (EPA/FDEP ID Number) before transporting and/or disposal of any hazardous materials/waste.

List the Department as the generator for hazardous materials/waste resulting from removal or demolition of Department materials.

Submit the following for the Engineers' approval before transporting, treatment or disposal of any hazardous materials/waste:

1. Name, address and qualifications of the transporter,

2. Name, address and qualifications of the treatment facility,

3. Proposed treatment and/or disposal of all Hazardous Materials/Waste.

4. EPA/FDEP Hazardous Waste Identification Number Application Form.

5. Manifest forms.

Transport all hazardous materials/waste in accordance with applicable Federal, State, and Local Rules and Regulations including, but not limited to, the 40 CFR 263 Standards. Submit all final Hazardous Materials/Waste manifest/bills of lading and certificates of disposal to the Engineer within 21 days of each shipment.

110-9.5.1 Steel Members with Hazardous Coating: Dispose of steel members with hazardous coating in one of the following manners:

1. Deliver the steel members and other hazardous waste to a licensed recycling or treatment facility capable of processing steel members with hazardous coating.

2. Deliver the steel members with hazardous coating to a site designated by the Engineer for use as an offshore artificial reef. Deliver any other hazardous materials/waste to a licensed hazardous materials/waste recycling treatment facility.

Dismantle and/or cut steel members to meet the required dimensions of the recycling facility, treatment facility or offshore artificial reef agency.

All compensation for the cost of removal and disposal of hazardous materials/waste will be included in the Cost of Removal of Existing Structures.

110-9.5.2 Certification of Compliance: Submit certification of Compliance from the firm actually removing and disposing of the hazardous materials/waste stipulating, the hazardous materials/waste has been handled, transported and disposed of in accordance with this

Specification. The Certification of Compliance shall be attested to by a person having legal authority to bind the company.

Maintain all records required by this Specification and ensure these records are available to the Department upon request.

110-10 Miscellaneous Operations.

110-10.1 Water Wells Required to be Plugged: Fill or plug all water wells within the right-of-way, including areas of borrow pits and lateral ditches, that are not to remain in service, in accordance with applicable Federal, State, and Local Rules and Regulations.

Cut off the casing of cased wells at least 12 inches below the ground line or 12 inches below the elevation of the finished excavation surface, whichever is lower. Water wells, as referred to herein, are defined either as artesian or non-artesian, as follows:

1. An artesian well is an artificial hole in the ground from which water supplies may be obtained and which penetrates any water-bearing rock, the water in which is raised to the surface by natural flow or which rises to an elevation above the top of the waterbearing bed. Artesian wells are further defined to include all holes drilled as a source of water that penetrate any water-bearing beds that are a part of the artesian water system of Florida, as determined by representatives of the applicable Water Management District.

2. A non-artesian (water-table) well is a well in which the source of water is an unconfined aquifer. The water in a non-artesian well does not rise above the source bed.

110-10.2 Leveling Terrain: Within the areas between the limits of construction and the outer limits of clearing and grubbing, fill all holes and other depressions, and cut down all mounds and ridges. Make the area of a sufficient uniform contour so that the Department's subsequent mowing and cutting operations are not hindered by irregularity of terrain. Perform this work regardless of whether the irregularities were the result of construction operations or existed originally.

110-10.3 Mailboxes: When the Contract Documents require furnishing and installing mailboxes, permit each owner to remove the existing mailbox. Work with the Local Postmaster to develop a method of temporary mail service for the period between removal and installation of the new mailboxes. Install the mailboxes in accordance with the Standard Plans.

110-11 Method of Measurement.

110-11.1 Clearing and Grubbing (Miscellaneous Demolition): The quantity to be paid for will be the lump sum quantity.

110-11.2 1" Asphalt Milling: The quantity to be paid for will be the plan quantity, in square yards designated for asphalt milling.

110-11.3 Selective Clearing and Grubbing: The quantity to be paid will be the plan quantity area in acres designated for selective clearing and grubbing.

110-11.4 Removal of Existing Bridges: The quantity to be paid for will be the lump sum quantity or quantities for the specific structures, or portions of structures to be removed.

110-11.5 Removal of Existing Concrete: The quantity to be paid for will be the number of square yards of existing concrete elements, acceptably removed and disposed of, as specified. The quantity will be determined by actual measurement along the surface of the element before its removal. Measurements for appurtenances which have irregular surface configurations, such as curb and gutter, steps, and ditch pavement, will be the area as projected to an approximate horizontal plane. Where the removal of pavement areas is necessary only for the construction of box culverts, pipe culverts, storm sewers, inlets, manholes, etc., these areas will not be included in the measurements. Area measurements for walls will be based on exposed vertical face measurements times the horizontal length of the wall.

110-11.6 Plugging Water Wells: The quantity to be paid for will be the number of water wells plugged, for each type of well (artesian or non-artesian).

110-11.7 Mailboxes: The quantity to be paid for will be the number of mailboxes acceptably furnished and installed.

110-11.8 Delivery of Salvageable Material to the Department The quantity to be paid for will be the Lump Sum quantity for delivery of salvageable materials to the Department, as indicated in the Plans.

110-11.9 General: In each case, except as provided below, where no item of separate payment for such work is included in the proposal, all costs of such work will be included in the various scheduled items in the Contract, or under specific items as specified herein below or elsewhere in the Contract.

110-12 Basis of Payment.

110-12.1 Clearing and Grubbing (Miscellaneous Demolition):

110-12.1.1 Lump Sum Payment: Price and payment will be full compensation for all clearing and grubbing required for the roadway right-of-way and for lateral ditches, channel changes, or other outfall areas, and any other clearing and grubbing indicated, or required for the construction of the entire project, including all necessary hauling, furnishing equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain and the landscaping work of trimming, etc.

Where construction easements are specified in the Plans and the limits of clearing and grubbing for such easements are dependent upon the final construction requirements, no adjustment will be made in the lump sum price and payment, either over or under, for variations from the limits of the easement defined in the Plans.

110-12.1.2 When No Direct Payment is Provided: When no item for clearing and grubbing is included in the proposal, the Contractor shall include the cost of any work of clearing and grubbing which is necessary for the proper construction of the project in the Contract price for the structure or other item of work for which such clearing and grubbing is required. The Contractor shall include the cost of all clearing and grubbing which might be necessary in pits or areas from which base material is obtained in the Contract price for the base in which such material is used. The clearing and grubbing of areas for obtaining stabilizing materials, where required only for the purpose of obtaining materials for stabilizing, will not be paid for separately.

110-12.2 1" Asphalt Milling: Price and payment will be full compensation for all asphalt milling, including all necessary milling, removal, hauling, furnishing equipment, equipment operation, tools, labor, and incidentals needed to complete the work.

110-12.3 Selective Clearing and Grubbing: Price and payment will be full compensation for all selective clearing and grubbing, including all necessary hauling, furnishing equipment, Certified Arborist, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain, root pruning and tree protection.

110-12.4 Removal of Existing Bridges: Price and payment will be full compensation for all work of removal and disposal of the designated bridges.

When direct payment for the removal of existing bridges is not provided in the proposal, the Contractor shall include the cost of removing all bridges in the Contract price for clearing and grubbing or, if no item of clearing and grubbing is included, in the compensation for the other items covering the new bridge being constructed.

110-12.5 Removal of Existing Concrete: Price and payment will be full compensation for performing and completing all the work of removal and satisfactory disposal.

When no separate item for this work is provided and no applicable item of excavation or embankment covering such work (as provided in 120-13.1) is included, the Contractor shall include the costs of this work in the Contract price for the item of clearing and grubbing or for the pipe or other structure for which the concrete removal is required.

110-12.6 Plugging Water Wells: Price and payment will be full compensation for each type of well acceptably plugged.

If a water well requiring plugging is encountered and the Contract contains no price for plugging wells of that specific type, the plugging of such well will be paid for as unforeseeable work.

110-12.7 Mailboxes: Price and payment will be full compensation for all work and materials required, including supports and numbers.

110-12.8 Delivery of Salvageable Material to the Department: Price and payment will be full compensation for all work required for delivery of the materials to the Department.

110-12.9 Payment Items: Payment will be made under:

Item No. 110-1	***Stripping and Stockpiling***	***-per Acre (AC)***
Item No. 110-2	***Miscellaneous Demolition – Base Bid***	***-per Lump Sum (LS)***
Item No. 110-3	***Miscellaneous Demolition – Cell Phone Lot***	***-per Lump Sum (LS)***
Item No. 110-4	***Miscellaneous Demolition – Add. Alt. No. 1***	***-per Lump Sum (LS)***
Item No. 110-5	***Miscellaneous Demolition – Add. Alt. No. 2***	***-per Lump Sum (LS)***
Item No. 110-6	***Miscellaneous Demolition – Add. Alt. No. 3***	***-per Lump Sum (LS)***

END OF SECTION 110

SECTION 120

EXCAVATION AND EMBANKMENT

120-1 120-1 Description.

120-1.1 General: Excavate and construct embankments as required for the roadway, ditches, channel changes and borrow material. Use suitable excavated material or authorized borrow to prepare subgrades and foundations. Construct embankments in accordance with Standard Plans, Index 120-001. Compact and dress excavated areas and embankments.

Meet the requirements of Section 110 for excavation of material for clearing and grubbing and Section 125 for excavation and backfilling of structures and pipe. Material displaced by the storm sewer or drainage structure system is not included in the earthwork quantities shown in the Plans.

120-1.2 Unidentified Areas of Contamination: When encountering or exposing any abnormal condition indicating the presence of contaminated materials, cease operations immediately in the vicinity and notify the Engineer. The presence of tanks or barrels; discolored earth, metal, wood, ground water, etc.; visible fumes; abnormal odors; excessively hot earth; smoke; or other conditions that appear abnormal may indicate the presence of contaminated materials and must be treated with extreme caution.

Make every effort to minimize the spread of contamination into uncontaminated areas. Immediately provide for the health and safety of all workers at the job site and make provisions necessary for the health and safety of the public that may be exposed to any potentially hazardous conditions. Ensure provisions adhere to all applicable laws, rules or regulations covering potentially hazardous conditions and will be in a manner commensurate with the gravity of the conditions.

The Engineer may grant the Contract Time extensions according to the provisions of 8-7.3.2.

The Engineer will direct the Prime Contractor when operations may resume in the affected area.

120-2 Classifications of Excavation.

120-2.1 General: The Owner may classify excavation specified under this Section for payment as any of the following: regular excavation, subsoil excavation, lateral ditch excavation, and channel excavation.

If the proposal does not show subsoil excavation or lateral ditch excavation as separate items of payment, include such excavation under the item of regular excavation.

If the proposal shows lateral ditch excavation as a separate item of payment, but does not show channel excavation as a separate item of payment, include such excavation under the item of lateral ditch excavation. Otherwise, include channel excavation under the item of regular excavation.

120-2.2 Regular Excavation: Regular excavation includes roadway excavation and borrow excavation, as defined below for each.

120-2.2.1 Roadway Excavation: Roadway excavation consists of the excavation and the utilization or disposal of all materials necessary for the construction of the roadway, ditches,

channel changes, etc., except as may be specifically shown to be paid for separately and that portion of the lateral ditches within the limits of the roadway right-of-way as shown in the Plans.

120-2.2.2 Borrow Excavation: Borrow excavation consists of the excavation and utilization of material from authorized borrow pits, including only material that is suitable for the construction of roadway embankments or of other embankments covered by the Contract.

A Cost Savings Initiative Proposal (CSIP) submittal based on using borrow material from within the project limits will not be considered.

120-2.3 Subsoil Excavation: Subsoil excavation consists of the excavation and disposal of muck, clay, rock, or any other material that is unsuitable in its original position and that is excavated below the finished grading template. For stabilized bases and sand bituminous road mixes, consider the finished grading template as the top of the finished base, shoulders and slopes. For all other bases and rigid pavement, consider the finished grading template as the finished shoulder and slope lines and bottom of completed base or rigid pavement. For pond and ditches that identify the placement of a blanket material, consider the finished grading template as the bottom of the blanket material. Subsoil excavation also consists of the excavation of all suitable material within the above limits as necessary to excavate the unsuitable material. Consider the limits of subsoil excavation indicated in the Plans as being particularly variable, in accordance with the field conditions actually encountered.

The quantity of material required to replace the excavated material and to raise the elevation of the roadway to the bottom of the template will be paid for under embankment or borrow excavation (Truck Measure).

120-2.4 Lateral Ditch Excavation: Lateral ditch excavation consists of all excavation of inlet and outlet ditches to structures and roadway, changes in channels of streams, and ditches parallel to the roadway right-of-way. Dress lateral ditches to the grade and cross-section shown in the Plans.

120-2.5 Channel Excavation: Channel excavation consists of the excavation and satisfactory disposal of all materials from the limits of the channel as shown in the Plans.

120-3 Preliminary Soils Investigations.

When the Plans contain the results of a soil survey, do not assume such data is a guarantee of the depth, extent, or character of material present.

120-4 Removal of Unsuitable Materials and Existing Roads.

120-4.1 Subsoil Excavation: Where muck, rock, clay, or other material within the limits of the roadway is unsuitable in its original position, excavate such material to the cross-sections shown in the Plans or indicated by the Engineer, and backfill with suitable material. Shape backfill material to the required cross-sections. Where the removal of plastic soils below the finished earthwork grade is required, meet a construction tolerance, from the lines shown in the Plans as the removal limits, of plus or minus 0.2 feet in depth and plus or minus 6 inches (each side) in width.

120-4.2 Construction over Existing Old Road: Where a new roadway is to be constructed over an old one, plow or scarify the old road, and break it up full width, regardless of height of fill. If the Plans provide that paving materials may be incorporated into the fill, distribute such material in a manner so as not to create voids. Recompact the old road meeting the requirements of 120-10.2.

120-4.3 Obliterating Old Road: Where the Plans call for obliteration of portions of an old road outside of the proposed new roadway, obliterate such sections of the old road by grading to fill ditches and to restore approximately the original contour of the ground or a contour which produces a pleasing appearance.

120-5 Disposal of Surplus and Unsuitable Material.

120-5.1 Ownership of Excavated Materials: Dispose of surplus and excavated materials as shown in the Plans or, if the Plans do not indicate the method of disposal, take ownership of the materials and dispose of them outside the right-of-way.

120-5.2 Disposal of Muck on Side Slopes: As an exception to the provisions of 120-5. 1, when approved by the Engineer, in rural undeveloped areas, the Contractor may place muck (A-8 material) on the slopes, or store it alongside the roadway, provided there is a clear distance of at least 6 feet between the roadway grading limits and the muck, and the Contractor dresses the muck to present a neat appearance. In addition, the Contractor may also dispose of this material by placing it on the slopes in developed areas where, in the opinion of the Engineer, this will result in an aesthetically pleasing appearance and will have no detrimental effect on the adjacent developments. Where the Engineer permits the disposal of muck or other unsuitable material inside the right-of-way limits, do not place such material in a manner which will impede the inflow or outfall of any channel or side ditches. The Engineer will determine the limits adjacent to channels within which such materials may be disposed.

120-5.3 Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-ofway. If the materials are to remain the property of the Owner, place them in neat piles as directed. Existing limerock base that is removed may be incorporated in the stabilized portion of the subgrade. If the construction sequence will allow, incorporate all existing limerock base into the project as allowed by the Contract Documents.

120-5.4 Disposal Areas: Where the Contract Documents require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Contract Documents, furnish the disposal area without additional compensation. Provide areas for disposal of removed paving materials out of sight of the project and at least 300 feet from the nearest roadway right-of-way line of any State maintained road. If the materials are buried, disregard the 300 foot limitation.

120-6 Borrow.

120-6.1 Materials for Borrow: Do not open borrow pits until the Engineer has approved their location.

Do not provide borrow materials that are polluted as defined in Chapter 376 of the Florida Statutes (oil of any kind and in any form, gasoline, pesticides, ammonia, chlorine, and derivatives thereof, excluding liquefied petroleum gas) in concentrations above any local, State, or Federal standards.

Prior to placing any borrow material that is the product of soil incineration, provide the Engineer with a copy of the Certificate of Materials Recycling and Post Burn Analysis showing that the material is below all allowable pollutant concentrations.

120-6.2 Furnishing of Borrow Areas: To obtain the Engineer's approval to use an offsite construction activity area that involves excavation such as a borrow pit or local aggregate pit, request in writing, a review for -cultural resources involvement. Send the request to the Division of Historical Resources (DHR), Department of State, State Historic Preservation Officer, Tallahassee, FL. As a minimum, include in the request the Project Identification Number, the County, a description of the property with Township, Range, Section, etc., the dimensions of the area to be affected, and a location map. Do not start any work at the off-site construction activity area prior to receiving clearance from the DHR that no additional research is warranted.

For certain locations, the DHR will require a Cultural Resources Assessment (CRA) Survey before approval can be granted. When this is required, secure professional archaeological services to complete an historical and archaeological survey report. Submit the report to the DHR and to the Owner. The Engineer will determine final approval or rejection of off-site construction activity areas based on input from the DHR.

Before receiving approval or before use of borrow areas, obtain written clearance from the Engineer concerning compliance with the Federal Endangered Species Act and other Wildlife Regulations as specified in 7-1.4 and Section 4(f) of the USDOT Act as specified in 71.8.

The Owner will adjust Contract Time in accordance with 8-7 for any suspension of operations required to comply with this Article. The Owner will not accept any monetary claims due to delays or loss of off-site construction activity areas.

Except where the Plans specifically call for the use of a particular borrow or dredging area, the Contractor may substitute borrow or dredging areas of his own choosing provided the Engineer determines the materials from such areas meet the Owner's standards and other requirements for stability for use in the particular sections of the work in which it is to be placed, and the Contractor absorbs any increase in hauling or other costs. Stake the corners of the proposed borrow area and provide the necessary equipment along with an operator in order for the Engineer to investigate the borrow area. The Engineer will determine test locations, collect samples, and perform tests to investigate the proposed borrow area based on soil strata and required soil properties. The Engineer will approve use of materials from the proposed area based on test results and project requirements. Final acceptance of materials will be based on Point of Use Test as described in 6-1.2.4.

Before using any borrow material from any substitute areas, obtain the Engineer's approval, in writing, for the use of the particular areas, and, where applicable, ensure that the Engineer has cross-sectioned the surface. Upon such written approval by the Engineer, consider the substitute areas as designated borrow areas.

When furnishing the dredging or borrow areas, supply the Owner with evidence that the necessary permits, rights, or waivers for the use of such areas have been secured.

Do not excavate any part of a Contractor furnished borrow area which is less than 300 feet from the right-of-way of the project or any State Road until the Engineer has approved a plan for landscaping and restoring the disturbed area. Perform this landscaping and land restoration at no expense to the Owner, prior to final acceptance of the project. Do not provide a borrow area closer than 25 feet to the right-of-way of any state road. In Owner furnished borrow pits, do not excavate material within 5 feet of adjacent property lines.

Upon completion of excavation, neatly shape, dress, grass, vegetate, landscape, and drain all exposed areas including haul roads, as necessary so as not to present an objectionable appearance.

Meet the requirements of Section 104 when furnishing borrow areas, regardless of location.

120-6.3 Borrow Material for Shoulder Build-up: When so indicated in the Plans, furnish borrow material with a specific minimum bearing value, for building up of existing shoulders. Blend materials as necessary to achieve this specified minimum bearing value prior to placing the materials on the shoulders. Take samples of this borrow material at the pit or blended stockpile. Include all costs of providing a material with the required bearing value in the Contract unit price for borrow material.

120-6.4 Haul Routes for Borrow Pits: Provide and maintain, at no expense to the Owner, all necessary roads for hauling the borrow material. Where borrow area haul roads or trails are used by others, do not cause such roads or trails to deteriorate in condition.

Arrange for the use of all non-public haul routes crossing the property of any railroad. Incur any expense for the use of such haul routes. Establish haul routes which will direct construction vehicles away from developed areas when feasible, and keep noise from hauling operations to a minimum. Advise the Engineer in writing of all proposed haul routes.

120-6.5 Authorization for Use of Borrow: When the item of borrow excavation is included in the Contract, use borrow only when sufficient quantities of suitable material are not available from roadway and drainage excavation, to properly construct the embankment, subgrade, and shoulders, and to complete the backfilling of structures. Do not use borrow material until so ordered by the Engineer, and then only use material from approved borrow pits.

120-7 Materials for Embankment.

120-7.1 Use of Materials Excavated from the Roadway and Appurtenances: Assume responsibility for determining the suitability of excavated material for use on the project in accordance with the applicable Contract Documents. Consider the sequence of work and maintenance of traffic phasing in the determination of the availability of this material.

120-7.2 General Requirements for Embankment Materials: Construct embankments of acceptable material including reclaimed asphalt pavement (RAP), recycled concrete aggregate (RCA) and portland cement concrete rubble, but containing no muck, stumps, roots, brush, vegetable matter, rubbish, reinforcement bar or other material that does not compact into a suitable and enduring roadbed. Do not use RAP or RCA in the top 3 feet of slopes and shoulders that are to be grassed or have other type of vegetation established. Do not use RAP or RCA in stormwater management facility fill slopes.

Remove all waste material designated as undesirable. Use material in embankment construction in accordance with plan details or as the Engineer directs.

Complete the embankment using maximum particle sizes (in any dimension) as follows:

1. In top 12 inches: 3-1/2 inches (in any dimension).

2. 12 to 24 inches: 6 inches (in any dimension).

3. In the depth below 24 inches: not to exceed 12 inches (in any dimension) or the compacted thickness of the layer being placed, whichever is less.

Spread all material so that the larger particles are separated from each other to minimize voids between them during compaction. Compact around these rocks in accordance with 120-9.2.

When and where approved by the Engineer, the Contractor may place larger rocks (not to exceed 18 inches in any dimension) outside the one to two slope and at least 4 feet or more below the bottom of the base. Compact around these rocks to a firmness equal to that of the supporting soil. Construct grassed embankment areas in accordance with 120-9.2.5. Where constructing embankments adjacent to bridge end bents or abutments, do not place rock larger than 3-1/2 inches in diameter within 3 feet of the location of any end-bent piling.

120-7.3 Materials Used at Pipes, Culverts, etc.: Construct embankments over and around pipes, culverts, and bridge foundations with selected materials.

120-8 Embankment Construction.

120-8.1 General: Construct embankments in sections of not less than 300 feet in length or for the full length of the embankment. Do not construct another LOT over an untested LOT without the Engineer's approval in writing.

For construction of mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts and retaining wall systems, a LOT is defined as a single lift of finished embankment not to exceed 500 feet.

For construction of shoulder-only areas, shared use paths, and sidewalks areas, a LOT is defined as a single lift of finished embankment not to exceed 2000 feet.

Isolated compaction operations will be considered as separate LOTs. For multiple phase construction, a LOT shall not extend beyond the limits of the phase.

120-8.2 Dry Fill Method:

120-8.2.1 General: Construct embankments to meet the compaction requirements in 120-9 and in accordance with the acceptance program requirements in 120-10.

As far as practicable, distribute traffic over the work during the construction of embankments so as to cover the maximum area of the surface of each layer.

Construct embankment using the dry fill method whenever normal dewatering equipment and methods can accomplish the needed dewatering.

120-8.2.1.1 Maximum Compacted Lift Thickness Requirements: Construct the embankment in successive layers with lifts up to a maximum listed in the table below based on the e mbankment material classification group.

Group	AASHTO Soil Class	Maximum Lift Thickness	Thick Lift Control Test Section Requirements
1	A-3	12 inches	Not Needed
	A-2-4 (No. 200 Sieve ≤ 15%)		
2	A-1	6 inches without Control Test Section	Maximum of 12 inches per 120-8.2.1.2
	A-2-4 (No. 200 Sieve > 15%)		
	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6		
	A-7 (Liquid Limit <50)		

120-8.2.1.2 Thick Lift Requirements: For embankment materials classified as Group 2 in the table above, the option to perform thick lift construction in successive layers of not more than 12 inches compacted thickness may be used after meeting the following requirements:

1. Notify the Engineer and obtain approval in writing prior to beginning construction of a test section.

    a. Demonstrate the possession and control of compacting equipment sufficient to achieve density required by 120-10.2 for the full depth of a thicker lift.

2. Construct a test section of the length of one full LOT of not less than 500 feet.

3. Perform five Quality Control (QC) tests at random locations within the test section.

    a. All five QC tests and must meet the density required by 120-10.2.

    b. Identify the test section with the compaction effort and soil classification.

4. Obtain Engineer's approval in writing for the compaction effort after completing a successful test section.

In case of a change in compaction effort or soil classification, failing QC test or when the QC tests cannot be verified, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time. Construct all layers approximately parallel to the centerline profile of the road.

The Engineer reserves the right to terminate the Contractor's use of thick lift construction. Whenever the Engineer determines that the Contractor is not achieving satisfactory results, revert to the 6 inch compacted lifts.

120-8.2.1.3 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, sumps and siphons.

When normal dewatering does not adequately remove the water, the Engineer may require the embankment material to be placed in the water or on low swampy ground in accordance with 120-9.2.3.

120-8.2.2 Placing in Unstable Areas: When depositing fill material in water, or on low swampy ground that will not support the weight of hauling equipment, construct the embankment by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers. Once sufficient material has been placed so that the hauling equipment can be supported, construct the remaining portion of the embankment in layers in accordance with the applicable provisions of 120-9.2.2.

120-8.2.3 Placing on Steep Slopes: When constructing an embankment on a hillside sloping more than 20 degrees from the horizontal, before starting the fill, deeply plow or cut steps into the surface of the original ground on which the embankment is to be placed.

120-8.2.4 Placing Outside the Standard Minimum Slope: The standard minimum slope is defined as the plane described by a one (vertical) to two (horizontal) slope downward from the roadway shoulder point or the gutter line, in accordance with Standard Plans, Index 120-001 and 120-002. Where material that is unsuitable for normal embankment construction is to be used in the embankment outside the standard minimum slope, place such material in layers of not more than 18 inches in thickness, measured loose. The Contractor may also place material which is suitable for normal embankment, outside such standard minimum slope, in 18 inch layers. Maintain a constant thickness for suitable material placed within and outside the standard minimum slope, unless placing in a separate operation.

120-8.3 Hydraulic Method:

120-8.3.1 Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is reworked, or moved and placed in its final position by any other method, as specified in 120-9.2. Baffles or any other form of construction may be used if the slopes of the embankments are not steeper than indicated in the Plans. Remove all timber used for temporary bulkheads or baffles from the embankment, and fill and thoroughly compact all voids. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

120-8.3.2 Excess Material: Do not use any excess material placed outside the prescribed slopes or below the normal high-water table to raise the fill areas. Remove only the portion of this material required for dressing the slopes.

120-8.3.3 Protection of Openings in Embankment: Leave openings in the embankments at the bridge sites. Remove any material which invades these openings or existing channels without additional compensation to provide the same existing channel depth as before the construction of the embankment. Do not excavate or dredge any material within 200 feet of the toe of the proposed embankment.

120-8.4 Reclaimed Asphalt Pavement (RAP) Method:

120-8.4.1 General: Use only RAP material stored at facilities with an approved Florida Department of Environmental Protection Stormwater permit or, transferred directly from a milling project to the Owner project. Certify the source if RAP material is from an identifiable Owner project. Do not use RAP material in the following areas: construction areas that are below the seasonal high groundwater table elevation; MSE Wall backfill; underneath MSE Walls or the top 6 inches of embankment.

Prior to placement, submit documentation to the Engineer for his approval, outlining the proposed location of the RAP material.

120-8.4.2 Soil and RAP Mixture: Place the RAP material at the location and spread uniformly, using approved methods to obtain a maximum layer thickness of 4 inches. Mix this 4 inches maximum layer of RAP with a loose soil layer 8 to 10 inches thick. After mixing, meet all embankment utilization requirements of Standard Plans, Index 120-001 for the location used. The total RAP and other embankment material shall not exceed 12 inches per lift after mixing and compaction if the contractor can demonstrate that the density of the mixture can be achieved. Perform mixing using rotary tillers or other equipment meeting the approval of the Engineer. The Engineer will determine the order in which to spread the two materials. Mix both materials to the full depth. Ensure that the finished layer will have the thickness and shape required by the typical section. Demonstrate the feasibility of this construction method by successfully completing a 500 foot long test section.

120-8.4.3 Alternate Soil and RAP Layer Construction: Construct soil in 6 to 12 inch compacted lifts and RAP in alternate layers with 6 inch maximum compacted lifts. Use soil with a minimum LBR value of 40 to prevent failure during compaction of the overlying RAP layer. Demonstrate the feasibility of this construction method by successfully completing a 500 foot long test section.

120-9 Compaction Requirements.

120-9.1 Moisture Content: Compact the materials at a moisture content such that the specified density can be attained. If necessary to attain the specified density, add water to the material, or lower the moisture content by manipulating the material or allowing it to dry, as is appropriate.

120-9.2 Compaction of Embankments:

120-9.2.1 General: Uniformly compact each layer, using equipment that will achieve the required density, and as compaction operations progress, shape and manipulate each layer as necessary to ensure uniform density throughout the embankment.

120-9.2.2 Compaction Over Unstable Foundations: Where the embankment material is deposited in water or on low swampy ground, and in a layer thicker than 12 inches (as provided in 120-8.2.2), compact the top 6 inches (compacted thickness) of such layer to the density as specified in 120-10.2.

120-9.2.3 Compaction Where Plastic Material Has Been Removed: Where unsuitable material is removed and the remaining surface is of the A-4, A-5, A-6, or A-7 Soil Groups (see AASHTO M145), as determined by the Engineer, compact the surface of the excavated area by rolling with a sheepsfoot roller exerting a compression of at least 250 psi on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill, and continue until the roller feet do not penetrate the surface more than 1 inch. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

120-9.2.4 Compaction of Grassed Shoulder Areas: For the upper 6 inch layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent directed.

120-9.2.5 Compaction of Grassed Embankment Areas: Do not compact the outer layers of any embankments where plant growth will be established. Leave this layer in a loose condition to a minimum depth of 6 inches for the subsequent seeding or planting operations. Do not place RAP or RAP blended material within the top 12 inches of areas to be grassed.

120-9.3 Compaction for Pipes, Culverts, etc.: Compact the backfill of trenches to the densities specified for embankment or subgrade, as applicable, and in accordance with the requirements of 125-9.2.

Thoroughly compact embankments over and around pipes, culverts, and bridges in a manner which will not place undue stress on the structures, and in accordance with the requirements of 125-9.2.

120-9.4 Compaction of Subgrade: If the Plans do not provide for stabilizing, compact the subgrade as defined in 1-3 in both cuts and fills, to the density specified in 120-10.2. For cut areas, determine Standard Proctor Maximum Density in accordance with FM 1-T099 at a frequency of one per mile or when there is a change in soil type, whichever occurs first. For undisturbed soils, do not apply density requirements where constructing paved shoulders 5 feet or less in width.

Where trenches for widening strips are not of sufficient width to permit the use of standard compaction equipment, perform compaction using vibratory rollers, trench rollers, or other type compaction equipment approved by the Engineer.

Maintain the required density until the base or pavement is placed on the subgrade.

120-10 Acceptance Program.

120-10.1 General Requirements:

120-10.1.1 Initial Equipment Comparison: Before initial production, perform an initial nuclear moisture density gauge comparison with the Verification and Independent Assurance (IA) gauges. When comparing the computed dry density of one nuclear gauge to a second gauge, three sets of calculations must be performed (IA to QC, IA to Verification, and QC to Verification). Ensure that the difference between any two computed dry densities does not exceed 2 lb/ft3 between gauges from the same manufacturer, and 3 lb/ft3 between gauges from different manufacturers. Repair or replace any gauge that does not compare favorably with the IA gauge.

Perform a comparison analysis between the QC nuclear gauge and the Verification nuclear gauge any time a nuclear gauge or repaired nuclear gauge is first brought to the project. Repair and replace any QC gauge that does not compare favorably with the Verification gauge at any time during the remainder of the project. Calibrate all QC gauges annually.

120-10.1.2 Initial Production LOT: Before construction of any production LOT, prepare a 500 foot initial control section consisting of one full LOT. Notify the Engineer in writing at least 24 hours prior to production of the initial control section. Perform all QC tests required in 120-10.1.4. When the initial QC test results pass specifications, the Engineer will perform a Verification test to verify compliance with the specifications. Do not begin constructing another LOT until successfully completing the initial production LOT. The Engineer will notify the Contractor in writing of the initial production LOT approval within three working days after receiving the Contractor's QC data when test results meet the following conditions:

1. QC and Verification tests must meet the density requirements.

2. Difference between QC and Verification computed dry density results shall meet the requirements of 120-10.1.1.

If Verification test result fails the density requirements of 120-10.2, correct the areas of non-compliance. The QC and Verification tests will then be repeated.

120-10.1.3 Density over 105%: When a QC computed dry density results in a value greater than 105% of the applicable Proctor maximum dry density, the Engineer will perform an Independent Verification (IV) density test within 5 feet. If the IV density results in a value greater than 105%, the Engineer will investigate the compaction methods, examine the applicable Standard Proctor Maximum Density and material description. The Engineer may collect and test an IV Standard Proctor Maximum Density sample for acceptance in accordance with the criteria of 120-10.2.

120-10.1.4 Quality Control (QC) Tests:

120-10.1.4.1 Standard Proctor Maximum Density Determination: Determine the QC standard Proctor maximum density and optimum moisture content by sampling and testing the material in accordance with the specified test method listed in 120-10.2.

120-10.1.4.2 Density Testing Requirements: Ensure compliance to the requirements of 120-10.2 by Nuclear Density testing in accordance with FM 1-T238. Determine the in-place moisture content for each density test. Use FM 1-T238, FM 5-507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or ASTM D4643 (Laboratory Determination of Moisture Content of Granular Soils by use of a Microwave Oven) for moisture determination.

120-10.1.4.3 Soil Classification: Perform soil classification tests on the sample collected in 120-10.1.4.1, in accordance with AASHTO T88, T89, T90, and FM 1-T267. Classify soils in accordance with AASHTO M145 in order to determine compliance with embankment utilization requirements as specified in Standard Plans, Index 120-001.

120-10.1.5 Owner Verification: The Engineer will conduct Verification tests in order to accept all materials and work associated with 120-10.1.4. The Engineer will verify the QC results if they meet the Verification Comparison Criteria, otherwise the Engineer will implement Resolution procedures.

The Engineer will select test locations, including Station, Offset, and Lift, using a random number generator, based on the LOTs under consideration. Each Verification test evaluates all work represented by the QC testing completed in those LOTs.

In addition to the Verification testing, the Engineer may perform additional Independent Verification (IV) testing. The Engineer will evaluate and act upon the IV test results in the same manner as Verification test results.

When the project requires less than four QC tests per material type, the Engineer reserves the right to accept the materials and work through visual inspection.

120-10.1.6 Reduced Testing Frequency: Obtain the Engineer's written approval for the option to reduce density testing frequency to one test every two LOTs if Resolution testing was not required for 12 consecutive verified LOTs, or if Resolution testing was required, but the QC test data was upheld and all substantiating tests are recorded in the Earthwork Records System (ERS).

Generate random numbers based on the two LOTs under consideration. When QC test frequency is reduced to one every two LOTs, obtain the Engineer's approval to place more than one LOT over an untested LOT. Assure similar compaction efforts for the untested LOTs. If the Verification test fails, and QC test data is not upheld by Resolution testing, the QC testing will revert to the original frequency of one QC test per LOT. Do not apply reduced testing frequency in construction of shoulder-only areas, shared use paths, sidewalks, and first and last lift.

120-10.1.7 Payment for Resolution Tests: If the Resolution laboratory results compare favorably with the QC results, the Owner will pay for Resolution testing. No additional compensation, either monetary or time, will be made for the impacts of any such testing.

