



**CONTRACT DOCUMENTS AND
SPECIFICATIONS
FOR**

TRAFFIC OPERATIONS FACILITY

BID NO. 2023059

PROJECT NO. IRC-2104

PREPARED FOR
THE BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA

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SECTION – 00100 Advertisement for Bids

BOARD OF COUNTY COMMISSIONERS

1801 27th Street
Vero Beach, Florida 32960

**ADVERTISEMENT FOR BIDS
INDIAN RIVER COUNTY**

Sealed bids will be received by Indian River County until **2:00 P.M. on Wednesday, September 13, 2023.** Each bid shall be submitted in a sealed envelope and shall bear the name and address of the bidder on the outside and the words "**TRAFFIC OPERATIONS FACILITY**" and **Bid No. 2023059.** Bids should be addressed to Purchasing Division, Room B1-301, 1800 27th Street, Vero Beach, Florida 32960. All bids will be opened publicly and read aloud at 2:00 P.M. All bids received after 2:00 P.M., on the day specified above, will not be accepted or considered.

**INDIAN RIVER COUNTY PROJECT NO. IRC-2104
INDIAN RIVER COUNTY BID NO. 2023059**

PROJECT DESCRIPTION: The proposed project includes a single story concrete block structure with a total of 16,617 square feet. The space will be split between office, shop, and warehouse. The roof will be a modified bitumen system on rigid insulation and mechanically attached to a galvanized metal deck on steel bar joists. Two covered parking structures are proposed consisting of metal roof over rigid steel frame. Work to also include demolition of the existing site in two phases, leaving the existing shop until phase II to demo. An existing parking area will be modified to create a new entrance/exit. Site utility work is also necessary to complete the project.

All material and equipment furnished and all work performed shall be in strict accordance with the plans, specifications, and contract documents pertaining thereto. Detailed specifications are available at: www.demandstar.com or at www.ircgov.com/departments/budget/purchasing under "Current Solicitations".

All bidders shall submit one (1) original and one (1) copy of the Bid Proposal forms provided within the specifications. Please note that the questionnaire must be filled out completely including the financial statement. BID SECURITY must accompany each Bid, and must be in the form of an AIA Document A310 Bid Bond, properly executed by the Bidder and by a qualified surety, or a certified check or a cashier's check, drawn on any bank authorized to do business in the State of Florida. Bid Security must be in the sum of not less than **Five Percent (5%)** of the

total amount of the bid, made payable to Indian River County Board of County Commissioners. In the event the Contract is awarded to the Bidder, Bidder will enter in a Contract with the County and furnish the required 100% Public Construction Bond and certificates of insurance within the timeframe set by the County. If Bidder fails to do so, the Bid Security shall be retained by the County as liquidated damages and not as penalty.

The County reserves the right to delay awarding of the Contract for a period of **ninety (90)** days after the bid opening, to waive informalities in any bid, or reject any or all bids in whole or in part with or without cause/or to accept the bid that, in its judgement, will serve the best interest of Indian River County, Florida. The County will not reimburse any Bidder for bid preparation costs.

A Pre-Bid Conference will be held on **Wednesday, August 23, 2023 at 2:00 P.M.**, in the first-floor conference room of the Indian River County Administration Building located at 1801 27th Street, Vero Beach, Florida, 32960. **ATTENDANCE AT THIS CONFERENCE IS HIGHLY RECOMMENDED.**

INDIAN RIVER COUNTY

By: Jennifer Hyde
Purchasing Manager

For Publication in the Indian River Press Journal
Date: 08/6/2023

For: Indian River Press Journal

Please furnish tear sheet and Affidavit of Publication to:

INDIAN RIVER COUNTY
PURCHASING DIVISION
1800 27th Street
Building "B"
Vero Beach, FL 32960

**** END OF SECTION ****

SECTION 00200 – Instructions to Bidders

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SECTION 00200 – Instructions to Bidders

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders will have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:

- A. Bidder--The individual or entity who submits a Bid directly to OWNER.
- B. Issuing Office--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
- C. Successful Bidder--The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.
- D. ENGINEER – References County Engineer or their designee.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

- 2.01 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement for Bids or Invitation to Bid may be obtained from the Issuing Office.
- 2.02 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.03 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

- 3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of OWNER's request Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be called for below.
 - A. Bidder must have at least five years' experience in the construction of similar projects of this size and larger.
 - B. Bidder must have successfully constructed, as prime CONTRACTOR, at least three projects similar in scope to this project.
 - C. Bidder must have good recommendations from at least three clients similar to the OWNER.
 - D. The Bidder's superintendent and assistants must be qualified and experienced in similar projects in all categories.
 - E. Bidder must be able to provide evidence of authority to conduct business in the jurisdiction in which the project is located.

- 3.02 Each bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.
- 3.03 The OWNER reserves the right to reject bids from Bidders that are unable to meet the listed required qualifications.
- 3.04 Bidder must be registered with and use, at their sole expense, the Department of Homeland Security's E-Verify system (www.e-verify.gov) to confirm the employment eligibility of all newly hired employees, as required by Section 448.095, F.S.. Owner, contractor, and subcontractors may not enter into a contract unless each party to the contract registers with and uses the E-Verify system. Contractor is also responsible for obtaining an affidavit from all subcontractors, as required in Section 448.095(5)(b), F.S., stating the subcontractor does not employ, contract with, or subcontract with an unauthorized alien. This requirement applies to any provider of services or goods.
- 3.05 Bidder must hold a current registration as a General Contractor in the State of Florida.
- 3.06 **Conflict of Interest:** Any entity submitting a bid or proposal or entering into a contract with the County shall disclose any relationship that may exist between the contracting entity and a County Commissioner or a County Employee. The relationship with a County Commissioner or a County Employee that must be disclosed is as follows: *father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, daughter-in-law, son-in-law, brother-in-law, sister-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half-brother, half-sister, grandparent, or grandchild*. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of the entity. The disclosure of relationships shall be a sworn statement made on a County approved form. Failure to submit the form may be cause for rejection of the bid or proposal.
- 3.07 **Public Entity Crimes:** Pursuant to Florida Statutes Section 287.133(2)(a), all Bidders are hereby notified that a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity (defined as the State of Florida, any of its departments or agencies, or any political subdivision); may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in Florida Statutes Section 287.017 for CATEGORY TWO [currently \$35,000] for a period of 36 months from the date of being placed on the convicted vendor list. A "public entity crime" 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 with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
- 3.08 **Records/Audit:** The Bidder shall maintain books, records and documents pertinent to performance under this Invitation and any resulting Agreement in accordance with generally accepted accounting principles consistently applied. The County and the Florida Office of the Inspector General shall have inspection and audit rights to such records for audit purposes during the term of the contract and for three years following the termination of obligations hereunder. Records which relate to any litigation, appeals or settlements of

claims arising from performance under this work or purchase shall be made available until a final disposition has been made of such litigation, appeals, or claims.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 Subsurface and Physical Conditions

A. The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.

2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.01.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.02 of the General Conditions has been identified and established in paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.02 Underground Facilities

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities at or contiguous to the Site is based upon information and data furnished to OWNER and ENGINEER by OWNERS of such Underground Facilities, including OWNER, or others.

4.03 Hazardous Environmental Condition

A. The Supplementary Conditions identify those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that ENGINEER has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in paragraph 4.03.A will be made available by OWNER to any Bidder on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which Bidder is entitled to rely as provided in paragraph 4.06 of the General Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any "technical data" or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

4.04 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract

Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work appear in paragraph 4.06 of the General Conditions.

4.05 Upon a request directed to the Purchasing Division (purchasing@ircgov.com or (772) 226-1416), OWNER will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

4.06 "This paragraph has been deleted intentionally"

4.07 It is the responsibility of each Bidder before submitting a Bid to:

A. examine and carefully study the Bidding Documents, including any Addenda and the other related data identified in the Bidding Documents;

B. VISIT THE SITE AND BECOME FAMILIAR WITH AND SATISFY BIDDER AS TO THE GENERAL, LOCAL, AND SITE CONDITIONS THAT MAY AFFECT COST, PROGRESS, AND PERFORMANCE OF THE WORK;

C. become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, or performance of the Work;

D. carefully study all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and carefully study all reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions;

E. obtain and carefully study (or assume responsibility for doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (overhead, surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto;

F. agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price bid and within the times and in accordance with the other terms and conditions of the Bidding Documents;

G. become aware of the general nature of the work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents;

H. correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents;

I. promptly give ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by ENGINEER is acceptable to Bidder; and

J. determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.

4.08 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by ENGINEER are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - PRE-BID CONFERENCE

5.01 The date, time, and location for the Pre-Bid conference, is specified in the Advertisement for Bids. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are **HIGHLY ENCOURAGED** to attend and participate in the conference. ENGINEER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

ARTICLE 6 - SITE AND OTHER AREAS

6.01 The Site is identified in the Bidding Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Bidding Documents.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

7.01 CONE OF SILENCE. Potential bidders and their agents shall not communicate in any way with the Board of County Commissioners, County Administrator or any County staff other than Purchasing personnel in reference or relation to this solicitation. This restriction shall be effective from the time of bid advertisement until the Board of County Commissioners meets to authorize award. Such communication may result in disqualification.

7.02 All questions about the meaning or intent of the Bidding Documents are to be submitted to PURCHASING (purchasing@ircgov.com) in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties through the Issuing Office as having received the Bidding Documents.

Questions received less than ten days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

7.03 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by OWNER or ENGINEER.

ARTICLE 8 - BID SECURITY

8.01 Each Bid must be accompanied by Bid Security made payable to OWNER in the amount of five percent of the Bidder's maximum base bid price and in the form of a certified check; cashier's check; or an AIA Document A310 Bid Bond issued by a surety meeting the requirements of Paragraph 5.01 of the General Conditions. The Bid Bond 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 Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. The Surety must be authorized to issue surety bonds in Florida. The Bidder shall require the attorney-in-fact who executes any Bond, to affix to each a current certified copy of their Power of Attorney, reflecting such person's authority as Power of Attorney in the State of Florida. Further, at the time of execution of the Contract, the Successful Bidder shall for all Bonds, provide a copy of the Surety's current valid Certificate of Authority issued by the United States Department of the Treasury under 31 United States Code sections 9304-9308. The Surety shall also meet the requirements of paragraphs 5.01 and 5.02 of the General Conditions.

8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be retained by the owner. The Bid Security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven days after the Effective Date of the Agreement or 91 days after the Bid opening, whereupon Bid Security furnished by such Bidders will be returned.

8.03 Bid Security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 - CONTRACT TIMES

9.01 The number of calendar days within which, or the dates by which, the Work is to be (a) Substantially Completed and (b) also completed and ready for final payment are set forth in the Agreement.

ARTICLE 10 - LIQUIDATED DAMAGES

10.01 Provisions for liquidated damages, if any, are set forth in the Agreement.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may be supplemented in the General Requirements.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to OWNER in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, OWNER may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.

12.02 If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in paragraph 6.06 of the General Conditions.

12.03 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom CONTRACTOR has reasonable objection.

12.04 CONTRACTOR shall not purchase equipment for State or Local ownership under a Florida Department of Transportation LAP project.

ARTICLE 13 - PREPARATION OF BID

13.01 The Bid form is included with the Bidding Documents. Only the bid form provided by OWNER is acceptable (Bidders are not to recreate or modify the bid form). ***Bids not submitted on the bid form(s) shall be rejected, as will bids submitted on rewritten, recreated or modified bid forms.***

13.02 All blanks on the Bid form shall be completed by printing in ink or by typewriter and the Bid signed. A Bid price shall be indicated for each section, Bid item, alternative, adjustment unit price item, and unit price item listed therein, or the words "No Bid," "No Change," or "Not

Applicable" entered.

13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.

13.04 A Bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.

13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown below the signature.

13.06 A Bid by an individual shall show the Bidder's name and official address.

13.07 A Bid by a joint venture shall be executed by each joint venturor in the manner indicated on the Bid form. The official address of the joint venture must be shown below the signature.

13.08 All names shall be typed or printed in ink below the signatures.

13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid form.

13.10 The address and telephone number for communications regarding the Bid shall be shown.

13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number or county registration number for the state or county of the Project, if any, shall also be shown on the Bid form.

13.12 All supporting information requested in the Bid Form must be furnished. Do not leave any questions or requests unanswered.

13.13 In accordance with Florida Statutes Section 218.80, the "Public Bid Disclosure Act", Indian River County as OWNER is obligated to disclose all license, permit, impact, or inspection fees that are payable to Indian River County in connection with the construction of the Work by the accepted bidder. All permit, impact, or inspection fees payable to Indian River County in connection with the work on this County project will be paid by Indian River County, with the exception of re-inspection fees. The Bidder shall not include ANY PERMIT, IMPACT, NOR INSPECTION FEES payable to **Indian River County** in the bid.

13.14 CONTRACTOR shall furnish all labor, materials, equipment and incidentals necessary to perform additional work not covered on the Contract Drawings. The **FORCE ACCOUNT** is intended as a contingency for unforeseen work. Lump sum amount for **FORCE ACCOUNT** work is included in the bid schedule. The value of force account work will be determined in accordance with Article 12 of the General Conditions.

ARTICLE 14 - BASIS OF BID; EVALUATION OF BIDS

14.01 Unit Price

A. Bidders shall submit a Bid on a unit price basis for each item of Work listed in the Bid schedule. Omission of unit prices where required will result in disqualification of the bid.

B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price Bid for the item. The final quantities and Contract Price will be determined in accordance with paragraph 11.03 of the General Conditions.

C. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

14.03 The Bidder's attention is called to the fact that any estimate of quantities of work to be done and materials to be furnished under the Specifications as shown on the Bid Schedule, or elsewhere, is approximate only and not guaranteed. The OWNER does not assume any responsibility that the final quantities shall remain in strict accordance with the estimated quantities, nor shall the Bidder plead misunderstanding or deception because of such estimate of quantities or of the character, location of the work, or other conditions pertaining thereto.

14.04 Per section 287.0501, Florida Statutes, as amended, OWNER may not request documentation of, or consider a Bidder's social, political, or ideological interests when determining if the Bidder is responsible, and may not give preference to a Bidder based on the Bidder's social, political, or ideological interests.

ARTICLE 15 - SUBMITTAL OF BID

15.01 The Bid form is to be completed and submitted with the Bid security and the following data:

- A. Sworn Statement under Section 105.08, Indian River County Code, on Disclosure of Relationships.
- B. Sworn Statement under the Florida Trench Safety Act.
- C. Qualifications Questionnaire.
- D. List of Subcontractors.
- E. Certification Regarding Prohibition Against Contracting with Scrutinized Companies

15.02 A Bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or invitation to Bid and shall be enclosed in an opaque sealed envelope plainly marked with the Project Title and Bid Number (and, if applicable, the designated portion of the

Project for which the Bid is submitted), Bid Number, the name and address of Bidder, and shall be accompanied by the Bid security and other required documents. If mail or other delivery system sends a Bid, the sealed envelope containing the Bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid shall be addressed to Indian River County, Purchasing Division, 1800 27th Street, Vero Beach, Florida, 32960.

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

16.02 If within 48 hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

ARTICLE 17 - OPENING OF BIDS

17.01 Bids will be opened at the time and place indicated in the advertisement or invitation to Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

18.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but OWNER may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 - AWARD OF CONTRACT

19.01 OWNER reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. OWNER further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder. OWNER also reserves the right to waive all technicalities and informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder. The County will not reimburse any Bidder for bid preparation costs. Owner reserves the right to cancel the award of any Contract at any time before the execution of such Contract by all parties without any liability to the Owner. For and in consideration of the Owner considering Bids submitted, the Bidder, by submitting its Bid, expressly waives any claim to damages, of any kind whatsoever, in the event the Owner exercises its right to cancel the award in accordance herewith.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, OWNER will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

19.04 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.

19.05 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.

19.06 If the Contract is to be awarded, OWNER will award the Contract to the Bidder whose Bid is in the best interests of the Project.

19.07 OWNER has no local ordinance or preferences, as set forth in FS 255.0991 (2) in place, therefore no preference prohibited by that section will be considered in the acceptance, review or award of this bid.

19.08 Any actual or prospective bidder or proposer who is aggrieved in connection with the bidding and/or selection process may protest to the OWNER's Purchasing Manager. The protest shall be submitted in writing to the Purchasing Manager within five (5) calendar days after the bidder or proposer knows or should have known of the facts giving rise to the protest.

19.09 CONTRACTOR certifies that it and its related entities as defined by Florida law are not on the Scrutinized Companies that Boycott Israel List, created pursuant to s. 215.4725 of the Florida Statutes, and are not engaged in a boycott of Israel. In addition, if this agreement is for goods or services of one million dollars or more, CONTRACTOR certifies that it and its related entities as defined above by Florida law are not 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 Section 215.473 of the Florida Statutes and are not engaged in business operations in Cuba or Syria.

OWNER may terminate this Contract if CONTRACTOR is found to have submitted a false certification as provided under section 287.135(5), Florida Statutes, been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or been engaged in business operations in Cuba or Syria, as defined by section 287.135, Florida Statutes.

OWNER may terminate this Contract if CONTRACTOR, including all wholly owned subsidiaries, majority-owned subsidiaries, and parent companies, that exist for the purpose of making profit, is found to have been placed on the Scrutinized Companies that Boycott Israel List or is engaged in a boycott of Israel as set forth in section 215.4725, Florida Statutes.

Accordingly, firms responding to this solicitation shall return with their response an executed copy of the attached "Certification Regarding Prohibition Against Contracting With Scrutinized Companies." Failure to return this executed form with submitted bid/proposal/statement of

qualifications will result in the response being deemed non-responsive and eliminated from consideration.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth OWNER's requirements as to Public Construction Bond and insurance. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required insurance certificate(s) and Bond, unless the Bond has been waived due to the total contract being less than \$100,000.

ARTICLE 21 - SIGNING OF AGREEMENT

21.01 When OWNER gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within fifteen (15) days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER.

21.02 OWNER shall return one fully signed counterpart to Successful Bidder.

21.03 Should Bidder to whom the Contract has been awarded refuse or fail to complete the requirements of Article 21.01 above, the additional time in calendar days, required to correctly complete the documents will be deducted, in equal amount, from the Contract time. Or, the OWNER may elect to revoke the Award and the OWNER shall hold the Bid Bond for consequential damages incurred, and the Contract may be awarded as the OWNER desires.

**** END OF SECTION ****

SECTION 00300 – Bid Package Contents**THIS PACKAGE CONTAINS:**

<u>SECTION TITLE</u>	<u>SECTION NUMBER</u>
Bid Form	00310
Bid Bond	00430
Sworn Statement on Disclosure of Relationships	00452
Sworn Statement Under the Florida Trench Safety Act	00454
Qualifications Questionnaire	00456
List of Subcontractors	00458
Certification Regarding Prohibition Against Contracting with Scrutinized Companies	00460

SUBMIT ONE (1) ORIGINAL AND ONE (1) COPY OF THIS COMPLETE PACKAGE WITH YOUR BID

**** END OF SECTION ****

SECTION 00310 – Bid Form

PROJECT IDENTIFICATION:

Project Name: TRAFFIC OPERATIONS FACILITY
 County Project Number: IRC-2104
 Bid Number: 2023059
 Project Address: 4548 41ST Street
Vero Beach, FL 32967
 Project Description: *The proposed project includes a single story concrete block structure with a total of 16,617 square feet. The space will be split between office, shop, and warehouse. The roof will be a modified bitumen system on rigid insulation and mechanically attached to a galvanized metal deck on steel bar joists. Two covered parking structures are proposed consisting of metal roof over rigid steel frame. Work to also include demolition of the existing site in two phases, leaving the existing shop until phase II to demo. An existing parking area will be modified to create a new entrance/exit. Site utility work is also necessary to complete the project.*

THIS BID IS SUBMITTED TO: INDIAN RIVER COUNTY
 1800 27th Street
 VERO BEACH, FLORIDA 32960

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2.01 Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. The Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

<u>Addendum Date</u>	<u>Addendum Number</u>
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.

E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.

I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.

J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

4.01 Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

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ITEMIZED BID SCHEDULE

PROJECT NAME: TRAFFIC OPERATIONS FACILITY

PROJECT NO. IRC-2104 BID NO. 2023059

BIDDER'S Name:

Item No.	Description	Unit	Quantity	Unit Price	Amount
<u>BUILDING</u>					
DIVISION 1	GENERAL REQUIREMENTS (INCLUDES EXISTING BUILDING DEMOLITION)	LS	1		
DIVISION 3	CONCRETE - SEE STRUCTURAL ENGINEERING DRAWINGS	LS	1		
DIVISION 4	MASONRY - SEE STRUCTURAL ENGINEERING DRAWINGS	LS	1		
DIVISION 5	METALS - SEE STRUCTURAL ENGINEERING DRAWINGS	LS	1		
DIVISION 6	WOOD AND PLASTICS - SEE STRUCTURAL ENGINEERING DRAWINGS	LS	1		
DIVISION 7	THERMAL AND MOISTURE PROTECTION	LS	1		
DIVISION 8	DOORS AND WINDOWS	LS	1		
DIVISION 9	FINISHES	LS	1		
DIVISION 10	SPECIALTIES	LS	1		
DIVISION 12	FURNISHINGS	LS	1		
DIVISION 13	SPECIAL CONSTRUCTION	LS	1		
DIVISION 15	MECHANICAL - SEE MEP ENGINEERING DRAWINGS	LS	1		
DIVISION 16	ELECTRICAL - SEE MEP ENGINEERING DRAWINGS	LS	1		
<u>BUILDING SUBTOTAL</u>					
<u>SITE WORK</u>					
101-1	MOBILIZATION/DEMOBILIZATION	LS	1		
102-1	MAINTENANCE OF TRAFFIC	LS	1		
104-10-3	SEDIMENT BARRIER	LF	761		
110-1-1	CLEARING AND GRUBBING	AC	2.05		
110-23	TREES TO BE REMOVED (OAKS: 10" - 40")	EA	9		
110-4-10	REMOVAL OF EXISTING CONCRETE (SIDEWALKS)	SY	226		
120-1	REGULAR EXCAVATION	CY	1,150		
160-4A	TYPE B STABILIZATION (CAR PARKING, SIDEWALKS AND SERVICE YARD AREAS), 6" THICK	SY	4727		
160-4B	TYPE B STABILIZATION (HEAVY DUTY CONCRETE AREAS) 12" THICK	SY	413		
285-704	OPTIONAL BASE, GROUP 4 (CAR PARKING AREAS)	SY	456		
285-709	OPTIONAL BASE GROUP 6 (SERVICE YARD)	SY	3,200		
334-1-13	SUPERPAVE ASPHALT CONCRETE TRAFFIC C (SP 9.5, 1.5") (CAR PARKING AREAS)	TN	37.7		
334-1-13	SUPERPAVE ASPHALT CONCRETE TRAFFIC C (SP 12.5, 1.5" - 1ST LIFT) (SERVICE YARD)	TN	260.5		
334-1-13	SUPERPAVE ASPHALT CONCRETE TRAFFIC C (SP 9.5, 1" - 2ND LIFT) (SERVICE YARD)	TN	173.7		
400-2-10	CONCRETE CLASS II, APPROACH SLABS, 7" THICKNESS, REINFORCED, 4,000 PSI	CY	413		
425-1-54	INLET, DITCH BOTTOM, TYPE F	EA	7		
425-2-41	MANHOLE, P-7, < 10'	EA	3		

ITEMIZED BID SCHEDULE

PROJECT NAME: TRAFFIC OPERATIONS FACILITY

PROJECT NO. IRC-2104 BID NO. 2023059

BIDDER'S Name:

Item No.	Description	Unit	Quantity	Unit Price	Amount
430-175-112	PIPE CULVERT, ROUND, 12" S/CD (SCH 80 PVC)	LF	30		
430-175-115	PIPE CULVERT, ROUND, 15" S/CD (RCP)	LF	142		
430-175-118	PIPE CULVERT, ROUND, 18" S/CD (RCP)	LF	259		
430-175-124	PIPE CULVERT, ROUND, 24" S/CD (RCP)	LF	129		
430-964-6	PVC PIPE FOR NON-STANDARD DRAINAGE, 8" SCH 80	LF	52		
430-964-7	PVC PIPE FOR NON-STANDARD DRAINAGE, 6" SCH 80 (ROOF LEADERS)	LF	70		
507-70	ALUMINUM SIDEWALK FLOOR	SF	35		
515-1-2	PIPE HANDRAIL - GUARDRAIL, ALUMINUM	LF	12		
520-1-10	CONCRETE CURB AND GUTTER, TYPE F	LF	51		
520-2-4	CONCRETE CURB, TYPE D	LF	1,520		
522-2	CONCRETE SIDEWALK AND DRIVEWAYS (FIBER REINFORCED) (6" THICK)	SY	658		
527-2	DETECTABLE WARNINGS (YELLOW)	SF	120		
550-60-236	FENCE GATE, TYPE B, SLIDING/CANTILEVER, 24'-30' OPENING	EA	2		
570-1-2	PERFORMANCE TURF, SOD (MATCH EXISTING)	SY	3,200		
580-4-343	LANDSCAPE - PALMS, SABAL PALMETTO, 9'-12' - CLEAR TRUNK	EA	11		
580-5-223	LANDSCAPE - TREES, LIVE & LAUREL OAK, QUERCUS VIRGIANIANA & LAURIFOLIA, 11'-14' OVERALL HEIGHT	EA	13		
580-5-242	LANDSCAPE - TREES, NATCHEZ CREPE MYRTLE & SILVER BUTTONWOOD, 6' OVERALL HEIGHT	EA	12		
580-5-783	LANDSCAPE - TREES, TAXODIUM ASCENENS, POND CYPRESS, 11'-14' OVERALL HEIGHT	EA	2		
580-5-67	LANDSCAPE - SMALL SHRUB, SPECIFIED, 7 GALLON	EA	125		
590-1	LANDSCAPE - IRRIGATION SYSTEM, MODIFICATION	LS	1		
700-1-11	SINGLE SIGN POST, UP TO 12 SF	AS	10		
710-90	PAINTED PAVEMENT MARKINGS (808 LF OF 4" PARKING STALL STRIPES)	LS	1		
710-90	PAINTED PAVEMENT MARKINGS (50 LF OF 6" DOUBLE YELLOW STRIPES)	LS	1		
711-11-123	THERMOPLASTIC, PAVEMENT MARKINGS, STANDARD SOLID WHITE, 12"	LF	253		
711-11-125	THERMOPLASTIC, PAVEMENT MARKINGS, STANDARD SOLID WHITE, 24"	LF	84		
711-11-160	THERMOPLASTIC, PAVEMENT MARKINGS, SYMBOL	EA	1		
711-11-170	THERMOPLASTIC, PAVEMENT MARKINGS, ARROW	EA	6		
715-4-70	LIGHT POLE AND ELECTRIC BOX COMPLETE, REMOVAL	EA	2		
1050-31202	UTILITY PIPE - POLY VINYL CHLORIDE, FURNISH & INSTALL, WATER, 2"	LF	240		
1050-31206	UTILITY PIPE - POLY VINYL CHLORIDE, FURNISH & INSTALL, SEWER, 6"	LF	55		
1060-11211	UTILITY STRUCTURE, BELOW GROUND, FURNISH & INSTALL, STORM, 0-6' (500 GAL OIL/WATER INTERCEPTOR)	EA	1		
1080-21102	UTILITY FIXTURE - VALVE, FURNISH & INSTALL, 2"	EA	2		
1080-23102	UTILITY FIXTURE - TAPPING SADDLE, FURNISH & INSTALL, 2"	EA	1		

ITEMIZED BID SCHEDULE

PROJECT NAME: TRAFFIC OPERATIONS FACILITY

PROJECT NO. IRC-2104 BID NO. 2023059

BIDDER'S Name:

Item No.	Description	Unit	Quantity	Unit Price	Amount
1080-23106	UTILITY FIXTURE - TAPPING SADDLE/SLEEVE, FURNISH & INSTALL, 6" WITH 2" CORP STOP	EA	1		
U-1	UNDERGROUND UTILITY - MISC., EXISTING 4" FORCE MAIN ABANDONE IN PLACE	LF	122		
999-1	ASBUILT SURVEYING AND RECORD DRAWING PREPARATION (BY REGISTERED SURVEYOR)	LS	1		
	<u>SITE WORK SUBTOTAL</u>				
	BUILDING SUBTOTAL + SITEWORK SUBTOTAL =				
999-25	FORCE ACCOUNT =				\$600,000.00
	TOTAL PROJECT BID AMOUNT (INCLUDING FORCE ACCOUNT) =				

SF=Square Foot LS=Lump Sum AC=Acre EA=Each CY=Cubic Yard SY=Square Yard TN=Ton LF=Linear Foot AS=Assembly

NOTE: IF THERE IS A DISCREPANCY BETWEEN THE PLANS (SUMMARY OF PAY ITEMS) AND THE ITEMIZED BID SCHEDULE, THE BID SCHEDULE WILL BE UTILIZED FOR BIDDING PURPOSES.

TOTAL PROJECT BID AMOUNT IN WORDS _____

5.01 Bidder shall complete the Work in accordance with the Contract Documents for the price(s) contained in the Bid Schedule:

- A. The Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- B. The Owner reserves the right to omit or add to the construction of any portion or portions of the work heretofore enumerated or shown on the plans. Furthermore, the Owner reserves the right to omit in its entirety any one or more items of the Contract without forfeiture of Contract or claims for loss of anticipated profits or any claims by the Contractor on account of such omissions.
- C. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Bid items will be based on actual quantities provided. The quantities actually required to complete the contract and work may be less or more than so estimated, and, if so, no action for damages or for loss of profits shall accrue to the Contractor by reason thereof.
- D. Unit Prices have been computed in accordance with paragraph 11.03.B of the General Conditions.

6.01 Bidder agrees that the Work will be substantially completed and ready for final payment in accordance with paragraph 14.07.B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified, which shall be stated in the Agreement.

7.01 The following documents are attached to and made a condition of this Bid:

- A. Itemized Bid Schedule;
- B. Required Bid security in the form of _____;
- C. Sworn Statement under Section 105.08, Indian River Code, on Disclosure of Relationships;
- D. Sworn Statement Under the Florida Trench Safety Act;
- E. Qualifications Questionnaire;
- F. List of Subcontractors;
- G. Certification Regarding Prohibition Against Contracting with Scrutinized Companies

8.01 The terms used in this Bid with initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

SUBMITTED on _____, 20__.

State Contractor License No. _____

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business as: _____
Business address: _____

Phone No.: _____ FAX No.: _____
Email: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____
Email: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(CORPORATE SEAL)

Attest _____
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____
Email: _____

Date of Qualification to do business is _____.

A Joint Venture

Joint Venture Name: _____

(SEAL)

By: _____
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

Joint Venture Name: _____

(SEAL)

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Email: _____

Phone and FAX Number, and Address for receipt of official communications:

(Each joint venturor must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

**** END OF SECTION ****

SECTION 00430 – Bid Bond
AIA DOCUMENT A310 BID BOND

The Contractor shall use the document form entitled “AIA Document A310 Bid Bond.”

END OF SECTION

SECTION 00452 – Sworn Statement on Disclosure of Relationships

SWORN STATEMENT UNDER SECTION 105.08, INDIAN RIVER COUNTY CODE, ON DISCLOSURE OF RELATIONSHIPS

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement MUST be submitted with Bid, Proposal or Contract No. 2023059

for TRAFFIC OPERATIONS FACILITY

2. This sworn statement is submitted by: _____

(Name of entity submitting Statement)

whose business address is:

3. My name is _____

(Please print name of individual signing)

and my relationship to the entity named above is _____

4. I understand that an “affiliate” as defined in Section 105.08, Indian River County Code, means:

The term “affiliate” includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of the entity.

5. I understand that the relationship with a County Commissioner or County employee that must be disclosed as follows:

Father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, daughter-in-law, son-in-law, brother-in-law, sister-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, or grandchild.

6. Based on information and belief, the statement, which I have marked below, is true in relation to the entity submitting this sworn statement. [Please indicate which statement applies.]

_____ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, have any relationships as defined in section 105.08, Indian River County Code, with any County Commissioner or County employee.

_____The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents, who are active in management of the entity have the following relationships with a County Commissioner or County employee:

Name of Affiliate or entity	Name of County Commissioner or employee	Relationship
_____	_____	_____
_____	_____	_____
_____	_____	_____

(Signature)

(Date)

STATE OF _____

COUNTY OF _____

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this _____ day of _____, 20____, by _____
(name of person making statement).

(Signature of Notary Public - State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced
_____ as identification.

**** END OF SECTION ****

SECTION 00454 – Sworn Statement Under the Florida Trench Safety Act

THIS FORM MUST BE SIGNED BY THE BIDDER WHO WILL BE RESPONSIBLE FOR THE EXCAVATION WORK ("BIDDER"), OR ITS AUTHORIZED REPRESENTATIVE, IN THE PRESENCE OF A NOTARY PUBLIC AUTHORIZED TO ADMINISTER OATHS.

1. This Sworn Statement is submitted with Project No. IRC-2104 for TRAFFIC OPERATIONS FACILITY

2. This Sworn Statement is submitted by _____
(Legal Name of Entity Submitting Sworn Statement), hereinafter "BIDDER". The BIDDER's address is _____
BIDDER's Federal Employer Identification Number (FEIN) is _____.