If the Resolution laboratory results do not compare favorably with the QC results, the costs of the Resolution testing will be deducted from monthly estimates. No additional time will be granted for the impacts of any such testing.

120-10.2 Acceptance Criteria: Obtain a minimum QC density of 100% of the standard Proctor maximum density as determined by FM 1-T099, Method C, with the following exceptions: embankment constructed by the hydraulic method as specified in 120-8.3; material placed outside the standard minimum slope as specified in 120-8.2.4 except when a structure is supported on existing embankment; and, other areas specifically excluded herein.

120-10.3 Additional Requirements:

120-10.3.1 Frequency: Conduct QC sampling and testing at a minimum frequency listed in the table below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in the table below.

Test Name	Quality Control	Verification	Verification of Shoulder-Only Areas, Shared Use Paths, and Sidewalks
Standard Proctor Maximum Density	One per soil type	One per soil type	One per soil type
Density	One per LOT	One per four LOTS and for wet conditions, the first lift not affected by water	One per two LOTs
Soil Classification and Organic Content	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density

120-10.3.2 Test Selection and Reporting: Determine test locations including stations and offsets, using the random number generator approved by the Engineer. Do not use notepads or worksheets to record data for later transfer to the Density Log Book. Notify the Engineer upon successful completion of QC testing on each LOT prior to placing another lift on top.

120-10.4 Verification Comparison Criteria and Resolution Procedures:

120-10.4.1 Standard Proctor Maximum Density Determination: The Engineer will verify the QC results if the results compare within 4.5 lb/ft3 of the Verification test result. Otherwise, the Engineer will take one additional sample of material from the soil type in question. The State Materials Office (SMO) or an AASHTO accredited laboratory designated by the SMO will perform Resolution testing. The material will be sampled and tested in accordance with FM 1-T099, Method C.

The Engineer will compare the Resolution test results with the QC test results. If all Resolution test results are within 4.5 lb/ft3 of the corresponding QC test results, the Engineer will use the QC test results for material acceptance purposes for each LOT with that soil type. If the Resolution test result is not within 4.5 lb/ft3 of the Contractor's QC test, the Verification test result will be used for material acceptance purposes.

120-10.4.2 Density Testing: When a Verification or IV density test fails the acceptance criteria, retest the site within a 5 foot radius and the following actions will be taken:

1. If the QC retest meets the acceptance criteria and meets the 12010.1.1 criteria when compared with the Verification or IV test, the Engineer will accept those LOTs.

2. If the QC retest does not meet the acceptance criteria and compares favorably with the Verification or IV test, rework and retest the LOT. The Engineer will re-verify those LOTs.

3. If the QC retest and the Verification or IV test do not compare favorably, complete a new comparison analysis as defined in 120-10.1.1. Once acceptable comparison is achieved, retest the LOTs. The Engineer will perform new verification testing. Acceptance testing will not begin on a new LOT until the Contractor has a gauge that meets the comparison requirements.

Record QC test results in the density logbook. Submit the original, completed density logbook to the Engineer at final acceptance.

120-10.4.3 Soil Classification: The Engineer will verify the QC test results if the Verification and the QC test results both match the soil utilization symbol listed in Standard Plans, Index 120-001. Otherwise, the Engineer will test the sample retained for Resolution testing. The SMO or an AASHTO accredited laboratory designated by the SMO will perform the Resolution testing. The material will be sampled and tested in accordance with AASHTO T88, T89, and T90, and classified in accordance with AASHTO M145.

The Engineer will compare the Resolution test results with the QC test results. If the Resolution test matches the QC soil utilization symbol, the Engineer will use the QC soil utilization symbol for material acceptance purposes. If the Resolution test result does not match the Contractor's QC soil utilization symbol, the Verification test results will be used for material acceptance purposes.

120-10.4.4 Organic Content: The Engineer will verify the QC test results if the Verification test results satisfy the organic content test criteria in Standard Plans, Index 120-001. Otherwise, the Engineer will test the sample retained for Resolution testing. The SMO or an AASHTO accredited laboratory designated by the SMO will perform Resolution testing. The material will be sampled

and tested in accordance with FM 1-T267. If the Resolution test results satisfy the required criteria, material of that soil type will be verified and accepted. If the Resolution test results do not meet the required criteria, reject the material and reconstruct with acceptable material.

120-10.5 Disposition of Defective Materials: Assume responsibility for removing and replacing all defective material, as defined in Section 6.

Alternately, submit an Engineering Analysis Scope in accordance with 6-4 to determine the disposition of the material.

120-11 Maintenance and Protection of Work.

While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet wide adjacent to all pavement or base construction in order to provide support for the edges.

Maintain all earthwork construction throughout the life of the Contract, and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair, at no expense to the Owner except as otherwise provided herein, any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of the work. Perform maintenance and protection of earthwork construction in accordance with Section 104.

Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines, grades, and cross-sections shown in the Plans, until final acceptance of the project.

120-12 Construction.

120-12.1 Construction Tolerances: Shape the surface of the earthwork to conform to the lines, grades, and cross-sections shown in the Plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot above or below the cross-section with the following exceptions:

1. Shape the surface of shoulders to within 0.1 foot of the cross-section shown in the Plans.

2. Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.

3. Shape the bottom of conveyance ditches so that the ditch impounds no water.

4. When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot above or below the Plan cross-section.

5. When the work includes permitted linear stormwater management facilities, shape the swales and ditch blocks to within 0.1 feet of the cross-section shown in the Plans.

Ensure that the shoulder lines do not vary horizontally more than 0.3 foot from the true lines shown in the Plans.

120-12.2 Operations Adjacent to Pavement: Carefully dress areas adjacent to pavement areas to avoid damage to such pavement. Complete grassing of shoulder areas prior to placing the final wearing course. Do not manipulate any embankment material on a pavement surface.

When shoulder dressing is underway adjacent to a pavement lane being used to maintain traffic, exercise extreme care to avoid interference with the safe movement of traffic.

120-13 Method of Measurement.

120-13.1 General: When payment for excavation is on a volumetric basis, the quantity to be paid for will be the volume, in cubic yards, calculated by the method of average end areas, unless the Engineer determines that another method of calculation will provide a more accurate result. The material will be measured in its original position by field survey or by photogrammetric means as designated by the Engineer, unless otherwise specified under the provisions for individual items.

Where subsoil excavation extends outside the lines shown in the Plans or authorized by the Engineer including allowable tolerances, and the space is backfilled with material obtained in additional authorized roadway or borrow excavation, the net fill, plus shrinkage allowance, will be deducted from the quantity of roadway excavation or borrow excavation to be paid for, as applicable.

The quantity of all material washed, blown, or placed beyond the authorized roadway cross-section will be determined by the Engineer and will be deducted from the quantity of roadway excavation or borrow excavation to be paid for, as applicable.

Subsoil excavation that extends outside the lines shown in the Plans or authorized by the Engineer including allowable tolerances will be deducted from the quantity to be paid for as subsoil excavation.

120-13.2 Roadway Excavation: The measurement will include only the net volume of material excavated between the original ground surface and the surface of the completed earthwork, except that the measurement will also include all unavoidable slides which may occur in connection with excavation classified as roadway excavation.

The pay quantity will be the plan quantity provided that the excavation was accomplished in substantial compliance with the plan dimensions and subject to the provisions of 9-3.2 and 9-3.4. On designated 3-R Projects, regular excavation will be paid for at the Contract lump sum price provided that the excavation was accomplished in substantial compliance with the plan dimension.

120-13.3 Borrow Excavation: Measurement will be made on a loose volume basis, measured in trucks or other hauling equipment at the point of dumping on the road. If measurement is made in vehicles, level the material to facilitate accurate measurement.

Unsuitable material excavated from borrow pits where truck measurement is provided for and from any borrow pits furnished by the Contractor, will not be included in the quantity of excavation to be paid for.

120-13.4 Lateral Ditch Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans or as directed by the Engineer. The measurement will include the full station-to-station length shown in the Plans or directed by the Engineer and acceptably completed. Excavation included for payment under Section 125 will not be included in this measurement.

The pay quantity will be the plan quantity provided that the excavation was accomplished in substantial compliance with the plan dimensions and subject to the provisions of 9-3.2 and 9-3.4.

120-13.5 Channel Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans or in accordance with authorized Plan changes. The measurement will include the full station-to-station length shown in the Plans including any authorized changes thereto.

If shoaling occurs subsequent to excavation of a channel and the Engineer authorized the shoaled material to remain in place, the volume of any such material remaining within the limits of channel excavation shown in the Plans will be deducted from the measured quantity of channel excavation.

120-13.6 Subsoil Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans (including the tolerance permitted therefore) or as directed by the Engineer.

When no item for subsoil excavation is shown in the Contract but subsoil excavation is subsequently determined to be necessary, such unanticipated subsoil excavation will be paid for as provided in 4-4.

120-13.7 Embankment: The quantity will be at the plan quantity. Where payment for embankment is not to be included in the payment for the excavation, and is to be paid for on a cubic yard basis for the item of embankment, the plan quantities to be paid for will be calculated by the method of average end areas unless the Engineer determines that another method of calculation will provide a more accurate result. The measurement will include only material actually placed above the original ground line, within the lines and grades indicated in the Plans or directed by the Engineer. The length used in the computations will be the station-to-station length actually constructed. The original ground line used in the computations will be as determined prior to placing of embankment subject to the provisions of 9-3.2, and no allowance will be made for subsidence of material below the surface of the original ground.

If there are authorized changes in plan dimensions or if errors in plan quantities are detected, plan quantity will be adjusted as provided in 9-3.2.

Where the work includes excavation of unsuitable material below the finished grading template or original ground line, whichever is lower as defined in 120-3.3, the original ground line is defined as the surface prior to beginning excavation, except that this surface is not outside the permissible tolerance of lines and grades for subsoil excavation as indicated in the Plans or as directed by the Engineer. Any overrun or underrun of plan quantity for subsoil excavation which results in a corresponding increase or decrease in embankment will be considered as an authorized plan change for adjustment purposes as defined in 9-3.2.2.

No payment will be made for embankment material used to replace unsuitable material excavated beyond the lines and grades shown in the Plans or ordered by the Engineer.

In no case will payment be made for material allowed to run out of the embankment on a flatter slope than indicated on the cross-section. The Contractor shall make his own estimate on the volume of material actually required to obtain the pay section.

120-14 Basis of Payment.

120-14.1 General: Prices and payments for the various work items included in this Section will be full compensation for all work described herein, including excavating, dredging, hauling, placing, and compacting; dressing the surface of the earthwork; maintaining and protecting the complete earthwork; and hauling.

The Owner will not allow extra compensation for any reworking of materials. The Owner will compensate for the cost of grassing or other permanent erosion control measures directed by the Engineer as provided in the Contract for similar items of roadway work.

120-14.2 Excavation:

120-14.2.1 Items of Payment: When no classification of material is indicated in the Plans, and bids are taken only on regular excavation, the total quantity of all excavation specified under this Section will be paid for at the Contract unit price for regular excavation.

When separate classifications of excavation are shown in the proposal, the quantities of each of the various classes of materials so shown will be paid for at the Contract unit prices per cubic yard for regular excavation, lateral ditch excavation, subsoil excavation, and channel excavation, as applicable, and any of such classifications not so shown will be included under the item of regular excavation (except that if there is a classification for lateral ditch excavation shown and there is no classification for channel excavation, any channel excavation will be included under the item of lateral ditch excavation). As an exception on designated projects, regular excavation will be paid for at the Contract lump sum price.

120-14.2.2 Basic Work Included in Payments: Prices and payments will be full compensation for all work described under this Section, except for any excavation, or embankment which is specified to be included for payment under other items. Such prices and payments will include hauling; any reworking that may be necessary to accomplish final disposal as shown in the Plans; the dressing of shoulders, ditches and slopes; removal of trash, vegetation, etc., from the previously graded roadway where no item for clearing and grubbing is shown in the Plans; and compacting as required.

120-14.2.3 Additional Depth of Subsoil Excavation: Where subsoil excavation is made to a depth of 0 to 5 feet below the depth shown in the Plans, such excavation will be paid for at the unit price bid.

Where subsoil excavation is made to a depth greater than 5 feet, and up to 15 feet, deeper than the depth shown in the Plans, such excavation will be paid for at the unit price bid plus 25% of such unit price. Additional extra depth, more than 15 feet below such plan depth, will be considered as a change in the character of the work and will be paid for as unforeseeable work.

Where no subsoil excavation is shown in a particular location on the original Plans, payment for extra depth of subsoil will begin 5 feet below the lowest elevation on the grading template.

120-14.2.4 Borrow Excavation: When the item of borrow excavation is included in the Contract, price and payment will also include the cost of furnishing the borrow areas and any necessary clearing and grubbing thereof, the removal of unsuitable material that it is necessary to excavate in order to obtain suitable borrow material, and also the costs incurred in complying with the provisions of 120-6.3.

120-14.2.5 Materials Excluded from Payment for the Excavation: No payment for excavation will be made for any excavation covered for payment under the item of embankment.

No payment will be made for the excavation of any materials which is used for purposes other than those shown in the Plans or designated by the Engineer. No payment will be made for materials excavated outside the lines and grades given by the Engineer, unless specifically authorized by the Engineer. As an exception, in operations of roadway excavation, all slides and falls of insecure masses of material beyond the regular slopes that are not due to lack of precaution on the part of the Contractor, will be paid for at the Contract unit price for the material involved. The removal of slides and falls of material classified as lateral ditch excavation or as subsoil excavation will not be paid for separately, but will be included in the Contract unit price for the pay quantity of these materials, measured as provided in 120-14.

120-14.3 Embankment:

120-14.3.1 General: Price and payment will be full compensation for all work specified in this Section, including all material for constructing the embankment, all excavating, dredging, pumping, placing and compacting of material for constructing the embankment complete, dressing of the surface of the roadway, maintenance and protection of the completed earthwork, and the removal of rubbish, vegetation, etc., from the roadway where no clearing and grubbing of the area is specified in the Plans. Also, such price and payment, in each case, will specifically include all costs of any roadway, lateral ditch, or channel excavation, unless such excavation is specifically shown to be paid for separately, regardless of whether the materials are utilized in the embankment.

120-14.3.2 Excluded Material: No payment will be made for the removal of muck or overburden from the dredging or borrow areas. No payment will be made for embankment material used to replace muck or other unsuitable material excavated beyond the lines and grades shown in the Plans or ordered by the Engineer.

120-14.3.3 Clearing and Grubbing: No payment will be made for any clearing and grubbing of the borrow or dredging areas. Where no clearing and grubbing of such areas is specified in the Plans, the cost of any necessary clearing and grubbing will be included in the Contract unit or lump sum price for Embankment.

120-14.3.4 Cost of Permits, Rights, and Waivers: Where the Contractor provides borrow or dredging areas of his own choosing, the cost of securing the necessary permits, rights or waivers will be included in the Contract price for embankment.

120-14.3.5 Payment Items: Payment will be made under:

Item No. 120-1	***Unclassified Excavation and Embankment - Cut***	***-per Cubic Yard (CY)***
Item No. 120-2	***Unclassified Excavation and Embankment - Fill***	***-per Cubic Yard (CY)***

END OF SECTION 120

SECTION 160

STABILIZING

160-1 Description.
Stabilize designated portions of the roadbed to provide a firm and unyielding subgrade, having the required bearing value specified in the Plans.

160-2 Materials.

160-2.1 Commercial Material: Meet the requirements of Section 914-2.1.

160-2.2 Local Material: Submit test results to the Engineer at least 14 days prior to the stabilization operation.

160-2.2.1 Local Stabilizing Material: Sample and test material from each source and meet the requirements of Section 914. The Engineer will verify the Quality Control (QC) test results meet the requirements of Section 914. If the QC and Verification results do not compare, the Engineer will take one additional sample of material from the source in question and the State Materials Office (SMO) or an AASHTO accredited laboratory designated by the SMO will perform Resolution testing. If the Resolution test results satisfy the required criteria, material from that source will be verified and accepted. If the Resolution test results do not meet the required criteria, reject the material.

160-2.2.2 Reclaimed Asphalt Pavement (RAP): Obtain the Engineer's approval in writing for the option to use 100% RAP material. Material must be milled and stockpiled without blending or contaminating with any other material.

160-2.2.3 Reclaimed Asphalt Pavement (RAP) Blended Material: RAP blended material is defined as material meeting the requirements of 914-1 and 914-2.2 except for the limits for organic content. If the RAP blended material meets the requirements of 914-1 and 914-2, then the blended material will be classified as local stabilizing material. Provide test results to the Engineer and obtain their approval in writing before using RAP blended material. The Engineer will verify that the QC test results meet the acceptance criteria, otherwise the Engineer will perform Resolution testing procedures specified in 160-2.2.1.

160-2.3 Existing Base: Obtain the Engineer's approval in writing before using existing base. When the material from an existing base is used as all, or a portion, of the stabilizing additives, no further testing is required unless directed by the Engineer.

160-2.4 Granular Subbase: The Engineer may allow, at no additional cost to the Owner, the substitution of 6 inches of granular subbase meeting the requirements of 290-2 and 290-3, only when 12 inches of Type B stabilization requiring a Limerock Bearing Ratio (LBR) value of 40 is specified in accordance with Standard Plans, Index 120-001.

160-3 Construction Methods.

160-3.1 General: Prior to the beginning of stabilizing operations, construct the area to be stabilized to an elevation such that, upon completion of stabilizing operations, the completed stabilized subgrade will conform to the lines, grades, and cross-section shown in the Plans. Prior to spreading

any additive stabilizing material, bring the surface of the roadbed to a plane approximately parallel to the plane of the proposed finished surface.

Construct mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts, retaining wall systems, shoulder-only areas, sidewalk, and shared use path areas meeting the requirements of 120-8.1, except replace "embankment" with "subgrade".

Isolated mixing operations will be considered as separate LOTs. Curb pads and shoulders compacted separately shall be considered separate LOTs. Isolated compaction operations will be considered as separate LOTs. For multiple phase construction, a LOT shall not extend beyond the limits of the phase.

160-3.2 Application and Acceptance of Stabilizing Material: After completing the roadbed grading operations, determine the type and quantity (if any) of stabilizing material necessary for compliance with the bearing value requirements. Before using any Fossil Fuel Combustion Products (FFCPs), submit documentation, at the preconstruction meeting or no later than 30 days prior to delivery of FFCP's to the project, signed and sealed by the Specialty Engineer that these materials meet the requirements of 403.7047 F.S. Notify the Engineer of the approximate quantity to be added before spreading. When additive stabilizing materials are required, spread the material uniformly over the area to be stabilized.

The Engineer may perform Independent Verification (IV) sampling and testing if variability in the stabilizing material is observed during inspection after spreading on the roadway. If the IV test results do not meet the requirements of Section 914, then remove and replace the failing LOTs with acceptable material. The Engineer reserves the right to reject stabilizing material that contains excessive deleterious substances.

160-3.3 Mixing: Perform mixing using rotary tillers, a plant or other equipment meeting the approval of the Engineer. The subgrade may be mixed in one course if the equipment and method of construction provides the uniformity, particle size limitation, compaction and other desired results of 160-4. Thoroughly mix the area to be stabilized throughout the entire depth and width of the stabilizing limits.

Perform the mixing operations, as specified, (either in place or in a plant) regardless of whether the existing soil, or any select soils placed within the limits of the stabilized sections, have the required bearing value without the addition of stabilizing materials.

160-3.4 Mixed Material Requirements: At the completion of the mixing, ensure the gradation of the material within the limits of the area being stabilized is such that 97% will pass a 3-1/2 inch sieve. Break down or remove from the stabilized area materials, including clay lumps or lumps made of clay-size particles (any particle size 2 microns or less), not meeting the gradation requirements. After mixing, remove any existing lumps of clay or clay-sized particles greater than one inch that do not meet the requirements of 160-3.2 or this Section from the stabilized area. The final product must meet the acceptance requirements of 160-4.

160-3.4.1 Classification and Bearing Value: Meet the soil utilization and bearing value requirements for the subgrade in accordance with 160-4.

160-3.4.2 Compaction: After completing the mixing operations and satisfying the requirements for bearing value, uniformity, and particle size, compact the materials at a moisture content permitting the specified compaction in 160-4.2.3. If the moisture content of the material is improper for attaining the specified density, either add water or allow the material to dry until reaching the proper moisture content for the specified compaction.

160-3.4.3 Finish Grading: Shape the completed stabilized subgrade to conform with the finished lines, grades, and cross-section indicated in the Plans. Check the subgrade using elevation stakes or other means approved by the Engineer.

160-3.4.4 Condition of Completed Subgrade: After completing the stabilizing and compacting operations, ensure that the subgrade is firm and substantially unyielding to the extent that it will support construction equipment and will have the bearing value required by the Plans.

Remove all soft and yielding material, and any other portions of the subgrade which will not compact readily, and replace it with suitable material so that the whole subgrade is brought to line and grade, with proper allowance for subsequent compaction.

160-3.4.5 Maintenance of Completed Subgrade: After completing the subgrade as specified above, maintain it free from ruts, depressions, and any damage resulting from the hauling or handling of materials, equipment, tools, etc. The Contractor is responsible for maintaining the required density until the subsequent base or pavement is in place including any repairs, replacement, etc., of curb and gutter, sidewalk, etc., which might become necessary in order to recompact the subgrade in the event of underwash or other damage occurring to the previously compacted subgrade. Perform any such recompaction at no expense to the Owner. Construct and maintain ditches and drains along the completed subgrade section.

160-4 Acceptance Program for Mixed Materials.

160-4.1 General Requirements:

160-4.1.1 Initial Equipment Comparison: Meet the requirements of 120-10.1.1.

160-4.1.2 Initial Production LOT: Meet the requirements of 120-10.1.2.

160-4.1.3 Density over 105%: Meet the requirements of 120-10.1.3.

160-4.1.4 Quality Control Tests:

160-4.1.4.1 Modified Proctor Maximum Density Determination: Collect enough material to split and create three separate samples. Determine test locations, including stations and offsets, using the Random Number generator approved by the Engineer. Retain the Verification and Resolution samples for the Owner until the Engineer accepts the LOTs represented by the samples. Determine modified Proctor maximum density and optimum moisture content by sampling and testing the material in accordance FM 1-T180.

160-4.1.4.2 Density Testing Requirements: Meet the requirements of 120-10.1.4.2.

160-4.1.4.3 Bearing Value Requirements: Test the stabilized subgrade sample collected in 160-4.1.4.1 to determine the LBR in accordance with FM 5-515. Within the entire limits of the width and depth of the areas to be stabilized, obtain the required minimum bearing value at the frequency in 160-4.4.1. For any area where the bearing value obtained is

deficient from the value indicated in the Plans, in excess of the tolerances established herein, spread and mix additional stabilizing material in accordance with 160-3.3. Perform this reprocessing for the full width of the roadway being stabilized and longitudinally for a distance of 50 feet beyond the limits of the area in which the bearing value is deficient.

Determine the quantity of additional stabilizing material to be used in reprocessing.

160-4.1.4.3.1 Under-tolerances in Bearing Value Requirements: The under-tolerances are allowed for the following specified Bearing Values:

Specified Bearing Value	Under-tolerance
LBR 40	5.0
LBR 35	4.0
LBR 30 (and under)	2.5

160-4.1.4.3.2 Unsoaked LBR Requirements: If unsoaked LBR is desired, submit request for approval to the Engineer. Upon approval by the Engineer to consider the use of unsoaked LBR, randomly sample and test from three locations in the initial LOT for both soaked and unsoaked LBR in accordance with FM 5-515. Ensure all of the tests achieves the LBR value shown in the table below. Continue testing unsoaked LBR at the frequency shown in 160-4.4.1. Discontinue unsoaked LBR testing if any unsatisfactory QC LBR test result is obtained or resolution determines an unsatisfactory LBR.

The following unsoaked bearing value requirement is based on tests performed on samples obtained after completing mixing operations:

Specified Bearing Value	Unsoaked Bearing Value Required	Under-tolerance
LBR 40	LBR 43	0.0

160-4.1.4.4 Soil Classification and Organic Content Testing: Perform soil classification tests on the sample collected in 160-4.1.4.1, in accordance with AASHTO T88, AASHTO T89, AASHTO T90, and FM 1-T267. The Engineer may waive the soil classification and organic content testing requirements for existing base or granular subbase materials. Classify soils in accordance with AASHTO M145 to determine compliance with soil utilization requirements as specified in Standard Plans, Index 120-001. If the stabilizing material used is 100% RAP or RAP blended material, then replace FM 1-T267 with FM 5-563 (excluding gradation analysis). The following testing requirements must be met.

Test Method	Criteria
AASHTO M145	Soil Symbol = S
FM 1-T267	Average of 3 Organic Content ≤ 2.5%
	Individual Organic Content Result ≤ 4.0%
AASHTO T89	Liquid Limit ≤ 30
AASHTO T90	Plastic Index ≤ 8
FM 5-563*	Asphalt Content ≤ 4.0%
*Replace FM 1-T 267 with FM 5-563 (excluding gradation analysis) for 100% RAP or RAP blended material	

160-4.1.5 Owner Verification: Meet the requirements of 120-10.1.5 except the Engineer will conduct the Verification tests in order to accept all materials and work associated with 160-4.1.4.

160-4.1.6 Reduced Testing Frequency: Meet the requirements of 120-10.1.6.

160-4.1.7 Payment for Resolution Tests: Meet the requirements of 120-10.1.7.

160-4.2 Mixing Depth Requirements: Report depth requirements in the Earthwork Records System (ERS) measured to the nearest 0.25 inch. The difference between the individual measured depth thickness on the roadway and the plan target thickness must not exceed 2 inches. The difference between the LOT average (average of the three individual measured depth thickness) and the plan target thickness must not exceed 1 inch. No undertolerance of mixing depth is allowed.

As an exception to the above mixing requirements, where the subgrade is of rock, the Engineer may waive the mixing operations (and the work of stabilizing), and the Owner will not pay for stabilization for such sections of the roadway.

Meet the required Plan mixing-depths by measuring from the proposed final grade line. Determine test locations, including stations and offsets, using the Random Number generator approved by the Owner. Notify the Engineer a minimum of 24 hours before checking mixing depths. Record results on Owner approved forms.

160-4.3 Density Acceptance Criteria:

160-4.3.1 General: Within the entire limits of the width and depth of the areas to be stabilized, other than as provided in 160-4.3.2, obtain a minimum density at any location of 98% of the Modified Proctor maximum density as determined by FM 1-T 180.

160-4.3.2 Exceptions to Density Requirements: The Contractor need not obtain the minimum density specified in 160-4.3.1 in the upper 6 inches of areas to be grassed under the same Contract. Compact these areas to a reasonably firm condition as directed by the Engineer.

160-4.4 Additional Requirements:

160-4.4.1 Frequency: Conduct QC sampling and testing at a minimum frequency listed in the table below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in the table below.

Test Name	Quality Control	Verification	Verification for Shoulder-Only, Shared Use Path and Sidewalk Construction
Modified Proctor Maximum Density	One per two consecutive LOTs	One per eight consecutive LOTs	One per four LOTs
LBR			
Gradation, LL/PI, and Soil Classificaiton			
Organic Content			
Asphalt Content*			
Density	One per LOT	One per four LOTs	One per two LOTs
Stabilizing Mixing Depth	Three per 500 feet	Witness QC	Witness QC
*Replace Organic content with asphalt content for 100% RAP or RAP blended material only.			

160-4.5 Verification Comparison Criteria and Resolution Procedures:

160-4.5.1 Bearing Value: The Engineer will collect a sample at a location other than the location where the sample was collected in 160-4.1.4.1, and test the stabilized subgrade for determination of the LBR in accordance with FM 5-515. The Engineer will select test locations, including stations and offsets, using a Random Number generator, based on the LOTs under consideration.

160-4.5.1.1 Unsoaked LBR: The Engineer will sample and test the initial LOT for one soaked and one unsoaked LBR if consideration of the unsoaked LBR has been approved.

160-4.5.1.2 Resolution Procedure: If the Owner's Verification test meets the requirements of 160-4.1.4.3, the Engineer will accept the corresponding LOTs. Otherwise, the Engineer will collect an additional sample in the same LOT the Verification sample was obtained. SMO or an AASHTO accredited laboratory designated by SMO will perform Resolution testing on the additional sample. The material will be sampled and tested in accordance with FM 5-515.

If the resolution testing results meet the requirements of 1604.1.4.3, then the Engineer will accept the LOTs in question. Otherwise reprocess the corresponding LOTs in accordance with 160-3 and retest in accordance with 160-4.1.4.3.

160-4.5.2 Modified Proctor Maximum Density Determination: Meet the requirements of 120-10.4.1 except replace FM 1-T099 with FM 1-T180.

160-4.5.3 Density Testing: Meet the requirement of 120-10.4.2

160-4.5.4 Soil Classification: Meet the requirements of 120-10.4.3 with the exception that the limits will be in accordance with 160-4.1.4.4.

160-4.5.5 Organic Content: Meet the requirements of 120-10.4.4 with the exception that the limits will be in accordance with 160-4.1.4.4.

160-4.5.6 Asphalt Content: If the material used to stabilize is 100% RAP or RAP blended material, meet the requirement of 120-10.4.4, except replace FM 1-T267 with FM 5-563 (exclude gradation analysis) and meet the limits of 160-4.1.4.4.

160-4.5.7 Mixing Depth: The Engineer will witness the Contractor's mixing depth checks to ensure compliance with 160-4.2. The Engineer will select test locations, including stations and offsets, using a Random Number generator. The Owner will witness the mixing depth checks.

1. If the depth checks meet the requirements of 160-4.2, the Engineer will accept that 500-foot section.

2. If the depth checks confirm shallow depth, re-mix the 500-foot section to an appropriate depth and re-measure in accordance with 160-4.2. The Engineer will repeat the witness process.

3. If the depth checks confirm extra deep mixing, conduct an additional QC density test after compaction for the bottom 12 inches of the subgrade for that 500-foot section in addition to a QC density test for the top 12 inches. The additional density test must meet the requirements of 160-4.3.

160-4.6 Disposition of Defective Materials: Meet the requirements of 120-10.5.

160-5 Method of Measurement.
The quantity to be paid for will be the plan quantity, in square yards, completed and accepted.

160-6 Basis of Payment.
Price and payment will constitute full compensation for all work and materials specified in this Section, including furnishing, spreading and mixing of all stabilizing material required and any reprocessing of stabilization areas necessary to attain the specified bearing value. The Owner will make full payment for any areas where the existing subgrade materials meet the design bearing value requirements without the addition of stabilizing additives, as well as areas where the Contractor may elect to place select high-bearing materials from other sources within the limits of the stabilizing.

If the item of borrow excavation is included in the Contract, any stabilizing materials obtained from designated borrow areas will be included in the pay quantity for borrow excavation.

Payment will be made under:

Item No. 160-1 12" Stabilized Subbase (LBR 40) -per Square Yard (SY)

END OF SECTION 160

SECTION 285

OPTIONAL BASE COURSE

285-1 Description.
Construct a base course composed of one of the optional materials shown on the typical cross-sections.

285-2 Materials.
Meet the material requirements as specified in the Section covering the particular type of base to be constructed.

Graded Aggregate	Section 204
Asphalt	Section 234
Reclaimed Asphalt Pavement (RAP)*	Section 283
Limerock	Section 911
Shell Base	Section 911
Shell-Rock	Section 911
Cemented Coquina	Section 911
Recycled Concrete Aggregate (RCA)**	Section 911

* Only for use on non-limited access paved shoulders, shared use paths, or other non-traffic bearing applications.
** Do not use on interstate roadways.

285-3 Selection of Base Option.
The Plans will include typical cross-sections indicating the various types of base construction (material and thickness) allowable. When base options are specified in the Plans, use only those options. When base options are not specified, select one base option as allowed for each typical cross-section shown in the Plans. Only one base option is permitted for each typical cross-section. See Tables 285-1 and 285-2 for optional base materials, thickness and additional restrictions. Notify the Engineer in writing of the base option selected for each typical cross-section at least 45 calendar days prior to beginning placement of base material. Construction Requirements.

Table 285-1 (Optional Base Groups 1-15

Base Materials	Base Group (Base Group Pay Item)														
	1 (701)	2 (702)	3 (703)	4 (704)	5 (705)	6 (706)	7 (707)	8 (708)	9 (709)	10 (710)	11 (711)	12 (712)	13 (713)	14 (714)	15 (715)
Limerock, LBR 100	4”	5”	5-1/2”	6”	7”	8”	8-1/2”	9-1/2”	10”	11”	12”	12-1/2”	13-1/2” (5)	14” (5)	-
Cemented Coquina, LBR 100	4”	5”	5-1/2”	6”	7”	8”	8-1/2”	9-1/2”	10”	11”	12”	12-1/2”	13-1/2” (5)	14” (5)	-
Shell Rock, LBR 100	4”	5”	5-1/2”	6”	7”	8”	8-1/2”	9-1/2”	10”	11”	12”	12-1/2”	13-1/2” (5)	14” (5)	-
Bank Run Shell, LBR 100	4”	5”	5-1/2”	6”	7”	8”	8-1/2”	9-1/2”	10”	11”	12”	12-1/2”	13-1/2” (5)	14” (5)	-
Recycled Concrete Aggregate, LBR 150(1)	4”	5”	5-1/2”	6”	7”	8”	8-1/2”	9-1/2”	10”	11”	12”	12-1/2”	13-1/2” (5)	14” (5)	-
Graded Aggregate Base, LBR 100	4”	5”	6-1/2”	7-1/2”	8-1/2”	9”	10”	11”	12”	13”	14”	-	-	-	-
Type B-12.5	4” (3)	4” (3)	4” (3)	4” (3)	4-1/2”	5”	5-1/2”	5-1/2”	6”	6-1/2”	7”	7-1/2”	8”	8-1/2”	9”
B-12.5 and 4” Granular Subbase, LBR 100(2)	-	-	-	-	-	-	-	-	4”	4-1/2”	5”	5-1/2”	6”	6-1/2”	7”
RAP Base(4)	5” (4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(1) Do not use on interstate roadways

(2) The construction of both the subbase and Type B-12.5 will be bid and used as Optional Base. Granular subbases include limerock, Cemented coquina, shell rock, bank run shell, recycled concrete aggregate and graded aggregate base. All subbase thicknesses are 4” minimum prior to adding the required prime coat.

(3) Based on minimum practical thickness.

(4) Only for use on non-limited access paved shoulders, shared use paths, or other non-traffic bearing applications

(5) To be used for widening, three feet or less.

Table 285-2: Limited Use Optional Base Groups[1]								
Base Materials	Base Group (Base Group Pay Item)							
	101 (701)	102 (702)	103 (703)	104 (704)	105 (705)	106 (706)	107 (707)	108 (708)
Limerock Stabilized, LBR 70	5”	6-1/2”	8”	9”	10”	11”	12-1/2”	-
Shell, LBR 70	5”	6-1/2”	8”	9”	10”	11”	12-1/2”	-
Shell Stabilized, LBR 70	7”	8-1/2”	9-1/2”	10-1/2”	12”	-	-	-
Sand-Clay, LBR 75	5”	6-1/2”	8”	9”	10”	11”	12-1/2”	-
Soil Cement (300 psi) (Plant Mixed)	5”	5-1/2”	6-1/2”	7-1/2”	8-1/2”	9”	10”	11”
Soil Cement (300 psi) (Road Mixed	5”	5-1/2”	6-1/2”	7-1/2”	8-1/2”	-	-	-
Soil Cement (500 psi) (Plant Mixed)	4”[2]	4”	5”	5-1/2”	6”	7”	7-1/2”	8-1/2”
[1] Use only when specified in the Plans. [2] Based on minimum practical thicknesses.								

285-4 Construction Requirements

Construct the base in accordance with the Section covering the particular type of base to be constructed.

Graded Aggregate .....Section 204
Asphalt.....Section 234
Reclaimed Asphalt Pavement (RAP)*.....Section 283
Limerock .....Section 200
Shell Base.....Section 200
Shell Rock.....Section 200
Cemented Coquina.....Section 200
Recycled Concrete Aggregate (RCA)**.....Section 200

* Only for use on non-limited access paved shoulders, shared use paths, or other non-traffic bearing applications.
** Do not use on interstate roadways.

285-5 Variation in Earthwork Quantities.

The Plans will identify the optional materials used by the Owner for determining the earthwork quantities (Roadway Excavation, Borrow Excavation, Subsoil Excavation, Subsoil Earthwork, or Embankment). The Owner will not revise the quantities, for those items having final pay based on plan quantity, to reflect any volumetric change caused by the Contractor’s selection of a different optional material.

285-6 Thickness Requirements.

285-6.1 Measurements: For non-asphalt bases, meet the requirements of 200-7.3.1.2.

For subbases, meet the thickness requirements of 290-4.

The Engineer will determine the thickness of asphalt base courses in accordance with 234-8.1.

285-6.2 Correction of Deficient Areas: For non-asphalt bases, correct all areas of the completed base having a deficiency in thickness in excess of 1/2 inch by scarifying and adding additional base material. As an exception, if authorized by the Engineer, such areas may be left in place without correction and with no payment.

For asphalt bases, correct all areas of deficient thickness in accordance with 2348.

285-7 Calculation of Average Thickness of Base.
For bases that are not mixed in place, the Engineer will determine the average thickness from the measurements specified in 285-6.1, calculated as follows:

1. When the measured thickness is more than 1/2 inch greater than the design thickness shown on the typical cross-section in the Plans, it will be considered as the design thickness plus 1/2 inch.

2. Average thickness will be calculated per typical cross-section for the entire job as a unit.

3. Any areas of base left in place with no payment will not be included in the calculations.

4. Where it is not possible through borings to distinguish the base materials from the underlying materials, the thickness of the base used in the measurement will be the design thickness.

5. For Superpave asphalt base course, the average spread rate of each course shall be constructed in compliance with 234-8.

285-8 Method of Measurement.
The quantity to be paid for will be the plan quantity area in square yards, omitting any areas where under-thickness is in excess of the allowable tolerance as specified in 285-6. The pay area will be the surface area, determined as provided above, adjusted in accordance with the following formula:

$$\text{Pay Area} = \text{Surface Area}\left(\frac{\text{Calculated Average Thickness per } 285-7}{\text{Plan Thickness}}\right)$$

The pay area shall not exceed 105% of the surface area.

There will be no adjustment of the pay area on the basis of thickness for base courses constructed utilizing mixed-in-place operations.

For Superpave asphalt base course, the quantity to be paid for will be the plan quantity area in square yards. The pay area will be adjusted in accordance with 234-9.

285-9 Basis of Payment.
Price and payment will be full compensation for all work specified in this Section, including tack coat between base layers, prime coat, cover material for prime coat, bituminous material used in bituminous plant mix, and cement used in soil-cement.

For superpave asphalt base course, a pay adjustment based upon the quality of the material will be applied in accordance with 334-8.

Where the Plans include a typical cross-section which requires the construction of an asphalt base only, price adjustments for bituminous material provided for in 9-2.1.2 will apply to that typical cross-section.

For typical cross-sections which permit the use of asphalt or other materials for construction of an optional base, price adjustments for bituminous material provided for in 9-2.1.2 will not apply.

Payment will be made under:

Item No. 285-1	***6" Limerock Base Course***	***-per Square Yard (SY)***
Item No. 285-2	***8" Limerock Base Course***	***-per Square Yard (SY)***

END OF SECTION 285

SECTION 334

SUPERPAVE ASPHALT CONCRETE

334-1 Description.

334-1.1 General: Construct a Superpave Asphalt Concrete pavement with the type of mixture specified in the Contract Documents, or when offered as alternates, as selected. Superpave mixes are identified as Type SP-9.5, Type SP-12.5 or Type SP-19.0.

Producers must meet the requirements of Section 320 for plant and equipment and the general construction requirements of Section 330.

334-1.2 Traffic Levels: The requirements for Type SP Asphalt Concrete mixtures are based on the design traffic level of the project. The traffic levels for the project are as specified in the Contract Documents.

334-1.3 Gradation Classification: The Superpave mixes are classified as fine and are defined in 334-3.2.2.

The equivalent AASHTO nominal maximum aggregate size Superpave mixes are as follows:

Type SP-9.5 ..... 9.5 mm
Type SP-12.5 ..... 12.5 mm
Type SP-19.0 ..... 19.0 mm

334-1.4 Thickness: The total thickness of the Type SP asphalt layers will be the plan thickness as shown in the Contract Documents. Before paving, propose a thickness for each individual layer meeting the requirements of this specification, which when combined with other layers (as applicable) will equal the plan thickness. For construction purposes, the plan thickness and individual layer thickness will be converted to spread rate based on the maximum specific gravity of the asphalt mix being used, as well as the minimum density level, as shown in the following equation:

$$\text{Spread rate } (\text{lbs/yd}^2) = \text{t} \times \text{G}_{\text{mm}} \times 43.3$$

Where: t = Thickness (in.) (plan thickness or individual layer thickness)
G_{mm} = Maximum specific gravity from the verified mix design

The weight of the mixture shall be determined as provided in 320-3.2. For target purposes only, spread rate calculations should be rounded to the nearest whole number.

Note: Plan quantities are based on a G_{mm} of 2.540, corresponding to a spread rate of 110 lbs/yd2-in. Pay quantities will be based on the actual maximum specific gravity of the mix being used.

334-1.4.1 Layer Thicknesses: The allowable layer thicknesses for Type SP Asphalt Concrete mixtures are as follows:

Type SP-9.5 ..... 1 to 1-1/2 inches
Type SP-12.5 ..... 1-1/2 to 2-1/2 inches
Type SP-19.0 ..... 2 to 4 inches

In addition to the minimum and maximum thickness requirements, the following restrictions are placed on mixes when used as a structural course:

Type SP-9.5 - Limited to the top two structural layers, two layers maximum.

Type SP-9.5 - Do not use on Traffic Level D and E applications.

Type SP-19.0 - Do not use in the final (top) structural layer below FC-5 mixtures. Type SP-19.0 mixtures are permissible in the layer directly below FC-9.5 and FC-12.5 mixtures. Do not use in the final (top) layer of shoulders.

334-1.4.2 Additional Requirements: The following requirements also apply to Type SP Asphalt Concrete mixtures:

1. A minimum 1-1/2 inch initial lift is required over an Asphalt Membrane Interlayer (AMI).

2. When construction includes the paving of adjacent shoulders (less than or equal to 5 feet wide), the layer thickness for the upper pavement layer and shoulder must be the same and paved in a single pass, unless called for differently in the Contract Documents.

3. All overbuild layers must be Type SP Asphalt Concrete designed at the traffic level as stated in the Contract Documents. Use the minimum and maximum layer thicknesses as specified above unless called for differently in the Contract Documents. On variable thickness overbuild layers, the minimum and maximum allowable thicknesses will be as specified below, unless called for differently in the Contract Documents.

   Type SP-9.5 .....3/8 to 2 inches
   Type SP-12.5 .....1/2 to 3 inches
   Type SP-19.0 ..... 1-1/2 to 4 inches

4. Variable thickness overbuild layers constructed using a Type SP-9.5 or SP-12.5 mixtures may be tapered to zero thickness provided the contract documents require a minimum of 1-1/2 inches of dense-graded mix placed over the variable thickness overbuild layer.

334-2 Materials.

334-2.1 General Requirements: Meet the material requirements specified in Division III. Specific references are as follows:

   Superpave PG Asphalt Binder .....Section 916
   Coarse Aggregate .....Section 901
   Fine Aggregate .....Section 902

334-2.2 Superpave Asphalt Binder: Unless specified otherwise in the Contract Documents, use an asphalt binder grade as determined from Table 334-1.

High polymer binder mixtures may be used in lieu of mixtures with other specified binders at no additional cost to the Owner, provided they meet the traffic level and mixture type requirements of the project.

High polymer binder may be substituted in a mixture at no additional cost to the Owner when the mix design contains a maximum of 20% RAP.

334-2.3 Reclaimed Asphalt Pavement (RAP) Material:

334-2.3.1 General requirements: RAP may be used as a component of the asphalt mixture subject to the following requirements:

1. When using a PG 76-22 asphalt binder, limit the amount of RAP material used in the mix to a maximum of 20% by weight of total aggregate. As an exception, amounts greater than 20% RAP by weight of total aggregate can be used if no more than 20% by weight of the total asphalt binder comes from the RAP material. RAP is not allowed in mixtures containing High Polymer asphalt binder. High Polymer asphalt is defined in Section 916.

2. Assume full responsibility for the design, production and construction of asphalt mixes which incorporate RAP as a component material.

3. Use RAP from a Owner approved stockpile or millings from a Owner project.

4. Provide stockpiled RAP material that is reasonably consistent in characteristics and contains no aggregate particles which are soft or conglomerates of fines.

5. Provide RAP material having a minimum average asphalt binder content of 4.0% by weight of RAP. As an exception, when using fractionated RAP, the minimum average asphalt binder content for the coarse portion of the RAP shall be 2.5% by weight of the coarse portion of the RAP. The coarse portion of the RAP shall be the portion of the RAP retained on the No. 4 sieve. The Engineer may sample the stockpiles to verify that this requirement is met.

334-2.3.2 Material Characterization for Mix Design: Assume responsibility for establishing the asphalt binder content, gradation, and bulk specific gravity (G_{sb}) of the RAP material based on a representative sampling of the material by roadway cores or stockpile samples. For roadway core samples, assume responsibility for the degradation that will occur during the milling operation.

334-2.3.3 RAP Stockpile Approval: Prior to the incorporation of RAP into the asphalt mixture, stockpile the RAP material and obtain approval for the stockpile by one of the following methods:

1. Continuous stockpile: When RAP is obtained from one or multiple sources and is either processed, blended, or fractionated, and stockpiled in a continuous manner, assure an adequate number of test results are obtained for stockpile approval. Test the RAP material for gradation and asphalt content at a minimum frequency of one sample per 1000 tons with a minimum of six test results. Test the RAP material for G_{mm} (for G_{sb} determination) at a minimum frequency of one sample per 5000 tons with a minimum of two test results. Based on visual inspection and a review of the test data, the Engineer will determine the suitability of the stockpiled material. In addition, address the details and specifics of the processing, sampling, testing and actions to be taken in the Producer Quality Control (QC) Plan.

2. Non-continuous single stockpile: When an individual stockpile is being constructed, obtain representative samples at random locations and test the RAP material for gradation and asphalt content at a minimum frequency of one sample per 1000 tons with a minimum of six test results. Test the RAP material for G_{mm} (for G_{sb} determination) at a minimum frequency of one sample per 5000 tons with a minimum of two test results. Based on visual inspection and a review of the test data, the Engineer will determine the suitability of the stockpiled material. Once the RAP stockpile has been approved, do not add additional material without prior approval of the Engineer.

   Determine the asphalt binder content and gradation of the RAP material in accordance with FM 5-563 and FM 1-T 030, respectively. Establish the G_{sb} of the RAP material by using one of the following methods:

   a. Calculate the G_{sb} value based upon the effective specific gravity (G_{se}) of the RAP material, determined on the basis of the asphalt binder content and maximum specific gravity (G_{mm}) of the RAP material. The Engineer will approve the estimated asphalt binder absorption value used in the calculation.

   b. Measure the G_{sb} of the RAP aggregate, in accordance with FM 1-T 084 and FM 1-T 085. Obtain the aggregate by using a solvent extraction method.

334-2.3.4 Pavement Coring Report: When the Contract includes milling of the existing asphalt pavement, the Pavement Coring Report may be available on the FDOT's website.

334-2.3.5 Asphalt Binder for Mixes with RAP: Select the appropriate asphalt binder grade based on Table 334-1. The Engineer reserves the right to change the asphalt binder grade at design based on the characteristics of the RAP asphalt binder, and reserves the right to make changes during production.

Table 334-1 Asphalt Binder Grade for Mixes Containing Rap	
Percent RAP	Asphalt Binder Grade
0-15	PG 67-22
16-30	PG 58-22
>30	PG 53-22

334-2.4 Recycled Crushed Glass: Recycled crushed glass may be used as a component of the asphalt mixture subject to the following requirements:

1. Consider the recycled crushed glass a local material and meet all requirements specified in 902-6.

2. Limit the amount of recycled crushed glass to a maximum of 15% by weight of total aggregate.

3. Use an asphalt binder that contains an anti-stripping agent listed on the Approved Product List (APL). The anti-strip additive shall be introduced into the asphalt binder by the supplier during loading.

4. Do not use recycled crushed glass in friction course mixtures or in structural course mixtures which are to be used as the final wearing surface.

334-3 General Composition of Mixture.

334-3.1 General: Compose the asphalt mixture using a combination of aggregate (coarse, fine or mixtures thereof), mineral filler, if required, and asphalt binder material. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the mix design. Aggregates from various sources may be combined.

334-3.2 Mix Design:

334-3.2.1 General: Design the asphalt mixture in accordance with AASHTO R 35-12, except as noted herein. Prior to the production of any asphalt mixture, submit the proposed mix design with supporting test data indicating compliance with all mix design criteria to the Engineer. For all mix designs, include representative samples of all component materials, including asphalt binder. Allow the Director of the Office of Materials a maximum of four weeks to either conditionally verify or reject the mix as designed.

For a Traffic Level A mixture, meet the mix design criteria for a Traffic Level B mixture and for a Traffic Level D mixture meet the mix design criteria for a Traffic Level E mixture. In addition, a Type SP mix one traffic level higher than the traffic level specified in the Contract Documents may be substituted, at no cost to the Owner. Based on the previous conditions, the following substitutions are allowed:

Traffic Level E can be substituted for Traffic Level D.
Traffic Level D or E can be substituted for Traffic Level C.
Traffic Level C can be substituted for Traffic Level B.
Traffic Level B or C can be substituted for Traffic Level A.

The same traffic level and binder type that is used for the mainline traffic lanes may be placed in the shoulder at no additional cost to the Owner, even if the conditions stated above are not met for the shoulder.

Do not use more than four mix designs per nominal maximum aggregate size per traffic level per binder grade per year, where the year starts at the Notice to Proceed. Exceeding this limitation will result in a maximum Composite Pay Factor (CPF) of 1.00 as defined in 334-8.2 for all designs used beyond this limit.

Warm mix technologies (additives, foaming techniques, etc.) listed on the FDOT's website may be used in the production of the mix. The URL for obtaining this information, if available, is: https://www.fdot.gov/materials/mac/production/warmmixasphalt/.

When warm mix technologies are used, for mixtures containing a PG 5228, PG 58-22, or PG 67-22 binder, a mixture will be considered a warm mix asphalt design if the mixing temperature is 285°F or less. For mixtures containing a PG 76-22 or High Polymer binder, a mixture will be considered a warm mix asphalt design if the mixing temperature is 305°F or less.

The Engineer will consider any marked variations from original test data for a mix design or any evidence of inadequate field performance of a mix design as sufficient evidence that the properties of the mix design have changed, and the Engineer will no longer allow the use of the mix design.

334-3.2.2 Mixture Gradation Requirements: Combine the coarse and fine aggregate in proportions that will produce an asphalt mixture meeting all of the requirements defined in this specification and conform to the gradation requirements at design as defined in AASHTO M 323-12, Table 3. Aggregates from various sources may be combined.

334-3.2.2.1 Mixture Gradation Classification: Plot the combined mixture gradation on an FHWA 0.45 Power Gradation Chart. Include the Control Points from AASHTO M 323-12, Table-3, as well as the Primary Control Sieve (PCS) Control Point from AASHTO M 323-12, Table 4. Fine mixes are defined as having a gradation that passes above the primary control sieve control point and above the maximum density line for all sieve sizes smaller than the primary control sieve and larger than the No. 100 sieve.

334-3.2.3 Aggregate Consensus Properties: For Traffic Level C through E mixtures, meet the following consensus properties at design for the aggregate blend. Aggregate consensus properties do not apply to Traffic Level A and B mixtures.

334-3.2.3.1 Coarse Aggregate Angularity: When tested in accordance with ASTM D 5821-01 (2006), meet the percentage of fractured faces requirements specified in AASHTO M 323-12, Table 5.

334-3.2.3.2 Fine Aggregate Angularity: When tested in accordance with AASHTO T 304-11, Method A, meet the uncompacted void content of fine aggregate specified in AASHTO M 323-12, Table 5.

334-3.2.3.3 Flat and Elongated Particles: When tested in accordance with ASTM D 4791-10, (with the exception that the material passing the 3/8 inch sieve and retained on the No. 4 sieve shall be included), meet the requirements specified in AASHTO M 323-12, Table 5. Measure the aggregate using the ratio of 5:1, comparing the length (longest dimension) to the thickness (shortest dimension) of the aggregate particles.

334-3.2.3.4 Sand Equivalent: When tested in accordance with AASHTO T 176-08, meet the sand equivalent requirements specified in AASHTO M 323-12, Table 5.

334-3.2.4 Gyratory Compaction: Compact the design mixture in accordance with AASHTO T 312-12, with the following exception: use the number of gyrations at Ndesign as defined in Table 334-2. Measure the inside diameter of gyratory molds in accordance with AASHTO T 312-12.

Table 334-2 Gyratory Compaction Requirements

Traffic Level	N_{design} Number of Gyrations
A	50
B	65
C	75
D	100
E	100

334-3.2.5 Design Criteria: Meet the requirements for nominal maximum aggregate size as defined in AASHTO M 323-12, as well as for relative density, VMA, VFA, and dust-to-binder ratio

as specified in AASHTO M 323-12, Table 6. Ninitial and Nmaximum requirements are not applicable.

334-3.2.6 Moisture Susceptibility: For all traffic levels, use a liquid anti-strip agent listed on the APL at the specified dosage rate. Hydrated lime may be used instead of the liquid anti-strip agent.

Provide a mixture having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (unconditioned) of 100 psi.

334-3.2.7 Additional Information: In addition to the requirements listed above, provide the following information with each proposed mix design submitted for verification:

1. The design traffic level and the design number of gyrations (N_{design}).

2. The source and description of the materials to be used.

3. The source of the aggregate components.

4. The gradation and proportions of the raw materials as intended to be combined in the paving mixture. The gradation of the component materials shall be representative of the material at the time of use. Compensate for any change in aggregate gradation caused by handling and processing as necessary.

5. A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly material passing the No. 200 sieve) should be accounted for and identified.

6. The bulk specific gravity (G_{sb}) value for each individual aggregate and RAP component.

7. A single percentage of asphalt binder by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest 0.1%.

8. A target temperature for the mixture at the plant (mixing temperature) and a target temperature for the mixture at the roadway (compaction temperature) in accordance with 320-6.3. Do not exceed a target temperature of 340°F for High Polymer asphalt binder, 330°F for PG 76-22 asphalt binders, and 315°F for unmodified asphalt binders.

9. Provide the physical properties at the optimum asphalt content, which must conform to all specified requirements.

10. The name of the Construction Training Qualification Program (CTQP) Qualified Mix Designer.

11. The ignition oven calibration factor.

12. The warm mix technology, if used.

334-3.3 Mix Design Revisions: During production, the Contractor may request a target value revision to a mix design, subject to meeting the following requirements: the target change falls within the limits defined in Table 334-3, appropriate data exists demonstrating that the mix

complies with production air voids specification criteria, and the mixture gradation meets the basic gradation requirements defined in 334-3.2.2.

Table 334-3 Limits for Potential Adjustments to Mix Design Target Values	
Characteristic	Limit from Original Mix Design
No. 8 sieve and Coarser	±5.0%
No. 16 sieve	±4.0%
No. 30 sieve	±4.0%
No. 50 sieve	±3.0%
No. 100 sieve	±3.0%
No. 200 sieve	±1.0%
Asphalt Binder Content(1)	±0.3%
Each Component of Aggregate Blend(2)	±5.0%
(1)Reductions to the asphalt binder content will not be permitted if the VMA during production is lower than 1.0% below the design criteria.	
(2)Revisions to FC-5 mixtures to be determined by the Engineer	

Submit all requests for revisions to mix designs, along with supporting documentation, to the Engineer. In order to expedite the revision process, the request for revision or discussions on the possibility of a revision may be made verbally, but must be followed up by a written request. The verified mix design will remain in effect until the Engineer authorizes a change. In no case will the effective date of the revision be established earlier than the date of the first communication between the Contractor and the Engineer regarding the revision.

A new design mix will be required if aggregate sources change, or for any substitution of an aggregate product with a different aggregate code, unless approved by the Engineer.

334-4 Producer Process Control (PC).

Assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times. Perform any tests necessary at the plant and roadway for process control purposes. The Engineer will not use these test results in the acceptance payment decision.

Address in the Producer QC Plan how PC failures will be handled. When a PC failure occurs, investigate, at a minimum, the production process, testing equipment and/or sampling methods to determine the cause of the failure, and make any necessary changes to assure compliance with these Specifications. Obtain a follow up sample immediately after corrective actions are taken to assess the adequacy of the corrections. In the event the follow-up PC sample also fails to meet Specification requirements, cease production of the asphalt mixture until the problem is adequately resolved to the satisfaction of the QC Manager.

334-5 Acceptance of the Mixture.

334-5.1 General: The mixture will be accepted at the plant with respect to gradation (P_{-8} and P_{-200}), asphalt content (P_b), and volumetrics (volumetrics is defined as air voids at N_{design}). The mixture will be accepted on the roadway with respect to density of roadway cores. Acceptance will be on a LOT by LOT basis (for each mix design) based on tests of random samples obtained within each sublot taken at a frequency of one set of samples per sublot. A roadway LOT and a plant production LOT

shall be the same. Acceptance of the mixture will be based on Contractor QC test results that have been verified by the Engineer.

334-5.1.1 Sampling and Testing Requirements: Obtain the samples in accordance with FM 1-T 168. Obtain samples at the plant of a sufficient quantity to be split into three smaller samples; one for QC, one for Verification testing and one for Resolution testing; each sample at approximately 35 pounds. The split samples for Verification testing and Resolution testing shall be reduced in size and stored in three boxes each. The approximate size of each box must be 12 inches x 8 inches x 4 inches. Provide, label and safely store sample boxes in a manner agreed upon by the Engineer for future testing.

The asphalt content of the mixture will be determined in accordance with FM 5-563. The gradation of the recovered aggregate will be determined in accordance with FM 1-T 030. Volumetric testing will be in accordance with AASHTO T 312-12and FM 1-T 209. Prior to testing volumetric samples, condition the test-sized sample for one hour, plus or minus five minutes, at the target roadway compaction temperature in a shallow, flat pan, such that the mixture temperature at the end of the one hour conditioning period is within plus or minus 20°F of the roadway compaction temperature. Test for roadway density in accordance with FM 1-T 166.

334-5.1.2 Acceptance Testing Exceptions: When the total combined quantity of hot mix asphalt for the project, as indicated in the Plans for Type B-12.5, Type SP and Type FC mixtures only, is less than 2000 tons, the Engineer will accept the mix on the basis of visual inspection. The Engineer may require the Contractor to run process control tests for informational purposes, as defined in 334-4, or may run independent verification tests to determine the acceptability of the material.

Density testing for acceptance will not be performed on widening strips or shoulders with a width of 5 feet or less, open-graded friction courses, variable thickness overbuild courses, leveling courses, any asphalt layer placed on subgrade (regardless of type), miscellaneous asphalt pavement, shared use paths, crossovers, gore areas, or any course with a specified thickness less than 1 inch or a specified spread rate that converts to less than 1 inch as described in 334-1.4. Density testing for acceptance will not be performed on asphalt courses placed on bridge decks or approach slabs; compact these courses in static mode only per the requirements of 330-7.7. In addition, density testing for acceptance will not be performed on the following areas when they are less than 500 feet (continuous) in length: turning lanes, acceleration lanes, deceleration lanes, shoulders, parallel parking lanes or ramps. Do not perform density testing for acceptance in situations where the areas requiring density testing is less than 50 tons within a sublot.

Density testing for acceptance will not be performed in intersections. The limits of the intersection will be from stop bar to stop bar for both the mainline and side streets. A random core location that occurs within the intersection shall be moved forward or backward from the intersection at the direction of the Engineer.

Where density testing for acceptance is not required, compact these courses (with the exception of open-graded friction courses) in accordance with the rolling procedure (equipment and pattern) as approved by the Engineer or with Standard Rolling Procedure as specified in 330-7.2. In the event that the rolling procedure deviates from the procedure approved by the Engineer, or the Standard Rolling Procedure, placement of the mix shall be stopped.

The density pay factor (as defined in 334-8.2) for areas not requiring density testing for acceptance will be paid at the same density pay factor as for the areas requiring density testing within the same LOT. If the entire LOT does not require density testing for acceptance, the LOT will be paid at a density pay factor of 1.00.

334-5.2 Full LOTs: Each LOT will be defined (as selected by the Contractor prior to the start of the LOT) as either (1) 2,000 tons, with each LOT subdivided into four equal sublots of 500 tons each, or (2) 4,000 tons, with each LOT subdivided into four equal sublots of 1,000 tons each. As an exception to this, the initial LOT of all new mix designs shall be defined as 2,000 tons, subdivided into four equal sublots of 500 tons each. Before the beginning of a LOT, the Engineer will develop a random sampling plan for each sublot and direct the Contractor on sample points, based on tonnage, for each sublot during construction.

334-5.3 Partial LOTs: A partial LOT is defined as a LOT size that is less than a full LOT. A partial LOT may occur due to the following:

1. The completion of a given mix type or mix design on a project.

2. Closure of the LOT due to time. LOTs will be closed 30 calendar days after the start of the LOT. Time periods other than 30 calendar days may be used if agreed to by both the Engineer and the Contractor, but under no circumstances shall the LOT be left open longer than 90 days.

3. A LOT is terminated per 334-5.4.4.

All partial LOTs will be evaluated based on the number of tests available, and will not be redefined. If a LOT is closed before the first plant random sample is obtained, then the LOT will be visually accepted by the Engineer and the LOT pay factor will be 1.00.

334-5.4 QC Sampling and Testing: Obtain all samples randomly as directed by the Engineer. Should the Engineer determine that the QC requirements are not being met or that unsatisfactory results are being obtained, or should any instances of falsification of test data occur, acceptance of the Producer's QC Plan will be suspended and production will be stopped.

334-5.4.1 Lost or Missing Verification/Resolution Samples: In the event that any of the Verification and/or Resolution asphalt mixture samples that are in the custody of the Contractor are lost, damaged, destroyed, or are otherwise unavailable for testing, the minimum possible pay factor for each quality characteristic as described in 334-8.2 will be applied to the entire LOT in question, unless called for otherwise by the Engineer. Specifically, if the LOT in question has more than two sublots, the pay factor for each quality characteristic will be 0.55. If the LOT has two or less sublots, the pay factor for each quality characteristic will be 0.80. If only the roadway cores are lost, damaged, destroyed, or are otherwise unavailable for testing, then the minimum possible pay factor for density will be applied to the entire LOT in question. In either event, the material in question will also be evaluated in accordance with 334-5.9.5.

If any of the Verification and/or Resolution samples that are in the custody of the Owner are lost, damaged, destroyed or are otherwise unavailable for testing, the corresponding QC test result will be considered verified, and payment will be based upon the Contractor's data.

334-5.4.2 Plant Sampling and Testing Requirements: Obtain one random sample of mix per sublot in accordance with 334-5.1.1 as directed by the Engineer. Test the QC split sample for gradation, asphalt binder content and volumetrics in accordance with 334-5.1.1. Complete all QC testing within one working day from the time the samples were obtained.

334-5.4.3 Roadway Sampling and Testing Requirements: Obtain five 6 inch diameter roadway cores within 24 hours of placement at random locations as directed by the Engineer within each sublot. Test these QC samples for density (Gmb) in accordance with 334-5.1.1. Obtain a minimum of three cores per sublot at random locations as identified by the Engineer in situations where the sublot/LOT was closed or terminated before the random numbers were reached or where it is impractical to cut five cores per sublot. Do not obtain cores any closer than 12 inches from an unsupported edge. The Engineer may adjust randomly generated core locations for safety purposes or as the Engineer deems necessary. Do not perform density testing for acceptance in a sublot if the plant random sample for that sublot has not been obtained. Maintain traffic during the coring operation; core the roadway, patch the core holes (within three days of coring); and trim the cores to the proper thickness prior to density testing.

Density for the sublot shall be based on the average value for the cores cut from the sublot with the target density being a percentage of the maximum specific gravity (G_{mm}) of the sublot, as defined in the Contract. Once the average density of a sublot has been determined, do not retest the samples unless approved by the Engineer. Ensure proper handling and storage of all cores until the LOT in question has been accepted.

334-5.4.4 Individual Test Tolerances for QC Testing: Terminate the LOT if any of the following QC failures occur:

1. An individual test result of a sublot for air voids does not meet the requirements of Table 334-4,

2. The average sublot density does not meet the requirements of Table 334-4,

3. Two consecutive test results within the same LOT for gradation or asphalt binder content do not meet the requirements of Table 334-4,

When a LOT is terminated due to a QC failure, stop production of the mixture until the problem is resolved to the satisfaction of the QC Manager and/or Asphalt Plant Level II technician responsible for the decision to resume production after a QC failure, as identified in Section 105. In the event that it can be demonstrated that the problem can immediately be or already has been resolved, it will not be necessary to stop production. When a LOT is terminated, make all necessary changes to correct the problem. Do not resume production until appropriate corrections have been made. Prior to resuming production, inform the Engineer of the problem and corrections made to correct the problem. After resuming production, sample and test the material to verify that the changes have corrected the problem. Summarize this information and provide it to the Engineer prior to the end of the work shift when production resumes.

In the event that a QC failure is not addressed as defined above, the Engineer's approval will be required prior to resuming production after any future QC failures.

Address any material represented by a failing test result, as defined above in this subarticle, in accordance with 334-5.9.5. Any LOT terminated under this subarticle will be limited to a maximum Pay Factor of 1.00 (as defined in 334-8.2) for all quality characteristics and will include all material placed up to the point when the LOT was terminated.

In the event that a G_{mm} test result differs by more than 0.040 from the mix design G_{mm}, investigate the causes of the discrepancy and report the findings and proposed actions to the Engineer.

Table 334-4 Master Production Range	
Characteristic	Tolerance[(1)]
Asphalt Binder Content (%)	Target ±0.55
Passing No. 200 Sieve (%)	Target ±1.50
Air Voids (%)	2.30-6.00
Density (minimum % G_{mm})[(2)]	89.50
[(1)]Tolerances for sample size of n = 1 from the verified mix design [(2)]Based on an average of 5 randomly located cores	

334-5.5 Verification Testing: In order to determine the validity of the Contractor's QC test results prior to their use in the Acceptance decision, the Engineer will run verification tests.

334-5.5.1 Plant Testing: At the completion of each LOT, the Engineer will test a minimum of one Verification split sample randomly selected from the LOT. Results of the testing and analysis for the LOT will be made available to the Contractor within one working day from the time the LOT is completed. Verification samples shall be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1.

The Verification test results will be compared with the QC test results based on the between-laboratory precision values shown in Table 334-5.

Table 334-5 Between-Laboratory Precision Values	
Property	Maximum Difference
G_{mm}	0.016
G_{mb} (gyratory compacted samples)	0.022
G_{mb} (roadway cores)	0.014
P_b	0.44%
P_{-200}	FM 1-T 030 (Figure 2)
P_{-8}	FM 1-T 030 (Figure 2)

If all of the specified mix characteristics compare favorably, then the LOT will be accepted, with payment based on the Contractor's QC test data for the LOT.

If any of the results do not compare favorably, then the Resolution samples from the LOT will be sent to the Resolution laboratory for testing, as described in 3345.6.

334-5.5.2 Roadway Testing: At the completion of each LOT, the Engineer will determine the density (Gmb) of each core (previously tested by QC) as described in 334-5.1.1 from the same sublot as the plant samples. For situations where roadway density is not required for the random sublot chosen, then another sublot shall be randomly chosen for roadway density cores only. Results of the testing and analysis for the LOT will be made available to the Contractor within one working day from the time the LOT is completed.

The individual Verification test results will be compared with individual QC test results by the Engineer based on the between-laboratory precision values given in Table 334-5.

If each of the core test results compare favorably, then the LOT will be accepted with respect to density, with payment based on the Contractor's QC test data for the LOT.

If any of the results do not compare favorably, then the core samples from the LOT will be sent to the Resolution laboratory for testing as specified in 334-5.6.

334-5.6 Resolution System:

334-5.6.1 Plant Samples: In the event of an unfavorable comparison between the Contractor's QC test results and the Engineer's Verification test results on any of the properties identified in Table 334-5, the Resolution laboratory will test all of the split samples from the LOT for only the property (or properties) in question. Resolution samples shall be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. In lieu of the 11/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1.

334-5.6.2 Roadway Samples: In the event of an unfavorable comparison between the Contractor's QC test data and the Engineer's Verification test data on the density results, the Resolution laboratory will test all of the cores from the LOT. Testing will be as described in 3345.1.1.

334-5.6.3 Resolution Determination: The Resolution test results (for the property or properties in question) will be compared with the QC test results based on the between-laboratory precision values shown in Table 334-5.

If the Resolution test results compare favorably with all of the QC results, then acceptance and payment for the LOT will be based on the QC results, and the Owner will bear the costs associated with Resolution testing. No additional compensation, either monetary or time, will be made for the impacts of any such testing.

If the Resolution test results do not compare favorably with all of the QC results, then acceptance and payment for the LOT will be based on the Resolution test data for the LOT, and the costs of the Resolution testing will be deducted from monthly estimates. No additional time will be granted for the impacts of any such testing.

In addition, the material failure requirements of 334-5.4.4 apply to the Resolution test data. Address any material represented by the failing test results in accordance with 334-5.9.5. For this situation, the LOT will be limited to a maximum Pay Factor of 1.00 (as defined in 334-8.2) for all quality characteristics.

In the event of an unfavorable comparison between the Resolution test results and QC test results, make the necessary adjustments to assure that future comparisons are favorable.

334-5.7 Independent Verification (IV) Testing:

334-5.7.1 Plant: The Contractor shall provide sample boxes and take samples as directed by the Engineer for IV testing. Obtain enough material for three complete sets of tests (two samples for IV testing by the Engineer and one sample for testing by the Contractor). If agreed upon by both the Engineer and the Contractor, only one sample for IV testing by the Engineer may be obtained. IV samples will be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. The Contractor's split sample, if tested immediately after sampling, shall be reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. If the Contractor's sample is not tested immediately after sampling, then the sample shall be reheated at the target roadway compaction temperature for 11/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. For the IV and Contractor's samples, in lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1. The Contractor's test results shall be provided to the Engineer within one working day from the time the sample was obtained.

If any of the IV test results do not meet the requirements of Table 334-4, then a comparison of the IV test results and the Contractor's test results, if available, will be made. If a comparison of the IV test results and the Contractor's test results meets the precision values of Table 334-5 for the material properties in question, or if the Contractor's test results are not available, then the IV test results are considered verified and the Contractor shall cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Address any material represented by the failing test results in accordance with 334-5.9.5.

If a comparison of the IV test results and the Contractor's test results does not meet the precision values of Table 334-5 for the material properties in question, then the second IV sample shall be tested by the Engineer for the material properties in question. If a comparison between the first and second IV test results does not meet the precision values of Table 334-5 for the material properties in question, then the first IV test results are considered unverified for the material properties in question and no action shall be taken.