3. My name is _____ and my relationship to the BIDDER
(Print Name of Individual Signing) is _____
(Position or Title)

I certify, through my signature at the end of this Sworn Statement, that I am an authorized representative of the BIDDER.

4. The Trench Safety Standards that will be in effect during the construction of this Project are contained within the Trench Safety Act, Section 553.60 et.seq. Florida Statutes and refer to the applicable Florida Statute(s) and/or OSHA Regulation(s) and include the "effective date" in the citation(s). Reference to and compliance with the applicable Florida Statute(s) and OSHA Regulation(s) is the complete and sole responsibility of the BIDDER. Such reference will not be checked by OWNER or ENGINEER and they shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

5. The BIDDER assures the OWNER that it will comply with the applicable Trench Safety Standards.

6. The BIDDER has allocated and included in its bid the total amount of \$ _____, based on the linear feet of trench to be excavated over five (5) feet deep, for compliance with the applicable Trench Safety Standards, and intends to comply with said standards by instituting the following specific method(s) of compliance on this Project: _____

_____.

The determination of the appropriate method(s) of compliance is the complete and sole responsibility of the BIDDER. Such methods will not be checked by the OWNER or ENGINEER for accuracy, completeness, or any other purpose. The OWNER and ENGINEER shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

7. The BIDDER has allocated and included in its bid the total amount of \$ _____ based on the square feet of shoring to be used for compliance with shoring safety requirements and intends to comply with said shoring requirements by instituting the following specific method(s) of compliance on this Project: _____

_____.

The determination of the appropriate method(s) of compliance is the complete and sole responsibility of the BIDDER. Such methods will not be checked by the OWNER or ENGINEER for accuracy, completeness or any other purpose. The OWNER and ENGINEER shall have no responsibility to review or check the BIDDER's compliance with the Trench Safety Standards.

- 8. The BIDDER, in submitting this bid, represents that it has obtained and considered all available geotechnical information, has utilized said geotechnical information and that, based on such information and the BIDDER's own information, the BIDDER has sufficient knowledge of the Project's surface and subsurface site conditions and characteristics to assure BIDDER's compliance with the applicable Trench Safety Standards in designing the trench safety system(s) for the Project.

BIDDER: _____

By: _____

Position or Title: _____

Date: _____

STATE OF _____

COUNTY OF _____

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this _____ day _____ of 20_____, by _____

(name of person making statement).

(Signature of Notary Public - State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced _____ as identification.

**** END OF SECTION ****

SECTION 00456 – Qualifications Questionnaire

NOTICE: THE OWNER RETAINS THE DISCRETION TO REJECT THE BIDS OF NON-RESPONSIBLE BIDDERS.

Documentation Submitted with Project No: IRC-2104

Project Name: TRAFFIC OPERATIONS FACILITY

1. Bidder's Name / Address: _____

2. Bidder's Telephone & FAX Numbers: _____

3. Licensing and Corporate Status:
 - a. Is Contractor License current? _____
 - b. Bidder's Contractor License No: _____
[Attach a copy of Contractor's License to the bid]
 - c. Attach documentation from the State of Florida Division of Corporations that indicates the business entity's status is active and that lists the names and titles of all officers.
4. Number of years the firm has performed business as a Contractor in construction work of the type involved in this contract: _____
5. What is the last project OF THIS NATURE that the firm has completed?

6. Has the firm ever failed to complete work awarded to you? _____

[If your answer is "yes", then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which the firm failed to complete the work.]
7. Has the firm ever been assessed liquidated damages? _____

[If your answer is "yes", then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which liquidated damages have been assessed.]
8. Has the firm ever been charged by OSHA for violating any OSHA regulations? _____

[If your answer is "yes", then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner's telephone number for each project in which OSHA violations were alleged.]
9. Has the firm implemented a drug-free workplace program in compliance with Florida Statute 287.087? _____

(In the case of a tie, preference will be given to businesses with drug-free workplace programs)

10. Has the firm ever been charged with noncompliance of any public policy or rules?

[If your answer is “yes”, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner’s telephone number for each project.]

11. Attach to this questionnaire, a notarized financial statement and other information that documents the firm’s financial strength and history.

12. Has the firm ever defaulted on any of its projects? _____

[If your answer is “yes”, then attach a separate page to this questionnaire that explains the circumstances and list the project name, Owner, and the Owner’s telephone number for each project in which a default occurred.]

13. Attach a separate page to this questionnaire that summarizes the firm’s current workload and that demonstrates its ability to meet the project schedule.

14. Name of person who inspected the site of the proposed work for the firm:

Name: _____ Date of Inspections: _____

15. Name of on-site Project Foreman: _____

Number of years of experience with similar projects as a Project Foreman: _____

16. Name of Project Manager: _____

Number of years of experience with similar projects as a Project Manager: _____

17. State your total bonding capacity: _____

18. State your bonding capacity per job: _____

19. Please provide name, address, telephone number, and contact person of your bonding company:

[The remainder of this page was left blank intentionally]

19. Complete the following table for SIMILAR projects:

Name of Project	Date Completed	Owner	Contact Person: Name/ Email Address/Phone	Original Contract Amount	Final Contract Amount

SECTION 00458 – List of Subcontractors

The Bidder **MUST** list below the name and address of each Subcontractor who will perform work under this Contract in excess of one-half percent of the total bid price, and shall also list the portion of the work which will be done by such Subcontractor. After the opening of Bids, additions, changes or substitutions will not be allowed unless approved by Indian River County after a request for such a change has been submitted in writing by the Contractor, which shall include reasons for such request. Subcontractors must be properly licensed and hold a valid Certificate of Competency.

Documentation Submitted with Project No. IRC-2104 for TRAFFIC OPERATIONS FACILITY

	Work to be Performed	Subcontractor's Name/Address	Portion of Work (%)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			

Note: Attach additional sheets if required.

**** END OF SECTION ****

SECTION 00460 – CERTIFICATION REGARDING PROHIBITION AGAINST CONTRACTING WITH SCRUTINIZED COMPANIES

I hereby certify that neither the undersigned entity, nor any of its wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of such entities or business associations, that exists for the purpose of making profit have been placed on the Scrutinized Companies that Boycott Israel List created pursuant to s. 215.4725 of the Florida Statutes, or are engaged in a boycott of Israel.

In addition, if this solicitation is for a contract for goods or services of one million dollars or more, I hereby certify that neither the undersigned entity, nor any of its wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of such entities or business associations, that exists for the purpose of making profit are 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 of the Florida Statutes, or are engaged in business operations in Cuba or Syria as defined in said statute.

I understand and agree that the County may immediately terminate any contract resulting from this solicitation upon written notice if the undersigned entity (or any of those related entities of respondent as defined above by Florida law) are found to have submitted a false certification or any of the following occur with respect to the company or a related entity: (i) it has been placed on the Scrutinized Companies that Boycott Israel List, or is engaged in a boycott of Israel, or (ii) for any contract for goods or services of one million dollars or more, it has been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or it is found to have been engaged in business operations in Cuba or Syria.

Name of Respondent: _____

By: _____
(Authorized Signature)

Title: _____

Date: _____

BOARD OF COUNTY COMMISSIONERS



Month xx, 2022

via Email

Company

Attn:

Address

Address

Email address

NOTICE OF AWARD

Reference: Indian River County Bid No. 2023059

Project Name: TRAFFIC OPERATIONS FACILITY

Dear Mr./Ms. :

It is my pleasure to inform you that on [DATE] the Board of County Commissioners awarded the above-referenced project to your company. The following documents are required before the applicable County department can issue a "Notice to Proceed" letter.

1. Public Construction Bond (unrecorded) in the amount of **100%** of the award amount (\$.....).
2. Two Signed Copies of Enclosed Agreement.
3. Certificate of Insurance indicating coverage required by Article 5 of the General Conditions (section 00700 of the bid documents) and Supplemental Conditions (Section 00800 of the bid documents). Certificate(s) **must name Indian River County as additional insured** and must provide for a 30-day Notice of Cancellation.
4. W-9.

The Public Construction Bond must be executed in accordance with section 255.05(1)(a), Florida Statutes. Please submit the Bond, W-9, the Certificate(s) of Insurance and two fully-executed copies of the enclosed agreement to this office at the address provided below no later than [Due **DATE (15 days from award)**]. Failure to comply with the established deadline for submittal of required documents may be grounds for cancellation of award.

Thank you for your prompt attention and if you have any questions, please do not hesitate to contact our office.

Sincerely,

Jennifer Hyde
Purchasing Manager

cc: Engineering Division

Office of Management and Budget • Purchasing Division
1800 27th Street, Vero Beach, Florida 32960 • (772) 226-1416 • Fax: (772) 770-5140
E-mail: purchasing@ircgov.com

Notice of Award - 00510-1

SECTION 00520 Agreement (Public Works)

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[The Remainder of THIS Page WAS LEFT BLANK INTENTIONALLY]

SECTION 00520 Agreement (Public Works)

THIS AGREEMENT is by and between INDIAN RIVER COUNTY, a Political Subdivision of the State of Florida organized and existing under the Laws of the State of Florida, (hereinafter called OWNER)

and _____
(hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 - WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The proposed project includes a single story concrete block structure with a total of 16,617 square feet. The space will be split between office, shop, and warehouse. The roof will be a modified bitumen system on rigid insulation and mechanically attached to a galvanized metal deck on steel bar joists. Two covered parking structures are proposed consisting of metal roof over rigid steel frame. Work to also include demolition of the existing site in two phases, leaving the existing shop until phase II to demo. An existing parking area will be modified to create a new entrance/exit. Site utility work is also necessary to complete the project.

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Project Name: **TRAFFIC OPERATIONS FACILITY**
County Project Number: **IRC-2104**
Bid Number: **2023059**
Project Address: **4548 41st Street, Vero Beach, FL 32967**

ARTICLE 3 - ENGINEER

3.01 The Indian River County Public Works Department is hereinafter called the ENGINEER and will act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Days to Achieve Substantial Completion, Final Completion and Final Payment*

- A. The Work will be substantially completed on or before the **335th** calendar day after the date when the Contract Times commence to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions on or before the **365th** calendar day after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. Liquidated damages will commence for this portion of work. The parties also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER **\$3,819.00¹** for each calendar day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER **\$3,819.00¹** for each calendar day that expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 - CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents, an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 5.01.A and summarized in paragraph 5.01.B, below:

- A. For all Work, at the prices stated in CONTRACTOR's Bid, attached hereto as an exhibit.
- B. THE CONTRACT SUM subject to additions and deductions provided in the Contract:

Numerical Amount: \$ _____

Written Amount: _____

ARTICLE 6 - PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions and the Contract Documents.

¹ Reference for liquidated damages amount "Standard Specifications for Road & Bridge Construction", Florida Department of Transportation (FDOT) FY 2023-24, Section 8-10.2 for projects over \$5,000,000 but less \$10,000,000 than . THE ACTUAL LIQUIDATED DAMAGES AMOUNT WILL BE BASED ON THE CONTRACT AWARD AMOUNT AND WILL BE DETERMINED USING THE REFERENCED FDOT CRITERIA.

6.02 *Progress Payments.*

- A. The OWNER shall make progress payments to the CONTRACTOR on the basis of the approved partial payment request as recommended by ENGINEER in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. The OWNER shall retain five percent (5%) of the payment amounts due to the CONTRACTOR until substantial completion of all work to be performed by CONTRACTOR under the Contract Documents.
- B. For construction projects less than \$10 million, at the time the Owner is in receipt of the Certificate of Substantial Completion, the Owner shall have 30 calendar days to provide a list to the Contractor of items to be completed and the estimated cost to complete each item on the list. Owner and Contractor agree that the Contractor's itemized bid shall serve as the basis for determining the cost of each item on the list. For projects in excess of \$10 million, owner shall have up to 45 calendar days following receipt of Certificate of Substantial Completion of the project to provide contractor with said list.
- C. Payment of Retainage - Within 20 business days following the creation of the list, Owner shall pay Contractor the remaining contract balance including all retainage previously withheld by Owner except for an amount equal to 150% of the estimated cost to complete all of the items on the list. Upon completion of all items on the list, the Contractor may submit a payment request for the amount of the 150% retainage held by the Owner. If a good faith dispute exists as to whether one or more of the items have been finished, the owner may continue to withhold the 150% of the total cost to complete such items. The owner shall provide Contractor written reasons for disputing completion of the list.

6.03 *Pay Requests.*

- A. Each request for a progress payment shall be submitted on the application provided by OWNER and the application for payment shall contain the CONTRACTOR'S certification. All progress payments will be on the basis of progress of the work measured by the schedule of values established, or in the case of unit price work based on the number of units completed.

6.04 *Paragraphs 6.02 and 6.03*

do not apply to construction services work purchased by the County as OWNER which are paid for, in whole or in part, with federal funds and are subject to federal grantor laws and regulations or requirements that are contrary to any provision of the Local Government Prompt Payment Act. In such event, payment and retainage provisions shall be governed by the applicable grant requirements and guidelines.

6.05 *Acceptance of Final Payment as Release.*

- A. The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER from all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with the work under this Contract and for every act and neglect of the OWNER and others relating to

or arising out of the work. Any payment, however, final or otherwise, shall not release the CONTRACTOR or its sureties from any obligations under the Contract Documents or the Public Construction Bond.

ARTICLE 7 - INDEMNIFICATION

7.01 CONTRACTOR shall indemnify OWNER, ENGINEER, and others in accordance with paragraph 6.20 (*Indemnification*) of the General Conditions to the Construction Contract.

ARTICLE 8 - CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

- A. CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. CONTRACTOR has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02 of the General Conditions and (2) reports and drawings of a Hazardous Environmental Condition, if any, at the Site which have been identified in the Supplementary Conditions as provided in paragraph 4.06 of the General Conditions.
- E. CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto
- F. CONTRACTOR does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the Site, reports and drawings identified in the Contract

Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

- I. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- K. Contractor is registered with and will use the Department of Homeland Security's E-Verify system (www.e-verify.gov) to confirm the employment eligibility of all newly hired employees for the duration of this agreement, as required by Section 448.095, F.S. Contractor is also responsible for obtaining an affidavit from all subcontractors, as required in Section 448.095(5)(b), F.S., stating the subcontractor does not employ, contract with, or subcontract with an unauthorized alien.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 *Contents*

- A. The Contract Documents consist of the following:
 - 1. This Agreement (pages 00520-1 to 00520-10, inclusive);
 - 2. Notice to Proceed (page 00550-1);
 - 3. Public Construction Bond (pages 00610-1 to 00610-3, inclusive);
 - 4. Sample Certificate of Liability Insurance (page 00620-1);
 - 5. Contractor's Application for Payment (pages 00622-1 to 00622-6 inclusive);
 - 6. Certificate of Substantial Completion (pages 00630-1 to 00630-2, inclusive);
 - 7. Contractor's Final Certification of the Work (pages 00632-1 to 00632-2, inclusive);
 - 8. Professional Surveyor & Mapper's Certification as to Elevations and Locations of the Work (page 00634-1);
 - 9. General Conditions (pages 00700-1 to 00700-37, inclusive);
 - 10. Supplementary Conditions (pages 00800-1 to 00800-13, inclusive);
 - 11. Specifications as listed in Division 1 (General Requirements) and Division 2 (Technical Provisions);
 - 12. Drawings consisting of a cover sheet, an index sheet, and sheets numbered Civil C-1 to C16, Architectural A1.10 to A6.22, Structural S-1 to S-6, Mechanical M0.1 to M6.1, Electrical E0.1 to E5.1, and Plumbing P0.1 to P5.1, inclusive, with each sheet bearing the following general title: Traffic Operations Facility;
 - 13. Addenda (if applicable _____);

14. Appendices to this Agreement (enumerated as follows):

Appendix A – Permits

Appendix B – Indian River County Fertilizer Ordinances

Appendix C – Indian River County Traffic Engineering Special Conditions for Right of Way Construction

15. CONTRACTOR'S BID (pages 00310-1 to 00310-8, inclusive);

16. Bid Bond (page 00430-1);

17. Sworn Statement Under Section 105.08, Indian River County Code, on Disclosure of Relationships (pages 00452-1 to 00452-2, inclusive);

18. Sworn Statement Under the Florida Trench Safety Act (pages 00454-1 to 00454-2, inclusive);

19. Qualifications Questionnaire (page 00456-1 to 00456-2, inclusive);

20. List of Subcontractors (page 00458-1);

21. Certification Regarding Prohibition Against Contracting with Scrutinized Companies (page 00460-1);

22. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

- a) Written Amendments;
- b) Work Change Directives;
- c) Change Order(s);

ARTICLE 10 - MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings indicated in the General Conditions.

10.02 *Assignment of Contract*

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Venue*

- A. This Contract shall be governed by the laws of the State of Florida. Venue for any lawsuit brought by either party against the other party or otherwise arising out of this Contract shall be in Indian River County, Florida, or, in the event of a federal jurisdiction, in the United States District Court for the Southern District of Florida.