If a comparison between the first and second IV test results meets the precision values of Table 334-5 for the material properties in question, then the first IV sample is considered verified and the Contractor shall cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction

of the Engineer that the problem can immediately be (or already has been) resolved. Address any material represented by the failing test results in accordance with 334-5.9.5.

The Engineer has the option to use the IV sample for comparison testing as specified in 334-6.

334-5.7.2 Roadway: Obtain five 6 inch diameter roadway cores within 24 hours of placement, as directed by the Engineer, for IV testing. In situations where it is impractical to cut five cores per sublot, obtain a minimum of three cores per sublot at random locations, as identified by the Engineer. These independent cores will be obtained from the same LOTs and sublots as the Independent Verification Plant samples, or as directed by the Engineer. The density of these cores will be obtained as described in 334-5.1.1. If the average of the results for the sublot does not meet the requirements of Table 334-4 for density, then a comparison of the IV G_{mm} test results and the Contractor's G_{mm} test results, if available, will be made in accordance with the procedure provided in 334-5.7.1. Address any material represented by the failing test results in accordance with 334-5.9.5.

334-5.8 Surface Tolerance: The asphalt mixture will be accepted on the roadway with respect to surface tolerance in accordance with the applicable requirements of 330-9.

334-5.9 Minimum Acceptable Quality Levels:

334-5.9.1 PFs Below 0.90: In the event that an individual pay factor for any quality characteristic of a LOT falls below 0.90, take steps to correct the situation and report the actions to the Engineer. In the event that the pay factor for the same quality characteristic for two consecutive LOTs is below 0.90, cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Actions taken must be approved by the Engineer before production resumes.

334-5.9.2 CPFs Less Than 0.90 and Greater Than or Equal to 0.80: If the composite pay factor for the LOT is less than 0.90 and greater than or equal to 0.80, cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Actions taken must be approved by the Engineer before production resumes.

334-5.9.3 CPFs Less Than 0.80 and Greater Than or Equal to 0.75: If the CPF for the LOT is less than 0.80 and greater than or equal to 0.75, address the defective material in accordance with 334-5.9.5.

334-5.9.4 CPFs Less Than 0.75: If the CPF for the LOT is less than 0.75, remove and replace the defective LOT at no cost to the Owner, or as approved by the Engineer.

334-5.9.5 Defective Material: Assume responsibility for removing and replacing all defective material placed on the project, at no cost to the Owner.

As an exception to the above and upon approval of the Engineer, obtain an engineering analysis in accordance with Section 6 by an independent laboratory (as approved by the Engineer) to determine the disposition of the material. The engineering analysis must be signed and sealed by a Professional Engineer licensed in the State of Florida.

The Engineer may determine that an engineering analysis is not necessary or may perform an engineering analysis to determine the disposition of the material.

Any material that remains in place will be accepted with a CPF as determined by 334-8, or as determined by the Engineer.

If the defective material is due to a gradation, asphalt binder content or density failure, upon the approval of the Engineer the Contractor may perform delineation tests on roadway cores in lieu of an engineering analysis to determine the limits of the defective material that may require removal and replacement. Prior to any delineation testing, all sampling locations shall be approved by the Engineer. All delineation sampling and testing shall be monitored and verified by the Engineer. For materials that are defective due to air voids, an engineering analysis is required.

When evaluating defective material by engineering analysis or delineation testing, at a minimum, evaluate all material located between passing QC, PC or IV test results. Exceptions to this requirement shall be approved by the Engineer.

334-6 Comparison Testing.

At the start of the project (unless waived by the Engineer) and at other times as determined necessary by the Engineer, provide split samples for comparison testing with the Engineer. The purpose of these tests is to verify that the testing equipment is functioning properly and that the testing procedures are being performed correctly. In the event that the Engineer determines that there is a problem with the Contractor's testing equipment and/or testing procedures, immediately correct the problem to the Engineer's satisfaction. In the event that the problem is not immediately corrected, cease production of the asphalt mixture until the problem is adequately resolved to the satisfaction of the Engineer.

If so agreed to by both the Contractor and the Engineer, the split sample used for comparison testing may also be used for the QC sample. The split sample used for comparison testing must also meet the requirements for IV testing described in 334-5.7.

334-7 Method of Measurement.

For the work specified under this Section (including the pertinent provisions of Sections 320 and 330), the quantity to be paid for will be the weight of the mixture, in tons. For each pay item, excluding overbuild, the pay quantity will be based on the quantity placed on the project, limited to 105% of the adjusted plan quantity for the pay item. The adjusted plan quantity will be determined by dividing the pay item's original plan quantity (including any Engineer approved quantity revisions) by the design G_{mm} stated in 334-1.4, then multiplying it by the tonnage-weighted average G_{mm} of the mixes used for the pay item.

The bid price for the asphalt mix will include the cost of the liquid asphalt and the tack coat application as directed in 300-8. There will be no separate payment or unit price adjustment for the asphalt binder material in the asphalt mix. For the calculation of unit price adjustments of bituminous material, the average asphalt content will be based on the percentage specified in 92.1.2. The weight will be determined as provided in 320-3.2 (including the provisions for the automatic recordation system).

Prepare and submit a Certification of Quantities to the Engineer in accordance with 92.1.2.

334-8 Basis of Payment.

334-8.1 General: Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330).

For materials accepted in accordance with 334-5, based upon the quality of the material, a pay adjustment will be applied to the bid price of the material as determined on a LOT by LOT basis. The pay adjustment will be assessed by calculating a Pay Factor for the following individual quality characteristics: pavement density, air voids, asphalt binder content, and the percentage passing the No. 200 and No. 8 sieves. The pay adjustment will be computed by multiplying a Composite Pay Factor (CPF) for the LOT by the bid price per ton.

334-8.2 Pay Factors:

334-8.2.1 Partial LOTs: For Partial LOTs where no random sample is obtained due to insufficient tonnage, a CPF of 1.00 shall be applied.

334-8.2.2 Two or Less Sublot Test Results: In the event that two or less sublot test results are available for a LOT, Pay Factors will be determined based on Table 334-6, using the average of the accumulated deviations from the target value. (Except for density, deviations are absolute values with no plus or minus signs.) Use the 1-Test column when there is only one sublot test result and use the 2-Tests column when there are two sublots.

Table 334-6 Small Quantity Pay Table

Pay Factor	1 Sublot Test Deviation	2 Sublot Test Average Deviation
Asphalt Binder Content		
1.05	0.00-0.23	0.00-0.16
1.00	0.24-0.45	0.17-0.32
0.90	0.46-0.55	0.33-0.39
0.80	>0.55	>0.39
No. 8 Sieve		
1.05	0.00-2.25	0.00-1.59
1.00	2.25-4.50	1.60-3.18
0.90	4.51-5.50	3.19-3.89
0.80	>5.50	>3.89
No. 200 Sieve		
1.05	0.00-0.55	0.00-0.39
1.00	0.56-1.10	0.40-0.78
0.90	1.11-1.50	0.79-1.06
0.80	>1.50	>1.06
Air Voids		
1.05	0.00-0.50	0.00-0.35
1.00	0.51-1.00	0.36-0.71
0.90	1.01-1.70	0.72-1.20
0.80	1.71-2.00	1.21-1.41
0.70	2.01-2.50	1.42-1.77
0.55	>2.50	>1.77

Table 334-6 Small Quantity Pay Table		
Pay Factor	1 Sublot Test Deviation	2 Sublot Test Average Deviation
Density[(1)]		
1.05	+(0.00-2.00), -(0.00-0.50)	+(0.00-1.40), -(0.00-0.35)
1.00	+(2.01-3.00), -(0.51-1.00)	+(1.41-2.10), -(0.36-0.71)
0.95	+(3.01-3.50), -(1.01-2.00)	+(2.11-2.80), -(0.72-1.41)
0.90	+(3.51-4.00), -(2.01-3.00)	+(2.81-3.50), -(1.42-2.12)
0.80	+(>4.00), -(>3.00)	+(>3.50), -(2.12)

[(1)] Each density test result is the average of five cores. The target density is 93.00 percent of G_{mm} (92.00 percent when compaction is limited to the static mode or for layers specified to be one inch thick). When compaction is limited to the static mode, no vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer. In this case, the target density is 92.00 percent of G_{mm}.

334-8.2.3 Three or More Sublot Test Results: When three or more sublot test results are available for a LOT, the variability-unknown, standard deviation method will be used to determine the estimated percentage of the LOT that is within the specification limits. The number of significant figures used in the calculations will be in accordance with requirements of AASHTO R11-06, Absolute Method.

334-8.2.3.1 Percent Within Limits: The percent within limits (PWL) and Pay Factors for the LOT will be calculated as described below. Variables used in the calculations are as follows:

x = individual test value (sublot)
n = number of tests (sublots)
s = sample standard deviation
$\sum x^2$ = summation of squares of individual test values
$(\sum x)^2$ = summation of individual test values squared
Q_U = upper quality index
USL = upper specification limit (target value plus upper specification limit from Table 334-7)
Q_L = lower quality index
LSL = lower specification limit (target value minus lower specification limit from Table 334-7)
P_U = estimated percentage below the USL
P_L = estimated percentage above the LSL

1. Calculate the arithmetic mean ($\overline{X}$) of the test values:

$$\overline{X} = \frac{\sum x}{n}$$

2. Calculate the sample standard deviation (s):

$$s = \sqrt{\frac{n\sum(x^2)-(\sum x)^2)}{n(n-1)}}$$

3. Calculate the upper quality index (QU):

$$Q_U = \frac{USL - \bar{X}}{s}$$

4. Calculate the lower quality index (QL):

$$Q_L = \frac{\bar{X} - LSL}{s}$$

5. From Table 334-8, determine the percentage of work below the USL (P_U).

6. From Table 334-8, determine percentage of work above the LSL (P_L) Note: If USL or LSL is not specified; percentages within (USL or LSL) will be 100.

7. If Q_U or Q_L is a negative number, then calculate the percent within limits for Q_U or Q_L as follows: enter Table 334-8 with the positive value of Q_U or Q_L and obtain the corresponding percent within limits for the proper sample size. Subtract this number from 100.00. The resulting number is the value to be used in the next step (Step 8) for the calculation of quality level.

8. Calculate the percent within limits $(PWL) = (P_U + P_L) - 100$

9. Calculate the Pay Factor (PF) for each quality characteristic using the equation given in 334-8.2.3.2.

Table 334-7 Specification Limits	
Quality Characteristic	Specification Limits
Passing No. 8 sieve (percent)	Target ±3.1
Passing No. 200 sieve (percent)	Target ±1.0
Asphalt Content (percent)	Target ±0.40
Air Voids (percent)	4.00±1.20
Density, vibratory mode (percent of G_{mm})	93.00 +3.00, -1.20
Density, static mode (percent of G_{mm})	32.00 +4.00, -1.50[(1)]
[(1)] No vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer.	

Table 334-8 Percent Within Limits				
Quality Index	Percent within Limits for Selected Sample Size			
	n=3	n=4	n=5	n=6
0.00	50.00	50.00	50.00	50.00
0.05	51.38	51.67	51.78	51.84
0.10	52.76	53.33	53.56	53.67
0.15	54.15	55.00	55.33	55.50
0.20	55.54	56.67	57.10	57.32

Table 334-8 Percent Within Limits				
Quality Index	Percent within Limits for Selected Sample Size			
	n=3	n=4	n=5	n=6
0.25	56.95	58.33	58.87	59.14
0.30	58.37	60.00	60.63	60.94
0.35	59.80	61.67	62.38	62.73
0.40	61.26	63.33	64.12	64.51
0.45	62.74	65.00	65.84	66.27
0.50	64.25	66.67	67.56	68.00
0.55	65.80	68.33	69.26	69.72
0.60	67.39	70.00	70.95	71.41
0.65	69.03	71.67	72.61	73.08
0.70	70.73	73.33	74.26	74.71
0.75	72.50	75.00	75.89	76.32
0.80	74.36	76.67	77.49	77.89
0.85	76.33	78.33	79.07	79.43
0.90	78.45	80.00	80.62	80.93
0.95	80.75	81.67	82.14	82.39
1.00	83.33	83.33	83.64	83.80
1.05	86.34	85.00	85.09	85.18
1.10	90.16	86.67	86.52	86.50
1.15	97.13	88.33	87.90	87.78
1.20	100.00	90.00	89.24	89.01
1.25	100.00	91.67	90.54	90.19
1.30	100.00	93.33	91.79	91.31
1.35	100.00	95.00	92.98	92.37
1.40	100.00	96.67	94.12	93.37
1.45	100.00	98.33	95.19	94.32
1.50	100.00	100.00	96.20	95.19
1.55	100.00	100.00	97.13	96.00
1.60	100.00	100.00	97.97	96.75
1.65	100.00	100.00	98.72	97.42
1.70	100.00	100.00	99.34	98.02
1.75	100.00	100.00	99.81	98.55
1.80	100.00	100.00	100.00	98.99
1.85	100.00	100.00	100.00	99.36
1.90	100.00	100.00	100.00	99.65
1.95	100.00	100.00	100.00	99.85

Table 334-8 Percent Within Limits				
Quality Index	Percent within Limits for Selected Sample Size			
	n=3	n=4	n=5	n=6
2.00	100.00	100.00	100.00	99.97
2.05	100.00	100.00	100.00	100.00
2.10	100.00	100.00	100.00	100.00
2.15	100.00	100.00	100.00	100.00
2.20	100.00	100.00	100.00	100.00
2.25	100.00	100.00	100.00	100.00
2.30	100.00	100.00	100.00	100.00
2.35	100.00	100.00	100.00	100.00
2.40	100.00	100.00	100.00	100.00
2.45	100.00	100.00	100.00	100.00
2.50	100.00	100.00	100.00	100.00
2.55	100.00	100.00	100.00	100.00
2.60	100.00	100.00	100.00	100.00
2.65	100.00	100.00	100.00	100.00

334-8.2.3.2 Pay Factors (PF): Pay Factors will be calculated by using the following equation:

$$\text{Pay Factor } = \frac{55 + 0.5 \times \text{PWL}}{100}$$

The PWL is determined from Step (8) of 334-8.2.3.1.

334-8.3 Composite Pay Factor (CPF): A CPF for the LOT will be calculated based on the individual PFs with the following weighting applied: 40% Density (D), 25% Air Voids (V_a), 20% asphalt binder content (P_b), 10% Passing No. 200 (P_{-200}) and 5% Passing No. 8 (P_{-8}). Calculate the CPF by using the following formula:

$$CPF = (0.40 \times PF\ D) + (0.25 \times PF\ V_a) + (0.20 \times PF\ P_b) + (0.10 \times PF\ P_{-200}) + (0.05 \times PF\ P_{-8})$$

Where the PF for each quality characteristic is determined in either 334-8.2.2 or 334-8.2.3, depending on the number of sublot tests. Note that the number after each multiplication will be rounded to the nearest 0.01.

The pay adjustment shall be computed by multiplying the CPF for the LOT by the bid price per ton.

334-8.4 Payment: Payment will be made under:

Item No. 334-1 2.5" Superpave Asphaltic Concrete -per Ton (TN)

Item No. 334-2 2" Superpave Asphaltic Concrete -per Ton (TN)

END OF SECTION 334

SECTION 425

INLETS, MANHOLES, AND JUNCTION BOXES

425-1 Description.
Construct inlets, manholes, and junction boxes from reinforced concrete as shown in the Standard Plans and the Plans. Furnish and install the necessary metal frames and gratings. Construct yard drains from concrete meeting the requirements of Section 347. Adjust structures shown in the Plans to be adjusted or requiring adjustment for the satisfactory completion of the work.

For precast structures, meet the requirements in 449-1.

425-2 Composition and Proportioning.

425-2.1 Concrete: For inlets, manholes, and junction boxes, use Class II or IV concrete, as designated in the Plans and Standard Plans and as specified in Section 346. For yard drains use concrete as specified in Section 347.

425-2.2 Mortar: For brick masonry, make the mortar by mixing one part cement to three parts sand. Miami Oolitic rock screenings may be substituted for the sand, provided the screenings meet the requirements of 902 except for gradation requirements. Use materials passing the No. 8 sieve that are well graded from coarse to fine. Submit documentation, from a FDOT approved mine or a FDOT approved concrete plant, confirming the sand or sand substitute meets the requirements of 902-3.2.

Preblended masonry cement mortar may be used in lieu of the above-specified mortar. Deliver the product in original and unopened packages properly identified by brand name of manufacturer, net weight of package, and type. Store the material in full compliance with the manufacturer's recommendations. Material must be used within manufacturer's recommended shelf life.

425-3 Materials.

425-3.1 General: Meet the following requirements:

Sand (for mortar)	Section 902
Portland Cement	Section 921
Water	Section 923
Reinforcing Steel	Sections 931 and 415
Liner Repair Systems	Section 948
Brick and Concrete Masonry Units	Section 949
Castings for Frames and Gratings	Section 962
Masonry Cement, Type M or S	ASTM C91
Preblended Dry Masonry Cement Mortar, Type M or S	ASTM C1714

425-3.2 Gratings, Covers, and Frames: Use gratings and frames fabricated from structural steel or cast iron as designated in the appropriate Standard Plans Index. When "Alt. G" grates are specified in the Plans, provide structural steel grates that are galvanized in accordance with the requirements of ASTM A123.

Use rigid frames and covers either 24 inches or 36 inches or optional three-piece adjustable frames and covers as indicated in Standard Plans, Index 425-001.

For three-piece adjustable frames, the inner frame may include replaceable resilient seats to support the cover. In addition, the inner frame shall indicate it is adjustable, by clearly having the word “adjustable” imprinted into the exposed portion of the inner frame so ”adjustable” is visible from the roadway after installation.

425-4 Forms.
Design and construct wood or metal forms so that they may be removed without damaging the concrete. Build forms true to line and grade and brace them in a substantial and unyielding manner. Obtain the Engineer’s approval before filling them with concrete.

425-5 Precast Inlets, Manholes, and Junction Boxes.
Precast inlets, manholes, and junction boxes, designed and fabricated in accordance with the Plans, the Standard Plans and Section 449 may be substituted for cast-in-place units.

425-6 Construction Methods.

425-6.1 Excavation: Excavate as specified in Section 125.

Where unsuitable material for foundations is encountered, excavate the unsuitable material and backfill with suitable material prior to constructing or setting inlets, manholes and junction boxes.

As an option to the above and with the Engineer’s approval, the Contractor may carry the walls down to a depth required for a satisfactory foundation, backfill to 8 inches below the flowline with clean sand and cast a non-reinforced 8 inch floor.

425-6.2 Placing and Curing Concrete: Place the concrete in the forms, to the depth shown in the Plans, and thoroughly vibrate it. After the concrete has hardened sufficiently, cover it with suitable material and keep it moist for a period of three days. Finish the traffic surface in accordance with 522-7.2, or with a simulated broom finish approved by the Engineer.

425-6.3 Setting Manhole Castings: After curing the concrete as specified above, set the frame of the casting in a full mortar bed composed of one part portland cement to two parts of fine aggregate.

425-6.3.1 Standard Castings: Set manhole frames in a mortar bed and adjust to grade using brick or concrete grade rings, with a maximum 12 inch adjustment.

425-6.3.2 Optional Adjustable Castings: When using a three-piece adjustable frame and cover, install the frame and cover with brick or concrete grade rings to the base course height. Make adjustments using the inner frame in accordance with the manufacturer’s installation recommendations so the inner frame and cover meet the grade and slope of the pavement surface opened to traffic.

425-6.4 Reinforcing Steel: Follow the construction methods for the steel reinforcement as specified in Section 415.

425-6.5 Laying Brick: Brick masonry may be used if the structure is circular and constructed in place, or for adjustments of rectangular risers up to a maximum 12 inches in height. Saturate all brick with water before laying. Bond the brick thoroughly into the mortar using the shove-joint method to lay the brick. Arrange headers and stretchers so as to bond the mass thoroughly. Finish the joints properly as the work progresses and ensure that they are not less than 1/4 inch or more than 3/4

inch in thickness. Do not use spalls or bats except for shaping around irregular openings or when unavoidable at corners.

425-6.6 Backfilling: Backfill as specified in Section 125, meeting the specific requirements for backfilling and compaction around inlets, manholes, and junction boxes detailed in 125-8.1 and 125-8.2. However; for outfall lines beyond the sidewalk or future sidewalk area, where no vehicular traffic will pass over the pipe, inlets, manholes, and junction boxes, compact backfill as required in 125-9.2.2.

425-6.7 Adjusting Structures: Adjust existing manholes, catch basins, inlets, valve boxes, etc., within the limits of the proposed work, to meet the finished grade of the proposed pavement, or if outside of the proposed pavement area, to the finished grade designated in the Plans for such structures. Adjust structures prior to placement of final asphalt pavement surface layer. Adjust structures to match final pavement surface cross-slope. Use materials and construction methods which meet the requirements specified above to adjust the existing structures.

The Contractor may extend manholes needing to be raised using adjustable extension rings of the type which do not require the removal of the existing manhole frame. Use an extension device that provides positive locking action and permits adjustment in height as well as diameter and meets the approval of the Engineer. When adjusting structures in flexible pavement, restore final road surface in accordance with Standard Plans, Index 125-001.

425-7 Method of Measurement.

The quantities to be paid for will be the number of inlets, manholes, junction boxes, and yard drains, completed and accepted; and the number of structures of these types (including also valve boxes) satisfactorily adjusted.

425-8 Basis of Payment.

425-8.1 New Structures: Price and payment will be full compensation for furnishing all materials and completing all work described herein or shown in the Plans, including all clearing and grubbing outside the limits of clearing and grubbing as shown in the Plans, all excavation except the volume included in the measurement designated to be paid for under the items for the grading work on the project, all backfilling around the structures, the disposal of surplus material, and the furnishing and placing of all gratings, frames, covers, and any other necessary fittings.

425-8.2 Adjusted Structures: When an item of payment for adjusting manholes, valve boxes, or inlets is provided in the proposal, price and payment will be full compensation for the number of such structures designated to be paid for under such separate items, and which are satisfactorily adjusted, at the Contract unit prices each for adjusting inlets, adjusting manholes, and adjusting valve boxes.

For any of such types of these structures required to be adjusted but for which no separate item of payment is shown in the proposal for the specific type, payment will be made under the item of adjusting miscellaneous structures.

425-8.3 Payment Items: Payment will be made under:

Item 425-1	***FDOT Type 4 Curb Inlet***	***-per Each (EA)***
Item 425-2	***FDOT Type 6 (RH) Curb Inlet***	***-per Each (EA)***
Item 425-3	***FDOT Type 'P' Alt. A Manhole w/ Solid Top***	***-per Each (EA)***
Item 425-4	***36" MES***	***-per Each (EA)***
Item 425-5	***FDOT Type 'F' DBI***	***-per Each (EA)***
Item 425-6	***FDOT Type 'F' Top w/ 4' x 4' (inner width) Type 'J' Alt. B Bottom***	***-per Each (EA)***
Item 425-7	***Existing Manhole Modifications***	***-per Each (EA)***
Item 425-8	***FDOT Type 'C' DBI***	***-per Each (EA)***
Item 425-9	***FDOT Type 'P' Top (Solid Grate) w/ 3'-6" x 10'-0" (inner width) Type 'J' Alt. B Bottom***	***-per Each (EA)***
Item 425-10	***24" MES***	***-per Each (EA)***

END OF SECTION 425

SECTION 430

PIPE CULVERTS

430-1 Description.
Furnish and install drainage pipe and end sections at the locations called for in the Plans. Furnish and construct joints and connections to existing pipes, catch basins, inlets, manholes, walls, etc., as may be required to complete the work.

At the beginning of each project, submit a notarized certification statement to the Engineer in accordance with Section 6. The Quality Control Manager's stamp or label on each product indicates certification that the product was fabricated in conformance with the Producer QC Plan, the Contract, and this Section. Ensure that each shipment of drainage products to the project site is accompanied with a QC signed or stamped delivery ticket providing the description and the list of the products.

When the Producer Quality Control Program is suspended by the Owner, accept responsibility of either obtaining products from a plant with an approved Quality Control Program, or await re-approval of the plant. The Engineer will not allow changes in Contract Time or completion dates as a result of the plant's loss of qualification. Accept responsibility for all delay costs or other costs associated with the loss of the plant's qualification.

Construct structural plate pipe culverts or underdrains in accordance with Sections 435 and 440.

For pipe culverts installed by jack & bore, install in accordance with Section 556.

430-2 Materials.

430-2.1 Pipe: Meet the following requirements:

Concrete Pipe	Section 449
Steel Pipe	556-2.1
Round Rubber Gaskets	Section 942
Resilient Connectors*	Section 942
Corrugated Steel Pipe and Pipe Arch	Section 943
Corrugated Aluminum Pipe and Pipe Arch	Section 945
Corrugated Polyethylene Pipe	Section 948
Steel Reinforced Polyethylene Ribbed Pipe	Section 948
Corrugated Polypropylene Pipe	Section 948
Corrugated Polyvinyl Chloride (PVC) Pipe	Section 948
Fiberglass Reinforced Polymer Pipe	Section 948
Liner Repair Systems	Section 948

*Use resilient connector products listed on the FDOT's Approved Product List (APL).

430-2.2 Joint Materials: Use joint materials specified in 430-7 through 430-9 according to type of pipe and conditions of usage.

430-2.3 Mortar: Use mortar composed of one part Portland cement and two parts of clean, sharp sand, to which mixture the Contractor may add hydrated lime in an amount not to exceed 15% of the cement content. Use mortar within 30 minutes after its preparation.

430-3 Type of Pipe to Be Used.

430-3.1 General: Prior to the preconstruction conference, submit to the Engineer which optional pipe material from the optional materials tabulation sheet will be used. Once a pipe material is selected, do not change pipe materials without approval of the Engineer.

When the Plans designate a type (or types) of pipe, use only the type (or choose from the types) designated. As an exception, when the Plans designate reinforced concrete pipe as Class S, Class I, Class II, Class III and Class IV, the Contractor may use non-reinforced concrete pipe up to and including 36 inch in diameter.

430-3.2 Side Drain: If the Plans do not designate a type (or types) of pipe, the Contractor may use either a minimum Class I concrete pipe, corrugated steel pipe, corrugated aluminum pipe, corrugated high-density polyethylene pipe, steel reinforced polyethylene ribbed pipe, polypropylene pipe, or PVC pipe. If one of the metal types is chosen, use the minimum gage specified in Section 943 for steel pipe or Section 945 for aluminum pipe. Alternatively, when metal pipe is allowed and no future maintenance concerns exist, the Contractor may propose the pipe gage based on the FDOT's Drainage Manual and Culvert Service Life Estimator for approval by the Engineer. When extending existing pipes, construct the pipe extensions of the same size and kind as the existing pipe. Extensions of existing pipes, whose materials are no longer produced, shall be extended with the most similar pipe material available.

Non-reinforced concrete pipe may also be substituted for concrete pipe in side drains, subject to the provisions of 430-3.1.

430-4 Laying Pipe.

430-4.1 General: Lay all pipe, true to the lines and grades given, with hubs upgrade and tongue end fully entered into the hub. When pipe with quadrant reinforcement or circular pipe with elliptical reinforcement is used, install the pipe in a position such that the manufacturer's marks designating "top" and "bottom" of the pipe are not more than five degrees from the vertical plane through the longitudinal axis of the pipe. Do not allow departure from and return to plan alignment and grade to exceed 1/16 inch per foot of nominal pipe length, with a total of not more than 1 inch departure from theoretical line and grade. Take up and relay any pipe that is not in true alignment or which shows any settlement after laying at no additional expense to the Owner.

Do not use concrete pipe with lift holes except round pipe which has an inside diameter in excess of 54 inches or any elliptical pipe.

Repair lift holes, if present, with hand-placed, stiff, non-shrink, 1-to-1 mortar of cement and fine sand, after first washing out the hole with water. Completely fill the void created by the lift hole with mortar. Cover the repaired area with a 24 inch by 24 inch piece of filter fabric secured to the pipe. Use a Type D-3 filter fabric meeting the requirements specified in Section 985.

Secure the filter fabric to the pipe using a method that holds the fabric in place until the backfill is placed and compacted. Use grout mixtures, mastics, or strapping devices to secure the fabric to the pipe.

Do not cut or drill into or through the corrugations or ribs of plastic pipe except when necessary to meet the dimensional requirements shown in the Plans.

When installing pipes in structures, construct inlet and outlet pipes of the same size and kind as the connecting pipe shown in the Plans. Use the same pipe material within each continuous run of pipe. Extend the pipes through the walls for a distance beyond the outside surface sufficient for the intended connections, and construct the concrete around them neatly to prevent leakage along their outer surface as shown on Standard Plans, Index 425-001. Keep the inlet and outlet pipes flush with the inside of the wall. Resilient connectors as specified in 942-3 may be used in lieu of a masonry seal.

Furnish and install a filter fabric jacket around all pipe joints and the joint between the pipe and the structure in accordance with Standard Plans, Indexes 425-001 and 430001. Use fabric meeting the physical requirements of Type D-3 specified in Section 985. Extend the fabric a minimum of 12 inches beyond each side of the joint or both edges of the coupling band, if a coupling band is used. The fabric must have a minimum width of 24 inches, and a length sufficient to provide a minimum overlap of 24 inches. Secure the filter fabric jacket against the outside of the pipe by metal or plastic strapping or by other methods approved by the Engineer.

Meet the following minimum joint standards:

Pipe Application	Minimum Standard
Storm and Cross Drains	Water-tight
Gutter Drain	Water-tight
Side Drains	Soil-tight

When rubber gaskets are to be installed in the pipe joint, the gasket must be the sole element relied on to maintain a tight joint. Soil tight joints must be watertight to 2 psi. Water-tight joints must be water-tight to 5 psi unless a higher pressure rating is required in the Plans.

When laying pipes that pass through mechanically stabilized earth (MSE) reinforced fill, connect the portion of the pipe within the wall to the external portion of the pipe run only after the full height of the wall supported embankment is in place.

When Wall Zone Pipes are shown in the Plans, meet the following requirements:

1. Use resilient connectors on pipes entering and leaving drainage structures.

2. Provide a 2 to 4 inch pipe overhang beyond the drainage structure internal walls.

3. For pipes without welded joints, meet the following additional requirements:

    a. Pipe joints must be watertight to 10.8 psi when pulled out 2 inches from the fully home joint alignment.

    b. Do not allow the gap between sections of pipe to exceed 5/8 inch for all pipe diameters.

430-4.2 Trench Excavation: Excavate the trench for storm and cross drains, and side drains as specified in Section 125.

430-4.3 Foundation: Provide a suitable foundation, where the foundation material is of inadequate supporting value, as determined by the Engineer. Remove the unsuitable material and replace it

with suitable material, as specified in 125-8. Where in the Engineer's opinion, the removal and replacement of unsuitable material is not practicable, he may direct alternates in the design of the pipe line, as required to provide adequate support. Minor changes in the grade or alignment will not be considered as an adequate basis for extra compensation.

Do not lay pipe on blocks or timbers, or on other unyielding material, except where the use of such devices is called for in the Plans.

430-4.4 Backfilling: Backfill around the pipe as specified in 125-8 unless specific backfilling procedures are described in the Contract Documents.

430-4.5 Plugging Pipe: When existing pipe culverts are to be permanently placed out of service, fill them with flowable fill that is non-excavatable, contains a minimum 350 pounds per cubic yard of cementitious material and meets the requirements of Section 121 and/or plug them with masonry plugs as shown in the Plans. Install masonry plugs that are a minimum of 8 inches in thickness, in accordance with Standard Plans, Index 430-001.

When proposed or existing pipe culverts are to be temporarily placed out of service, plug them with prefabricated plugs as shown in the Plans. Install prefabricated plugs in accordance with the manufacturer's recommendations. Do not fill or construct masonry plugs in any pipe culvert intended for current or future service.

430-4.6 End Treatment: Place an end treatment at each storm and cross drain, and side drain as shown in the Plans. Refer to the Standard Plans for types of end treatment details. As an exception to the above, when concrete mitered end sections are permitted, the Contractor may use reinforced concrete U-endwalls, if shop drawings are submitted to the Engineer for approval prior to use.

Provide end treatments for corrugated polyethylene pipe, polypropylene pipe, and PVC pipe as specified in Section 948, or as detailed in the Plans.

430-4.7 Metal Pipe Protection: Apply a bituminous coating to the surface area of the pipe within and 12 inches beyond the concrete or mortar seal prior to sealing, to protect corrugated steel or aluminum pipe embedded in a concrete structure, such as an inlet, manhole, junction box, endwall, or concrete jacket.

Ensure that the surface preparation, application methods (dry film thickness and conditions during application), and equipment used are in accordance with the coating manufacturers' published specifications.

Obtain the Engineer's approval of the coating products used.

430-4.8 Pipe Inspection: For pipes installed under the roadway, inspection is to be conducted when backfill reaches 3 feet above the pipe crown or upon completion of placement of the stabilized subgrade. For pipe installed within fills, including embankments confined by walls, inspection is to be conducted when compacted embankment reaches 3 feet above the pipe crown or the finished earthwork grade as specified in the Plans. Prior to conducting the inspection, submit to the Engineer a video recording schedule for videoing, dewater installed pipe, and remove all silt, debris and obstructions. Submit pipe videoing and reports to the Owner for review prior to the continuation of paving.

For pipe 48 inches or less in diameter, submit to the Engineer the video files and reports using low barrel distortion video equipment with laser profile technology, non-contact video micrometer and associated software. For all pipe types, provide a Pipe Observation Summary Report for each pipe run that includes:

1. Actual recorded length and width measurements of all cracks within the pipe.

2. Actual recorded separation measurement of all rigid pipe joints.

3. Detailed written observations of leaks, debris, or other damage or defects.

For flexible pipe types, submit a Pipe Ovality Report for each pipe run that includes:

1. Representative diameter of the pipe.

2. Pipe deformation/deflections measurements with the 5% deflection limit clearly delineated.

Laser profiling and measurement technology must be certified by the company performing the work to be in compliance with the calibration criteria posted at: https://www.fdot.gov/construction/Engineers/Environment/Laser.shtm. Reports submitted in electronic media are preferred.

The Engineer may waive this requirement for side drains and cross drains which are short enough to inspect from each end of the pipe.

430-4.8.1 Video Report: Provide video files via digital media (DVD, flash drive, or other) or by online digital distribution with a minimum standard resolution of 720 x 480. Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe and rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition.

The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. The video will include identification before each section of pipe filmed. The identification will include the project number, the structure number corresponding to the structure number in the Plans for the project, size of pipe, the date and time, and indicate which pipe is being filmed if multiple pipes are connected to the structure. Notes should be taken during the video recording process. Submit these notes along with the video.

Move the camera through the pipe at a speed not greater than 30 feet per minute. Mark the video with the distance down the pipe. The distance shall have an accuracy of one foot per 100 feet. Film the entire circumference at each joint. Stop the camera and pan when necessary to document and measure defects. Position the camera head perpendicular to all defects requiring measurement by the video micrometer.

430-4.8.2 Reinspection: At any time after reviewing the submitted pipe inspection reports, the Engineer may direct additional inspections. If no defects are observed during the reinspection,

the Owner will pay for the cost of the reinspections in accordance with 4-3. If defects are observed, the reinspection and all work performed to correct the defects will be done at no cost to the Owner. Acceptance of all replacements or repairs will be based on video documentation of the completed work prior to Final Acceptance.

430-5 Removing Existing Pipe.

If the Plans indicate that existing pipe is to remain the property of the Owner, collect and stack along the right-of-way all existing pipe or pipe arch so indicated in the Plans to be removed, or that does not conform to the lines and grades of the proposed work and that is not to be re-laid, as directed by the Engineer. Take care to prevent damage to salvageable pipe during removal and stacking operations.

430-6 Placing Pipe Under Railroad.

430-6.1 General: Construct pipe culverts under railroad tracks in accordance with the requirements of the railroad company.

Perform all the shoring under the tracks, and sheeting and bracing of the trench, required by the railroad company or deemed necessary by the Engineer in order to ensure safe and uninterrupted movement of the railroad equipment, at no expense to the Owner.

430-6.2 Requirements of the Railroad Company: Install pipe using methods required by the railroad company and shown in the Contract Documents.

When the general method of installation required by the railroad company is indicated in the Plans, do not alter such method, or any other specific details of the installation which might be indicated in the Plans, without receiving approval or direction from the railroad, followed by written approval from the Engineer.

430-6.3 Notification to Railroad Company: Notify the railroad company and the Engineer at least ten days prior to the date on which pipe is to be placed under the railroad tracks.

430-6.4 Placing Pipe by Jacking: Obtain the Engineer's and the railroad company's approval of the details of the jacking method to be used, when placing pipe through the railroad embankment, before the work is started.

430-6.5 Use of Tunnel Liner: When the railroad company requires that a tunnel liner be used for placing the pipe in lieu of the jacking method, the Owner will pay for the tunnel liner material separately in cases where the Contract Documents do not require the use of a tunnel liner. For these cases the Owner will reimburse the Contractor for the actual cost of the liner, delivered at the site. The Owner will base such cost on a liner having the minimum gage acceptable to the railroad.

430-7 Specific Requirements for Concrete Pipe.

430-7.1 Sealing Joints: Seal the pipe joints with round rubber or profile gaskets meeting the requirements of Section 449. Ensure that the gasket and the surface of the pipe joint, including the gasket recess, are clean and free from grit, dirt and other foreign matter, at the time the joints are made. In order to facilitate closure of the joint, application of a vegetable soap lubricant immediately before closing of the joint will be permitted. Prelubricated gaskets may be used in lieu of a vegetable soap lubricant when the lubricating material is certified to be inert with respect to the rubber material.

430-7.2 Laying Requirements for Concrete Pipe with Rubber Gasket Joints: Do not allow the gap between sections of pipe to exceed 5/8 inch for pipe diameters of 12 inches through 18 inches, 7/8 inch for pipe diameters of 24 through 66 inches, and 1 inch for pipe diameters 72 inches and larger. Where minor imperfections in the manufacture of the pipe create an apparent gap in excess of the tabulated gap, the Engineer will accept the joint provided that the imperfection does not exceed 1/3 the circumference of the pipe, and the rubber gasket is 1/4 inch or more past the pipe joint entrance taper. Where concrete pipes are outside of these tolerances, replace them at no expense to the Owner. Do not apply mortar, joint compound, or other filler to the gap which would restrict the flexibility of the joint.

430-7.3 Field Joints for Elliptical Concrete Pipe: Use either a preformed plastic gasket material or an approved rubber gasket to make a field joint.

430-7.3.1 Plastic Gasket: Meet the following requirements when field joints are made from preformed plastic gasket material:

430-7.3.1.1 General: Install field joints in accordance with the manufacturer's instructions and the following:

430-7.3.1.2 Material: Meet the requirements of 942-2.

430-7.3.1.3 Joint Design: Ensure that the pipe manufacturer submits details to the Engineer regarding configuration of the joint and the amount of gasket material required to affect a satisfactory seal. Do not brush or wipe joint surfaces which are to be in contact with the gasket material with a cement slurry. Fill minor voids with cement slurry.

430-7.3.1.4 Primer: Apply a primer of the type recommended by the manufacturer of the gasket material to all joint surfaces which are to be in contact with the gasket material, prior to application of the gasket material. Thoroughly clean and dry the surface to be primed.

430-7.3.1.5 Application of Gasket: Apply gasket material to form a continuous gasket around the entire circumference of the leading edge of the tongue and the groove joint, in accordance with the detail shown on Standard Plans, Index 430-001. Do not remove the paper wrapper on the exterior surface of the gasket material until immediately prior to joining of sections. Apply plastic gasket material only to surfaces which are dry. When the atmospheric temperature is below 60ºF, either store plastic joint seal gaskets in an area above 70ºF, or artificially warm the gaskets to 70ºF in a manner satisfactory to the Engineer.

430-7.3.1.6 Installation of Pipe: Remove and reposition or replace any displaced or contaminated gasket as directed by the Engineer. Install the pipe in a dry trench. Carefully shape the bottom of the trench to minimize the need for realignment of sections of pipe after they are placed in the trench. Hold to a minimum any realignment of a joint after the gaskets come into contact. Prior to joining the pipes, fill the entire joint with gasket material and ensure that when the pipes are joined there is evidence of squeeze-out of gasket material for the entire internal and external circumference of the joint. Trim excess material on the interior of the pipe to provide a smooth interior surface. If a joint is defective, remove the leading section of pipe and reseal the joint.

430-7.3.2 Rubber Gasket: Meet the following requirements when field joints are made with profile rubber gaskets:

430-7.3.2.1 General: Install field joints in accordance with the manufacturer's instructions and the following:

430-7.3.2.2 Material: Meet the requirements of 942-4.

430-7.3.2.3 Joint Design: Ensure that the pipe manufacturer submits details to the Engineer regarding configuration of the joint and gasket required to effect a satisfactory seal. Do not apply mortar, joint compound, or other filler which would restrict the flexibility of the gasket joint.

430-7.4 Requirements for Concrete Radius Pipe:

430-7.4.1 Design: Construct concrete radius pipe in segments not longer than 4 feet (along the pipe centerline), except where another length is called for in the Contract Documents. Join each segment using round rubber gaskets. Ensure that the pipe manufacturer submits details of the proposed joint, segment length and shape for approval by the Engineer, prior to manufacture.

430-7.4.2 Pre-Assembly: Ensure that the manufacturer pre-assembles the entire radius section in his yard, in the presence of the Engineer, to ensure a proper fit for all parts. At the option of the manufacturer, the Contractor may assemble the pipe without gaskets. Consecutively number the joints on both the interior and exterior surfaces of each joint, and make match marks showing proper position of joints. Install the pipe at the project site in the same order as pre-assembly.

430-8 Specific Requirements for Corrugated Metal Pipe.

430-8.1 Field Joints:

430-8.1.1 General: Make a field joint with locking bands, as specified in Article 9 of AASHTO M36 and AASHTO M196M for aluminum pipe. For aluminum pipe, fabricate bands from the same alloy as the culvert sheeting.

When existing pipe to be extended is helically fabricated, make a field joint between the existing pipe and the new pipe using one of the following methods:

1. Cut the new pipe to remove one of the re-rolled annular end sections required in Sections 943 or 945, or fabricate the pipe so that the re-rolled annular section is fabricated only on one end. Use either a spiral (helical) band with a gasket or a flat band with gaskets as required by 430-8.1.2 (2) to join the pipe sections.

2. The Contractor may construct a concrete jacket as shown on Standard Plans, Index 430-001.

430-8.1.2 Side Drain, Storm and Cross Drain, and Gutter Drains: Where corrugated metal pipe is used as side drain, storm and cross drain, or gutter drain, use a rubber or neoprene gasket of a design shown to provide a joint as specified in 430-4.

Use a gasket of one of the following dimensions:

1. For annular joints with 1/2 inch depth corrugation: either a single gasket a minimum of 7 inches by 3/8 inch or two gaskets a minimum of 3-1/2 inches by 3/8 inch; and for annular joints with 1 inch depth corrugations: either a single gasket a minimum of 7 inches by 7/8 inch or two gaskets a minimum of 3-1/2 inches by 7/8 inch.

2. For helical joints with 1/2 inch depth corrugation: either a single gasket a minimum of 5 inches by 1 inch or two gaskets a minimum of 3-1/2 inches by 1 inch; and for helical joints with 1 inch depth corrugations: either a single gasket a minimum of 5 inches by 1-1/2 inches or two gaskets a minimum of 3-1/2 inches by 1-1/2 inches.

3. Such other gasket designs as may be approved by the Engineer.

If, in lieu of a single gasket spanning the joint, two gaskets are used, place these individual gaskets approximately 2 inches from each pipe end at the joint. When two gaskets are used, seal the overlapping area on the coupling band between the gaskets consistent with the joint performance specified. The Contractor may tuck a strip of preformed gasket material over the bottom lip of the band for this purpose. Use coupling bands that provide a minimum circumferential overlap of 3 inches. As the end connections on the coupling band are tightened, ensure that there is no local bending of the band or the connection. Use precurved coupling bands on pipe diameters of 24 inches or less.

Use flat gaskets meeting the requirements of ASTM D1056, designation 2C2 or 2B3. In placing flat gaskets on pipe prior to placing the coupling band, do not stretch the gasket more than 15% of its original circumference. Use circular gaskets meeting the requirements of ASTM C361. Do not stretch the circular gasket more than 20% of its original circumference in placing the gasket on pipe. Use preformed plastic gasket material meeting the composition requirements of 942-2.2.

Apply an approved vegetable soap lubricant, as specified for concrete pipe in 430-7.1.1.

430-8.1.3 Alternate Joint: In lieu of the above-specified combination of locking bands and flat gaskets, the Contractor may make field joints for these pipe installations by the following combinations:

1. Use the metal bands as specified in Article 9 of AASHTO M36M that are at least 10-1/2 inches wide and consist of a flat central section with a corrugated section near each end, designed to match the annular corrugation in the pipe with which they are to be used. Connect the bands in a manner approved by the Engineer, with a suitable fastening device such as the use of two galvanized 1/2 inch diameter bolts through a galvanized bar and galvanized strap, suitably welded to the band. Use a strap that is the same gage as the band.

   Where helically corrugated pipe is to be jointed by this alternate combination, ensure that at least the last two corrugations of each pipe section are annular, and designed such that the band will engage each pipe end with the next-to-outside annular corrugation.

2. For these bands, use a rubber gasket with a circular cross-section of the “O-ring” type conforming to ASTM C361. Use gaskets having the following cross-sectional diameter for the given size of pipe:

Non-SI Units	
Pipe Size	Gasket Diameter
12 inches through 36 inches (with ½ inch depth corrugations)	13/16 inch
42 inches through 96 inches (with ½ inch depth corrugations)	7/8 inch
36 inches through 120 inches (with 1 inch depth corrugations)	1-3/8 inches

Use preformed gasket material to seal the overlapping area on the coupling band between gaskets.

3. Use channel band couplers in helical pipe with ends which have been reformed and flanged specifically to receive these bands. Use channel band couplers that are of a two piece design, are fabricated from galvanized steel stock conforming to AASHTO M36, have 2 inch by 2 inch by 3/16 inch angles fastened to the band ends to allow for proper tightening, and meet the following:

Non-SI Units	
Band Thickness	Pipe Wall Thickness
0.079 inch	0.109 inch or lighter
0.109 inch	0.138 inch or heavier
¾ inch wide	0.109 inch or lighter
1 inch wide	0.138 inch or heavier

Furnish two 1/2 inch diameter connection bolts with each band, that conform to ASTM A307, Grade A and are electroplated in accordance with ASTM B633.

Use a gasket with the joint that is a hydrocarbon blend of butyl rubber meeting the chemical composition and physical properties of 942-2.2. Use a 3/8 by 3/4 inch gasket for pipe fabricated from 0.109 inch or lighter material and a 3/8 by 1 inch gasket for pipe fabricated from 0.138 inch and heavier material.

The Contractor may use a flange band coupler without the gasket for all applications other than side drain, storm and cross drain, and gutter drain.

Do not use the flange band coupler to join dissimilar types of pipe.

The Contractor may join reformed flanged helical pipe to existing annular or reformed pipe having annular ends. On non-gasketed installations, use either an annular band or an alternate joint described in 430-8.1.3. On gasketed installations, use an annular band, minimum of five corrugations in width, in conjunction with two O-ring gaskets as specified in 430-8.1.3. Use mastic material to seal the area of band overlap.

The minimum joint performance standards specified in 430-4.1 apply.

430-8.2 Laying and Shape Requirements for Corrugated Metal Pipe: Install pipe using either a trench or open ditch procedure.

Check pipe shape regularly during backfilling to verify acceptability of the construction method used. Pipe deflected 5% or more of the certified actual mean diameter of the pipe at final inspection shall

be replaced at no cost to the Owner. Deflection measurements are taken at the point of smallest diameter on the corrugations.

430-9 Specific Requirements for Steel Reinforced Polyethylene Ribbed Pipe, Corrugated High-Density Polyethylene Pipe, Polypropylene Pipe, and Polyvinyl Chloride (PVC) Pipe.

430-9.1 Sampling Requirements: Submit a sample of each pipe material and diameter used on each project to the Engineer a minimum of two weeks prior to the installation, provided that the pipe meets all of the following:

1. Pipe material is PVC, HDPE, steel reinforced polyethylene, or polypropylene
2. Pipe is corrugated or ribbed
3. Pipe diameter is 12” or larger
4. Project quantity for a pipe diameter is more than 100 linear feet, unless intended for use as cross drain
5. Pipe is not perforated, unless the material is PVC or polypropylene
6. Pipe is intended for applications requiring 100 year design service life as defined in the Florida Department of Transportation Drainage Manual.

The length of each sample pipe section must comprise at least seven regular corrugations (not including the first three corrugations of the pipe on the bell or spigot ends).

430-9.2 Field Joints: Use gasketed joints to seal side drain, and storm and cross drain. Use gaskets meeting the requirements of Section 449. Ensure that the pipe manufacturer provides a joint design approved by the Engineer before use.

430-9.3 Installation Requirements Including Trenching, Foundation and Backfilling Operations: Check structure shape regularly during backfilling to verify acceptability of the construction method used.

Replace pipe deflected 5% or more of the certified actual mean diameter of the pipe at final inspection at no cost to the Owner.

430-10 Desilting Pipe or Concrete Box Culvert.

Desilt pipe culvert and concrete box culvert as designated in the Plans.

430-11 Method of Measurement.

430-11.1 New Pipe Installed by Excavation or Trenching: The quantity of storm and cross drain pipe, storm drain trench, side drain and gutter drain pipe, installed by pipe culvert optional material - excavation or trenching, to be paid for will be plan quantity, in place and accepted. The plan quantity will be determined from the inside wall of the structure as shown in the Plans, along the centerline of the pipe.

Adjustment to bid quantities, prices and payment will not be allowed for increases, decreases or changes in material or installation requirements due to the use of any optional pipe materials.

If adjustments are required due to Plan errors or omissions or authorized field changes, the plotted material and not the material elected would be used to establish new pay quantities.

Pipe sizes other than round (elliptical/arch) are summarized and paid for using equivalent round pipe diameter.

430-11.2 New Pipe Installed by Jack & Bore: The quantity of storm and cross drain pipe, storm drain trench, side drain and gutter drain pipe, installed by pipe culvert optional material - jack & bore, to be paid for will be the plan quantity, in place and accepted. The measurement and payment will be the plan quantity length of the casing or carrier pipe installed by jack & bore.

Carrier pipe installed through/inside the casing is paid for as pipe culvert optional material – excavation or trenching.

430-11.3 Mitered End Section: The quantity of mitered end sections to be paid for will be the number completed and accepted.

430-12 Basis of Payment.

430-12.1 General: Prices and payments will be full compensation for all work specified in this Section, including all excavation except the volume included in the items for the grading work on the project, and except for other items specified for separate payment in Section 125; all backfilling material and compaction; disposal of surplus material; and all clearing and grubbing outside of the required limits of clearing and grubbing as shown in the Plans.

No payment will be made for failed bore paths, injection of excavatable flowable fill, products taken out of service, or incomplete installations. Payment will include all work and materials necessary for jack & bore, including boring, backfilling, flowable fill, and restoration materials necessary for a complete and accepted installation.

No payment will be made for jack & bore until a Bore Path Report has been submitted to the Engineer.

430-12.2 Removing Existing Pipe: When existing pipe is removed and replaced with new pipe approximately at the same location, the cost of excavating and removing the old pipe and of its disposal will be included in the Contract unit price for clearing and grubbing.

430-12.3 Site Restoration: The cost of restoring the site, as specified in 125-11, that is disturbed, solely for the purpose of constructing pipe culvert, will be included in the Contract unit price for the pipe culvert, unless designated specifically to be paid for under other items.

430-12.4 Plugging Pipes: The cost of temporarily plugging a pipe culvert, either proposed or existing, will be incidental to the contract unit price for new pipe culvert.

The cost of filling and/or plugging an existing pipe culvert that is to be permanently placed out of service will be paid for at the contract unit price for filling and plugging pipe, per cubic yard. Price and payment will be full compensation for flowable fill, masonry, concrete, mortar, and all labor and materials necessary to complete the work.

When the project includes no quantities for new pipe culverts, and temporary plugs are required for existing pipe culverts, the cost will be considered as extra work, in accordance with 4-3.5.

430-12.5 Desilting Pipe: Desilting pipe will be paid for at the contract unit price per foot for each pipe desilted. Price and payment will be full compensation for furnishing all equipment, tools and labor, disposal of silt and debris, and all incidentals necessary for satisfactorily performing the work.

430-12.6 Desilting Concrete Box Culverts: Price and payment will be full compensation for all work required.

430-12.7 Flared End Sections: Price and payment will be full compensation for all work and materials required.

430-12.8 Mitered End Sections: Price and payment will be full compensation for all pipe, grates when required, fasteners, reinforcing, connectors, anchors, concrete, sealants, jackets and coupling bands, and all work required.

430-12.9 Railroad Requirements: Where pipe culvert is constructed under railroad tracks, the Contract unit price for the pipe culvert will include the costs of any jacking operations and the operation of placing the pipe by use of a tunnel liner, (except as specified for unanticipated tunnel liner, in 430-6.5, where reimbursement is to be made for such unanticipated liner), and all other work necessary to meet the requirements of the railroad company, excluding the costs of watchman or flagman services provided by the railroad company, except as provided below.

The Owner will reimburse the Contractor for the actual costs of any trestle bridge work which is performed by the railroad's forces, as billed to him by the railroad, less the value of any salvage materials derived there from, whether such salvage materials are retained by the railroad company or by the Contractor. When the work of shoring and bracing is to be performed by the railroad, such fact will be stipulated in the Contract Documents and the Contractor will be required to pay to the railroad the amount of such costs, which amount will be reimbursed to him by the Owner. The Contract unit price for the pipe culvert shall include the costs of all other work of shoring and bracing. 430-12.10 Payment Items: Payment will be made under:

Item No. 430-1	***30" ADS, N-12 Pipe***	***-per Linear Foot (LF)***
Item No. 430-2	***36" ADS, N-12 Pipe***	***-per Linear Foot (LF)***
Item No. 430-3	***18" RCP***	***-per Linear Foot (LF)***
Item No. 430-4	***18" ADS, N-12 Pipe***	***-per Linear Foot (LF)***
Item No. 430-5	***24" ADS, N-12 Pipe***	***-per Linear Foot (LF)***
Item No. 430-6	***36" RCP***	***-per Linear Foot (LF)***

END OF SECTION 430

SECTION 520

CONCRETE GUTTER, CURB ELEMENTS, AND TRAFFIC SEPARATOR

520-1 Description.
Construct portland cement concrete curb. Curb will include concrete curb and gutter, concrete traffic separator, valley gutter, special concrete gutter, curb for sidewalk curb ramps and driveways, and any other types of concrete curb not specified in other Sections.

520-2 Materials.

520-2.1 Concrete: Use concrete meeting the requirements of Section 347.

520-2.2 Reinforcement: For all steel reinforcement required by the Plans, meet the requirements of Section 415.

520-2.3 Joint Materials: Meet the requirements of Section 932.

520-3 Forms.

520-3.1 Form Materials: Construct forms for this work of either wood or metal. Provide forms that are straight, free from warp or bends, and of sufficient strength, when staked, to resist the pressure of the concrete without deviation from line and grade. For all items constructed on a radius, use flexible forms.

520-3.2 Depth of Forms: Ensure that forms have a depth equal to the plan dimensions for the depth of concrete being deposited against them.

520-3.3 Machine Placement: The Contractor may place these items by machine methods with the approval of the Engineer provided that the Contractor consistently produces an acceptable finished product, true to line, grade, and cross section.

520-4 Excavation.
Excavate to the required depth, and compact the foundation material upon which these items are to be placed as specified in 120-9.

520-5 Placing Concrete.
Place the concrete in the forms, and tamp and spade it to prevent honeycombing, and until the top of the structure can be floated smooth and the edges rounded to the radius shown in the Plans.

520-6 Joints.

520-6.1 Contraction Joints: Except for machine placed items, the Contractor may form joints by using dummy joints (either formed or sawed) or by using sheet metal templates. If using sheet metal templates, ensure that they are of the dimensions, and are set to the lines, shown in the Plans. Hold templates firmly while placing the concrete. Leave templates in place until the concrete has set sufficiently to hold its shape, but remove them while the forms are still in place.

Saw contraction joints, for machine placed items, unless the Engineer approves an alternate method. Saw the joints as soon as the concrete has hardened to the degree that excessive raveling will not occur and before uncontrolled shrinkage cracking begins.

Space contraction joints at intervals of 10 feet except where closure requires a lesser interval, but do not allow any section to be less than 4 feet in length.

520-6.2 Expansion Joints: Construct expansion joints at all inlets, at all radius points, and at other locations indicated in the Plans. Locate them at intervals of 500 feet between other expansion joints or ends of a run. Ensure that the joint is 1/2 inch in width.

520-7 Finishing.

520-7.1 Repair of Minor Defects: Remove the forms within 24 hours after placing the concrete, and then fill minor defects with mortar composed of one part portland cement and two parts fine aggregate. The Engineer will not allow plastering on the face of the curb. Remove and replace any rejected curb, curb and gutter, or valley gutter without additional compensation.

520-7.2 Final Finish: Finish all exposed surfaces while the concrete is still green. In general, the Engineer will only require a brush finish. For any surface areas, however, which are too rough or where other surface defects make additional finishing necessary, the Engineer may require the Contractor to rub the curb to a smooth surface with a soft brick or wood block, using water liberally. Also, if necessary to provide a suitable surface, the Engineer may require the Contractor to rub further, using thin grout or mortar.

520-7.3 Imprinted Concrete: Install imprinted concrete as shown in the Plans.

520-8 Curing.

520-8.1 General: Continuously cure the concrete for a period of at least 72 hours. Commence curing after completely finishing and as soon as the concrete has hardened sufficiently to permit application of the curing material without marring the surface. Immediately replace any curing material removed or damaged during the 72 hour period.

After removing the forms, cure the surfaces exposed by placing a berm of moist earth against them or by any of the methods described below, for the remainder of the 72 hour curing period.

520-8.2 Wet Burlap Method: Place burlap, as specified in 925-1, over the entire exposed surface of the concrete, with sufficient extension beyond each side to ensure complete coverage. Overlap adjacent strips a minimum of 6 inches. Hold the burlap securely in place such that it will be in continuous contact with the concrete at all times, and do not allow any earth between the burlap surfaces at laps or between the burlap and the concrete. Saturate the burlap with water before placing it, and keep it thoroughly wet throughout the curing period.

520-8.3 Membrane Curing Compound Method: Apply clear membrane curing compound or white pigmented curing compound, as specified in 925-2, by a hand sprayer meeting the requirements of 350-3.10, in a single coat continuous film at a uniform coverage of at least one gallon per 200 square feet. Immediately recoat any cracks, checks, or other defects appearing in the coating. Thoroughly agitate the curing compound in the drum prior to application, and during application as necessary to prevent settlement of the pigment.

520-8.4 Polyethylene Sheeting Method: Place polyethylene sheeting, as specified in 925-3, over the entire exposed surface of the concrete, with sufficient extension beyond each side to ensure complete coverage. Overlap adjacent strips a minimum of 6 inches. Hold the sheeting securely in place and in continuous contact with the concrete at all times.

520-9 Backfilling and Compaction.
After the concrete has set sufficiently, but not later than three days after pouring, refill the spaces in front and back of the curb to the required elevation with suitable material. Place and thoroughly compact the material in layers not thicker than 6 inches.

520-10 Surface Requirements.
Test the gutter section of curb and gutter with a 10 foot straightedge laid parallel to the centerline of the roadway and while the concrete is still plastic. Perform straightedging along the edge of the gutter adjacent to the pavement or along other lines on the gutter cross-section, as directed by the Engineer. Immediately correct irregularities in excess of 1/4 inch.

520-11 Method of Measurement.
For curb or curb and gutter, the quantity to be paid will be the plan quantity, in feet, measured along the face of the completed and accepted curb or curb and gutter. Curb for sidewalk curb ramps or driveways will be paid at the Contract unit price for the adjacent curb type.

For valley gutter or shoulder gutter, the quantity to be paid will be the plan quantity, in feet, measured along the gutter line of the completed and accepted valley gutter or shoulder gutter.

For concrete traffic separator of constant width, meeting the requirements of Standard Plans, Index 520-020, the quantity to be paid will be the plan quantity, in feet, measured along the center of its width, completed and accepted, including the length of the nose.

For concrete traffic separator of nonstandard or varying width, the quantity to be paid will be the plan quantity, in square yards, completed and accepted.

520-12 Basis of Payment.

520-12.1 Concrete Gutter, Curb Elements, and Traffic Separator: Price and payment will be full compensation for all work specified in this Section, including reinforcement steel, dowels, asphalt pavement and base under traffic separator, joint materials and asphalt curb pad.

520-12.2 Excavation: Excavation for new installations will be paid for as roadway excavation in accordance with 120-13.2.

520-12.3 Payment Items: Payment will be made under:

Item No. 520-1 F-Curb -per Linear Foot (LF)

END OF SECTION 520

SECTION 522

CONCRETE SIDEWALK AND DRIVEWAYS

522-1 Description.
Construct concrete sidewalks and driveways in accordance with the Plans and the Standard Plans. Sidewalk will include curb ramps, landings, transition slopes, sidewalk curb, and edge beams.

522-2 Materials.
Meet the requirements specified in 520-2.

522-3 Forms.
Provide forms as specified in 520-3.

522-4 Foundation.
Shape and compact the foundation materials to a firm, even surface, true to grade and cross-slope. Compact areas that have been excavated more than 6 inches below the bottom of the concrete, to a minimum of 95% of AASHTO T99 density. The area to be compacted includes the area directly under and 1 foot beyond each side of the sidewalk or driveway, when right-of-way allows.

522-5 Joints.
Install expansion and contraction joints in accordance with the Plans and the Standard Plans.

522-6 Placing Concrete.
Place the concrete as specified in 520-5.

522-7 Finishing.

522-7.1 Screeding: Strike-off the concrete by means of a wood or metal screed, used perpendicular to the forms, to obtain the required grade and remove surplus water and laitance.

522-7.2 Surface Requirements: Imprint concrete as detailed in the Plans, otherwise provide a broom finish. Ensure that the surface variations are not more than 1/4 inch under a 10-foot straightedge or more than 1/8 inch on a 5-foot transverse section. Finish the outer edges of the concrete with an edging tool having a radius of 1/2 inch.

522-8 Curing.
Cure the concrete as specified in 520-8.

522-9 Opening Sidewalk to Pedestrian Traffic.
Install detectable warnings, when shown in the Plans, in accordance with Section 527 on completed sections of sidewalk before opening to pedestrian traffic.

522-10 Method of Measurement.
The quantity to be paid will be plan quantity, in square yards, completed and accepted.

522-11 Basis of Payment.
Price and payment will be full compensation for all work specified in this Section. Excavation for new installations will be paid for under the items for the grading work on the project.

Payment will be made under:

Item No. 522-1 Concrete Sidewalk (6") ***-per Square Yard (SY)***

END OF SECTION 522

SECTION 546

RUMBLE STRIPS

546-1 Description.
Construct rumble strips in accordance with the details shown in the Plans and Standard Plans, Index 546-001.

546-2 Materials

546-2.1 Permanent Raised Rumble Strips: Construct permanent raised rumble strips using one of the following:

546-2.1.1 Preformed Thermoplastic: Use only materials listed on the Department's Approved Product List (APL), meeting the following requirements:

Preformed Thermoplastic ..... 971-1 and 971-6

Ensure that the material used can be restored to its original dimensions by using a self-bonding overlay meeting these requirements. Submit a certified test report to the Engineer indicating that the materials meet all requirements specified.

546-2.1.2 Asphalt: Any plant-mixed hot bituminous asphalt mixture meeting the requirements of a job-mix formula issued by the Department, except open-graded friction course.

546-2.2 Short-Term Raised Rumble Strips: Construct short-term raised rumble strips meeting the requirements of 546-2.1, or by using removable polymer striping tape meeting the requirements of 990-9.

546-3 Application

546-3.1 Permanent Raised Rumble Strips: Notify the Engineer before the placement of raised rumble strips. Apply raised rumble strips having well defined edges. Remove and replace any raised rumble strips not meeting the requirements of the Contract Documents at no additional cost to the Department.

Before applying raised rumble strips, remove any material that would adversely affect the bond of the raised rumble strips by a method approved by the Engineer.

Apply raised rumble strips only to dry surfaces, and only when the ambient air and surface temperature is at least 55ºF and rising.

Before applying thermoplastic materials on portland cement concrete surfaces, apply a primer sealer recommended by the manufacturer.

Prior to the application of any plant-mixed hot bituminous material, apply a tack coat meeting the requirements of 300-2.3.

The mixture will be accepted on the basis of visual inspection by the Engineer with no further testing required.

546-3.2 Short-Term Raised Rumble Strips: Install short-term raised rumble strips before opening to traffic, and in accordance with 546-3.1. Maintain and remove short-term raised rumble strips until permanent raised rumble strips are installed.

546-3.3 Ground-In Rumble Strip:

546-3.3.1 General: Grind rumble strips that have well-defined edges and smooth interiors without tearing the finished pavement.

On a daily basis, before opening the adjacent lane to traffic, ensure that all debris generated by the grinding process is removed and disposed of by vacuum or a method approved by the Engineer. Do not dispose of the debris within the right of way. Do not use the debris generated by the grinding process in recycled asphalt (RAP).

Restore any pavement to the satisfaction of the Engineer, at no additional cost to the Department, when ground-in rumble strips do not meet the requirements of the Contract Documents.

546-3.3.2 Inspection: For limited access roadways, measure depth every one mile. For arterial and collector roadways, measure depth every 500 feet. Measure depth as distance from pavement grade to top of ground-in grooves at the transverse and longitudinal centerline of the grinding prior to the placement of longitudinal thermoplastic pavement markings. Measure, record and certify on a Department approved form and submit to the Engineer.

546-4 Method of Measurement.
The quantity of raised rumble strip sets to be paid for under this Section will be the Plan quantity per each, constructed and accepted.

The quantity of ground-in rumble strips to be paid for under this Section will be the plan quantity per each set, constructed and accepted.

546-5 Basis of Payment.
Price and payment will be full compensation for all work specified in this Section, including all surface cleaning and preparation, all debris disposal, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines, labor, and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

Payment will be made under:

Item No. 546-1 Permanent Raised Rumble Strips – Set -per Each (EA)

END OF SECTION 546

SECTION 570

PERFORMANCE TURF

570-1 Description.
Establish a growing, healthy turf over all areas designated in the Plans. Use sod in areas designated in the Plans to be sodded. Use seed, hydroseed, bonded fiber matrix, or sod in all other areas. Maintain performance turf areas until final acceptance of all Contract work in accordance with Section 5-11 and the establishment requirements of 570-4 have been met.

570-2 Materials.
Meet the following requirements:

Turf Materials..... Section 981

Fertilizer ..... Section 982

Water ..... Section 983

570-3 Construction Methods.

570-3.1 General: Remove all construction debris in performance turf areas. Install performance turf at the earliest practical time for erosion control and establishment.

Shape the areas to be planted to the plan typical sections and lines and grade shown in the Plans.

Except in areas where the Contract Documents requires specific types of turf to match adjoining private property, any species of turf designated in Section 981 may be used. All of the permanent performance turf material shall be in place prior to final acceptance.

The Owner will only pay for replanting as necessary due to factors determined by the Engineer to be beyond control of the Contractor.

Install all performance turf on shoulder areas prior to the placement of the friction course on adjacent pavement.

570-3.2 Seeding: At the Contractor's option, wildflower seed may be included in the performance turf seeding operation or performed separately from the performance turf seeding. Seed must produce visible seedlings within 45 days of planting.

Use of compost meeting the requirements of Section 987 as mulch is acceptable unless otherwise specified.

570-3.3 Sod: Place the sod on the prepared surface, with edges in close contact. Do not use sod which has been cut for more than 48 hours.

Place the sod to the edge of all landscape areas as shown in the Plans and the Standard Plans.

Place rolled sod parallel with the roadway and cut any exposed netting even with the sod edge.

Monitor placed sod for growth of exotic or invasive pest plants and noxious weeds. If exotic or invasive pest plants and/or noxious weeds manifest themselves within 30 days of placement of the sod during the months April through October, within 60 days of placement of the sod during the months of November through March treat affected areas by means acceptable to the Owner at no expense to the Owner. If pest plants and/or noxious weeds manifest themselves after the time frames described above from date of placement of sod, the Engineer, at his sole option, will determine if treatment is required and whether or not the Contractor will be compensated for such treatment. If compensation is provided, payment will be made as Unforeseeable Work as described in 4-4.

Remove and replace any sod as directed by the Engineer.

570-3.4 Hydroseeding: Use equipment specifically designed for mixing the mulch, seed, fertilizer, tackifier and dye, and applying the slurry uniformly over the areas to be hydroseeded.

Use mulch that does not contain reprocessed wood or paper fibers. Ensure that 50% of the fibers will be retained on a twenty-five mesh screen.

Mix fertilizer as required into the hydroseeding slurry.

Ensure that the dye does not contain growth or germination inhibiting chemicals.

When polyacrylamide is used as part of hydroseeding mix, only anionic polymer formulation with free acrylamide monomer residual content of less than 0.05% is allowed. Cationic polyacrylamide shall not be used in any concentration. Do not spray polyacrylamide containing mixtures onto pavement. These may include tackifiers, flocculants or moistureholding compounds.

570-3.5 Bonded Fiber Matrix (BFM): Meet the minimum physical and performance criteria of this Specification for use of BFM in hydroseeding operations or temporary nonvegetative erosion and sediment control methods.

Provide evidence of product performance testing, manufacturer's certification of training and material samples to the Engineer at least 7 calendar days prior to installation.

Provide documentation to the Engineer of manufacturer's testing at an independent laboratory, demonstrating superior performance of BFM as measured by reduced water runoff, reduced soil loss and faster seed germination in comparison to erosion control blankets.

Use only BFMs that contain all components pre-packaged by the manufacturer to assure material performance. Deliver materials in UV and weather resistant factory labeled packaging. Store and handle products in strict compliance with the manufacturer's directions.

When polyacrylamide is used as part of hydroseeding mix, only anionic polymer formulation with free acrylamide monomer residual content of less than 0.05% is allowed. Cationic polyacrylamide shall not be used in any concentration. Do not spray polyacrylamide containing mixtures onto pavement. These may include tackifiers, flocculants or moistureholding compounds.

Meet the following requirements after application of the formed matrix:

Ensure that the tackifier does not dissolve or disperse upon re-wetting.

Ensure that the matrix has no gaps between the product and the soil and that it provides 100% coverage of all disturbed soil areas after application.

Ensure that the matrix has no germination or growth inhibiting properties and does not form a water-repelling crust.

Ensure that the matrix is comprised of materials which are 100% biodegradable and 100% beneficial to plant growth.

Mix and apply the BFM in strict compliance with the manufacturer's recommendations.