10.06 *Public Records Compliance*

- A. Indian River County is a public agency subject to Chapter 119, Florida Statutes. The Contractor shall comply with Florida's Public Records Law. Specifically, the Contractor shall:

- (1) Keep and maintain public records required by the County to perform the service.
- (2) Upon request from the County's Custodian of Public Records, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119 or as otherwise provided by law.
- (3) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the County.
- (4) Upon completion of the contract, transfer, at no cost, to the County all public records in possession of the Contractor or keep and maintain public records required by the County to perform the service. If the Contractor transfers all public records to the County upon completion of the contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon completion of the contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the County, upon request from the Custodian of Public Records, in a format that is compatible with the information technology systems of the County.

B. IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

(772) 226-1424

publicrecords@ircgov.com

Indian River County Office of the County Attorney

1801 27th Street

Vero Beach, FL 32960

C. Failure of the Contractor to comply with these requirements shall be a material breach of this Agreement.

[The remainder of this page was left blank intentionally]

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on ____ day _____ of 20____ (the date the Contract is approved by the Indian River County Board of County Commissioners, which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR:

INDIAN RIVER COUNTY _____

By: _____
Joseph H. Earman, Chairman

By: _____
(Contractor)

By: _____
John A. Titkanich, Jr., County Administrator

(CORPORATE SEAL)

Attest _____

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

By: _____
William K. DeBraal, County Attorney

Address for giving notices:

Ryan L. Butler, Clerk of Court and Comptroller

License No. _____
(Where applicable)

Attest: _____
Deputy Clerk

Agent for service of process: _____

(SEAL)

Designated Representative:
Name: Richard B. Szpyrka, P.E.
Title: Public Works Director
1801 27th Street
Vero Beach, Florida 32960
(772) 226-1379
Facsimile: (772) 226-1371

Designated Representative:
Name: _____
Title: _____
Address: _____

Phone: _____
Facsimile: _____

(If CONTRACTOR is a corporation or a partnership, attach evidence of authority to sign.)

**** END OF SECTION ****

SECTION 00550 – Notice to Proceed

Dated

TO:

(BIDDER)

ADDRESS:

Contract For:

TRAFFIC OPERATIONS FACILITY

(Insert name of Contract as it appears in the Contract Documents)

Project No: **IRC-2104**

IRC Bid No. **2023059**

You are notified that the Contract Times under the above contract will commence to run on _____. By that date, you are to start performing your obligations under the Contract Documents. The contract has allocated **335** calendar days for Substantial Completion of this project and **365** calendar days for Final Completion. In accordance with Article 4 of the Agreement the date of Substantial Completion is _____ and the date of readiness for final payment is _____.

CONTRACTOR shall not commence work under this Contract until he has obtained all insurance required under Article 5 and such insurance has been delivered to the OWNER and approved by the OWNER, nor shall the CONTRACTOR allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing *defective Work* in accordance with Article 13.

Also, before you may start any Work at the Site, you must:
(add other requirements, if applicable)

INDIAN RIVER COUNTY
(OWNER)

By: _____
(AUTHORIZED SIGNATURE)

(TITLE)

SECTION 00610 - Public Construction Bond

INSTRUCTION FOR PUBLIC CONSTRUCTION BOND

The front or cover page to the required public construction payment and performance bond shall contain the information required by Fla. Stat. 255.05(1)(a), and be substantially in the format shown on the first page following this instruction.

The Public Construction Bond shall be in the form suggested by Fla. Stat. 255.05(3) as shown on the second page following this instruction.

A Power of Attorney from a surety insurer authorized to do business in Florida, authorizing the signature of the Attorney in Fact who executes the Public Construction Bond shall accompany that Bond.

**Public Work
F.S. Chapter 255.05 (1)(a)
Cover Page**

THIS BOND IS GIVEN TO COMPLY WITH SECTION 255.05 OR SECTION 713.23 FLORIDA STATUTES, AND ANY ACTION INSTITUTED BY A CLAIMANT UNDER THIS BOND FOR PAYMENT MUST BE IN ACCORDANCE WITH THE NOTICE AND TIME LIMITATION PROVISIONS IN SECTION 255.05(2) OR SECTION 713.23 FLORIDA STATUTES.

BOND NO: _____

CONTRACTOR NAME: _____

CONTRACTOR ADDRESS: _____

CONTRACTOR PHONE NO: _____

SURETY COMPANY NAME: _____

SURETY PRINCIPAL
BUSINESS ADDRESS: _____

SURETY PHONE NO: _____

OWNER NAME: _____

OWNER ADDRESS: _____

OWNER PHONE NO: _____

OBLIGEE NAME: _____
**(If contracting entity is different from
the owner, the contracting public entity)**

OBLIGEE ADDRESS: _____

OBLIGEE PHONE NO: _____

BOND AMOUNT: _____

CONTRACT NO: _____
(If applicable)

DESCRIPTION OF WORK: _____

PROJECT LOCATION: _____

LEGAL DESCRIPTION: _____
(If applicable)

FRONT PAGE

All other bond page(s) are deemed subsequent to this page regardless of any page number(s) that may be printed thereon.

PUBLIC CONSTRUCTION BOND

Bond No. _____
(enter bond number)

BY THIS BOND, We _____, as Principal and _____, a corporation, as Surety, are bound to _____, herein called Owner, in the sum of \$_____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, _____, between Principal and Owner for construction of _____, the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and
2. Promptly makes payments to all claimants, as defined in Section [255.05\(1\)](#), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and
3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and
4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section [255.05\(2\)](#), Florida Statutes.

Any changes in or under the contract documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect Surety's obligation under this bond.

DATED ON _____,

(Name of Principal)

By _____
(As Attorney in Fact)

(Name of Surety)

SECTION 620 – Sample Certificate of Liability Insurance

CERTIFICATE OF LIABILITY INSURANCE	
PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
	COMPANIES AFFORDING COVERAGE
INSURED	COMPANY A -
	COMPANY B -
	COMPANY C -
	COMPANY D -
	COMPANY E -

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED NOTWITHSTANDING ANY REQUIREMENT TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN THE INSURANCE ACCORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/D/YY)	LIMITS		
A	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE - <input type="checkbox"/> OCCUR <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				EACH OCCURRENCE	\$ 1,000,000	
					FIRE DAMAGE (Any One Fire)	\$ 50,000	
					MED. EXP. (Any One Person)	\$ 5,000	
					PERSONAL & ADV INJURY	\$ 1,000,000	
					GENERAL AGGREGATE	\$ 1,000,000	
					PRODUCTS – COMP/OP AGG.	\$ 1,000,000	
						\$	
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> <input type="checkbox"/>				COMBINED SINGLE LIMIT (Ea. Occurrence)	\$ 1,000,000	
					BODILY INJURY (Per Person)	\$	
					BODILY INJURY (Per Accident)	\$	
					PROPERTY DAMAGE	\$	
	GARAGE LIABILITY <input type="checkbox"/> <input type="checkbox"/>				AUTO ONLY – EA ACCIDENT	\$	
					OTHER THAN	EA ACC	\$
						AUTO ONLY	AGG
A	EXCESS LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE		
					AGGREGATE	\$	
						\$	
						\$	
A	WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY THE PROPRIETOR/PARTNERS/ EXECUTIVE OFFICERS ARE: <input type="checkbox"/> INCL <input type="checkbox"/> EXCL				<input type="checkbox"/> WC STATUTORY LIMITS		
					E.L. EACH ACCIDENT	\$ 100,000	
					E.L. DISEASE – EA	\$ 500,000	
					E.L. DISEASE-POLICY LIMIT	\$ 100,000	
	OTHER: BUILDER'S RISK				FULL REPLACEMENT COST OF THE WORK		

DESCRIPTION OF OPERATIONS/LOCATIONS VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER	ADDITIONAL INSURED; INSURER LETTER:	CANCELLATION
ADDITIONAL INSURED: INDIAN RIVER COUNTY 1801 27 TH STREET, VERO BEACH, FL 32960-3388		SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.
		AUTHORIZED REPRESENTATIVE

**SECTION 00622 – Contractor’s Application for Payment
TRAFFIC OPERATIONS FACILITY**

Application for Payment No. _____
For Work Accomplished through the period of _____ through _____

To: Indian River County (OWNER)
From: _____ (CONTRACTOR)

Project No.: IRC-2104
Bid No.: 2023059

1) Attach detailed schedule and copies of all paid invoices.

1.	Original Contract Price:		\$	_____
2.	Net change by Change Orders and Written Amendments (+ or -):		\$	_____
3.	Current Contract Price (1 plus 2):		\$	_____
4.	Total completed and stored to date:		\$	_____
5.	Retainage (per Agreement):			
	<u>5%</u> of completed Work:			
	_____ % of retainage:		\$	_____
		Total Retainage:	\$	_____
6.	Total completed and stored to date less retainage (4 minus 5):		\$	_____
7.	Less previous Application for Payments:		\$	_____
8.	DUE THIS APPLICATION (6 MINUS 7):		\$	_____

CONTRACTOR'S CERTIFICATION:

UNDER PENALTY OF PERJURY, the undersigned CONTRACTOR certifies that (1) the labor and materials listed on this request for payment have been used in the construction of this Work; (2) payment received from the last pay request has been used to make payments to all subcontractors, laborers, materialmen and suppliers except as listed on Attachment A, below; (3) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to OWNER indemnifying OWNER against any such Lien, security interest or encumbrance); (4) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (5) If this Periodic Estimate is for a Final Payment to project or improvement, I further certify that all persons doing work upon or furnishing materials or supplies for this project or improvement under this foregoing contract have been paid in full, and that all taxes imposed by Chapter 212 Florida Statutes, (Sales and Use Tax Act, as Amended) have been paid and discharged, and that I have no claims against the OWNER.

Attached to or submitted with this form are:

1. Signed release of lien forms (partial or final as applicable) from all subcontractors, laborers, materialmen and suppliers except as listed on Attachment A, together with an explanation as to why any release of lien form is not included;

2. Updated Construction Schedule per [Specification Section 01310](#).

Dated _____

By: _____
(CONTRACTOR – must be signed by
an Officer of the Corporation)

Print Name and Title

STATE OF _____

COUNTY OF _____

Sworn to (or affirmed) and subscribed before me by means of physical presence or online
notarization, this _____ day of _____ 20_____, by _____
(name of person making statement).

(Signature of Notary Public - State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced
_____ as identification.

Please remit payment to:

Contractor's Name: _____

Address: _____

[The remainder of this page was left blank intentionally]

SURETY'S CONSENT OF PAYMENT TO CONTRACTOR:

The Surety, _____

_____, a corporation, in accordance with Public Construction Bond Number _____, hereby consents to payment by the OWNER to the CONTRACTOR, for the amounts specified in this CONTRACTOR'S APPLICATION FOR PAYMENT.

TO BE EXECUTED BY CORPORATE SURETY:

Attest:

Secretary

Corporate Surety

Business Address

BY: _____

Print Name: _____

Title: _____

(Affix Corporate SEAL)

STATE OF FLORIDA
COUNTY OF INDIAN RIVER

Before me, a Notary Public, duly commissioned, qualified, and acting, personally appeared _____, to me well known or who produced _____ as identification, who being by me first duly sworn upon oath, says that he/she is the _____ for and that he/she has been authorized by _____ it to approve payment by the OWNER to the CONTRACTOR of the foregoing Contractor's Application for Payment. Subscribed and sworn to before me this ____ day of _____, 20____.

Notary Public, State of _____

My Commission Expires: _____

[The remainder of this page was left blank intentionally]

CERTIFICATION OF PROJECT MANAGER:

I certify that I have reviewed the above and foregoing Periodic Estimate for Partial Payment; that to the best of my knowledge and belief it appears to be a reasonably accurate statement of the work performed and/or material supplied by the Contractor. I am not certifying as to whether or not the Contractor has paid all subcontractors, laborers, materialmen and suppliers because I am not in a position to accurately determine that issue.

Dated _____

SIGNATURE

CERTIFICATION OF INSPECTOR:

I have checked the estimate against the Contractor's Schedule of Amounts for Contract Payments and the notes and reports of my inspections of the project. To the best of my knowledge, this statement of work performed and/or materials supplied appears to be reasonably accurate, that the Contractor appears to be observing the requirements of the Contract with respect to construction, and that the Contractor should be paid the amount requested above, unless otherwise noted by me. I am not certifying as to whether or not the Contractor has paid all subcontractors, laborers, materialmen and suppliers because I am not in a position to accurately determine that issue.

Dated _____

SIGNATURE

[The Remainder of This Page Was Left Blank Intentionally]

ATTACHMENT A

- 1. List of all subcontractors, laborers, materialmen and suppliers who have not been paid from the payment received from the last Pay Request and the reason why they were not paid (attach additional pages as necessary):**

- 2. List of all subcontractors, laborers, materialmen and suppliers for which a signed release of lien form (partial or final as applicable) is not included with this Pay Request, together with an explanation as to why the release of lien form is not included (attach additional pages as necessary):**

PROJECT NAME: TRAFFIC OPERATIONS FACILITY

Project No. IRC-2104

Payment Application No. _____

Item No.	Description	Unit	Quantity	WORK COMPLETED															
				SCHEDULED VALUE		PREVIOUS APPLICATION		THIS PERIOD		TOTAL COMPLETED		%	MATERIALS	BALANCE TO FINISH					
				Unit Price	Amount	QUANTITY	TOTAL	QUANTITY	TOTAL	QUANTITY	TOTAL			STORIED	QUANTITY	TOTAL			
SUBTOTAL				SUBTOTAL	0.00		0.00		0.00		0.00			0.00				0.00	
	FORCE ACCOUNT	1	LS																
GRAND TOTAL				TOTAL	0.00														

AMOUNT COMPLETED TO DATE	\$0.00
MATERIALS STORED TO DATE	\$0.00
SUB-TOTAL MATERIALS STORED AND COMPLETED TO DATE	\$0.00
RETAINAGE AT 5%	\$0.00
TOTAL COMPLETED AND STORED LESS RETAINAGE	\$0.00
LESS PREVIOUS PAYMENT	\$0.00
AMOUNT DUE CONTRACTOR	\$0.00

SECTION 00630 – Certificate of Substantial Completion

Date of Issuance: _____, 20____

OWNER: Indian River County
CONTRACTOR: _____
CONTRACT FOR: TRAFFIC OPERATIONS FACILITY
Project No.: IRC-2104

Project Description: ***The proposed project includes a single story concrete block structure with a total of 16,617 square feet. The space will be split between office, shop, and warehouse. The roof will be a modified bitumen system on rigid insulation and mechanically attached to a galvanized metal deck on steel bar joists. Two covered parking structures are proposed consisting of metal roof over rigid steel frame. Work to also include demolition of the existing site in two phases, leaving the existing shop until phase II to demo. An existing parking area will be modified to create a new entrance/exit. Site utility work is also necessary to complete the project.***

OWNER's Bid No. 2023059

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To: _____
OWNER

And To: _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within 30 calendar days of the above date of Substantial Completion.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

OWNER:

CONTRACTOR:

The following documents are attached to and made a part of this Certificate:

[For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.]

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR's obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on: _____ (Date).

ENGINEER: _____

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____ (date).

CONTRACTOR: _____

By: _____
(Authorized Signature)

OWNER accepts this Certificate of Substantial Completion on _____ (date).

OWNER: INDIAN RIVER COUNTY _____

By: _____
(Authorized Signature)

*** * END OF SECTION * ***

**SECTION 00632 - CONTRACTOR'S FINAL CERTIFICATION OF
THE WORK**
(TO ACCOMPANY CONTRACTOR'S FINAL APPLICATION FOR PAYMENT)

PROJECT NAME: **TRAFFIC OPERATIONS FACILITY**
PROJECT NO: **IRC-2104**

STATE OF _____
COUNTY OF _____

Personally before me the undersigned officer, authorized by the laws of said state to administer oaths, comes _____, who on oath says: That he is the CONTRACTOR with whom Indian River County, Florida, a political subdivision of said state, did on the _____ day of _____, 20____, enter into a contract for the performance of certain work, more particularly described as follows:

The proposed project includes a single story concrete block structure with a total of 16,617 square feet. The space will be split between office, shop, and warehouse. The roof will be a modified bitumen system on rigid insulation and mechanically attached to a galvanized metal deck on steel bar joists. Two covered parking structures are proposed consisting of metal roof over rigid steel frame. Work to also include demolition of the existing site in two phases, leaving the existing shop until phase II to demo. An existing parking area will be modified to create a new entrance/exit. Site utility work is also necessary to complete the project.