Apply the BFM to geotechnically stable slopes at the manufacturer's recommended rates.

Degradation of BFM will occur naturally as a result of chemical and biological hydrolysis, UV exposure and temperature fluctuations. Re-application, as determined by the Engineer, will be required if BFM-treated soils are disturbed or water quality or turbidity tests show the need for an additional application.

570-3.6 Watering: Water all performance turf areas as necessary to produce a healthy and vigorous stand of turf. Ensure that the water used for turf irrigation meets the requirements of Section 983.

570-3.7 Fertilizing: Fertilize as necessary to promote turf growth and establishment based on soil testing. Refer to Section 982 for fertilizer rates.

For bid purposes, base estimated quantities on an initial application of 265 lbs/acre and one subsequent application of 135 lbs/acre of 16-0-8.

570-3.8 Shoulder Treatment: Provide soil for shoulder treatment in accordance with Standard Plans, Index 570-010. Soil needed for these purposes will be included in the corresponding Pay Item.

570-4 Turf Establishment.

Perform all work necessary, including watering and fertilizing, to sustain an established turf, free of noxious weeds, at no additional expense to the Owner. Provide the filling, leveling, and repairing of any washed or eroded areas, as necessary.

Established turf is defined as follows:

1. An established root system (leaf blades break before seedlings or sod can be pulled from the soil by hand).

2. No bare spots larger than one square foot.

3. No continuous sod seams running perpendicular to the face of the slope.

4. No bare areas comprising more than 1% of any given 1,000 square foot area.

5. No deformation of the performance turf areas caused by mowing or other Contractor equipment.

6. No exposed sod netting.

7. No competing vegetation, exotic or invasive pest plants or noxious weeds.

Monitor turf areas and remove all competing vegetation, exotic or invasive pest plants, and noxious weeds (as listed by the Florida Exotic Pest Plant Council, Category I "List of Invasive Species", Current Edition, https://www.fleppc.org). Remove such vegetation regularly by manual, mechanical, or chemical control means, as necessary. When selecting herbicides, pay particular attention to ensure use of chemicals that will not harm desired turf or wildflower species. Use herbicides in accordance with 7-1.7.

If at the time that all other work on the project is completed, but all turf areas have not met the requirements for established turf set forth in 570-4, continuously maintain all turf areas until the requirements for established turf set forth in 570-4 have been met.

During establishment and until the performance turf is established in accordance with this Section, continue the inspection, maintenance, and documentation of erosion and sedimentation control items in accordance with Section 104. Remove and dispose of all erosion and sedimentation control items after the performance turf has been established.

Notify the Engineer, with a minimum of seven calendar days advance notice, to conduct inspections of the performance turf at approximate 90-day intervals during the establishment period to determine establishment. Results of such inspections will be made available to the Contractor within seven calendar days of the date of inspection. Determination of an established turf will be based on the entire project and not in sections.

Upon the determination by the Engineer that the requirements of 570-4 have been met and an established turf has been achieved and all erosion and sedimentation control items have been removed, the Engineer will release the Contractor from any further responsibility provided for in this Specification.

The Contractor's establishment obligations of this specification will not apply to deficiencies due to the following factors, if found by the Engineer to be beyond the control of the Contractor, his subcontractors, vendors or suppliers:

1. Determination that the deficiency was due to the failure of other features of the Contract.

2. Determination that the deficiency was the responsibility of a third party performing work not included in the Contract or its actions.

The Owner will only pay for replanting as necessary due to factors determined by the Owner to be beyond the control of the Contractor.

570-5 Responsible Party.
For the purposes of this Specification, the Contractor shall be the responsible party throughout construction and establishment periods.

Upon final acceptance of the Contract in accordance with 5-11, the Contractor's responsibility for maintenance of all the work or facilities within the project limits of the Contract will terminate in accordance with 5-11; with the sole exception that the facilities damaged due to lack of established turf

and the obligations set forth in this Specification for performance turf shall continue thereafter to be responsibility of the Contractor as otherwise provided in this Section.

570-6 Disputes Resolution.
The Contractor and the Owner acknowledge that use of the Statewide Disputes Review Board is required and the determinations of the Statewide Disputes Review Board for disputes arising out of the performance turf specification will be binding on both the Contractor and the Owner, with no right of appeal by either party, for the purposes of this Specification.

Any and all Statewide Disputes Review Board meetings after final acceptance of the Contract in accordance with 5-11 shall be requested and paid for by the Contractor. The Owner will reimburse the Contractor for all fees associated with meetings.

570-7 Failure to Perform.
Should the Contractor fail to timely submit any dispute to the Statewide Disputes Review Board, refuse to submit any dispute to the Statewide Disputes Review Board, fail to provide an established turf in accordance with 570-4 within six months of final acceptance of the Contract in accordance with 5-11, or fail to compensate the Owner for any remedial work performed by the Owner in establishing a turf and other remedial work associated with lack of an established turf, including but not limited to, repair of shoulder or other areas due to erosion and removal of sediments deposited in roadside ditches and streams, as determined by the Statewide Disputes Review Board to be the Contractor's responsibility, the Owner shall suspend, revoke or deny the Contractor's certificate of qualification under the terms of Section 337.16(d)(2), Florida Statutes, until the Contractor provides an established turf or makes full and complete payment for the remedial work performed by the Owner. In no case shall the period of suspension, revocation, or denial of the Contractor's certificate of qualification be less than six months. Should the Contractor choose to challenge the Owner's notification of intent for suspension, revocation or denial of qualification and the Owner's action is upheld, the Contractor shall have its qualification suspended for a minimum of six months or until the remedial action is satisfactorily performed, whichever is longer.

570-8 Method of Measurement.
The quantities to be paid for will be plan quantity in square yards based on the area shown in the Plans, completed and accepted.

570-9 Basis of Payment.
Prices and payments will be full compensation for all work and materials specified in this Section.

Payment will be made under:

Item No. 570-1 Sodding -per Square Yard (SY)

END OF SECTION 570

SECTION 700

HIGHWAY SIGNING

700-1 General Requirements.

700-1.1 Description: Furnish and erect roadway signs at the locations, and in accordance with the details, shown in the Plans.

The Department designates ground traffic signs as signs erected on the shoulders, slopes, or medians, but not extending over the traveled roadway, and may further classify these signs as single post or multi-column.

The Department designates signs erected partially or completely over the traveled roadway or mounted on bridges as overhead traffic signs, and may further classify these signs as overhead cantilever or span traffic signs.

Meet the requirements of Section **603.**

700-1.2 Materials:

700-1.2.1 General: Meet the materials requirements shown in the Specifications, Standard Plans, and any additional requirements identified in the Plans.

700-1.2.2 Concrete: Use concrete meeting the requirements of Section 346. Obtain concrete from a plant that is listed on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105.

700-1.2.3 Static Sign Assembly Requirements: All sign panels shall be aluminum unless otherwise shown in the Plans. Sheets and plates for sign panels shall meet the requirements of ASTM B209, Aluminum Association Alloy 6061-T6, 5154-H38 or 5052-H38. Sign panels for single column ground mounted signs shall utilize aluminum plate with a minimum thickness of 0.08 inches. All other sign panels shall utilize aluminum plate with a minimum thickness of 0.125 inches. All panels shall have rounded corners.

700-1.2.4 Retroreflective Sign Sheeting: Use signs that meet the material and process requirements of Section 994.

Use Type XI sheeting for all regulatory, warning and overhead signs unless otherwise specified. The R1-1, R1-2, R5-1 and R5-1a signs must use a sheeting system that includes a colorless film overlay.

Type XI sheeting shall also be used for all limited access advance exit and exit guide signs.

Use Type IV yellow-green fluorescent sheeting for the following signs:

1. school: S1-1, S3-1, S3-2, S4-5, S4-5a, S5-1 (SCHOOL portion),

2. bicycle: W11-1,
3. pedestrian: R1-6, R1-6a, R1-6b, R1-6c, R1-9, R1-9a, R10-15, W11-2,
4. shared use path (trail): W11-15, W11-15a,
5. supplemental panels used with signs in (1) through (4), above. Do not mix signs having fluorescent yellow-green sheeting with signs having yellow retroreflective sheeting.

Roll-up signs shall meet the requirements of Type VI sheeting.

Use Type IV sheeting for all other signs.

Use Type IV or Type XI sheeting for retroreflective strips on signs.

700-1.3 Sign Fabrication Requirements: Obtain multi-post and overhead sign structures from a facility that is listed on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105.

700-1.4 Storage, Handling and Labeling: If signs are stored prior to installation, store them in accordance with the manufacturer's recommendations. Properly package signs to protect them during storage, shipment and handling to prevent damage to the sign face and panel.

In addition to the information required in Section 994, all permanent roadway signs must be labeled on the back bottom edge with the date of installation. Make the labels unobtrusive, but legible enough to be easily read by an observer on the ground when the sign is in its final position. Apply the label in a manner that is at least as durable as the sign face.

700-1.5 Acceptance of Signs:

700-1.5.1 Sign Inspection: Submit certification that the sign assembly meets the material and installation requirements of the Contract Documents. The Engineer will inspect the signs upon delivery to the storage or project site and again at the final construction inspection. Repair and replace signs deemed unacceptable by the Engineer at no expense to the Department.

700-1.5.2 Imperfections and Repairs: Repair or replace signs containing imperfections or damage regardless of the kind, type, or cause of the imperfections or damage. For sign panels exceeding 30 square feet, the Contractor may make one patch, if necessary, to each sign panel not to exceed two square inches. Make repairs according to the manufacturer's recommendations and to the satisfaction of the Engineer. Ensure that completed repairs provide a level of quality necessary to maintain the service life of the sign and are satisfactory in appearance to the Engineer.

700-2 Static Signs.

700-2.1 Ground Mounted Signs: Ground mounted signs consist of both single column and multi-column static signs**.**

700-2.1.1 Materials: Use aluminum tubing materials meeting the general provisions of Section 965 for all single column ground signs. Multi-column signs must be galvanized steel W or S beams

steel columns meeting the general provisions of Section 962. All materials must meet the requirements of the appropriate Standard Plans.

700-2.1.2 Fabrication of Panel Messages: Fabricate standard sign panel messages in accordance with details included in the Standard Highway Signs (SHS) manual published by the U.S. Department of Transportation. Submit shop drawings to the Department for approval as specified in Section 5.

700-2.1.3 Foundation: Construct foundations in accordance with the applicable Standard Plans. The Contractor may use precast foundations in augured or excavated holes a minimum of 12 inches larger than each axis dimension of the precast foundation. Obtain precast foundations from a plant that is currently on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105.The holes must be clean and without loose material. Temporary casing will be required if the soil is unstable. Fill the void around the precast foundation with flowable fill meeting the requirements of Section 121 or use clean sand placed using hydraulic methods.

700-2.1.4 Breakaway Support Mechanisms for Ground Traffic Signs:

700-2.1.4.1 Frangible Supports: Provide support posts for all frangible sign assemblies consisting of aluminum tubes up to 3 -1/2 inches outside diameter with 3/16 inch wall thickness in accordance with the requirements in the Standard Plans.

700-2.1.4.2 Slip Bases: Slip base assemblies for single column signs will use aluminum sleeves and base plates. Slip base assemblies for multi-column signs will use galvanized steel bases. All slip bases must be fabricated in accordance with the requirements of the Standard Plans.

700-2.1.5 Installation: Verify the length of the column supports in the field prior to fabrication to permit the appropriate sign mounting height. Fabricate the supports and wind beams in accordance with the Standard Plans. Columns must be plumb and panels must be level with the proper orientation.

700-2.1.6 Retroreflective Strips for Signs: Use only on signs where the retroreflective sign strip is called for in the Plans. Install retroreflective strips in accordance with the manufacturer's instructions. If panel is required to install the retroreflective sheeting, use 0.040 minimum aluminum panels or another material approved by the sheeting manufacturer. Use stainless steel attachment hardware for the installation. The retroreflective sign strips must be fastened in a manner that does not require drilling of holes in the column. Retroreflective sign strips must be 2 inches in width and a height of 5 feet for all signs except for when signs are mounted at 4 feet, then retroreflective sign strip will be 2 feet in height. If a panel is required for installation, the panel for the retroreflective sheeting must be the same dimensions as the retroreflective sheeting. For the back of Rail Road Crossbuck signs, the retroreflective sign strip will be 2 inches wide for the full length of the blade. Match the color of the retroreflective sheeting to the background color of the sign except for YIELD signs and DO NOT ENTER signs, where the color must be red.

700-2.2 Overhead Signs:

700-2.2.1 Materials:

700-2.2.1.1 General: Obtain reinforcing steel, multi-post and overhead sign structures from a fabrication facility that is listed on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105.

Hot-Dip galvanize structural steel, including bolts, nuts, and washers in accordance with Section 962.

Repair galvanized surfaces in accordance with Section 562. Galvanizing materials used for repair must meet the requirements of Section 975.

700-2.2.1.2 Reinforcing Steel: Use reinforcing steel in footings meeting the requirements of Section 415.

700-2.2.1.3 Specific Uses of Aluminum and Galvanized Steel: Use aluminum bolts, nuts, and hardware to connect parts of the cast base.

Use galvanized steel anchor bolts for anchoring base plates to concrete bases and for the nuts and washers.

For all other metal parts of the cast base, the Engineer will allow galvanized steel as an alternative to aluminum.

700-2.2.2 Foundations: Meet the requirements of Section 455.

700-2.2.3 Installation: Install nuts on anchor bolts in accordance with Section 649 with the following exception. For cantilever overhead sign structures, after placement of the upright and prior to installation of the truss, adjust the leveling nuts beneath the base plate to achieve the back rake shown on the Camber Diagram. If the top surface of the base plate has a slope that exceeds 1:40, use beveled washers under the top nuts. For span overhead sign structures, install a screen around the base plate in accordance with 649-6. For cantilever overhead sign structures, install a structural grout pad in accordance with 649-7.

Install ASTM F3125, Grade A325 bolt, nut and washer assemblies in accordance with 460-5, except that 460-5.4.2 Preparation of Faying Surfaces is not required**.**

700-2.2.4 Erection of Signs and Sign Supports: Do not erect overhead sign supports until the concrete strength in the support footing is at least 2,500 psi. Determine concrete strength from tests on a minimum of two test cylinders sampled and tested in accordance with ASTM C31 and ASTM C39 and verifying test results have been submitted to the Engineer.

Erect the signs and sign structures in accordance with the details shown in the Plans. The Contractor may fabricate the structural steel sign trusses in sections that will fit into available

galvanizing vats. Prior to galvanizing, weld the joints as specified in Section 460 and in accordance with the details shown in the Plans. Re-galvanize damaged parts as specified in Section 562.

Weld aluminum structures in accordance with Section 965.

Attach electronic display signs to the supporting structure in accordance with the manufacturer's recommendations using the mounting hardware provided by the manufacturer.

700-2.2.5 Shop Drawings: Submit shop drawings to the Department for approval as specified in Section 5. Prior to the submittal of the shop drawings, determine the actual inplace dimensions for all sign structures on the basis of existing field conditions and include these on the shop drawings.

700-2.3 Method of Measurement: No separate measurement shall be made for Highway Signage. Include the cost of any work and all materials included in this section in the Lump Sum price for Highway Signage.

For single post and multi post sign assemblies, an assembly consists of all the signs mounted on a single structure, including the retroreflective sign strip. Any work and all materials related to ground mounted signs (single post and multi-post), furnished and installed, including furnishing the sign panels, retroreflective sign strips, support structure, foundation, hardware, and labor necessary for a complete and accepted installation, shall be included in the Lump Sum price for highway signage.

Relocation of signs will consist of removing the existing sign assembly and installing the sign on a new foundation at the location shown in the Plans.

When the Plans call for existing ground-mounted signs to be relocated or removed, after removing the sign panel from the assembly, remove supports and footings. Restore the area of the sign removal or relocation to the condition of the adjacent area.

700-2.4 Basis of Payment: Price and payment will be full compensation for all work specified in this Section.

Payment will be made under:

Item 700-1	***Signage – Base Bid***	***-- per Lump Sum (LS)***
Item 700-2	***Signage – Add. Alt. No. 1***	***-- per Lump Sum (LS)***
Item 700-3	***Signage – Add. Alt. No. 3***	***-- per Lump Sum (LS)***

END OF SECTION 700

SECTION 710

PAINTED PAVEMENT MARKINGS

710-1 Description.
Apply painted pavement markings, in accordance with the Contract Documents.

710-2 Materials.
Use only materials listed meeting the following requirements:

Materials for Raised Pavement Markers (RPMs) and Bituminous Adhesive	Section 970
Standard Paint	971-1 and 971-3
Durable Paint	971-1 and 971-4
Glass Spheres	971-1 and 971-2

The Engineer will take random samples of all material in accordance with the FDOT's Sampling, Testing and Reporting Guide schedule.

710-3 Equipment.
Use equipment that will produce continuous uniform dimensions of pavement markings of varying widths and meet the following requirements:

1. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, in order to produce a uniform application of paint and capable of following straight lines and making normal curves in a true arc.

2. Capable of applying glass spheres to the surface of the completed line by an automatic sphere dispenser attached to the pavement marking machine such that the glass spheres are dispensed closely behind the installed line. Use a glass spheres dispenser equipped with an automatic cut-off control that is synchronized with the cut-off of the paint and applies the glass spheres in a manner such that the spheres appear uniform on the entire pavement markings surface.

3. Capable of spraying the paint to the required thickness and width without thinning of the paint. Equip the paint tank with nozzles equipped with cut-off valves, which will apply broken or skip lines automatically.

710-4 Application.

710-4.1 General: Remove existing pavement markings, such that scars or traces of removed markings will not conflict with new pavement markings, by a method approved by the Engineer.

Before applying pavement markings, remove any material that would adversely affect the bond of the pavement markings by a method approved by the Engineer.

Apply standard paint to dry surfaces only, and when the ambient air and surface temperature is at least 40ºF and rising.

Apply durable paint to dry surfaces only. Do not apply durable paint when the ambient air and surface temperature is below 50°F, relative humidity is above 80% or when the dew point is within 5°F of the ambient air temperature.

Do not apply painted pavement markings when winds are sufficient to cause spray dust.

Apply painted pavement markings, having well defined edges, over existing pavement markings such that not more than 2 inches on either end and not more than 1 inch on either side is visible. When stencils are used to apply symbols and messages, the areas covered by the stencil reinforcing will not be required to be painted.

Mix the paint thoroughly prior to pouring into the painting machine. Apply paint to the pavement by spray or other means approved by the Engineer.

Conduct field testing in accordance with FM 5-541. Remove and replace painted pavement markings not meeting the requirements of this Section at no additional cost to the Owner.

Apply all pavement markings prior to opening the road to traffic.

710-4.1.1 Painted Pavement Markings (Final Surface): On concrete surfaces or newly constructed asphalt, the painted pavement markings (final surface) will include one application of standard paint and one application of Class B RPMs applied to the final surface.

For center line and edge line rumble strip installations where the pavement marking is placed within the grinding, apply a second application of standard paint within 24 hours of each day's grinding operation.

For center line rumble strip installations where RPMs are in conflict with the grinding, install Class D RPMs with the first application of standard paint. Remove Class D RPMs prior to grinding, then install Class B RPMs in an unground area after grinding.

Do not apply final surface paint for bicycle arrows or bicycle messages, 24 inch longitudinal bars in special emphasis crosswalks, or route shields where preformed thermoplastic will be applied.

Install all RPMs in accordance with Standard Plans, Indexes 706-001 and 711-003, prior to opening the road to traffic.

Temporary RPMs must meet the requirements of Section 102.

Permanent RPMs must meet the requirements of Section 706.

710-4.2 Thickness: Apply standard paint to attain a minimum wet film thickness in accordance with the manufacturer's recommendations. Apply durable paint to attain a minimum wet film thickness of 0.025 inches or 25 mils. Measure, record, certify and submit to the Engineer, the thickness of white and yellow durable paint pavement markings in accordance with FM 5-541.

710-4.3 Retroreflectivity: Apply white and yellow standard paint that will attain an initial retroreflectance of not less than 300 mcd/lx·m^2 and not less than 250 mcd/lx·m^2, respectively. Apply white and yellow durable paint that will attain an initial retroreflectance of not less than 450 mcd/lx·m^2 and not less than 300 mcd/lx·m^2, respectively.

Measure, record, certify and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5541.

The Owner reserves the right to test the markings within three days of receipt of the Contractor's certification. Failure to afford the Owner opportunity to test the markings will result in non-payment. The test readings should be representative of the Contractor's pavement marking performance. If the retroreflectivity values measure below values shown above, reapply the pavement marking at no additional cost to the Owner.

For standard paint, ensure that the minimum retroreflectance of white and yellow pavement markings are not less than 150 mcd/lx m^2. If the retroreflectivity values for standard paint fall below the 150 mcd/lx m^2 value within 180 days of initial application, the pavement marking will be reapplied at the Contractor's expense. If the retroreflectivity values for durable paint fall below the initial values of 450 mcd/lx m^2 value for white and 300 mcd/lx m2 for yellow within 180 days of initial application, the pavement marking will be reapplied at the Contractor's expense.

710-4.4 Color: Use paint material that meets the requirements of 971-1.

710-4.5 Glass Spheres: Apply glass spheres on all pavement markings immediately and uniformly following the paint application. The rate of application shall be based on the manufacturer's recommendation.

For longitudinal durable paint markings, apply a double drop of Type 1 and Type 3 glass spheres. For transverse durable paint markings, apply a single drop of Type 3 glass spheres.

The rate of application shall be based on the manufacturer's recommendation.

710-5 Tolerances in Dimensions and in Alignment.
Establish tack points at appropriate intervals for use in aligning pavement markings, and set a stringline from such points to achieve accuracy.

710-5.1 Dimensions:

710-5.1.1 Longitudinal Lines: Apply painted skip line segments with no more than plus or minus 12 inches variance, so that over-tolerance and under-tolerance lengths between skip line and the gap will approximately balance. Apply longitudinal lines at least 2 inches from construction joints of portland cement concrete pavement.

710-5.1.2 Transverse Markings, Gore Markings, Arrows, and Messages: Apply paint in multiple passes when the marking cannot be completed in one pass, with an overall line width allowable tolerance of plus or minus 1 inch.

710-5.1.3 Contrast Lines: Use black paint to provide contrast on concrete or light asphalt pavement, when specified by the Engineer. Apply black paint in 10 foot segments following each longitudinal skip line.

710-5.2 Alignment: Apply painted pavement markings that will not deviate more than 1 inch from the stringline on tangents and curves one degree or less. Apply painted pavement markings that will not deviate more than 2 inches from the stringline on curves greater than one degree. Apply painted edge markings uniformly, not less than 2 inches or more than 4 inches from the edge of pavement, without noticeable breaks or deviations in alignment or width.

Remove and replace at no additional cost to the Owner, pavement markings that deviate more than the above stated requirements.

710-5.3 Correction Rates: Make corrections of variations in width at a maximum rate of 10 feet for each 0.5 inch of correction. Make corrections of variations in alignment at a maximum rate of 25 feet for each 1 inch of correction, to return to the stringline.

710-6 Contractor's Responsibility for Notification.
Notify the Engineer prior to the placement of the materials. At the time of notification, submit a certification to the Engineer with the APL number and the batch or Lot numbers of the paint and glass spheres to be used.

710-7 Protection of Newly Applied Pavement Markings.
Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Owner.

710-8 Corrections for Deficiencies to Applied Painted Pavement Markings.
Reapply a 1.0 mile section, centered around any deficiency, at no additional cost to the Owner.

710-9 Submittals.

710-9.1 Submittal Instructions: Prepare a certification of quantities. Submit the certification of quantities and daily worksheets to the Engineer. For Lump Sum pay item 710-1, document the quantity as an estimated percentage (in decimal form) of the total lump sum amount on the daily worksheet. The Owner will not pay for any disputed items until the Engineer approves the certification of quantities.

710-9.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O'clock noon Monday after the estimate cut-off date or as directed by the Engineer, based on the amount of work done or completed. Ensure the certification of quantities consists of the following:

1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.

2. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

710-10 Method of Measurement.
No separate measurement shall be made for Pavement Markings. Include the cost of any work and all materials, including paint, equipment, labor, and any other materials necessary to meet the requirements of the Florida Department of Transportation per the contract documents for maintenance of traffic under the lump sum price for Pavement Markings.

710-11 Basis of Payment.

710-11.1 General: Price and payment will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

710-11.2 Painted Pavement Markings (Final Surface): Price and payment for painted pavement markings (final surface) will be full compensation for all applications of painted pavement markings, and all applications and removal of RPMs in accordance with 710-4.1.1 and 710-9.1.

710-11.3 Payment Items: Payment will be made under:

Item No. 710-1 Pavement Markings -per Square Foot (SF)

END OF SECTION 710

SECTION 711

THERMOPLASTIC PAVEMENT MARKINGS

711-1 Description.
Apply new thermoplastic pavement markings, or refurbish existing thermoplastic pavement markings, in accordance with the Contract Documents.

711-2 Materials.
Use only materials meeting the following requirements.

Standard and Refurbishment Thermoplastic	971-1 and 971-5
Preformed Thermoplastic	971-1 and 971-6
High Friction Thermoplastic	971-1 and 971-10
Glass Spheres	971-1 and 971-2

Use sand materials meeting the requirements of 971-5.4.

The Engineer will take random samples of all material.

711-3 Equipment.
Use equipment capable of providing continuous, uniform heating of the pavement marking material to temperatures exceeding 390ºF, mixing and agitation of the material in the reservoir to provide a homogeneous mixture without segregation. Use equipment that will maintain the pavement marking material in a plastic state, in all mixing and conveying parts, including the line dispensing device until applied. Use equipment which can produce varying width lines, and which meets the following requirements:

1. Capable of traveling at a uniform, predetermined rate of speed, both uphill and downhill, to produce a uniform application of pavement marking material and capable of following straight lines and making normal curves in a true arc.

2. Capable of applying glass spheres to the surface of the completed pavement marking by a double drop application for standard thermoplastic pavement markings and a single drop application for recapping and refurbishment thermoplastic pavement markings. The bead dispenser for the first bead drop shall be attached to the pavement marking machine in such a manner that the beads are dispensed closely behind the installed line. The second bead dispenser bead shall be attached to the pavement marking machine in such a manner that the beads are dispensed immediately after the first bead drop application. Use glass spheres dispensers equipped with an automatic cut-off control that is synchronized with the cut-off of the thermoplastic material and applies the glass spheres uniformly on the entire pavement markings surface with 50 to 60% embedment.

3. Equipped with a special kettle for uniformly heating and melting the pavement marking material. The kettle must be equipped with an automatic temperature control device and material thermometer for positive temperature control and to prevent overheating or scorching of the thermoplastic material.

4. Meet the requirements of the National Fire Protection Association, state, and local authorities.

711-4 Application.

711-4.1 General: Remove existing pavement markings such that scars or traces of removed markings will not conflict with new pavement markings by a method approved by the Engineer. Cost for removing conflicting pavement markings during maintenance of traffic operations to be included in Maintenance of Traffic, Lump Sum.

Before applying pavement markings, remove any material that would adversely affect the bond of the pavement markings by a method approved by the Engineer.

Before applying pavement markings to any portland cement concrete surface, apply a primer, sealer, or surface preparation adhesive of the type recommended by the manufacturer. Offset longitudinal lines at least 2 inches from any longitudinal joints of portland cement concrete pavement.

Apply pavement markings to dry surfaces only, and when the ambient air and surface temperature is at least 50ºF and rising for asphalt surfaces and 60 degrees and rising for concrete surfaces.

Apply pavement markings to the same tolerances in dimensions and in alignment specified in 710-5. When applying pavement markings over existing markings, ensure that no more than 2 inches on either end and not more than 1-inch on either side of the existing line is visible.

Apply thermoplastic material to the pavement by extrusion or other means approved by the Engineer.

Conduct field tests in accordance with FM 5-541.Take test readings representative of the pavement marking performance. Remove and replace pavement markings not meeting the requirements of this Section at no additional cost to the Owner.

With the exception of short-term raised rumble strips, wait at least 14 days after constructing the final asphalt surface course to place thermoplastic pavement markings. Installation of thermoplastic on concrete requires a clean, dry surface. Follow the manufacturer's recommendations for surface preparation for thermoplastic on concrete. Provide temporary pavement markings during the interim period prior to opening the road to traffic.

711-4.1.1 Preformed Thermoplastic: Apply markings to dry surfaces only and when ambient air temperature is at least 32°F. Prior to installation, follow the manufacturer's recommendations for pre-heating.

711-4.1.2 High Friction Thermoplastic: High friction thermoplastic may be used as an alternative to preformed thermoplastic for special emphasis crosswalk markings. Apply markings only by gravity or air pressure thermoplastic hand liners set-up with double drop bead attachments. Install markings in accordance with the manufacturer's recommendations.

711-4.2 Thickness:

711-4.2.1 Standard Thermoplastic Markings: Apply or recap standard thermoplastic pavement markings for longitudinal lines to attain a minimum thickness of 0.10 inch or 100 mils and a maximum thickness 0.15 inch or 150 mils when measured above the pavement surface.

All chevrons, diagonal and transverse lines, messages, symbols, and arrows, wherever located, will have a thickness of 0.09 inch or 90 mils to 0.12 inch or 120 mils when measured above the pavement surface.

Measure, record and certify on a form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

711-4.2.2 Refurbishment Thermoplastic Markings: Apply a minimum of 0.06 inch or 60 mils of thermoplastic material. Ensure that the combination of the existing marking and the overlay after application of glass spheres does not exceed the maximum thickness of 0.150 inch or 150 mils for all lines.

Measure, record and certify on a form and submit to the Engineer, the thickness of white and yellow pavement markings in accordance with FM 5541.

The Engineer will verify the thickness of the pavement markings in accordance with FM 5-541 within 30 days of receipt of the Contractor's certification.

711-4.2.3 Preformed Thermoplastic: Apply 0.125 inch or 125 mils of preformed thermoplastic material. Use preformed thermoplastic for bicycle markings, shared use path markings, 24 inch markings of the special emphasis crosswalks, route shields, ramp exit numbers, roundabout informational markings, white dotted lines (2'-4') with trailing black contrast, and black contrast arrows, messages, and symbols.

Measure, record and certify on a form and submit to the Engineer, the thickness of the pavement markings in accordance with FM 5-541.

711-4.2.4 High Friction Thermoplastic: Apply lines to attain a minimum thickness of 0.09 inch or 90 mils and a maximum thickness of 0.12 inch or 120 mils, when measured above the pavement surface. Measure, record and certify on a form and submit to the Engineer, the thickness of the pavement markings in accordance with FM 5-541.

711-4.3 Retroreflectivity: Apply white and yellow pavement markings that will attain an initial retroreflectivity of not less than 450 mcd/lx·m2 and not less than 350 mcd/lx·m2, respectively for all longitudinal lines. All chevrons, diagonal lines, stop lines, messages, symbols, and arrows will attain an initial retroreflectivity of not less than 300 mcd/lx·m2 and 250 mcd/lx·m2 for white and yellow respectively. All crosswalks and bicycle markings shall attain an initial retroreflectivity of not less than 275 mcd/lx·m2. Black pavement markings must have a retroreflectance of less than 5 mcd/lx m2.

Measure, record and certify on a form and submit to the Engineer, the retroreflectivity of white and yellow pavement markings in accordance with FM 5541.

711-4.4 Glass Spheres:

711-4.4.1 Longitudinal Lines: For standard thermoplastic markings, apply the first drop of Type 4 or larger glass spheres immediately followed by the second drop of Type 1 glass spheres. For refurbishment thermoplastic markings, apply a single drop of Type 3 glass spheres. Apply reflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

711-4.4.2 Chevrons, Diagonal and Transverse Lines, Messages, Symbols, and Arrows: For standard or refurbishment thermoplastic markings, apply a single drop of Type 1 glass spheres. Apply retroreflective glass spheres to all markings at the rates determined by the manufacturer's recommendations.

Apply a mixture consisting of 50% glass spheres and 50% sharp silica sand to all standard thermoplastic crosswalk lines at the rates determined by the manufacturer's recommendations.

711-4.4.3 Preformed Markings: These markings are factory supplied with glass spheres and skid resistant material. No additional glass spheres or skid resistant material should be applied during installation.

711-5 Contractor's Responsibility for Notification.
Notify the Engineer prior to the placement of the materials. At the time of notification, submit a certification to the Engineer with the APL number and the batch or Lot numbers of the thermoplastic and glass spheres to be used. Packaging labels that contain the information required by 971-1.1 will be accepted in place of a certification.

711-6 Protection of Newly Applied Thermoplastic Pavement Markings.
Do not allow traffic onto or permit vehicles to cross newly applied pavement markings until they are sufficiently dry. Remove and replace any portion of the pavement markings damaged by passing traffic or from any other cause, at no additional cost to the Owner.

711-7 Observation Period.
Longitudinal pavement markings are subject to a 180-day observation period under normal traffic. The observation period shall begin with the satisfactory completion and acceptance of the work.

The longitudinal pavement markings shall show no signs of failure due to blistering, excessive cracking, chipping, discoloration, poor adhesion to the pavement, loss of retroreflectivity or vehicular damage. The retroreflectivity shall meet the initial requirements of 711-4.3. The Owner reserves the right to check the retroreflectivity any time prior to the end of the observation period.

Replace, at no additional expense to the Owner, any longitudinal pavement markings that do not perform satisfactorily under traffic during the 180-day observation period.

711-8 Corrections for Deficiencies.
Recapping applies to conditions where additional pavement marking material is applied to new or refurbished pavement markings to correct a thickness deficiency. Correct deficiencies by recapping or removal and reapplication of a 1-mile section centered around the deficiency, as determined by the Engineer, at no additional cost to the Owner.

711-9 Submittals.

711-9.1 Submittal Instructions: Prepare a certification of quantities for each project in the Contract. Submit the certification of quantities and daily worksheets to the Engineer. The Owner will not pay for any disputed items until the Engineer approves the certification of quantities.

711-9.2 Contractor's Certification of Quantities: Request payment by submitting a certification of quantities no later than Twelve O clock noon Monday after the estimate cut-off date or as directed

by the Engineer, based on the amount of work done or completed. Ensure the certification of quantities consists of the following:

1. Contract Number, FPID Number, Certification Number, Certification Date and the period that the certification represents.

2. The basis for arriving at the amount of the progress certification, less payments previously made and less any amount previously retained or withheld. The basis will include a detailed breakdown provided on the certification of items of payment.

711-10 Method of Measurement.
No separate measurement shall be made for Thermoplastic Pavement Markings. Include the cost of any work and all materials, including paint, equipment, labor, and any other materials necessary to meet the requirements of the Florida Department of Transportation per the contract documents for maintenance of traffic under the lump sum price for Thermoplastic Pavement Markings.

711-11 Basis of Payment.
Prices and payments will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing of all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

Payment will be made under:

Item 711-1 Thermoplastic Markings (within Right-of-Way) -- per Lump Sum (LS)

END OF SECTION 711

APPENDIX A

SECTION 01322

WEB-BASED PROJECT INFORMATION MANAGEMENT

GENERAL

SUMMARY

The section includes Requirements for web-based project information management.

a. The system shall be provided by the Owner and accessible to all team members including but not limited to the owner, user, agents, designer, builder, subcontractors, and their suppliers.
b. The information shall be managed by a designated Owner project information manager responsible for collecting, organizing, conducting QA and posting all project documentation for team use,
c. The information managed is sourced from all aspects of the project including programming documents, design, BIM models, data, schedules, BIM tools, equipment lists, program files, invoices, changes, ASIs, financials, warranty, commissioning, close-out, as-builts, COBIE data, training videos, progress photos, time-stamped evidence, QA documentation, etc.
d. Each Consultant, Designer, and Contractor in direct contract with the Owner or the Owner's Representative will designate an individual responsible for providing or uploading information into the system.