UNDER PENALTY OF PERJURY, affiant further says that said construction has been completed and the Contract therefore fully performed and final payment is now due and that all liens of all firms and individuals contracting directly with or directly employed by such CONTRACTOR have been paid in full EXCEPT:

Name	Description/Amount
_____	_____
_____	_____

who have not been paid and who are due the amount set forth.

Affiant further says that:

1. CONTRACTOR has reviewed the Contract Documents.
2. CONTRACTOR has reviewed the Work for compliance with the Contract Documents.
3. CONTRACTOR has completed the Work in accordance with the Contract Documents.

4. All equipment and systems have been tested in the presence of the ENGINEER or his representative and are fully operational with no defects or deficiencies except as listed below.

5. The Work is complete and ready for final acceptance by the OWNER.
6. CONTRACTOR hereby certifies that it has no claims against the OWNER.

(Corporate Seal)

(Contractor)

By: _____

STATE OF _____

COUNTY OF _____

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this _____ day _____ of 20____, by _____

(name of person making statement).

(Signature of Notary Public - State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced _____ as identification.

+ + END OF SECTION + +

SECTION 00634 - PROFESSIONAL SURVEYOR AND MAPPER'S CERTIFICATION AS TO ELEVATIONS AND LOCATIONS OF THE WORK

(TO BE COMPLETED BY A FLORIDA PROFESSIONAL SURVEYOR AND MAPPER RETAINED BY THE CONTRACTOR AND TO ACCOMPANY CONTRACTOR'S FINAL APPLICATION FOR PAYMENT)

I CERTIFY that I am a Florida Professional Surveyor and Mapper retained by:

(Insert name of CONTRACTOR)

Who is the CONTRACTOR for the following Project:

PROJECT NAME: TRAFFIC OPERATIONS FACILITY

PROJECT # IRC-2104

I FURTHER CERTIFY that I have personally performed the survey work for the preparation of Record Drawings for the CONTRACTOR for this project or that such work was performed under my direct control and supervision.

I FURTHER CERTIFY that all constructed elevations and locations of the Work are in conformance with the Contract Documents, except for discrepancies listed below.

[Attach additional sheets as necessary]

(SURVEYOR'S SEAL)

CERTIFIED BY: _____

Printed Name: _____

Florida Professional Surveyor and Mapper Registration Number: _____

Date Signed and Sealed by Professional Surveyor and Mapper: _____

Company Name: _____

Company Address: _____

Telephone Number: _____

STANDARD
GENERAL CONDITIONS
OF THE
CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
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AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

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American Consulting Engineers Council
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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

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

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *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.

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

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *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.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A

demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include 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 Conditions, the Supplementary 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 on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys 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 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *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.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity 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.

~~21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.~~

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *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.

25. *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.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *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.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which

the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *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.

32. *PCBs*--Polychlorinated biphenyls.

33. *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 Waste and crude oils.

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

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *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.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *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.

39. *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.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and

such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

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

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement 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 subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered 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.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 Terminology

A. Intent of Certain Terms or Adjectives

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination 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 performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. Day

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. Defective

1. The word "defective," 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 14.04 or 14.05).

D. *Furnish, Install, Perform, Provide*

~~1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.~~

~~2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.~~

~~3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.~~

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds*

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 *Copies of Documents*

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. 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 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the ninetieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein 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.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

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

3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the

Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

~~C. *Evidence of Insurance:* 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 Article 5.~~

2.06 *Preconstruction Conference*

~~A. Within 20 days after the Contract Times start to run, but 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 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.~~

2.07 *Initial Acceptance of Schedules*

A. 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 2.05.B. 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 acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. 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 labor, documentation, services, 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 provided whether or not specifically called for at no additional cost to OWNER.

C. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

3.02 *Reference Standards*

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the 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.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or 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 any such provision or instruction 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 performance

of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. 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 Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, 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.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, 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:

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

b. the provisions of any 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).

3.04 *Amending and Supplementing Contract Documents*

A. 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: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: ~~(i) a Field Order;~~ (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity 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, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

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

4.01 *Availability of Lands*

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* 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 Supplementary Conditions. 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:

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

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

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

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 the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, 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.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. 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 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. 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 negotiated contract; or

b. 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

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or 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) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *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, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy 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 6.16.A), 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 or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy 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 on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 *Reference Points*

A. 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 property monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument

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 or property monuments by professionally qualified personnel.

4.06 Hazardous Environmental Condition at Site

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* 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 Supplementary Conditions. 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:

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
2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition 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. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area

affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly 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 condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR 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 on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such 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 the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. 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, partners, employees, agents, other consultants, and subcontractors 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) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any

individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors 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) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

~~A. 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 Contract Documents.~~

B. 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 Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared 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 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. 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.

5.03 *Certificates of Insurance*

A. 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. ~~OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.~~

5.04 *CONTRACTOR's Liability Insurance*

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

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

4. claims for damages insured by reasonably available 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 (ii) by any other person for any other reason;

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

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.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least 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;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, 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 CON-

TRACTOR pursuant to paragraph 5.03 will so provide);

6. 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 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made 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).

5.05 *OWNER's Liability Insurance*

~~—A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, 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.~~

5.06 *Property Insurance*

~~A. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:~~

~~1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;~~

~~2. be written on a Builder's Risk "all risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse,~~

~~debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;~~

~~3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);~~

~~4. cover materials and equipment 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;~~

~~5. allow for partial utilization of the Work by OWNER;~~

~~6. include testing and startup; and~~

~~7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.~~

~~B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals 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.~~

~~C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with paragraph 5.07.~~

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 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, Subcontractors, 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.

~~E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.~~

5.07 Waiver of Rights

~~A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.~~

~~B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:~~

~~1.—loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and~~

~~2.—loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.~~

~~C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.~~

5.08 *Receipt and Application of Insurance Proceeds*

~~A. Any insured loss under the policies of insurance required by paragraph 5.06 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 5.08.B. 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.~~

~~B. 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 15 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.~~

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

~~A. If either 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 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. 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.~~

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 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 canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. 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 OWNER or ENGINEER 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.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 *Labor; Working Hours*

A. 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.

B. 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 stated 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 (which will not be unreasonably withheld) given after prior written notice to ENGINEER.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, 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 performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, 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 source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier,

except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing 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.

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

6.05 *Substitutes and "Or-Equals"*

A. 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, appearance, 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 submitted to ENGINEER for review under the circumstances described below.

1. *"Or-Equal" Items:* 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 approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it

is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. 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 therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item 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 use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item 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 item and whether or not incorporation or use

of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by 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 6.05.A.2.

C. *Engineer's Evaluation:* ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. *Special Guarantee:* OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. *ENGINEER's Cost Reimbursement:* ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B 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 approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of

ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR's Expense*: CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER'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 individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work 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 individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, 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 individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. 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.

G. All Work performed for 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 5.06, 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 individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss 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.

6.07 *Patent Fees and Royalties*

A. 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, partners, employees or 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) arising out of or relating to 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.

6.08 *Permits*

A. 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.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the 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.

B. 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 (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) arising out of or relating to such Work; 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 of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are

unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 *Taxes*

- A. 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.
- B. OWNER qualifies for state and local sales tax exemption in the purchase of all material and equipment.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas 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.

2. 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.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, 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) arising out of or relating to 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.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* 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.

6.12 Record Documents

A. 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 in good order and annotated to show 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.

6.13 Safety and Protection

A. CONTRACTOR shall be solely 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:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
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.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or 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 other 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 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform 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 individual or entity 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 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 Safety Representative

A. 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.

6.15 Hazard Communication Programs

A. 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.

6.16 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR 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 or are required as a result thereof. 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.

6.17 Shop Drawings and Samples

A. CONTRACTOR shall submit Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. 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 show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

B. CONTRACTOR shall also submit Samples to ENGINEER for review and approval in accordance with the acceptable 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 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, 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.

D. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

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

b. all materials with respect to intended use, fabrication, shipping, handling, storage,

assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. 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.

2. Each submittal shall 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.

3. At the time of each submittal, 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.

E. ENGINEER's Review

1. ENGINEER will timely review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. 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.

2. 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.

3. 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 each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

F. Resubmittal Procedures

1. 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.

6.18 Continuing the Work

A. 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 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 CONTRACTOR's General Warranty and Guarantee

A. 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:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. 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:

1. observations by ENGINEER;
2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;
4. use or occupancy of the Work or any part thereof by OWNER;
5. any acceptance by OWNER or any failure to do so;
6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;
7. any inspection, test, or approval by others; or
8. any correction of defective Work by OWNER.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors 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) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

1. 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

2. is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform 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 an individual or entity indemnified hereunder or whether liability is imposed upon such indemni-

fied party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A 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 individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and
2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. 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 other 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 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 properly connect or otherwise make its several parts come together and properly 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.

C. 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 to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Replacement of ENGINEER*

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 *Furnish Data*

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 *Insurance*

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 *Limitations on OWNER's Responsibilities*

A. 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 performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. 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

9.01 *OWNER'S Representative*

A. 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 will not be changed without written consent of OWNER and ENGINEER.

9.02 *Visits to Site*

A. 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, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site 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 observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's 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 performance of the Work.

9.03 *Project Representative*

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive 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 9.10 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 individual or entity will be as provided in the Supplementary Conditions.

9.04 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *Authorized Variations in Work*

A. 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 and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.~~

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed 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 13.04, whether or not the Work is fabricated, installed, or completed.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. 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 (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred

initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, 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 this paragraph 9.09 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 14.07) 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.

9.10 *Limitations on ENGINEER's Authority and Responsibilities*

A. 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 in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. 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 performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A 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 Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. 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 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).

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. 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, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;
2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
3. changes in the Contract Price or Contract Times which embody the substance of

any written decision rendered by ENGINEER pursuant to paragraph 10.05; 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 6.18.A.

10.04 *Notification to Surety*

A. 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. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 *Claims and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, 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 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), 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.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* 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. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. 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 11.01.B.

~~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 outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.~~

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.

3. Payments made by CONTRACTOR to Subcontractors for Work performed 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 acceptable. 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 this paragraph 11.01.

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.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and tempo-

rary 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.

c. 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, assembly, dismantling, and removal thereof. All such costs shall be 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.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. 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.

f. 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 of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages 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.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. 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.

i. When the Cost of the Work is used to determine the value of a Change Order or of a

Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

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.

4. 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.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work,

CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 *Cash Allowances*

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. 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 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 subject to the provisions of paragraph 9.08.

B. 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.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

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
2. there is no corresponding adjustment with respect any other item of Work; and
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 PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. 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:

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 paragraph 11.03); or
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 12.01.C.2); or
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 12.01.B.2, on the basis of the Cost of the Work (determined as

provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).

C. *CONTRACTOR's Fee*: The CONTRACTOR's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
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:
 - a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;
 - b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;
 - c. 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 paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.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;
 - d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. 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
 - f. 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 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGI-

NEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

12.03 *Delays Beyond CONTRACTOR's Control*

A. 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 therefor as provided in paragraph 12.02.A. 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.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. 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.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or 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:

1. delays caused by or within the control of CONTRACTOR; or
2. delays beyond the control of both OWNER and CONTRACTOR 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.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. 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 Site and 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.

13.03 *Tests and Inspections*

A. 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.

~~B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:~~

- ~~1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;~~
- ~~2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and~~

~~3. as otherwise specifically provided in the Contract Documents.~~

C. 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.

D. CONTRACTOR shall 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 acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. 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.

F. Uncovering Work as provided in paragraph 13.03.E 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.

13.04 *Uncovering Work*

A. 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.

B. 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 (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) arising out of or relating to 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. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. 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. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 *OWNER May Stop the Work*

~~A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to 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, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.~~

13.06 *Correction or Removal of Defective Work*

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay 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) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 *Correction Period*

~~A. 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, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost~~

~~to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and 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) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.~~

~~B. 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.~~

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, 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.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay 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) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. 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, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 *OWNER May Correct Defective Work*

A. 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 13.06.A, 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.

B. 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 representatives, 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.

C. 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) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 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. If the parties are unable to agree as to the amount of the adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. 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.

D. 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 under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The schedule of values established as provided in paragraph 2.07.A 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.

14.02 *Progress Payments*

A. *Applications for Payments*

1. At least 20 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 or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. ENGINEER will, within 10 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.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site 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:

a. the Work has progressed to the point indicated;

b. 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 9.08, and to any other qualifications stated in the recommendation); and

c. 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.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections 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.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. 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 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

~~d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.~~

C. *Payment Becomes Due*

~~1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.~~

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

b. 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;

c. there are other items entitling OWNER to a set-off against the amount recommended; or

d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall 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.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 *CONTRACTOR's Warranty of Title*

A. 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.

14.04 *Substantial Completion*

A. 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. Promptly 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 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 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, and protection of the Work, 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.~~

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which 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 Com-

pletion of all the Work subject to the following conditions.

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 therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 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.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly 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.

14.07 *Final Payment*

A. *Application for Payment*

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance

with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 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.

B. *Review of Application and Acceptance*

1. 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 for Payment 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 14.09. Otherwise, ENGINEER will return the Application for Payment 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 for Payment.

C. *Payment Becomes Due*

~~1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.~~

14.08 Final Completion Delayed

A. 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 5.01, 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.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

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 14.06, 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

2. a waiver of all Claims by CONTRACTOR against OWNER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive 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 a Claim therefor as provided in paragraph 10.05.~~

15.02 OWNER May Terminate for Cause

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure 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 2.07 as adjusted from time to time pursuant to paragraph 6.04);
2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;
3. CONTRACTOR's disregard of the authority of ENGINEER; or
4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, 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

(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) sustained by OWNER arising out of or relating to 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. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

C. 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.

15.03 OWNER May Terminate For Convenience

A. 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 Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

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;
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;
3. for 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) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other eco-

conomic loss arising out of or resulting from such termination.

15.04 *CONTRACTOR May Stop Work or Terminate*

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, ~~or OWNER fails for 30 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 Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, ~~or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due~~, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. 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.

17.02 *Computation of Times*

A. 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.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto 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.

17.04 *Survival of Obligations*

A. 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 or termination or completion of the Agreement.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

**SECTION 00800 - SUPPLEMENTARY CONDITION TO THE
GENERAL CONDITIONS**

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+++ END OF THIS SUPPLEMENTARY CONDITIONS INDEX +++

SECTION 00800 - SUPPLEMENTARY CONDITIONS TO THE GENERAL CONDITIONS

SC-1.00 Introduction

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (No. 1910-8, 1996 Edition) and other provisions of the Contract Documents as indicated below. All provisions, which are not so amended or supplemented, remain in full force and effect.

The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions.

SC-1.01 Defined Terms

SC-1.01.A.20 *Add the following language to the end of GC 1.01.A.20.*

ENGINEERS's Consultant:	Donadio and Associates Architects PA A Spiezle Group Inc. Company 2001 9 th Avenue, Suite 308 Vero Beach, FL 32960
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SC-1.01.A.21. Delete paragraph GC 1.01.A.21 in its entirety.

SC-1.02 Terminology

SC-1.02.D.1, 2, and 3 *Delete paragraphs GC-1.02.D.1, 2, and 3 in their entirety and insert the following paragraphs in their place:*

D. *Furnish, Install, Perform, Provide*

1. The word "furnish" shall mean to supply and deliver services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word "install" shall mean to put into use or place in final position services, materials, or equipment complete and ready for intended use.
3. The words "perform" or "provide" shall mean to furnish and install services, materials, or equipment complete and ready for intended use.

SC-2.05 Before Starting Construction

SC-2.05.C. *Delete paragraph GC 2.05.C in its entirety and insert the following paragraph in its place:*

- C. Evidence of Insurance: CONTRACTOR shall not commence work under this Contract until he has obtained all insurance required under Article 5 and such insurance has been delivered to the OWNER and approved by the OWNER, nor shall the CONTRACTOR allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing defective Work in accordance with Article 13.

SC-2.06 Preconstruction Conference

SC-2.06 *Delete paragraph GC-2.06.A in its entirety and insert the following paragraph in its place:*

Supplementary Conditions - 00800-2

- A. Immediately after awarding the contract, but before the CONTRACTOR begins work, the Project Manager will call a preconstruction conference at a place the ENGINEER designates to establish an understanding among the parties as to the work and to discuss schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, and maintaining required records. Utility companies and others as appropriate will be requested to attend to discuss and coordinate work.
- B. Per the FDOT Standard Specifications for Road and Bridge Construction, the Contractor will certify to the Engineer the following:
 - 1. A listing of on-site clerical staff, supervisory personnel and their pro-rated time assigned to the contract,
 - 2. Actual Rate for items listed in Table 4-3.2.1 (see below),
 - 3. Existence of employee benefit plan for Holiday, Sick and Vacation benefits and a Retirement Plan, and,
 - 4. Payment of Per Diem is a company practice for instances when compensation for Per Diem is requested.