Related sections:

a. The Contract Documents (design, specs, BIM) are complementary; what is called for by one is as binding as if called for by all.
b. It is the Contractor's responsibility for scheduling and coordinating the Work of subcontractors, suppliers, and other individuals or entities performing or furnishing any of Contractor's Work.
c. The following Sections are related to the Work described in this Section. This list of Related Sections is provided for convenience only and is not intended to excuse or otherwise diminish the duty of the Contractor to see that the completed Work complies accurately with the Contract Documents.
d. Section 01330 - Submittal Procedures.

REQUIREMENTS

The Project Team shall utilize MySmartPlans (MSP) (MySmartPlans is a registered trademark of Marathon Digital Services (MDS)). for submission of all data and documents (unless specified otherwise in this Section) throughout the duration of the project.

a. MSP is a web-based electronic media site hosted by MDS.
b. MSP will be made available to all project team personnel, subcontractor personnel, suppliers, consultants, and their team members.
c. MSP shall be the primary means of project information gathering, organization, storage, availability, sustainment, display, and recording.
d. A designated Project Information Manager (PIM) is required to help "library" and QC, QA, and QI documents from all external systems and available to the MSP dashboard.

User access limitations:
The Designated owner's representative will control the access to MSP by allowing access and assigning user profiles to accepted personnel. User profiles will define levels of access into the system; determine assigned function-based authorizations and user privileges. Subcontractors and suppliers will be given access to MSP by and through the Prime Contractor. Entry of information exchanged and transferred between the Contractor and its subcontractors and suppliers on MSP shall be designated by the Contractor.

Ownership and Stewardship of data:
Data entered in a collaborative mode (entered with the intent to share as determined by permissions and workflows within the MSP system) by the Owner, Engineer, and the Contractor will be jointly owned. The owner's designated agent will be responsible for stewardship of the information no matter where the information comes from or is changed as the project proceeds.

Automated system notification and audit log tracks:
Review comments made (or lack thereof) by the Owner on Contractor submitted documentation shall not relieve the Contractor from compliance with requirements of the Contract Documents. The Contractor is responsible for managing, tracking, and documenting the Work to comply with the requirements of the Contract Documents. Owner's acceptance via automated system notifications or audit logs extends only to the face value of the submitted documentation and does not constitute validation of the Contractor's submitted information.

Computer Requirements:
The Contractor shall use computer hardware and software that meets the requirements of the MSP system as recommended by MDS to access and utilize MSP. As recommendations are modified by MSP, the Contractor will upgrade their system(s) to meet or exceed the recommendations. Upgrading of the Contractor's computer systems will not be justification for a cost or time modification to the Contract.

The Contractor shall ensure that connectivity to the MSP system is accomplished through cable or wireless communications systems. The minimum bandwidth requirements for using the system is 128kb/s. It is recommended a faster connection be used when uploading pictures and files into the system.

MSP supports the current and prior two major versions of Chrome, Mozilla Firefox, Microsoft Internet Explorer, and Apple Safari on a rolling basis.

Each time a new version of one of these browsers is released, MSP will begin supporting the update and stop supporting the fourth-oldest version.

Contractor (includes designer) responsibility:
The Contractor shall be responsible for the validity of their information placed in MSP and for the abilities of their personnel.

Accepted users shall be knowledgeable in the use of computers, including Internet Browsers, email programs, cad drawing applications, and Adobe Portable Document Format (PDF) document distribution program.

The Contractor shall utilize the existing forms in MSP to the maximum extent possible. If a form does not exist in MSP the Contractor must include a form of their own or provide by the Engineer as an attachment to a submittal.

Adobe PDF documents will be created through electronic conversion rather than optically scanned whenever possible. The Contractor is responsible for the training of their personnel in the use of MSP (outside what is provided by the Owner) and the other programs indicated above as needed.

Connectivity problems:
Provide a list of Contractor's key MSP personnel for the Owner's representative acceptance. Owner's rep is responsible for adding and removing users from the system. The Owner's rep reserves the right to perform a security check on all potential users. The Owner's rep may allow other personnel and subcontractors to be added to MSP.

SUBMITTALS

Preconstruction Submittals List of Contractor's key MSP personnel. Include descriptions of key personnel's roles and responsibilities for this project. The contractor should also identify their organization's administrator on the list.

PRODUCTS

DESCRIPTION

MSP project management application (no equal) Provided by MDS.

EXECUTION

MSP UTILIZATION

MSP shall be utilized in connection with all document and information management required by these Contract Documents.

SUBMITTALS

Shop drawings:

a. Shop drawing and design data documents shall be submitted as PDF attachments to the MSP submittal workflow process and form. Examples of shop drawings include, but are not limited to:
   (1) Standard manufacturer installation drawings.
   (2) Drawings prepared to illustrate portions of the work designed or developed by the Contractor.
   (3) Steel fabrication, piece, and erection drawings.
b. Hard copy submittals may be allowed if approved by the Engineer on a case-by-case basis.
   (1) Hard copy submittals shall be handled following procedures for Samples defined below.

PRODUCT DATA

Product catalog data and manufacturer's instructions shall be submitted as PDF attachments to the MSP submittal workflow process and form. Examples of product data include, but are not limited to:

a. Manufacturer's printed literature.

b. Preprinted product specification data and installation instructions.

SAMPLES

Sample submittals shall be physically submitted as specified in Section 01330. Contractor shall enter submittal data information into MSP with a copy of the submittal form(s) attached to the sample. Examples of samples include, but are not limited to:

a. Product finishes and color selection samples.
b. Product finishes and color verification samples.
c. Finish/color boards.
d. Physical samples of materials.

ADMINISTRATIVE SUBMITTALS

All correspondence and pre-construction submittals shall be submitted using MSP. Examples of administrative submittals include, but are not limited to:

a. Permits.
b. Requests for substitutions (RFS).
c. List of contact personnel.
d. Requests for Information (RFI).

Network Analysis Schedules and associated reports and updates. Each schedule submittal specified in these Contract Documents shall be submitted as a native backed-up file (.PRX or .STX) of the scheduling program being used. The schedule shall also be posted as a PDF file in the format specified in these Contract Documents.

Plans for safety, demolition, environmental protection, and similar activities.

Quality Control Plan(s), Testing Plan and Log, Quality Control Reports, Production Reports, Quality Control Specialist Reports, Preparatory Phase Checklist, Initial Phase Checklist, Field Test reports, Summary reports, Rework Items List, etc.

Meeting minutes for quality control meetings, progress meetings, pre-installation meetings, etc.

Any general correspondence submitted.

COMPLIANCE SUBMITTALS

Test reports, certificates, and manufacture field report submittals shall be submitted on MSP as PDF attachments. Examples of compliance submittals include, but are not limited to:

a. Inspection requests:
   (1) When a portion of Work is ready for inspection and prior to covering up the Work (for example, a concrete pour that has water stop, rebar and embeds placed prior to pouring the concrete), inspection requests shall be submitted via MSP and approved via MSP.
   (2) Reports associated with this element of the Work will be submitted via MSP and associated with the inspection request.
b. Field test reports.
c. Quality Control certifications.
d. Manufacturers' documentation and certifications for the quality of products and materials provided.

RECORD AND CLOSEOUT SUBMITTALS

Operation and maintenance data and closeout submittals shall be submitted on MSP as PDF documents during the approval and review stage as specified, with an actual set of documents submitted for final. Examples of record submittals include, but are not limited to:

a. Operation and Maintenance Manuals: final documents shall be submitted as specified.
b. Extra materials, spare stock, etc.: submittal forms shall indicate when actual materials are submitted.

FINANCIAL SUBMITTALS

Schedule of Value, Pay Requests, and Change Request Proposals shall be submitted on MSP. Supporting material for Pay Requests and Change Requests shall be submitted on MSP as PDF attachments. Examples of compliance submittals include, but are not limited to:

a. Contractor's Schedule of Values.
b. Contractor's Monthly Progress Payment Requests.
c. Contract Change proposals requested by the Owner.

END OF SECTION

APPENDIX B

GEOTECHNICAL ENGINEERING REPORT

ECP North Terminal Expansion

Panama City, Bay County, Florida

PREPARED FOR:
ZHA, Inc.
6300 West Bay Parkway, Suite 5052
Panama City, Florida 32409

NOVA Project Number: 10111 – 2021211

October 7, 2021

NOVA
PROFESSIONAL | PRACTICAL | PROVEN

October 7, 2021

ZHA, Inc.
6300 West Bay Parkway, Suite 5052
Panama City, Florida 32409

Attention: Mr. David Scruggs, RLA

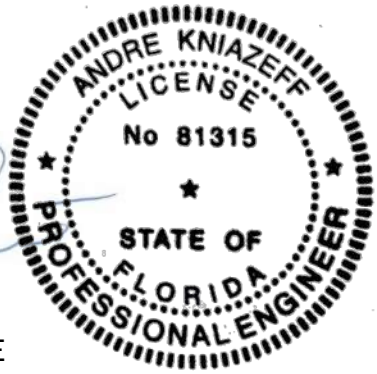
Subject: Geotechnical Engineering Report
ECP North Terminal Expansion
Panama City, Bay County, Florida
NOVA Project Number 10111 – 2021211

Dear Mr. Scruggs,

NOVA Engineering and Environmental LLC (NOVA) has completed the authorized subsurface exploration and geotechnical engineering evaluation for the proposed expansion to the Northwest Florida Beaches International Airport facility in Panama City, Bay County, Florida. The work was performed in general accordance with NOVA Proposal Number 011-20215212, dated August 16, 2021. This report briefly discusses our understanding of the project at the time of the subsurface exploration, describes the geotechnical consulting services provided by NOVA, and presents our findings, conclusions, and recommendations.

We appreciate your selection of NOVA and the opportunity to be of service on this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,
NOVA ENGINEERING AND ENVIRONMENTAL LLC



Kyle Selle, E.I.
Staff Engineer
Florida Registration No. 1100023685

Andre Kniazeff, P.E
Senior Geotechnical Engineer
Florida Registration No. 81315

Copies Submitted: Addressee (electronic)

TABLE OF CONTENTS

1.0 SUMMARY

A brief summary of pertinent findings, conclusions and recommendations is presented below. This information should not be utilized in design or construction without reading all of the recommendations presented in the text and Appendix of this report.

1.1 GENERAL

Our field exploration at the subject site included performing four (4) Standard Penetration Test (SPT) borings along the proposed boarding bridge structure alignment and six (6) SPT borings with two pavement cores within the proposed pavement areas. Additionally, three (3) bulk samples of the subgrade soil stratums present 2 to 3 feet below the topsoil within the proposed pavement areas were collected for Limerock Bearing Ratio (LBR) testing. Drilling, testing, and sampling operations were performed in general accordance with ASTM designations and other industry standards.

The subsurface soils encountered in the SPT borings generally consisted of mixed strata of loose to very dense fine-grained sands to clayey fine-grained sands (USCS classifications of SP, SP-SM, SM, SP-SC, and SC) with trace to few organics from the existing ground surface elevation to the maximum depth explored of about 25 feet Below Existing Grade (BEG). Subsurface conditions are described in greater detail on the attached Test Boring Records.

1.2 SITE PREPARATION

We recommend removing all existing pavement sections, topsoil, surficial vegetation, associated root systems, and any other deleterious non-soil materials that are found to be present from within the proposed construction limits. Existing subsurface utilities that are found to be present within the footprint of the planned construction should be relocated or abandoned as appropriate. Exposed subgrade soils at the undercut elevations, as well as subsequent lifts of fill soils, should be compacted to a minimum soil density of at least 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557). The top 12 inches of pavement subgrades and top 12 inches of all footing excavations should be compacted to at least 98 percent. We note that vibratory compaction operations should not be performed within a clear distance of 50 feet from any adjacent structures.

A geotechnical engineer should carefully evaluate all subgrades prior to foundation and pavement section construction to confirm compliance with this report; evaluate geotechnical sections of the plans and specifications for the overall project; and provide additional recommendations that may be required.

1.3 GROUNDWATER CONTROL

Groundwater was encountered in the SPT borings at depths ranging from approximately 4 feet to 6½ feet BEG at the time of our subsurface exploration, which occurred during a period of relatively normal seasonal rainfall and shortly following the passing of several significant rain events. Depending on fill heights, groundwater may impact the planned near surface construction, most notably during subsurface utility installation activities. Contractors should be prepared to utilize a dewatering system during construction to maintain separation between the groundwater levels and the desired working platforms for below-grade work.

1.4 FOUNDATION RECOMMENDATIONS

After the recommended site/subgrade preparation and fill placement, we recommend that the proposed boarding bridge structure be supported on a conventional shallow foundation system bearing upon compacted native soils and/or compacted structural fill. The building foundation may be designed utilizing a maximum soil bearing pressure of **2,000 pounds per square foot (psf)**.

1.5 PAVEMENT SUBGRADE

To estimate the design California Bearing Ratio (CBR) for the subgrade soils, three (3) subgrade soil stratums present 2 to 3 feet below the topsoil within the proposed pavement areas, and Limerock Bearing Ratio (LBR) tests were performed. To estimate the CBR of the soils, a conversion factor of 0.8 was applied to the LBR results in accordance with U.S. Department of Transportation Federal Aviation Administration Advisory Circular 150/5320-6F Section 2.5.6. Results of the laboratory LBR testing, estimated CBR and subgrade modulus (k) values are presented in **Section 6.6** of this report.

2.0 INTRODUCTION

2.1 PROJECT INFORMATION

Our understanding of the proposed development is based on recent conversations and email exchanges with the Client, review of aerial photographs of the site via internet-based GIS software; our site reconnaissance activities; and our experience with similar geotechnical conditions in the near vicinity to this project site.

2.1.1 SITE PLANS AND DOCUMENTS

We were furnished with the following documents:

- Document: Boring Location Plan
  Provided by: ZHA, Inc.
  Dated: Not Dated

2.1.2 PROPOSED CONSTRUCTION

NOVA understands that the project will consist of the construction of a new passenger boarding bridge structure, along with the expansion of the existing apron along the north terminal within the Northwest Florida Beaches International Airport in Panama City, Bay County, Florida.

Structural loadings were not available from the design team at the time of the issuance of this report; we have therefore assumed that maximum loadings for the proposed structure will not exceed 25 kips per column.

2.1.3 SITE GRADING

Site grading details were also not available from the design team at the time of the issuance of this report; we have therefore assumed that finished grade elevations within the proposed structure and pavement areas will not change greater than +/- 3 feet from existing grades.

2.2 SCOPE OF WORK

ZHA, Inc., engaged NOVA to provide geotechnical engineering consulting services for the proposed **ECP North Terminal Expansion** project. This report briefly discusses our understanding of the project, describes our exploratory procedures, and presents our findings, conclusions, and recommendations.

The primary objective of this study was to perform a geotechnical exploration within the proposed structure footprints and pavement areas and to assess these findings as they relate to geotechnical aspects of the planned site development. The authorized geotechnical engineering services included a soil test boring and sampling program, laboratory testing, engineering evaluation of the field and laboratory data, and the preparation of this report.

The services were performed substantially as outlined in our proposal number 011-20215212, dated August 16, 2021, and in general accordance with industry standards. As authorized per the above referenced proposal, this completed geotechnical report includes:

- A description of the site, fieldwork, laboratory testing, and general soil conditions encountered, together with a Boring Location Plan and individual Test Boring Records.
- Site preparation considerations that include geotechnical discussions regarding site stripping and subgrade preparation and engineered fill/backfill placement.
- Recommendations for controlling groundwater and/ or run-off during construction and, the need for permanent dewatering systems based on the anticipated post construction groundwater levels.
- Foundation system recommendations for the proposed structure, as deemed necessary based on the boring results.
- Summary of laboratory test data performed on selected soil samples.
- Suitability of on-site soils for re-use as structural fill and backfill. Additionally, the criteria for suitable fill materials will be provided.

The assessment of site environmental conditions, including the presence of wetlands or detection of pollutants in the soil, rock or groundwater, laboratory testing of samples, or a site-specific seismic study was beyond the scope of this geotechnical study. If requested, NOVA can provide these services. Additionally, this exploration only focused on the near surface soil conditions and was not intended to include the evaluation of deeper soils or rock strata where the possibility for solution cavities may exist. This report does not address the potential for sinkhole occurrence at this site.

3.0 SITE DESCRIPTION

3.1 LOCATION AND LEGAL DESCRIPTION

The study area is located within the Northwest Florida Beaches International Airport in Panama City, Bay County, Florida.

4.0 FIELD AND LABORATORY PROCEDURES

4.1 FIELD EXPLORATION

The boring locations were established in the field by NOVA personnel via a handheld GPS unit. Consequently, the referenced boring locations shown in Appendix B should be considered approximate. If the Client desires increased accuracy, NOVA recommends that the boring locations and elevations be surveyed.

Our field exploration at the subject site included performing:

- Four (4) SPT borings (designated B-1 through B-4), each to a depth of about 25 feet BEG, along the proposed structure alignment.
- Two (2) pavement cores and two (2) SPT borings (designated C-1 and C-2), each to a depth of about 10 feet below the existing asphalt section, within the proposed apron expansion area.
- Four (4) SPT borings (designated P-1 through P-4), each to a depth of about 10 feet BEG within the proposed apron expansion area.
- Collection of three (3) bulk samples of the subgrade soil stratums present 2 to 3 feet below the topsoil within the proposed pavement areas for LBR testing.

SPT Borings: The Standard Penetration Test borings were performed using the guidelines of ASTM Designation D-1586, "Penetration Test and Split-Barrel Sampling of Soils". A mud rotary drilling process was used to advance the borings. At regular intervals, soil samples were obtained with a standard 1.4-inch I.D., 2.0-inch O.D., split-tube sampler. The sampler was first seated six inches and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is designated the "Penetration Resistance". The penetration resistance, when properly interpreted, is an index to the soil strength and density. Representative portions of the soil samples, obtained from the sampler, were placed in sealed containers and transported to our laboratory for further evaluation and laboratory testing.

The Test Boring Records provided in Appendix B present the soil conditions encountered in the borings. These records represent our interpretation of the subsurface conditions based on the field exploration data, visual examination of the recovered samples, laboratory test data, and generally accepted geotechnical engineering practices. The stratification lines and depth designations represent approximate boundaries between various subsurface strata. Actual transitions between materials may be gradual.

Groundwater Levels: The groundwater levels reported on the Test Boring Records represent measurements made at the completion of each soil test boring. The soil test borings were subsequently backfilled with the soil cuttings from the drilling process for

safety concerns.

4.2 LABORATORY TESTING

A laboratory testing program was conducted to characterize materials existing at the site using split spoon and bulk/grab soil samples recovered from the borings. Collected samples were returned to our testing laboratory, where they were classified using visual/manual methods in accordance with the Unified Soil Classification System (USCS) soil classification system. The laboratory test data is presented in the Appendix. Selected test data are presented on the Test Boring Records attached in the Appendix.

All laboratory testing was performed in general accordance with current ASTM and Florida Methods (FM) standards and included:

- Five (5) Natural Moisture Content Determination Tests (ASTM D-2216)
- Eight (8) Fines Content Determination Tests (ASTM D-6913)
- Two (2) Organic Content Tests (ASTM D-2974)
- Three (3) Limerock Bearing Ratio (LBR) Tests (FM 5-515)

It should be noted that all soil samples will be properly disposed of 30 days following the submittal of this NOVA subsurface exploration report unless you request otherwise.

5.0 SUBSURFACE CONDITIONS

5.1 GEOLOGY

According to the United States Geological Survey (USGS), the subject site is located in Bay County within the Gulf Coastal Plain, separated from the Florida Platform by geologic structures known as the Gulf Trough and Apalachicola Embayment. These structures formed a bathymetric and environmental barrier from the earliest Eocene or earliest Oligocene periods into the Miocene.

According to the "Text to Accompany the Geologic Map of Florida" by Scott, 2001, the site is generally underlain by undifferentiated sediments deposited during the Quaternary period. These sediments typically consist of siliciclastics (sand), organics and freshwater carbonates. These soils are highly permeable and form the Sand and Gravel Aquifer of the surficial aquifer system.

Surficial soils in the region are primarily siliciclastic sediments deposited in response to the renewed uplift and erosion in the Appalachian highlands to the north and sea-level fluctuations. The extent and type of deposit is influenced by numerous factors, including mineral composition of the parent rock and meteorological events.

5.2 SOIL CONDITIONS

The following paragraph provides a generalized description of the subsurface profile and soil conditions encountered by the borings. The Test Boring Records provided in the Appendix should be reviewed to provide more detailed descriptions of the subsurface conditions encountered at the boring locations. Conditions may vary at other locations and times.

The subsurface soils encountered in the SPT borings generally consisted of mixed strata of loose to very dense fine-grained sands to clayey fine-grained sands (USCS classifications of SP, SP-SM, SM, SP-SC, and SC) with trace to few organics from the existing ground surface elevation to the maximum depth explored of about 25 feet BEG. Subsurface conditions are described in greater detail on the attached Test Boring Records.

5.3 GROUNDWATER CONDITIONS

5.3.1 GENERAL

Groundwater in the Gulf Coastal Plain typically occurs as an unconfined aquifer condition. Recharge is provided by the infiltration of rainfall and surface water through the soil overburden. More permeable zones in the soil matrix can affect

groundwater conditions. The groundwater table is expected to be a subdued replica of the original surface topography.

5.3.2 SOIL TEST BORING GROUNDWATER CONDITIONS

Groundwater was encountered in the SPT borings at depths ranging from approximately 4 feet to 6½ feet BEG at the time of our subsurface exploration, which occurred during a period of relatively normal seasonal rainfall and shortly following the passing of several significant rain events.

Based on our review of the subsurface conditions encountered in the test borings, we estimate that the normal permanent seasonal high groundwater (SHGW) will occur approximately at the groundwater levels measured at each boring location during our field exploration.

Groundwater levels vary with changes in season and rainfall, construction activity, surface water runoff and other site-specific factors. Groundwater levels in the Bay County area are typically lowest in the late spring and the late fall and highest in the summer with annual groundwater fluctuations by seasonal rainfall; consequently, the water table may vary at times.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on our understanding of the proposed construction, our site observations, our evaluation and interpretation of the field and laboratory data obtained during this exploration, our experience with similar subsurface conditions, and generally accepted geotechnical engineering principles and practices.

Subsurface conditions in unexplored locations or at other times may vary from those encountered at specific boring locations. If such variations are noted during construction, or if project development plans are changed, we request the opportunity to review the changes and amend our recommendations, if necessary.

As previously noted, boring locations were established in the field utilizing a handheld GPS unit. If increased accuracy is desired by the client, we recommend that the boring locations and elevations be surveyed.

6.1 SITE PREPARATION

We recommend removing all existing pavement sections, topsoil, surficial vegetation, associated root systems, and any other deleterious non-soil materials that are found to be present from within the proposed construction limits. Existing subsurface utilities that are found to be present within the footprint of the planned construction should be relocated or abandoned as appropriate. Exposed subgrade soils at the undercut elevations, as well as subsequent lifts of fill soils, should be compacted to a minimum soil density of at least 95 percent of the maximum dry density as determined by the Modified Proctor test (ASTM D-1557). We note that vibratory compaction operations should not be performed within a clear distance of 50 feet from any adjacent structures.

A geotechnical engineer should carefully evaluate all subgrades prior to foundation and pavement section construction to confirm compliance with this report; evaluate geotechnical sections of the plans and specifications for the overall project; and provide additional recommendations that may be required.

6.2 FILL PLACEMENT

6.2.1 FILL SUITABILITY

Fill materials should be relatively clean sands with less than 12 percent fines (material passing the No. 200 sieve), and free of non-soil materials and rock fragments larger than 3 inches in diameter. On-site near surface soils that are categorized as fine-grained sands and slightly silty as fine-grained sands (SP, SP-SM) based on the Unified Soil Classification System (USCS) are considered suitable for re-use as structural fill in building and pavement areas, provided that

the materials are free of rubble, clay, rock, roots, and organics. Soils with fines contents between 13 and 25 percent (SM) may also be used as fill soils for this project, but we note that strict moisture control would be required at the time of placement for these moisture-sensitive soils. All materials to be used for backfill or compacted fill construction should be evaluated and, if necessary, tested by NOVA prior to placement to determine if they are suitable for their intended use. Any off-site materials used as fill should be approved by NOVA prior to acquisition. Organic and/or debris-laden material is not suitable for re-use as structural fill.

6.2.2 SOIL COMPACTION

Fill should be placed in thin, horizontal loose lifts (maximum 12-inch depth) and compacted to a minimum soil density of at least 95 percent of the Modified Proctor maximum dry density (ASTM D-1557). The upper 12 inches of soil beneath pavement areas and the upper 12 inches of soil beneath the bottoms of all shallow foundation footings should be compacted to at least 98 percent.

In confined areas, such as utility trenches, portable compaction equipment and thinner fill lifts (3 to 4 inches) may be necessary. Fill materials used in structural areas should have a target maximum dry density of at least 100 pounds per cubic foot (pcf). If lighter weight fill materials are used, the NOVA geotechnical engineer should be consulted to assess the impact on design recommendations.

Soil moisture content should be maintained within 3 percent of the optimum moisture content. We recommend that the grading contractor have equipment on site during earthwork for both drying and wetting fill soils. Moisture control may be difficult during rainy weather.

Filling operations should be observed by a NOVA soils technician, who can confirm suitability of material used and uniformity and appropriateness of compaction efforts. He/she can also document compliance with the specifications by performing field density tests using thin-walled tube, nuclear, or sand cone testing methods (ASTM D-2937, D-6938, or D-1556, respectively). One test per 2,000 square feet in structure and pavement areas should be performed in each lift of fill, with test locations well distributed throughout the fill mass. When filling in small areas, at least one test per day per area should be performed. One (1) test at conventional spread foundations, one (1) test per lift at each planned column footing area, and one (1) test per 75 linear feet at continuous strip foundations are also recommended.

6.3 GROUNDWATER CONTROL

6.3.1 GENERAL

Groundwater encountered in the SPT borings at depths ranging from approximately 4 feet to 6½ feet BEG at the time of our subsurface exploration, which occurred during a period of relatively normal seasonal rainfall and shortly following the passing of several significant rain events. Depending on fill heights, groundwater may impact the planned near surface construction, most notably during subsurface utility installation activities. Contractors should be prepared to utilize a dewatering system during construction to maintain separation between the groundwater levels and the desired working platforms for below-grade work.

6.3.2 TEMPORARY DEWATERING

As previously noted, groundwater levels are subject to seasonal, climatic, and other variations and may be different at other times and locations. The extent and nature of any dewatering required during construction will be dependent on the actual groundwater conditions prevalent at the time of construction and the effectiveness of construction drainage to prevent run-off into open excavations. If required, the dewatering system should be capable of lowering the groundwater elevations to a minimum of 2 feet below the working platform. A local contractor familiar with similar site conditions common to the Bay County area should be able to determine an adequate dewatering method for the subject property. Common local dewatering methods include dewatering by the use of temporary well points and trench drain systems.

6.4 FOUNDATION RECOMMENDATIONS

6.4.1 GENERAL

NOVA understands that the project will consist of the construction of a new passenger boarding bridge structure, which we anticipate will consist of reinforced concrete/precast concrete construction. Structural loadings were not available from the design team at the time of the issuance of this report; we have therefore assumed that maximum loadings for the proposed structure will not exceed 25 kips per column.

6.4.2 SHALLOW FOUNDATION SYSTEMS

Design: After the recommended site/subgrade preparation and fill placement, we recommend that the proposed convenience store structure be supported on a conventional shallow foundation system bearing upon compacted structural fill. The structure foundation may be designed for a maximum soil bearing pressure of **2,000 pounds per square foot (psf)**.

We recommend minimum footing widths of 24 inches for ease of construction and to reduce the possibility of localized shear failures. Exterior and interior footing bottoms should be established at least 20 inches below finished surrounding exterior grades.

Settlement: Settlements for spread foundations bearing on compacted native or approved fill materials were assessed using SPT values to estimate elastic modulus, based on published correlations and previous NOVA experience. We note that the settlements presented are based on the SPT boring results. Conditions may be better or worse in other areas, however, we believe the estimated settlements are reasonably conservative.

Based on the soil bearing capacity provided above, and the presumed foundation elevations as discussed above, we expect primary total settlement beneath individual foundations to be on the order of 1 inch or less. The amount of differential settlement is difficult to predict because the subsurface and foundation loading conditions can vary considerably across the site. However, we anticipate differential settlement between adjacent foundations will be on the order of ½ inch or less. The final deflected shape of the structure will be dependent on actual foundation locations and loading.

Foundation support conditions are highly erratic and may vary dramatically in short horizontal distances. It is anticipated that the geotechnical engineer may recommend a different bearing capacity upon examination of the actual foundation subgrade at numerous locations. To reduce the differential settlement if lower consistency materials are encountered, a lower bearing capacity should be used, or the foundations should be extended to more competent materials.

We anticipate that timely communication between the geotechnical engineer and the structural engineer, as well as other design and construction team members, will be required.

Construction: Foundation excavations should be evaluated by the NOVA geotechnical engineer prior to reinforcing steel placement to observe foundation subgrade preparation and confirm bearing pressure capacity. Foundation excavations should be level and free of debris, ponded water, mud, and loose, frozen, or water-softened soils. Concrete should be placed as soon as is practical after the foundation is excavated and the subgrade evaluated. Foundation concrete should not be placed on frozen or saturated soil. If a foundation excavation remains open overnight, or if rain or snow is imminent, a 3 to 4-inch thick "mud mat" of lean concrete should be placed in the bottom of the excavation to protect the bearing soils until reinforcing steel and concrete can be placed.

6.5 PAVEMENT SUBGRADE

To estimate the design California Bearing Ratio (CBR), three (3) bulk samples of the predominant surficial soils were obtained from within the proposed runway extension alignment and cut areas of the site, and Limerock Bearing Ratio (LBR) tests were then performed. To estimate the CBR value of the obtained soil samples, a conversion factor of 0.8 was applied to the LBR results in accordance with the US Department of Transportation Federal Aviation Administration (FAA) Advisory Circular 150/5320-6G, Section 2.3.9.11.4

We recommend that a minimum compaction requirement of 98 percent of the maximum dry density be specified for the Stabilized Subgrade Course as determined by the Modified Proctor test (ASTM D-1557). All pavement material and paving operations should meet applicable specifications of the American Concrete Institute and Federal Aviation Administration requirements. A NOVA technician should observe placement and perform density testing of the stabilized subgrade, base course material and concrete. Results of the laboratory LBR testing, as well as estimated CBR and subgrade modulus (k) values (based on FAA Advisory Circular 150/5320-6G, Section 3.16.4.1), are presented below in Table 1.

Table 1 – Results of CBR Testing and Subgrade Modulus Values

Corresponding Sampling and Boring Locations	LBR-1	LBR-2	LBR-3
LBR Value (at 0.1-inch penetration)	30	11	30
Estimated CBR Value	24	9	24
Fines Content (minus the #200 sieve, %)	9.3	3.3	9.3
Estimated Subgrade Modulus, *k* (psi/in)	341	159	341

7.0 CONSTRUCTION OBSERVATIONS

7.1 SHALLOW FOUNDATIONS

Foundation excavations should be level and free of debris, ponded water, mud, and loose, frozen, or water-softened soils. All foundation excavations should be evaluated by a NOVA geotechnical engineer prior to reinforcing steel placement to observe foundation subgrade preparation and assess bearing pressure capacity. Due to variable site subsurface and construction conditions, some adjustments in isolated foundation bearing pressures, depth of foundations or undercutting and replacement with controlled structural fill may be necessary.

7.2 PAVEMENT SECTION

The pavement section should utilize materials and be constructed in accordance with applicable Federal Aviation Administration (FAA) specifications. Also, NOVA should be retained during construction to confirm subgrade conditions are as anticipated and that the construction process is as required by the contract documents.

7.3 SUBGRADE

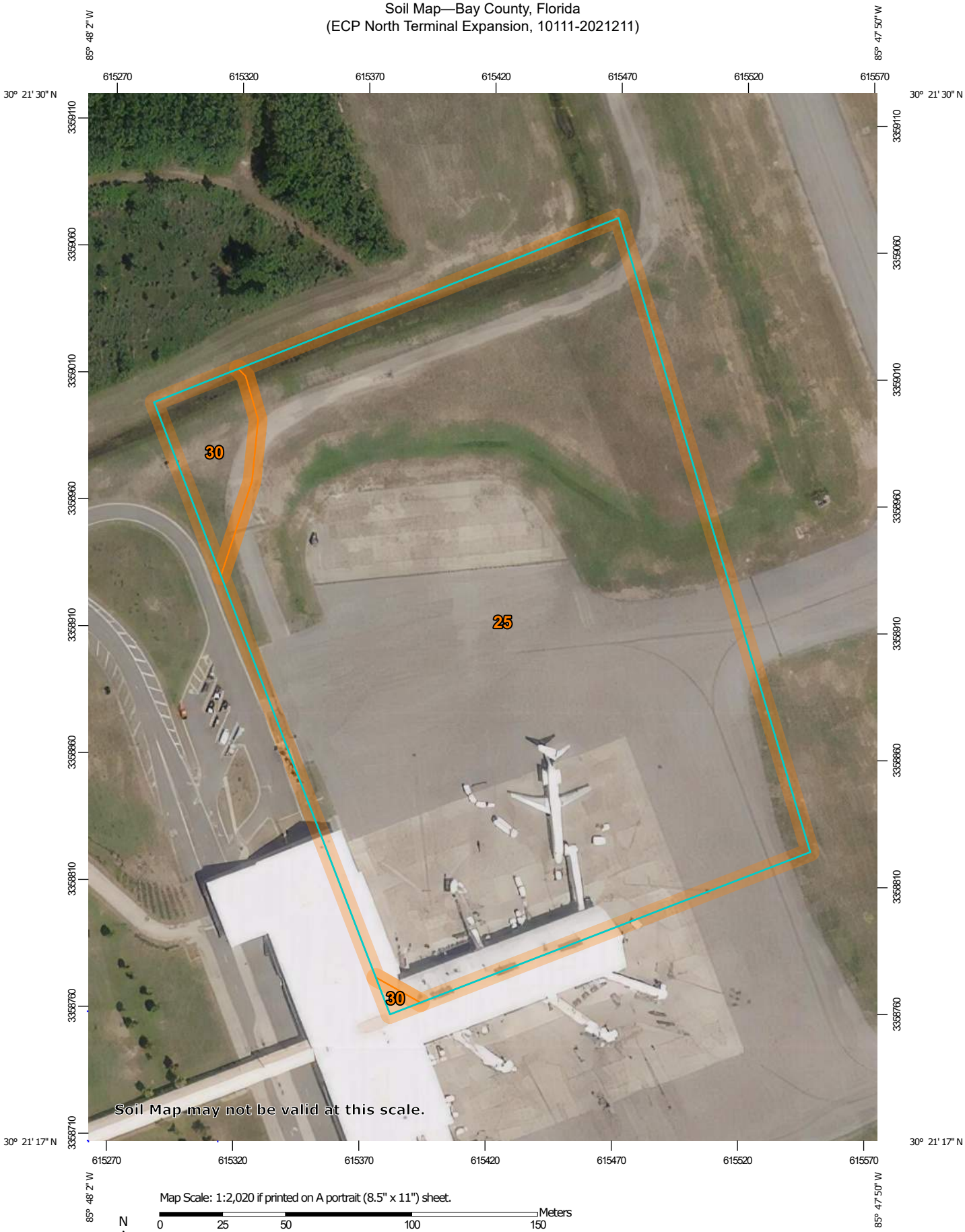
Once site grading is completed, the subgrade may be exposed to adverse construction activities and weather conditions. The subgrade should be well-drained to prevent the accumulation of water. If the exposed subgrade becomes saturated or frozen, the NOVA geotechnical engineer should be consulted.