Such certification must be made by an officer or director of the Contractor with authority to bind the Contractor. Timely certification is a condition precedent to any right of the Contractor to recover compensations for such costs, and failure to timely submit the certification will constitute a full, complete, absolute and irrevocable waiver by the Contractor of any right to recover such costs. Any subsequent changes shall be certified to the Engineer as part of the cost proposal or seven calendar days in advance of performing such extra work.

FDOT Table 4-3.2.1	
Item	Rate
FICA	Rate established by Law
FUTA/SUTA	Rate established by Law
Medical Insurance	Actual
Holidays, Sick & Vacation Benefits	Actual
Retirement Benefits	Actual
Workers Compensation	Rates based on the National Council on Compensation Insurance basic rates tables adjusted by Contractor's actual experience modification factor in effect at the time of the additional work or unforeseen work
Per Diem	Actual but not to exceed State of Florida's rate
Insurance*	Actual
*Compensation for Insurance is limited solely to General Liability Coverage and does not include any other insurance coverage (such as, but not limited to, Umbrella Coverage, Automobile Insurance, etc.).	

SC-3.06 Coordination of Plans, Specifications, and Special Provisions

SC-3.06 Add the following new paragraphs immediately after paragraph GC-3.05:

SC-3.06 Coordination of Plans, Specifications, and Special Provisions

- A. In case of discrepancy, the governing order of the documents shall be as follows:
 - 1. Written Interpretations
 - 2. Addenda
 - 3. Specifications
 - 4. Supplementary Conditions to the General Conditions
 - 5. General Conditions

6. Approved Shop Drawings
 7. Drawings
 8. Referenced Standards.
- B. Written/computed dimensions shall govern over scaled dimensions.

SC-4.02 Subsurface and Physical Conditions

SC-4.02 Add the following new paragraphs immediately after paragraph GC-4.02.B:

- C. In the preparation of Drawings and Specifications, ENGINEER or ENGINEER's Consultants relied upon the following reports of explorations and tests of subsurface conditions at the Site:
N/A
- D. Reports and drawings itemized in SC-4.02.C are included with the Bidding Documents in Appendix D.

SC-5.01 Performance, Payment and Other Bonds

SC-5.01.A. Delete paragraph GC-5.01.A in its entirety and insert the following paragraphs in its place:

Within fifteen (15) days of receipt of the Contract Documents for execution, the CONTRACTOR shall furnish a Public Construction Bond in an amount equal to 100% of the Contract Price.

1. In lieu of the Public Construction Bond, the CONTRACTOR may furnish an alternative form of security in the form of cash, money order, certified check, cashier's check, irrevocable letter of credit or a security as listed in Part II of F.S. Chapter 625. Any such alternative form of security shall be for the same purpose, and be for the same amount and subject to the same conditions as those applicable to the bond otherwise required. The determination of the value of an alternative form of security shall be made by the OWNER.
2. Such Bond shall continue in effect for one (1) year after acceptance of the Work by the OWNER.
3. The OWNER shall record the Public Construction Bond with the Public Record Section of the Indian River County Courthouse located at 2000 16th Avenue, Vero Beach, Florida 32960.

SC-5.03 Certificates of Insurance

SC-5.03 Delete the second sentence of paragraph GC-5.03 in its entirety.

SC-5.04 CONTRACTOR's Liability Insurance

SC-5.04 Add the following new paragraphs immediately after paragraph GC-5.04.B:

- C. The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:
1. Worker's Compensation: To meet statutory limits in compliance with the Worker's Compensation Law of Florida. This policy must include Employer Liability with a limit \$100,000 for each accident, \$500,000 disease (policy limit) and \$100,000 disease (each employee). Such policy shall include a waiver of

subrogation as against OWNER and ENGINEER on account of injury sustained by an employee(s) of the CONTRACTOR.

2. Commercial General Liability: Coverage shall provide minimum limits of liability of \$1,000,000 per occurrence Combined Single Limit for Bodily Injury and Property Damage. This shall include coverage for:
 - a. Premises/Operations
 - b. Products/Completed Operations
 - c. Contractual Liability
 - d. Independent Contractors
 - e. Explosion
 - f. Collapse
 - g. Underground.

3. Business Auto Liability: Coverage shall provide minimum limits of liability of \$1,000,000 per occurrence Combined Single Limit for Bodily Injury and Property Damage. This shall include coverage for:
 - a. Owned Autos, and other vehicles
 - b. Hired Autos, and other vehicles
 - c. Non-Owned Autos, and other vehicles.

4. Special Requirements:
 - a. Ten (10) days prior to the commencement of any work under this Contract, certificates of insurance and endorsement forms in the exact wording and format as presented in these Contract Documents will be provided to the OWNER's Risk Manager for review and approval.
 - b. "Indian River County Florida" will be named as "Additional Insured" on both the General Liability and Auto Liability.
 - c. The OWNER will be given thirty (30) days notice prior to cancellation or modification of any stipulated insurance. Such notification will be in writing by registered mail, return receipt requested and addressed to the OWNER's Risk Manager.
 - d. An appropriate "Indemnification" clause shall be made a provision of the Contract (see paragraph 6.20 of the General Conditions).
 - e. It is the responsibility of the CONTRACTOR to insure that all subcontractors comply with all insurance requirements.
 - f. It should be remembered that these are minimum requirements, which are subject to modification in response to high hazard operation.
 - g. Insured must be authorized to do business and have an agent for service of process in Florida and have Best's Rating of A-VII or better.
 - h. All insurance requirements shall be at the Contractor's sole cost and expense, including any deductible or self-insured retention, without contribution from Indian River County or its insurance carriers.

D. Additional Insureds:

1. In addition to "Indian River County, Florida," the following individuals or entities shall be listed as "additional insureds" on the CONTRACTOR's liability insurance policies:
 - a. N/A

E. Contractor shall be responsible for any deductible or self-insured retention.

SC-5.05 OWNER's Liability Insurance

SC-5.05 *Delete paragraph GC-5.05.A in its entirety.*

SC-5.06 Property Insurance

SC-5.06 *Delete paragraphs GC-5.06.A, B, and C in their entirety and insert the following paragraphs in their place:*

- A. CONTRACTOR shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:
 - 1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
 - 2. be written on a Builder's Risk "All Risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 - 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 - 4. cover materials and equipment 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. allow for partial utilization of the Work by OWNER;
 - 6. include testing and startup; and
 - 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.
- B. CONTRACTOR shall be responsible for any deductible or self-insured retention.
- C. The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph SC-5.06 shall comply with the requirements of paragraph 5.06.C of the General Conditions.

SC-5.06.E *Delete paragraph GC-5.06.E in its entirety and insert the following in its place:*

- E. Additional Insureds:
 - 1. The following individuals or entities shall be listed as "additional insureds" on the CONTRACTOR's property insurance policies:
 - a. Indian River County, Florida

SC-5.07 Waiver of Rights

SC-5.07 *Delete GC-5.07 (paragraphs A, B, and C) in its entirety.*

SC-5.08 Receipt and Application of Insurance Proceeds

SC-5.08 *Delete GC-5.08 (paragraphs A and B) in its entirety.*

SC-5.09 Acceptance of Bonds and Insurance; Option to Replace

SC-5.09 *Delete GC-5.09 (paragraph A) in its entirety.*

SC-6.02 Labor; Working Hours

SC-6.02.B. *Add the following paragraphs immediately after paragraph GC-6.02.B:*

1. Regular working hours are defined as Monday through Friday, excluding Indian River County Holidays, from 7 a.m. to 5 p.m.
2. Indian River County Holidays are: New Year's Day, Martin Luther King, Jr. Day, Good Friday, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, Christmas Eve and Christmas Day. Working on these days will not be permitted without prior written permission and approval from the Construction Coordination Manager.
3. The CONTRACTOR shall receive no additional compensation for overtime work, i.e., work in excess of eight hours in any one calendar day or 40 hours in any one calendar week, even though such overtime work may be required under emergency conditions and may be ordered by the ENGINEER in writing.
4. All costs of inspection and testing performed during overtime work by the CONTRACTOR, which is allowed solely for the convenience of the CONTRACTOR, shall be borne by the CONTRACTOR, and a credit given to the OWNER to deduct the costs of all such inspection and testing from any payments otherwise due the CONTRACTOR.
5. All costs of OWNER's employees and costs of ENGINEER's Consultant resulting from overtime work by the CONTRACTOR, which is allowed solely for the convenience of the CONTRACTOR, shall be borne by the CONTRACTOR, and a credit given to OWNER to deduct all such costs from any payments otherwise due the CONTRACTOR.
6. No work shall commence before 7 a.m. or continue after 5 p.m. except in case of emergency upon specific permission of the ENGINEER.

SC-6.06 Concerning Subcontractors, Suppliers, and Others

SC-6.06.C. *Add the following sentence at the end of paragraph GC-6.06.C:*

OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other individual or entity, to the extent practicable, information about amounts paid to CONTRACTOR on account of Work performed for CONTRACTOR by a particular Subcontractor, Supplier, or other individual or entity.

SC-6.08 Permits

SC-6.08 *Add the following paragraphs immediately after paragraph GC-6.08.A:*

1. The OWNER has obtained the following permits (copies of these permits are contained in Appendix A):

- A. St. Johns River Water Management District – Permit No. 86744-8
 - B. Indian River Farms Water Control District – Permit No. 21-45
 - C. Indian River County Land Clearing – Permit No. 92030035/91278
 - D. Indian River County Tree Removal – Permit No. 92030035/91279
 - E. Indian River County Right-of-Way – Permit No. 2022021170
 - F. Indian River County Stormwater – Permit No. SP-MI-22-02/91278
 - G. Indian River County Utilities – Permit No. UCP 3615
2. The CONTRACTOR shall obtain and pay for all other required permits and licenses. The CONTRACTOR shall provide copies of the permits to the OWNER and ENGINEER and shall comply with all conditions contained in the permits at no extra cost to the OWNER.
 3. The CONTRACTOR shall be familiar with all permit requirements during construction and shall be responsible for complying with these requirements. The cost of this effort shall be included in the pay item in which the work is most closely associated with.

SC-9.05 Authorized Variations in Work

SC-9.05.A. *Delete the second sentence in paragraph GC-9.05.A in its entirety.*

SC-11.01 Cost of the Work

SC-11.01.A.1. *Delete paragraph GC-11.01.A.1 in its entirety, and insert the following sentences in its place:*

1. CONTRACTOR will receive payment for actual costs of direct labor and burden (see SC-2.06.B) for the additional or unforeseen work. Labor includes foremen actually engaged in the work; and will not include project supervisory personnel nor necessary on-site clerical staff, except when the additional or unforeseen work is a controlling work item and the performance of such controlling work item actually extends completion of the project due to no fault of the Contractor. Compensation for project supervisory personnel, but in no case higher than a Project Manager's position, shall only be for the pro-rata time such supervisory personnel spent on the contract. In no case shall an officer or director of the Company, nor those persons who own more than 1% of the Company, be considered as project supervisory personnel, direct labor or foremen hereunder. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

SC-13.03 Test and Inspections

SC-13.03.B. *Delete paragraph GC-13.03.B in its entirety, and insert the following sentences in its place:*

- B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all initial inspections, tests, or approvals required by the Contract Documents except those inspections, tests, or approvals listed immediately below. Subsequent inspections, tests, or approvals required after initial failing inspections, tests, or approvals shall be paid for by the CONTRACTOR by back charge to subsequent applications for payment. The CONTRACTOR shall arrange, obtain, and pay for the following inspections, tests, or approvals:
 1. inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;

2. costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B;
3. tests otherwise specifically provided in the Contract Documents.

SC-13.05 OWNER May Stop the Work

SC-13.05.A. *Delete paragraph GC-13.05.A in its entirety and insert the following paragraph in its place:*

- A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to comply with permit requirements, or fails to comply with the technical specifications, or fails to 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, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

SC-13.07 Correction Period

SC-13.07 A. *Delete the first sentence of paragraph GC-13.07.A in its entirety and insert the following sentence in its place*

- A. If within one year after the date of Final 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, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

SC-13.07 B. *Delete paragraph GC-13.07.B in its entirety and insert the following sentence in its place*

- B. In special circumstances where a particular item of equipment is placed in continuous service before Final 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.

SC-14.02 Progress Payments

SC-14.02.B.5. *Delete paragraph GC-14.02.B.5.d in its entirety and insert the following paragraph in its place:*

- d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A; or

SC-14.02.B.5. *Add the following sentences at the end of paragraph GC-14.02.B.5:*

- e. OWNER has been required to pay ENGINEER additional compensation because of CONTRACTOR delays or rejection of defective Work; or
- f. OWNER has been required to pay an independent testing laboratory for subsequent inspections, tests, or approvals taken after initial failing inspections, tests, or approvals.

SC-14.02.C.1. *Delete paragraph GC-14.02.C.1 in its entirety and insert the following paragraph in its place:*

- C. Payment Becomes Due
 - 1. Payment shall be made by OWNER to CONTRACTOR according to the Local Government Prompt Payment Act. F.S. 218.70 et. seq.

SC-14.04 Substantial Completion

SC-14.04A. *After the third sentence in paragraph GC-14.04A of the General Conditions, delete the remainder of paragraph 14.04A in its entirety and replace with the following:*

“If Engineer considers the Work substantially complete, Engineer will prepare and deliver to Owner a tentative certificate of Substantial Completion that shall fix the date of Substantial Completion. In accordance with the provisions of Florida Statutes section 208.735(7)(a)(2005), upon receipt of the tentative certificate of Substantial Completion from Engineer, the Owner, the Engineer, and the Contractor shall conduct a walk-through inspection of the Project to document a list of any items required to render the Work on the Project complete, satisfactory, and acceptable under this Agreement (herein the “Statutory List”). The Statutory List shall be reduced to writing and circulated among the Owner, the Engineer, and the Contractor by the Owner or the Engineer within 30 calendar days after substantial completion. The Owner and Contractor acknowledge and agree that: 1) the failure to include any corrective work, or pending items that are not yet completed, on the Statutory List does not alter the responsibility of the Contractor to complete all of the Work under this Agreement; 2) upon completion of all items on the Statutory List, the Contractor may submit a pay request for all remaining retainage except as otherwise set forth in this Agreement; and 3) any and all items that require correction under this Agreement and that are identified after the preparation of the Statutory List remain the obligation of the Contractor to complete to the Owner’s satisfaction under this Agreement. After receipt of the Statutory List by the Contractor, the Contractor acknowledges and agrees that it will diligently proceed to complete all items on the Statutory List and schedule a final walk-through in anticipation of final completion on the Project.”

SC-14.04B *Add the following new paragraph immediately after paragraph GC 14.04B:*

C. 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, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees

D. For construction projects less than \$10 million, at the time the Owner is in receipt of the Certificate of Substantial Completion, the Owner shall have 30 calendar days to provide a list to the Contractor of items to be completed and the estimated cost to complete each item on the list. Owner and Contractor agree that the Contractor’s itemized bid shall serve as the basis for determining the cost of each item on

the list. For projects in excess of \$10 million, owner shall have up to 45 calendar days following receipt of Certificate of Substantial Completion of the project to provide contractor with said list.

Payment of retainage

E. Within 20 business days following the creation of the list, Owner shall pay Contractor the remaining contract balance including all retainage previously withheld by Owner except for an amount equal to 150% of the estimated cost to complete all of the items on the list.

Upon completion of all items on the list, the Contractor may submit a payment request for the amount of the 150% retainage held by the Owner. If a good faith dispute exists as to whether one or more of the items have been finished, the owner may continue to withhold the 150% of the total cost to complete such items. The owner shall provide Contractor written reasons for disputing completion of the list.

SC-14.07 Final Payment

SC-14.07.C.1. *Delete paragraph GC-14.07.C.1 in its entirety and insert the following paragraph in its place:*

C. Payment Becomes Due

1. Payment shall be made by OWNER to CONTRACTOR according to the "Local Government Prompt Payment Act" , Florida Statutes section 218.70, et. seq.

SC-15.01 OWNER May Suspend Work

SC-15.01.A *Delete the last sentence in paragraph GC-15.01.A and insert the following in its place:*

CONTRACTOR shall be allowed an extension of the Contract Times, directly attributable to any such suspension if CONTRACTOR makes a Claim for an extension as provided in paragraph 10.05. CONTRACTOR shall not be allowed an adjustment of the Contract Price and 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 Work suspension.

SC-15.02 OWNER May Terminate For Cause

SC-15.02.A.5 and SC-15.02.A.6 *Add the following new paragraphs immediately after paragraph GC-15.02.A.4:*

5. CONTRACTOR's violation of Section 02225 – "Erosion Control and Treatment of Dewatering Water From the Construction Site."
6. CONTRACTOR's failure to make payment to Subcontractors or Suppliers for materials or labor in accordance with the respective agreements between the CONTRACTOR and the Subcontractors or Suppliers.
7. CONTRACTOR certifies that it and its related entities as defined by Florida law are not on the Scrutinized Companies that Boycott Israel List, created pursuant to s. 215.4725 of the Florida Statutes, and are not engaged in a boycott of Israel. In addition, if this agreement is for goods or services of one million dollars or more, CONTRACTOR certifies that it and its related entities as defined above by Florida law are not 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 Section 215.473 of the Florida Statutes and are not engaged in business operations in Cuba or Syria.

OWNER may terminate this Contract if CONTRACTOR is found to have submitted a false certification as provided under section 287.135(5), Florida Statutes, been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or been engaged in business operations in Cuba or Syria, as defined by section 287.135, Florida Statutes.

OWNER may terminate this Contract if CONTRACTOR, including all wholly owned subsidiaries, majority-owned subsidiaries, and parent companies, that exist for the purpose of making profit, is found to have been placed on the Scrutinized Companies that Boycott Israel List or is engaged in a boycott of Israel as set forth in section 215.4725, Florida Statutes.

SC-15.04 CONTRACTOR May Stop Work or Terminate

SC-15.04 *Delete the following text from the first sentence of paragraph GC-15.04.A:*

~~or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due,~~

SC-15.04 *Delete the following text from the second sentence of paragraph GC-15.04.A:*

~~or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due,~~

SC-16 Dispute Resolution

SC-16.02 Mediation

SC-16 *Add the following new paragraph immediately after paragraph GC-16.01.*

SC-16.02 Mediation

- A. OWNER and CONTRACTOR agree that they shall submit any and all unsettled Claims or counterclaims, disputes, or other matters in question between them arising out of or relating to the Contract Documents or the breach thereof, to mediation by a certified mediator of the 19th Judicial Circuit in Indian River County unless delay in initiating mediation would irrevocably prejudice one of the parties. The mediator of any dispute submitted to mediation under this agreement shall not serve as arbitrator of such dispute unless otherwise agreed.

SC-17 Miscellaneous

SC-17.06 Liens

Add the following new paragraphs immediately after paragraph GC17.05:

SC-17.06 Liens

- A. This project is a "Public Works" under Chapter 255, Florida Statutes. No merchant's liens may be filed against the OWNER. Any claimant may apply to the OWNER for a copy of this Contract. The claimant shall have a right of action against the CONTRACTOR for the amount due him. Such action shall not involve the OWNER in any expense. Claims against the CONTRACTOR are subject to timely prior notice to the CONTRACTOR as specified in Florida Statutes Section 255.05. The CONTRACTOR shall insert the following paragraph in

all subcontracts hereunder:

“Notice: Claims for labor, materials and supplies are not assessable against Indian River County and are subject to proper prior notice to (CONTRACTOR’S Name) and to (CONTRACTOR Surety Company Name), pursuant to Chapter 255 of the Florida Statutes. This paragraph shall be inserted in every sub-subcontract hereunder.” The payment due under the Contract shall be paid by the OWNER to the CONTRACTOR only after the CONTRACTOR has furnished the OWNER with an affidavit stating that all persons, firms or corporations who are defined in Section 713.01, Florida Statutes, who have furnished labor or materials, employed directly or indirectly in the Work, have been paid in full. The OWNER may rely on said affidavit at face value. The CONTRACTOR does hereby release, remiss and quit-claim any and all rights he may enjoy perfecting any lien or any other type of statutory common law or equitable lien against the job.

++END OF SUPPLEMENTARY CONDITIONS++

SECTION 00942 – Change Order Form

No. ____

DATE OF ISSUANCE: _____

EFFECTIVE DATE: _____

OWNER: Indian River County

CONTRACTOR _____

Project: **TRAFFIC OPERATIONS FACILITY**

OWNER's Project No. **IRC-2104**

OWNER'S Bid No. 2023059

You are directed to make the following changes in the Contract Documents:

Description:

Reason for Change Order:

Attachments: (List documents supporting change)

CHANGE IN CONTRACT PRICE:	
Description	Amount
Original Contract Price	\$ _____
Net Increase (Decrease) from previous Change Orders No. _____ to _____:	\$ _____
Contract Price prior to this Change Order:	\$ _____
Net increase (decrease) of this Change Order:	\$ _____
Contract Price with all approved Change Orders:	\$ _____

CHANGE IN CONTRACT TIMES	
Description	Time
Original Contract Time:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Net change from previous Change Orders No. _____ to _____:	(days) _____
Substantial Completion:	_____
Final Completion:	_____
Contract Time prior to this Change Order:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Net increase (decrease) this Change Order:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____
Contract Time with all approved Change Orders:	(days or dates) _____
Substantial Completion:	_____
Final Completion:	_____

ACCEPTED:
By:
CONTRACTOR (Signature)
Date:

RECOMMENDED:
By:
ENGINEER (Signature)
Date:

APPROVED:
By:
OWNER (Signature)
Date:

SECTION 00948 – Work Change Directive

No. ____

DATE OF ISSUANCE: _____

EFFECTIVE DATE: _____

OWNER: Indian River County

CONTRACTOR _____

Project: TRAFFIC OPERATIONS FACILITY

OWNER's Project No. IRC-2104

OWNER'S Bid No. 2023059

You are directed to proceed promptly with the following changes:

Description:

Reason for Change Order:

Attachments: (List documents supporting change)

If OWNER or CONTRACTOR believe that the above change has affected Contract Price any Claim for a Change Order based thereon will involve one or more of the following methods as defined in the Contract Documents.

Method of determining change in Contract Prices

- Unit Prices
- Lump Sum
- Other: _____
- By Change Order:

Estimated increase (decrease) of this Work Change Directive
\$ _____

If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Method of determining change in Contract Times

- Contractor's Records
- Engineer's Records
- Other: _____
- By Change Order:

Estimated increase (decrease) in Contract Times:

Substantial Completion: _____ days;
Ready for Final Completion: _____ days.

If the change involves an increase, the estimated time is not to be exceeded without further authorization.

ACCEPTED:
By:
CONTRACTOR (Signature)
Date:

RECOMMENDED:
By:
ENGINEER (Signature)
Date:

APPROVED:
By:
OWNER (Signature)
Date:

**** END OF SECTION ****

DIVISION 1 - GENERAL REQUIREMENTS

DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01009 - SPECIAL PROVISIONS

SECTION 01024 - FORCE ACCOUNT

SECTION 01050 - FIELD ENGINEERING AND LAYOUT

SECTION 01091 - REFERENCE STANDARDS

SECTION 01215 - GENERAL QUALITY CONTROL

SECTION 01220 - PROGRESS MEETINGS

SECTION 01310 - CONSTRUCTION SCHEDULES

SECTION 01340 - SUBMITTAL OF SHOP DRAWINGS

SECTION 01520 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

SECTION 01541 - PROTECTION OF THE WORK AND PROPERTY

SECTION 01550 - ACCESS ROADS, PARKING AREAS AND USE OF PUBLIC STREETS

SECTION 01610 - TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT

SECTION 01611 - STORAGE OF MATERIAL AND EQUIPMENT

SECTION 01630 - SUBSTITUTIONS

SECTION 01710 - SITE CLEANUP AND RESTORATION

SECTION 01820 - POST FINAL INSPECTION

SECTION 01009 - SPECIAL PROVISIONS

1.1 GENERAL

- A. Visits to the construction site may be made by representatives of permitting or governing bodies. Submit details of all instructions from the above to the ENGINEER immediately. The Work will not be accepted by the OWNER until final acceptance has been received from the various Regulatory Agencies having jurisdiction.
- B. Furnish sufficient labor, construction equipment and materials, and work such hours, including night shifts and overtime operations, as may be necessary to insure the prosecution of the work in accordance with the approved progress schedule. If, in the opinion of the ENGINEER, the CONTRACTOR falls behind the progress schedule, take such steps as may be necessary to improve progress, all without additional cost to the OWNER. The ENGINEER shall be compensated for his overtime services in accordance with the Supplementary Conditions, SC-6.02.
- C. All salvageable material and equipment for which specific use, relocation or other disposal is not specifically noted, shall remain the property of the OWNER and shall be delivered to the OWNER at the following location: 4550 41st Street, at the CONTRACTOR's expense. All material and equipment not in salvageable condition, as determined by the ENGINEER and the OWNER, shall be disposed of by the CONTRACTOR, at the CONTRACTOR's expense.
- D. In addition to these Specifications all work must comply with the requirements of the local governing agency, St. Johns River Water Management District, Department of Environmental Protection, Army Corps of Engineers, Indian River Farms Water Control District, and all other applicable State or Federal agencies' specifications and permits. In the event of a conflict, the more stringent specification or requirement shall govern.
- E. Before performing any work outside the designated limits of the work site, secure any necessary permits and authorization from the applicable owner, or verify in writing that such has been previously obtained. Follow all requirements of any said permits or authorization. Give the ENGINEER and appropriate owner ten (10) days minimum notice before commencing construction operations outside the designated limits of the work site.

+ + END OF SECTION + +

SECTION 01024 - FORCE ACCOUNT

1.1 GENERAL

- A. CONTRACTOR shall furnish all labor, materials, equipment and incidentals necessary to perform additional work not covered on the Contract Drawings. The force Account is intended as a contingency for unforeseen work.

1.2 PAYMENT

- A. Lump sum amount for force account work is included in the bid schedule. The value of force account work will be determined in accordance with Article 12 of the General Conditions.

+ + END OF SECTION + +

SECTION 01050 - FIELD ENGINEERING AND LAYOUT

1.1 GENERAL

- A. The CONTRACTOR will furnish all construction staking for the project. All staking from control will be under the supervision of a Florida Registered Land Surveyor.
- B. Develop and make all detail surveys and measurements needed for construction including but not limited to, slope stakes, batter boards, piling layouts and all other working lines, elevations and cut sheets.
- C. Keep a transit and leveling instrument on the site at all times and a skilled instrument man available whenever necessary for layout of the Work.
- D. Provide all material required for benchmarks, control points, batter boards, grade stakes, and other items.
- E. Be solely responsible for all locations, dimensions and levels. No data other than written orders of the ENGINEER shall justify departure from the dimensions and levels required by the Drawings.
- F. Safeguard all points, stakes, grademarks, monuments and benchmarks made or established on the Work, and reestablish same, if disturbed. Rectify all Work improperly installed because of not maintaining, not protecting or removing without authorization such established points, stakes, marks and monuments.
- G. When requested by the ENGINEER, provide such facilities and assistance as may be necessary for the ENGINEER to check line and grade points placed by the CONTRACTOR. Do no excavation or embankment work until all cross-sectioning necessary for determining pay quantities has been completed and checked by the ENGINEER.
- H. The cost of performing engineering and layout work described above shall be included in the contract unit prices for the various items of work to which it is incidental. No separate payment will be made for surveying or engineering.

1.2 SURVEY WORK AND QUALIFICATIONS OF SURVEYOR

- A. Prior to commencing work, the CONTRACTOR shall satisfy himself as to the accuracy of all survey and existing site information as indicated in the Contract Documents. Immediately notify the ENGINEER upon discovery of any errors, inaccuracies or omissions in the survey data. The commencing of any of the work by the CONTRACTOR shall be held as the CONTRACTOR's acceptance that all survey or existing site information is correct and accurate, without any reasonably inferable errors, inaccuracies or omissions.

- B. The CONTRACTOR shall carefully preserve all control stakes, benchmarks, reference points and property corners and will be responsible for any mistake or loss of time caused by their unnecessary loss or disturbance. If the loss or disturbance of the stakes or marks cause a delay in the Work, the CONTRACTOR shall have no claim for damages or extension of time. Control stakes, benchmarks, reference points and property corners disturbed by the CONTRACTOR's work shall be replaced by a Florida Registered Land Surveyor and Mapper, at the CONTRACTOR's expense. In the event the Owner must provide the services of the Florida Registered Surveyor and Mapper to perform this replacement work, the cost of the surveying services will be deducted from any sums due the CONTRACTOR for the work performed under this Contract.

- C. All survey work shall be performed under the guidance and direction of a Florida Registered Surveyor and Mapper.

- D. All survey work for Record Drawings shall be performed by a Florida Registered Surveyor and Mapper.

1.3 STATION BOARDS

- A. CONTRACTOR shall erect and maintain white/black standard FDOT station markers every 100 feet.

1.4 LAYOUT OF STRIPING

- A. Establish by instrument, and mark the finished surface, the points necessary for striping finished roadway in conformance with Section 5-7 of FDOT Standard Specifications.

+ + END OF SECTION + +

SECTION 01091 - REFERENCE STANDARDS**1.1 GENERAL**

- A. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the date of advertisement for bids, unless noted otherwise in the Technical Specifications or on the Drawings. When a reference standard is specified, comply with requirements and recommendations stated in that standard, except when they are modified by the Contract Documents, or when applicable laws, ordinances, rules, regulations or codes establish stricter standards. The list of specifications presented in Paragraph B is hereby made a part of the Contract, the same as if repeated herein in full.
- B. Reference to a technical society, organization, or body may be made in the Specifications by abbreviations, in accordance with the following list:

AASHTO	The American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWWA	American Water Works Association
AWS	American Welding Society
FED.SPEC.	Federal Specifications
CRSI	Concrete Reinforcing Steel Institute
FDEP/DEP	Florida Department of Environmental Protection
DNR	Department of Natural Resources
NCPI	National Clay Pipe Institute
NEMA	National Electrical Manufacturers Association
NEC	National Electric Code
NSPE	National Society of Professional Engineers
OSHA	Occupational Safety and Health Administration

PCI	Prestressed Concrete Institute
FDOT/DOT	Florida Department of Transportation
U. L., Inc.	Underwriter's Laboratories, Inc.
SSPC	Steel Structures Painting Council
SJRWMD	St. Johns River Water Management District

- C. When no reference is made to a code, standard or specification, the standard specifications of ASTM, FDOT, or ANSI shall govern.
- D. In the event of a conflict between the specifications prepared by the ENGINEER and the above referenced specifications and standards, or any other regulatory specification or standard, the more stringent requirement prevails.

+ + END OF SECTION + +

SECTION 01215 - GENERAL QUALITY CONTROL

1.1 DESCRIPTION OF REQUIREMENTS

- A. Definitions: Specific quality control requirements for the work are indicated throughout the Contract Documents. The requirements of this section are primarily related to the performance of the work beyond the furnishing of manufactured products. The term "Quality Control" includes, but is not necessarily limited to, inspection and testing and associated requirements. This section does not specify or modify the OWNER and ENGINEER duties relating to quality review and Contract surveillance.

1.2 RESPONSIBILITY FOR INSPECTIONS AND TESTS

- A. Residual OWNER Responsibility: The OWNER will employ and pay for the services of independent testing laboratories to perform those required inspections and tests.
- B. CONTRACTORS General Responsibility: No failure of test agencies, whether engaged by the OWNER or CONTRACTOR, to perform adequate inspections of tests or to properly analyze or report results, shall relieve the CONTRACTOR of responsibility for the fulfillment of the requirements of the Contract Documents. It is recognized that the required inspection and testing program is intended to assist the CONTRACTOR, OWNER, ENGINEER, and governing authorities in the nominal determination of probable compliance with requirements for certain crucial elements of work. The program is not intended to limit the CONTRACTOR in his regular quality control program, as needed for general assurance of compliance.

1.3 QUALITY ASSURANCE

- A. General Workmanship Standards: It is a requirement that each category of tradesman or installer performing the work be pre-qualified, to the extent of being familiar with the applicable and recognized quality standards for his category of work, and being capable of workmanship complying with those standards.

1.4 PRODUCT DELIVERY-STORAGE-HANDLING

Handle, store and protect materials and products, including fabricated components, by methods and means which will prevent damage, deterioration and losses (and resulting delays), thereby ensuring highest quality results as the performance of the work progresses. Control delivery schedules so as to minimize unnecessary long-term storage at the project site prior to installation.

1.5 PROJECT PHOTOGRAPHS/VIDEOS

- A. The CONTRACTOR shall make provisions, at his expense, for photographs and video tapes of all work areas just prior to construction, and for unusual conditions during construction. The photographs and videos shall show pertinent physical features along the line of construction. The purpose of the videos is to determine any damage to private or public property during construction. The video must be performed by a professional videographer.
- B. Pre-Construction Photographs and Video:
1. Contractor shall provide the Owner with photographs and video record and one copy of the existing conditions prior to construction. These photographs and videos shall be a standard DVD format and shall be narrated.
 2. The photographs and video shall include, but not be limited to, the following items shown in a clear manner:
 - 1) All existing features within the right-of-way.
 - 2) All existing features within the temporary construction easement.
 - 3) All existing features within permanent easements.
 - 4) All existing features adjacent to any construction.
 3. Detail of the photographs and video shall be such that the following examples shall be clear and visible:
 - 1) Cracks in walls.
 - 2) Condition of fencing.
 - 3) Condition of planted areas and types of vegetation.
 - 4) Condition of sodded areas.
 - 5) Conditions of sprinkler systems and associated controls and wiring.
 - 6) Condition of signs.
 - 7) Conditions of lighting and associated wiring.
 - 8) Significant detail of any pre-existing damages physical features shall be shown. The coverage of the photographs and video should include the limits of effects of the use of vibratory rollers.
 - 9) These photographs and video record shall be presented and approved by the Owner prior to the Notice to Proceed. A copy shall be kept in the Contractor's field office.
 - 10) Payment – No additional payment will be made for this work.