APPENDIX A
Figures and Maps

Base map provided by ***Google Earth***

Scale: Not To Scale **Date Drawn:** August 30, 2021 **Drawn By:** D. Ritzel **Checked By:** A. Kniazeff	NOVA 17612 Ashley Drive Panama City Beach, Florida 32413 850.249.6682 ♦ 850.249.6683	**PROJECT LOCATION MAP** **ECP North Terminal Expansion** Panama City, Bay County, Florida *NOVA Project Number 10111-2021211*

Soil Map—Bay County, Florida
(ECP North Terminal Expansion, 10111-2021211)



Map Scale: 1:2,020 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bay County, Florida
Survey Area Data: Version 20, Jun 10, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

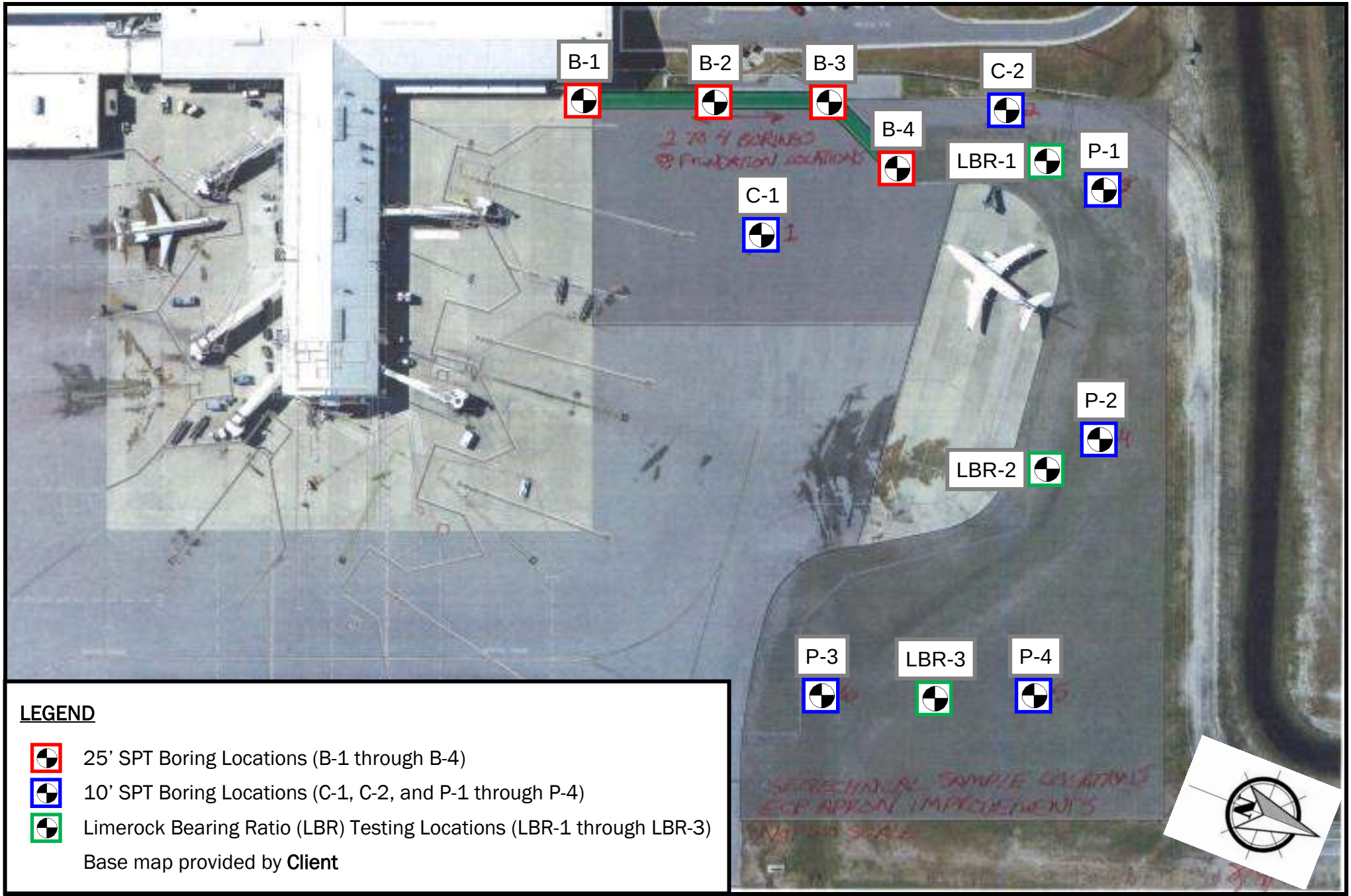
Date(s) aerial images were photographed: Dec 31, 2009—Dec 10, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
25	Hurricane sand, 0 to 2 percent slopes	11.6	96.1%
30	Pottsburg-Pottsburg, wet, sand, 0 to 2 percent slopes	0.5	3.9%
Totals for Area of Interest		**12.1**	**100.0%**

APPENDIX B
Subsurface Data



LEGEND

- 25’ SPT Boring Locations (B-1 through B-4)
- 10’ SPT Boring Locations (C-1, C-2, and P-1 through P-4)
- Limerock Bearing Ratio (LBR) Testing Locations (LBR-1 through LBR-3)

Base map provided by **Client**

Scale: Not To Scale	
Date Drawn: October 4, 2021	
Drawn By: D. Ritzel	
Checked By: A. Kniazeff	

NOVA
17612 Ashley Drive
Panama City Beach, Florida 32413
850.249.NOVA(6682) ♦ 850.249.6683

BORING LOCATION PLAN
ECP North Terminal Expansion
Panama City, Bay County, Florida
NOVA Project Number 10111-2021211

NOVA

KEY TO BORING LOGS

SYMBOLS AND ABBREVIATIONS

SYMBOL	DESCRIPTION
N-Value	No. of Blows of a 140-lb. Weight Falling 30 Inches Required to Drive a Standard Spoon 1 Foot
WOR	Weight of Drill Rods
WOH	Weight of Drill Rods and Hammer
	Sample from Auger Cuttings
	Standard Penetration Test Sample
	Thin-wall Shelby Tube Sample (Undisturbed Sampler Used)
% REC	Percent Core Recovery from Rock Core Drilling
RQD	Rock Quality Designation
	Stabilized Groundwater Level
	Seasonal High Groundwater Level (also referred to as the W.S.W.T.)
NE	Not Encountered
GNE	Groundwater Not Encountered
BT	Boring Terminated
-200 (%)	Fines Content or % Passing No. 200 Sieve
MC (%)	Moisture Content
LL	Liquid Limit (Atterberg Limits Test)
PI	Plasticity Index (Atterberg Limits Test)
K	Coefficient of Permeability
Org. Cont.	Organic Content
G.S. Elevation	Ground Surface Elevation

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on the No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels and gravel-sand-silt mixtures
			GC	Clayey gravels and gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS 5% or less passing No. 200 sieve	SW**	Well-graded sands and gravelly sands, little or no fines
			SP**	Poorly graded sands and gravelly sands, little or no fines
		SANDS with 12% or more passing No. 200 sieve	SM**	Silty sands, sand-silt mixtures
			SC**	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes the No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diamicaceous fine sands or silts, elastic silts
			CH	Inorganic clays or clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
			PT	Peat, muck and other highly organic soils

*Based on the material passing the 3-inch (75 mm) sieve
** Use dual symbol (such as SP-SM and SP-SC) for soils with more than 5% but less than 12% passing the No. 200 sieve

RELATIVE DENSITY
(Sands and Gravels)
Very loose – Less than 4 Blow/Foot
Loose – 4 to 10 Blows/Foot
Medium Dense – 11 to 30 Blows/Foot
Dense – 31 to 50 Blows/Foot
Very Dense – More than 50 Blows/Foot

CONSISTENCY
(Silts and Clays)
Very Soft – Less than 2 Blows/Foot
Soft – 2 to 4 Blows/Foot
Medium Stiff – 5 to 8 Blows/Foot
Stiff – 9 to 15 Blows/Foot
Very Stiff – 16 to 30 Blows/Foot
Hard – More than 30 Blows/Foot

RELATIVE HARDNESS
(Limestone)
Soft – 100 Blows for more than 2 Inches
Hard – 100 Blows for less than 2 Inches

MODIFIERS

These modifiers Provide Our Estimate of the Amount of Minor Constituents (Silt or Clay Size Particles) in the Soil Sample
Trace – 5% or less
With Silt or With Clay – 6% to 11%
Silty or Clayey – 12% to 30%
Very Silty or Very Clayey – 31% to 50%

These Modifiers Provide Our Estimate of the Amount of Organic Components in the Soil Sample
Trace – Less than 3%
Few – 3% to 4%
Some – 5% to 8%
Many – Greater than 8%

These Modifiers Provide Our Estimate of the Amount of Other Components (Shell, Gravel, Etc.) in the Soil Sample
Trace – 5% or less
Few – 6% to 12%
Some – 13% to 30%
Many – 31% to 50%

NOVA

TEST BORING RECORD B-1

PROJECT NAME: ECP North Terminal Expansion **DATE:** 10/1/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: L. Griffin **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
APPARENT GW DEPTH: 6.5 feet **ESHGW DEPTH:**

Depth (feet)	Material Description	N-Value
0	Loose light brown silty fine-grained SAND with gravel (SM)	5
5	Loose brown to light brown slightly silty fine-grained SAND (SP-SM)	8
		12
	Medium dense grey clayey fine-grained SAND (SC)	13
10	Loose to dense grey to brown slightly silty fine-grained SAND (SP-SM)	13
15		42
20		22
25		9
	Boring Terminated at 25 feet	

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

TEST BORING RECORD B-2

PROJECT NAME: ECP North Terminal Expansion **DATE:** 10/1/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: L. Griffin **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
INITIAL GW DEPTH: ▼ 6.0 feet **ESHGW DEPTH:** ▽

Depth (feet)	Material Description	N-Value
0	Medium dense light brown silty fine-grained SAND with gravel (SM)	17
5	Medium dense light brown to grey slightly silty fine-grained SAND (SP-SM)	23
		21
	Medium dense dark brown slightly silty fine-grained SAND with trace organics - organic silt (SP-SM)	12
10	Medium dense to dense dark brown to brown slightly silty fine-grained SAND (SP-SM)	15
15		36
20	Medium dense brown silty fine-grained SAND (SM)	15
25	Medium dense brown slightly clayey fine-grained SAND (SP-SC)	18
	Boring Terminated at 25 feet	

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

NOVA

TEST BORING RECORD B-3

PROJECT NAME: ECP North Terminal Expansion **DATE:** 10/1/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: L. Griffin **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
INITIAL GW DEPTH: ▼ 6.0 feet **ESHGW DEPTH:** ▽

Depth (feet)	Material Description	N-Value
0	Medium dense light brown silty fine-grained SAND with gravel (SM)	18
5	Medium dense grey/brown to dark brown slightly silty fine-grained SAND (SP-SM)	19
		11
	Medium dense dark brown slightly silty fine-grained SAND with trace organics - organic silt (SP-SM)	16
10	Medium dense brown to grey slightly silty fine-grained SAND (SP-SM)	19
15		21
20		18
25		22
	Boring Terminated at 25 feet	

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

TEST BORING RECORD B-4

PROJECT NAME: ECP North Terminal Expansion **DATE:** 10/1/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: L. Griffin **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
INITIAL GW DEPTH: ▼ 6.5 feet **ESHGW DEPTH:** ▽

Depth (feet)	Elevation	Material Description	Graphic	Groundwater	Sample Type	N-Value
0						
		Medium dense light brown silty fine-grained SAND with gravel (SM)				17
		Medium dense dark brown slightly silty fine-grained SAND with trace organics - organic silt (SP-SM)				20
5						18
				▼		15
						13
10						
		Loose to medium dense grey/brown slightly silty fine-grained SAND (SP-SM)				22
15						
						9
20						
						14
25		Boring Terminated at 25 feet				

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

NOVA

TEST BORING RECORD C-1

PROJECT NAME: ECP North Terminal Expansion **DATE:** 10/1/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: L. Griffin **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
INITIAL GW DEPTH: ▼ 6.0 feet **ESHGW DEPTH:** ▽ 5.5 feet

Depth (feet)	Material Description	N-Value
0	Approximately 6 inches of asphaltic concrete	
	Medium dense brown/light brown silty fine-grained SAND with gravel (SM)	18
	Medium dense brown to dark brown slightly silty fine-grained SAND (SP-SM)	26
5		16
	Loose dark brown fine-grained SAND (SP)	10
	Medium dense dark brown fine-grained SAND with trace organics - organic silt (SP)	11
10	Boring Terminated at 10 feet	

Graphic / Groundwater / Sample Type

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

NOVA

TEST BORING RECORD C-2

PROJECT NAME: ECP North Terminal Expansion **DATE:** 10/1/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: L. Griffin **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
INITIAL GW DEPTH: ▼ 6.0 feet **ESHGW DEPTH:** ▽ 5.5 feet

Depth (feet)	Material Description	N-Value
0	Approximately 6 inches of asphaltic concrete	
	Medium dense grey silty fine-grained SAND (SM)	17
	Medium dense to very dense dark brown slightly silty fine-grained SAND with trace organics - organic silt (SP-SM)	24
5		26
		71
	Very dense dark brown slightly silty fine-grained SAND with few organics - organic silt (SP-SM)	102
10	Boring Terminated at 10 feet	

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

>>

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

TEST BORING RECORD P-1

PROJECT NAME: ECP North Terminal Expansion **DATE:** 9/16/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: J. Governale **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
APPARENT GW DEPTH: 4.5 feet **ESHGW DEPTH:** 4.5 feet

Depth (feet)	Material Description	N-Value
0	Grey to brown slightly silty fine-grained SAND (SP-SM)	
5	Loose dark brown slightly silty fine-grained SAND (SP-SM)	7
	Loose dark brown slightly silty fine-grained SAND with trace organics - organic silt (SP-SM)	11
	Medium dense dark brown slightly silty fine-grained SAND (SP-SM)	20
10	Boring Terminated at 10 feet	

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

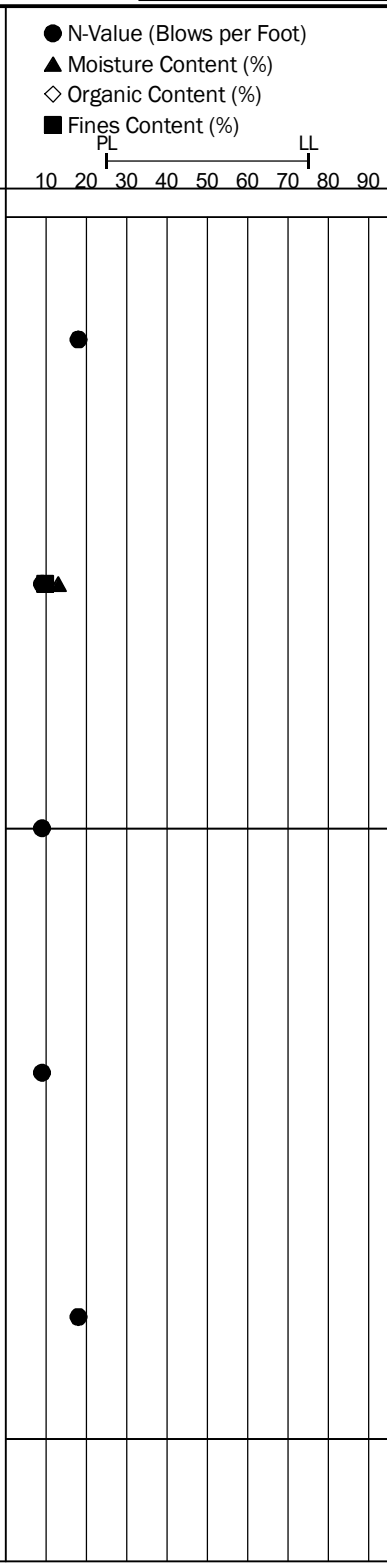
This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note: Initial 4' hand augered due to presence of nearby subsurface utilities.

TEST BORING RECORD P-2

PROJECT NAME: ECP North Terminal Expansion **DATE:** 9/16/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: J. Governale **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
APPARENT GW DEPTH: 5.0 feet **ESHGW DEPTH:** 5.0 feet

Depth (feet)	Material Description	N-Value
0	Medium dense light grey fine-grained SAND (SP)	18
5	Loose grey to dark brown slightly silty fine-grained SAND (SP-SM)	9
		9
	Loose to medium dense dark brown fine-grained SAND with trace organics - organic silt (SP)	9
10		18
	Boring Terminated at 10 feet	



This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

NOVA

TEST BORING RECORD P-3

PROJECT NAME: ECP North Terminal Expansion **DATE:** 9/16/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: J. Governale **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
INITIAL GW DEPTH: ▼ 4.0 feet **ESHGW DEPTH:** ▽ 4.0 feet

Depth (feet)	Elevation	Material Description	Graphic	Groundwater	Sample Type	N-Value
0		Medium dense grey slightly silty fine-grained SAND (SP-SM)				17
		Medium dense dark brown slightly silty fine-grained SAND with trace organics - organic silt (SP-SM)		▼		14
5						17
						14
						17
10		Boring Terminated at 10 feet				

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

NOVA

TEST BORING RECORD P-4

PROJECT NAME: ECP North Terminal Expansion **DATE:** 9/16/2021
PROJECT NO.: 2021211 **CLIENT:** ZHA, Inc.
PROJECT LOCATION: Panama City, Bay County, Florida
LOCATION: See Boring Location Plan **ELEVATION:** Existing Grade
DRILLED BY: J. Governale **LOGGED BY:** D. Ritzel
DRILLING METHOD: Mud Rotary **HAMMER:**
APPARENT GW DEPTH: ▼ 5.0 feet **ESHGW DEPTH:** ▽ 5.0 feet

Depth (feet)	Elevation	Material Description	Graphic	Groundwater	Sample Type	N-Value
0		Medium dense grey/brown slightly silty fine-grained SAND (SP-SM)				18
						12
5		Loose to medium dense dark brown slightly silty fine-grained SAND with trace organics - organic silt (SP-SM)		▼		9
						14
10		Boring Terminated at 10 feet				26

● N-Value (Blows per Foot)
▲ Moisture Content (%)
◇ Organic Content (%)
■ Fines Content (%)
PL LL
10 20 30 40 50 60 70 80 90

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Note:

APPENDIX C
Laboratory Data

SUMMARY OF CLASSIFICATION & INDEX TESTING

ECP North Terminal Expansion
Panama City, Bay County, Florida
NOVA Project Number 10111-2021211

Boring Number	Sample Depth (ft)	Natural Moisture (%)	Percent (%) Passing Sieve #200	Organic Content (%)	USCS Soil Classification
B-1	6.0 - 8.0	22	13.5	—	SC
B-3	6.0 - 8.0	23	6.0	2.7	SP-SM
C-1	2.0 - 4.0	10	9.3	—	SP-SM
P-2	2.0 - 4.0	13	9.8	—	SP-SM
P-3	2.0 - 4.0	19	6.4	2.2	SP-SM

NOVA

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Panama City Beach, FL 32413
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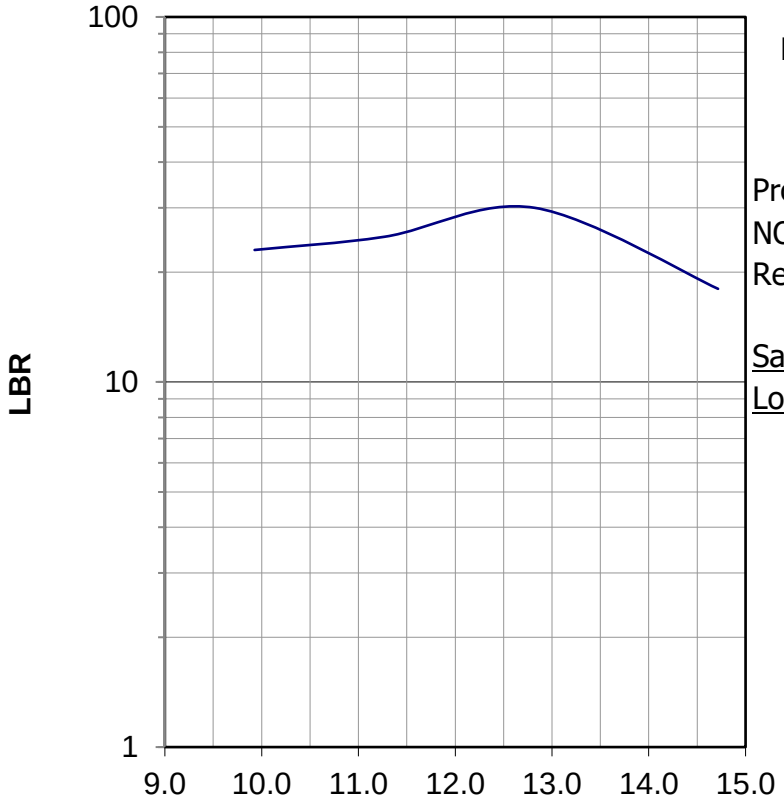
LBR @ 0.1" Penetration

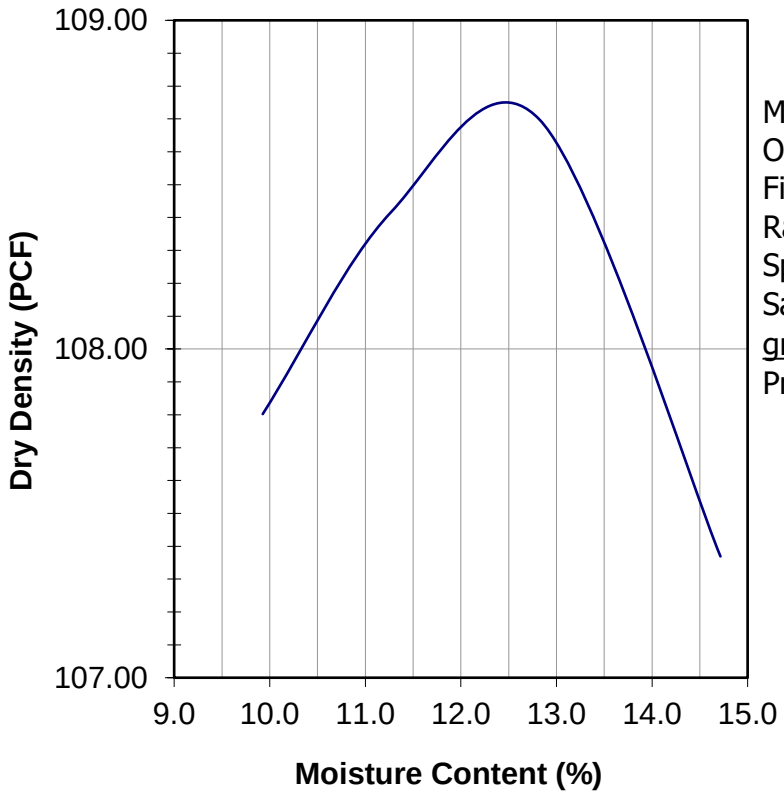


Report of Limerock Bearing Ratio (FM 5-515) and Modified Proctor ASTM D-1557, and AASHTO T-180

Project Name: ECP North Terminal Expansion
NOVA Project Number: 10111-2021211
Report Date: October 6, 2021

Sample ID: LBR-1
Location: LBR-1 (2.0' - 3.0' BEG)

LBR RESULTS
(FM 5-515)
Maximum LBR Value: 30



PROCTOR DATA
(FM 5-515)
Maximum Dry Density: 108.7 pcf
Optimum Moisture Content: 12.5 %
Fines Content: 9.3 %
Rammer: Mechanical
Specific Gravity (graphically): N/A
Sample Description: Grey slightly silty fine-grained SAND
Proposed Use: Subgrade/Embankment Utilization

Kyle Ferachi
Certified FDOT LBR Technician

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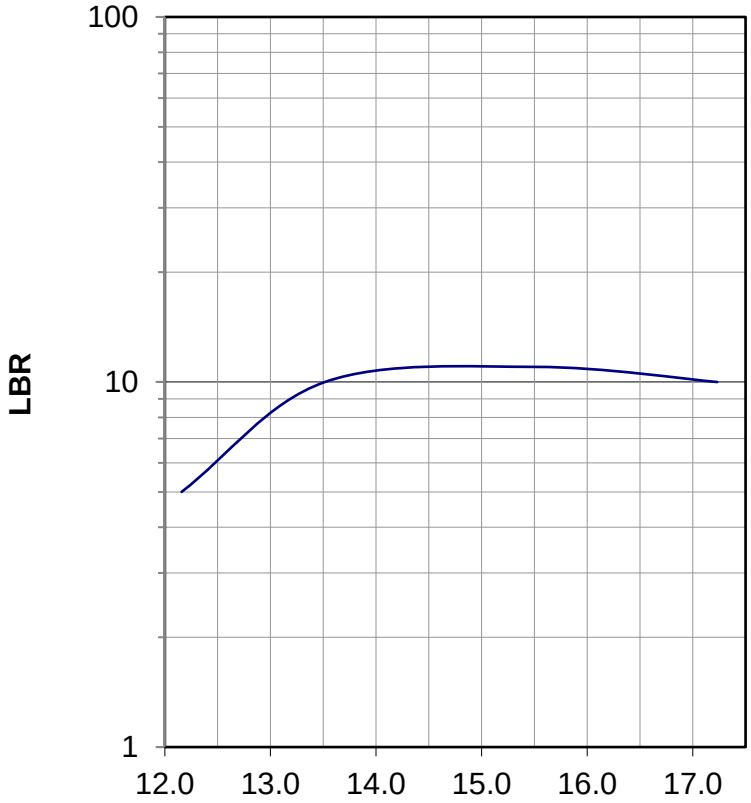
Panama City Beach, FL 32413
(850) 249-NOVA(6682)
Fax:(850) 249-6683

LBR @ 0.1" Penetration

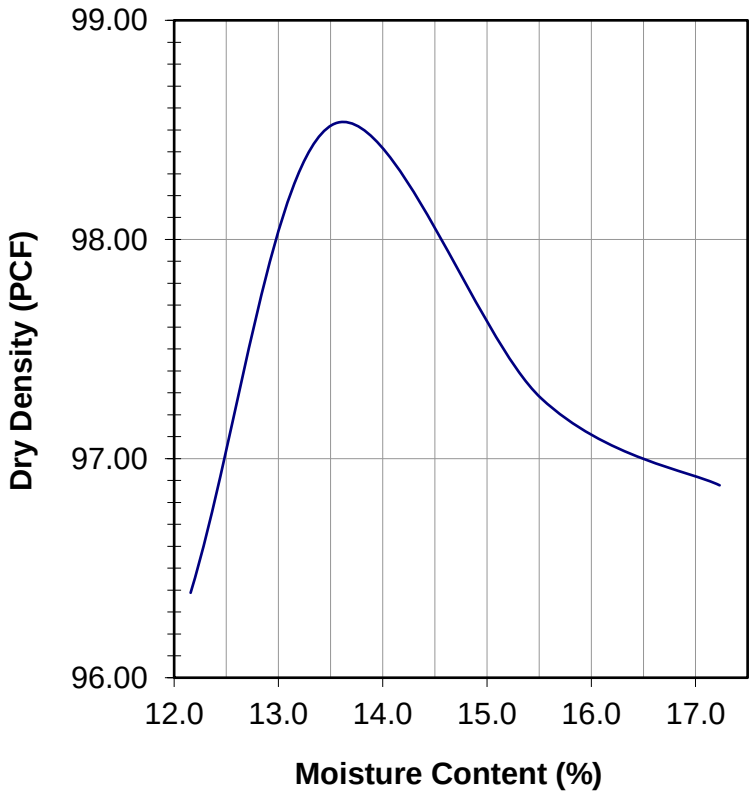


Report of Limerock Bearing Ratio (FM 5-515) and Modified Proctor ASTM D-1557, and AASHTO T-180

Project Name: ECP North Terminal Expansion
NOVA Project Number: 10111-2021211
Report Date: October 6, 2021

Sample ID: LBR-2
Location: LBR-2 (2.0' - 3.0' BEG)

LBR RESULTS
(FM 5-515)
Maximum LBR Value: 11



PROCTOR DATA
(FM 5-515)
Maximum Dry Density: 98.5 pcf
Optimum Moisture Content: 13.6 %
Fines Content: 3.3 %
Rammer: Mechanical
Specific Gravity (graphically): N/A
Sample Description: Dark grey fine-grained SAND
Proposed Use: Subgrade/Embankment Utilization

Kyle Ferachi
Certified FDOT LBR Technician

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Panama City Beach, FL 32413
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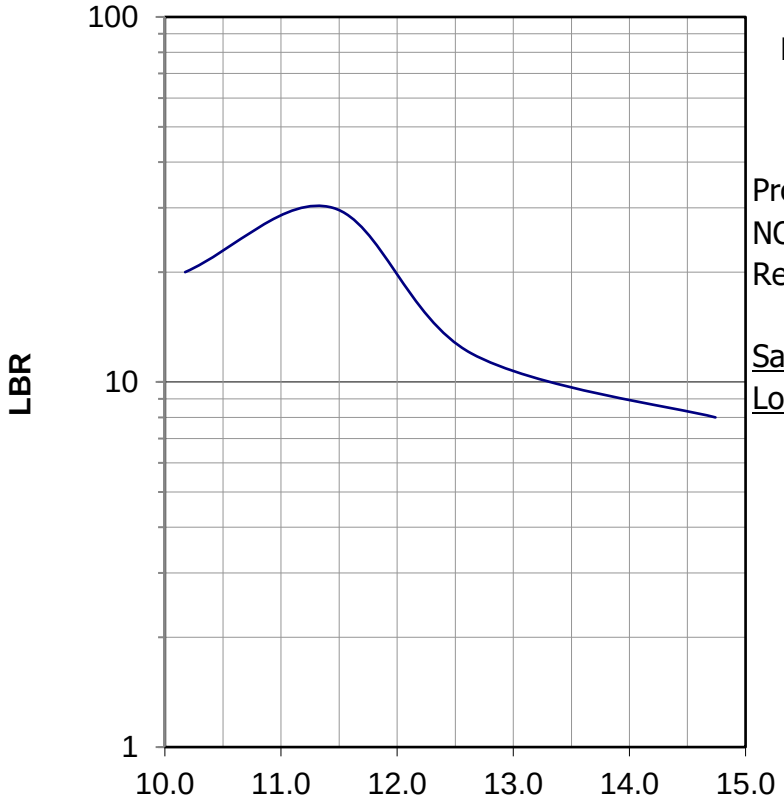
Fax:(850) 249-6683

LBR @ 0.1" Penetration

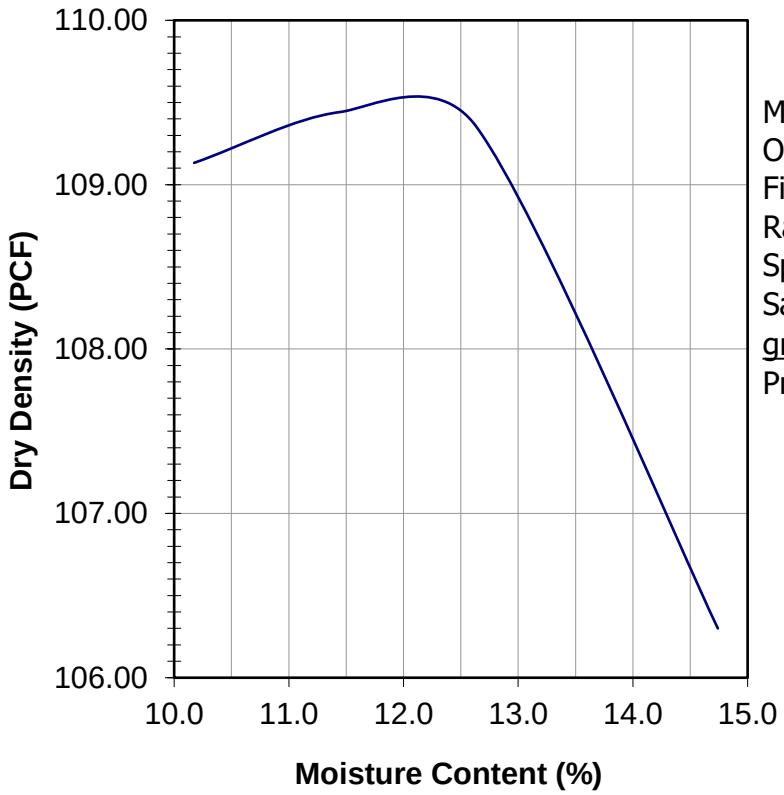


Report of Limerock Bearing Ratio (FM 5-515) and Modified Proctor ASTM D-1557, and AASHTO T-180

Project Name: ECP North Terminal Expansion
NOVA Project Number: 10111-2021211
Report Date: October 6, 2021

Sample ID: LBR-3
Location: LBR-3 (2.0' - 3.0' BEG)

LBR RESULTS
(FM 5-515)
Maximum LBR Value: 30



PROCTOR DATA
(FM 5-515)
Maximum Dry Density: 109.6 pcf
Optimum Moisture Content: 12.1 %
Fines Content: 9.3 %
Rammer: Mechanical
Specific Gravity (graphically): N/A
Sample Description: Grey slightly silty fine-grained SAND with trace aggregate
Proposed Use: Subgrade/Embankment Utilization

Kyle Ferachi
Certified FDOT LBR Technician

APPENDIX D
Support Documents

QUALIFICATIONS OF RECOMMENDATIONS

The findings, conclusions and recommendations presented in this report represent our professional opinions concerning subsurface conditions at the site. The opinions presented are relative to the dates of our site work and should not be relied on to represent conditions at later dates or at locations not explored. The opinions included herein are based on information provided to us, the data obtained at specific locations during the study, and our previous experience. If additional information becomes available which might impact our geotechnical opinions, it will be necessary for NOVA to review the information, re-assess the potential concerns, and re-evaluate our conclusions and recommendations.

Regardless of the thoroughness of a geotechnical exploration, there is the possibility that conditions between borings may differ from those encountered at specific boring locations, that conditions are not as anticipated by the designers and/or the contractors, or that either natural events or the construction process has altered the subsurface conditions. These variations are an inherent risk associated with subsurface conditions in this region and the approximate methods used to obtain the data. These variations may not be apparent until construction.

The professional opinions presented in this report are not final. Field observations and foundation installation monitoring by the geotechnical engineer, as well as soil density testing and other quality assurance functions associated with site earthwork and foundation construction, are an extension of this report. Therefore, NOVA should be retained by the owner to observe all earthwork and foundation construction to confirm that the conditions anticipated in this study actually exist, and to finalize or amend our conclusions and recommendations. NOVA is not responsible or liable for the conclusions and recommendations presented in this report if NOVA does not perform these observation and testing services.

This report is intended for the sole use of **ZHA, Inc.,** only. The scope of work performed during this study was developed for purposes specifically intended by **ZHA, Inc.,** only, and may not satisfy other users' requirements. Use of this report or the findings, conclusions or recommendations by others will be at the sole risk of the user. NOVA is not responsible or liable for the interpretation by others of the data in this report, nor their conclusions, recommendations, or opinions.

Our professional services have been performed, our findings obtained, our conclusions derived, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices in the State of Florida. This warranty is in lieu of all other statements or warranties, either expressed or implied.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

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Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

CONTRACT

PROJECT DOCUMENTS