+ + END OF SECTION + +

SECTION 01220 - PROGRESS MEETINGS

1.1 SCOPE

- A. Date and Time:
 - 1. Regular Meetings: As mutually agreed upon by ENGINEER and CONTRACTOR.
 - 2. Other Meetings: On call.
- B. Place: CONTRACTOR'S office at Project site or other mutually agreed upon location.
- C. ENGINEER shall prepare agenda, preside at meetings, and prepare and distribute a transcript of proceedings to all parties.
- D. CONTRACTOR shall provide data required and be prepared to discuss all items on agenda.

1.2 MINIMUM ATTENDANCE

- A. CONTRACTOR
- B. SUBCONTRACTOR:
When needed for the discussion of a particular agenda item, CONTRACTOR shall require representatives of Subcontractors or suppliers to attend a meeting.
- C. PROJECT MANAGER
- D. OWNER'S representative, if required.
- E. Utility Representatives
- F. Others as appropriate.
- G. Representatives present for each party shall be authorized to act on their behalf.

1.3 AGENDA

Agenda will include, but will not necessarily be limited to, the following:

- 1. Transcript of previous meeting.
- 2. Progress since last meeting.
- 3. Planned progress for next period.
- 4. Problems, conflicts and observations.
- 5. Change Orders.
- 6. Status of Shop Drawings.
- 7. Quality standards and control.
- 8. Schedules, including off-site fabrication and delivery schedules. Corrective measures, if required.
- 9. Coordination between parties.
- 10. Safety concerns.
- 11. Other business.

++ END OF SECTION ++

SECTION 01310 - CONSTRUCTION SCHEDULES

1.1 GENERAL REQUIREMENTS

- A. No partial payments shall be approved by the ENGINEER until there is an approved construction progress schedule on hand.
- B. Designate an authorized representative who shall be responsible for development and maintenance of the schedule and of all progress and payment reports. This representative shall have direct project control and complete authority to act on behalf of the CONTRACTOR in fulfilling the commitments of the CONTRACTOR's schedules.

1.2 REVISIONS TO THE CONSTRUCTION SCHEDULES

When the ENGINEER requires the CONTRACTOR to submit revised (updated) progress schedules on a monthly basis the CONTRACTOR shall:

- A. Indicate the progress of each activity to the date of submission.
- B. Show changes occurring since the previous submission listing:
 - 1. Major changes in scope.
 - 2. Activities modified since the previous submission.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- C. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the impact on the schedule.
 - 2. Corrective action recommended and its effect.
 - 3. The effect of changes on schedules of other prime contractors.

1.3 SUBMISSION OF THE CONSTRUCTION SCHEDULES

On or before the tenth day after the effective date of the Agreement, submit the initial schedules to the ENGINEER. The ENGINEER will review the schedules and return a review copy to the CONTRACTOR within 21 days after receipt. If required by the ENGINEER, resubmit revised schedules on or before the seventh day after receipt of the review copy. If required by the ENGINEER, submit revised monthly progress schedules with that month's application for payment.

1.4 DISTRIBUTION OF THE CONSTRUCTION SCHEDULES

- A. After receiving approval by the ENGINEER, distribute copies of the approved initial schedule and all reviewed revisions (updated) to:
 - 1. Job site file.
 - 2. Subcontractors.
 - 3. Other concerned parties.
 - 4. OWNER (two copies).
 - 5. ENGINEER

- B. In the cover letter, instruct recipients to report promptly to the CONTRACTOR, in writing, any problems anticipated by the projections shown in the schedules.

+ + END OF SECTION + +

SECTION 01340 - SUBMITTAL OF SHOP DRAWINGS

1.1 SCOPE

- A. Submit shop drawings, product data and samples as required by or inferred by the Drawings and Specifications. Submittals shall conform to the requirements of Article 6.17 of the General Conditions, Section 00700, and as described in this Section.

1.2 SHOP DRAWINGS

- A. Shop drawings are original drawings, prepared by the CONTRACTOR, a subcontractor, supplier, or distributor, which illustrate some portion of the work; showing fabrication, layout, setting, or erection details. Shop drawings are further defined in Article 6.17, Section 00700.
- B. Shop drawings shall be prepared by a qualified detailer and shall be identified by reference to sheet and detail numbers on the Contract Drawings.

1.3 PRODUCT DATA

- A. Product data are manufacturer's standard schematic drawings and manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data. Product data are further defined in Article 6.17, Section 00700.
- B. Modify standard drawings to delete information which is not applicable to the project and supplement them to provide additional information applicable to the project.
- C. Clearly mark catalog sheets, brochures, etc., to identify pertinent materials, products, or models.

1.4 SAMPLES

- A. Samples are physical examples to illustrate materials, equipment, or workmanship and to establish standards by which work is to be evaluated. Samples are further defined in Article 6.17, Section 00700.

1.5 CONTRACTOR'S RESPONSIBILITIES FOR SUBMITTAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. The CONTRACTOR's responsibilities for submittal of shop drawings, product data, and samples are set forth in paragraph 6.17 of the General Conditions and as further explained herein.
- B. Prior to submission, thoroughly check shop drawings, product data, and samples for completeness and for compliance with the Contract Documents, verify all dimensions and field conditions, and coordinate the shop drawings with the requirements for other related work. Also review each shop drawing before submitting it to the ENGINEER to determine that it is acceptable in terms of the means, methods, techniques, sequences and operations of construction, safety precautions and programs incidental thereto, all of which are the CONTRACTOR's responsibility.
 - 1. It is CONTRACTOR'S responsibility to review submittals made by his suppliers and Subcontractors before transmitting them to ENGINEER to assure proper coordination of the Work and to determine that each submittal is in accordance with its desires and that there is sufficient information about materials and equipment for ENGINEER to determine compliance with the Contract Documents.
 - 2. Incomplete or inadequate submittals will be returned for revision without review.
- C. The CONTRACTOR's responsibility for errors and omissions in submittals is not relieved by the ENGINEER's review of submittals. The CONTRACTOR shall approve the shop drawings based on his in-the-field measurements, prior to submittal to the ENGINEER for his review.
- D. Notify the ENGINEER, in writing at the time of submission, of deviations in submittals from the requirements of the Contract Documents. The CONTRACTOR's responsibility for deviations in submittals from the requirements of the Contract Documents is not relieved by the ENGINEER's review of submittals, unless the ENGINEER gives written acceptance of specific deviations.
- E. Begin no work, which requires submittals until return of submittals with the ENGINEER's stamp and initials or signature indicating the submittal has been reviewed.

1.6 SUBMITTAL REQUIREMENTS AND ENGINEER'S REVIEW FOR SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Submit to:
 Indian River County
 Engineering Division
 1801 27th Street
 Vero Beach, FL 32960

- B. A letter of transmittal shall accompany each submittal. If data for more than one Section of the Specifications is submitted, a separate transmittal letter shall accompany the data submitted for each Section.

- C. At the beginning of each letter of transmittal, provide a reference heading indicating the following:
 - 1. OWNER'S Name
 - 2. Project Name
 - 3. Project Number
 - 4. Transmittal Number
 - 5. Section Number

- D. All submittals shall have a title block with complete identifying information satisfactory to the ENGINEER. The following is a sample Submittal Form that the CONTRACTOR may use:

[The remainder of this page has been left blank intentionally]

CONTRACTOR SUBMITTALS

SUBMITTAL NO.

Contractor:

Date Sent to County _____
No. Copies Sent to County _____
 Original Submittal Re-Submittal

Project Name: TRAFFIC OPERARTIONS FACILITY

Project No.: IRC-2104

Shop Drawing Cut Sheet Other _____

Description: _____

Sub-Contractor: _____

Remarks: _____

Reviewing Agency: (As checked below)

Date Received Date Returned No. Copies Ret'd

I R C Engineering Div. _____

I R C Utilities Services _____

Remarks: _____

IRC Engineering Division

Date Rec'd from Contractor _____

Date Ret'd to Contractor _____

1801 27th Street
Vero Beach, Fl. 32960

No. Copies Ret'd _____

Remarks: _____

Distribution of Copies:
IRC Engineering Division
Office File
Field Office File

- E. All submittals shall bear the stamp of approval and signature of CONTRACTOR as evidence that they have been reviewed by CONTRACTOR. Submittals without this stamp of approval will not be reviewed by the ENGINEER and will be returned to CONTRACTOR.
- F. Assign a number to each submittal starting with No. 1 and thence numbered consecutively. Identify resubmittals by the original submittal number followed by the suffix "A" for the first resubmittal, the suffix "B" for the second resubmittal, etc.
- G. Initially submit to ENGINEER a minimum of two (2) copies of all submittals that are on 11-inch by 17-inch or smaller sheets (no less than 8 1/2-inch x 11-inch).
- H. After ENGINEER completes his review, Shop Drawings will be marked with one of the following notations:
 - 1. Approved
 - 2. Approved as Noted
 - 3. NOT Approved - Resubmit
- I. If a submittal is acceptable, it will be marked "Approved" or "Approved as Noted". One (1) electronic copy of the submittal will be returned to CONTRACTOR.
- J. Upon return of a submittal marked "Approved" or "Approved as Noted", CONTRACTOR may order, ship or fabricate the materials included on the submittal, provided it is in accordance with the corrections indicated.
- K. If a submittal is unacceptable, one (1) copy will be returned to CONTRACTOR with following notation, "NOT Approved - Resubmit".
- L. Upon return of a submittal marked "NOT Approved - Resubmit", make the corrections indicated and repeat the initial approval procedure. Upon return of a submittal so marked, repeat the initial approval procedure utilizing acceptable material or equipment.
- M. Work shall not be performed nor equipment installed without an ENGINEER "Approved" or "Approved as Noted" Shop Drawing.
- N. Submit Shop Drawings well in advance of the need for the material or equipment for construction and with ample allowance for the time required to make delivery of material or equipment after data covering such is approved. CONTRACTOR shall assume the risk for all materials or equipment which is fabricated or delivered prior to the approval of Shop Drawings. Materials or equipment requiring Shop Drawings which have not yet received approval by the ENGINEER shall not be installed on the project. Materials or equipment will not be included in periodic progress payments until approval thereof has been obtained in the specified manner.

- P. ENGINEER will review and process all submittals promptly, but a reasonable time should be allowed for this, for the Shop Drawings being revised and resubmitted, and for time required to return the approved Shop Drawings to CONTRACTOR.
- Q. Furnish required submittals with complete information and accuracy in order to achieve required approval of an item within three submittals. All costs to ENGINEER involved with subsequent submittals of Shop Drawings, Samples or other items requiring approval, will be back-charged to CONTRACTOR in accordance with the General Conditions and the Supplementary Conditions. If the CONTRACTOR requests a substitution for a previously approved item, all of ENGINEER'S costs in the reviewing and approval of the substitution will be back-charged to CONTRACTOR unless the need for such substitution is beyond the control of CONTRACTOR.

++ END OF SECTION ++

SECTION 01520 - CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

1.1 SCOPE

- A. Provide all construction equipment and facilities and temporary controls required to satisfactorily complete the work represented on the Drawings and described in the Specifications.

1.2 RESPONSIBILITY

- A. All construction facilities and temporary controls remain the property of the Contractor establishing them and shall be maintained in a safe and useful condition until removed from the construction site.
- B. All false work, scaffolding, ladders, hoistways, braces, pumps, roadways, sheeting, forms, barricades, drains, flumes, and the like, any of which may be needed in construction of any part of the work and which are not herein described or specified in detail, must be furnished, maintained and removed by the CONTRACTOR, who is responsible for the safety and efficiency of such work and for any damage that may result from their failure or from their improper construction, maintenance or operation.
- C. In accepting the Contract, the CONTRACTOR assumes full responsibility for the sufficiency and safety of all hoists, cranes, temporary structures or work and for any damage which may result from their failure or their improper construction, maintenance or operation and will indemnify and save harmless the OWNER and ENGINEER from all claims, suits or actions and damages or costs of every description arising by reason of failure to comply with the above provision.

1.3 TEMPORARY UTILITIES AND SERVICES

- A. **TEMPORARY WATER**
 - 1. Provide a temporary water service as required for all construction purposes and pay for all water used.
 - 2. Furnish potable drinking water in suitable dispensers and with cups for use of all employees at the job.
 - 3. Provide all temporary piping, hoses, etc., required to transport water to the point of usage by all trades.
 - 4. When temporary water service is no longer required, remove all temporary water lines.

B. TEMPORARY SANITARY FACILITIES

1. Provide temporary toilet facilities separate from the job office. Maintain these during the entire period of construction under this Contract for the use of all construction personnel on the job. Provide enough chemical toilets to conveniently serve the needs of all personnel. Properly seclude toilet facilities from public observation.
2. Chemical toilets and their maintenance shall meet the requirements of State and local health regulations and ordinances. Immediately correct any facilities or maintenance methods failing to meet these requirements. Upon completion of work, remove the facilities from the premises.

1.4 SECURITY

Full time watchmen will not be specifically required as a part of the Contract, but the CONTRACTOR shall provide inspection of work area daily and shall take whatever measures are necessary to protect the safety of the public, workmen, and materials, and provide for the security of the site, both day and night.

1.5 TEMPORARY CONTROLS

Take all necessary precautions to control dust and mud associated with the work of this Contract. In dry weather, spray dusty areas daily with water in order to control dust. Take necessary steps to prevent the tracking of mud onto adjacent streets and highways.

1.6 REMOVAL OF TEMPORARY CONSTRUCTION FACILITIES

Remove the various temporary facilities, services, and controls and legally dispose of them as soon as the work is complete. The areas of the site used for temporary facilities shall be properly reconditioned and restored to a condition acceptable to the OWNER.

++ END OF SECTION ++

SECTION 01541 - PROTECTION OF THE WORK AND PROPERTY

1.1 GENERAL

- A. CONTRACTOR shall be responsible for taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage as specified in the General Conditions and herein.
- B. In order to prevent damage, injury or loss, CONTRACTOR'S actions shall include, but not be limited to, the following:
 - 1. Store apparatus, materials, supplies, and equipment in an orderly, safe manner that will not unduly interfere with the progress of the Work or the Work of any other Contractor or utility service company.
 - 2. Provide suitable storage facilities for all materials, which are subject to injury by exposure to weather, theft, breakage, or otherwise.
 - 3. Place upon the Work or any part thereof, only such loads as are consistent with the safety of that portion of the Work.
 - 4. Clean up frequently all refuse, rubbish, scrap materials, and debris caused by construction operations, so that at all times, the site of the Work presents a safe, orderly, and workmanlike appearance.
 - 5. Provide barricades and guard rails around openings, for scaffolding, for temporary stairs and ramps, around excavations, elevated walkways and other hazardous areas.
- C. Except after written consent from proper parties, do not enter or occupy privately-owned land with men, tools, materials or equipment, except on easements provided herein.
- D. Assume full responsibility for the preservation of all public and private property or facility on or adjacent to the site. If any direct or indirect damage is done by or on account of any act, omission, neglect or misconduct in the execution of the Work by the CONTRACTOR, it shall be restored by the CONTRACTOR, at its expense, to a condition equal to or better than that existing before the damage was done.

1.2 BARRICADES AND WARNING SIGNALS

CONTRACTOR's responsibility for the maintenance of barricades, signs, lights, and for providing watchmen shall continue until OWNER accepts the Project.

1.3 TREE AND PLANT PROTECTION

- A. Protect existing trees, shrubs and plants on or adjacent to the site that are shown or designated to remain in place against unnecessary cutting, breaking or skinning of trunk, branches, bark or roots.
- B. Do not store or park materials or equipment within the drip line of trees that are to remain.

- C. Install temporary fences or barricades to protect trees and plants in areas subject to traffic.
- D. Fires shall not be permitted under or adjacent to trees and plants.
- E. Within the limits of the Work, water trees and plants that are to remain, in order to maintain their health during construction operations.
- F. Cover all exposed roots with burlap and keep it continuously wet. Cover all exposed roots with earth as soon as possible. Protect root systems from mechanical damage and damage by erosion, flooding, run-off or noxious materials in solution.
- G. If branches or trunks are damaged, prune branches immediately and protect the cut or damaged areas with emulsified asphalt compounded specifically for horticultural use.
- H. Remove all damaged trees and plants that die or suffer permanent injury and replace them with a specimen of equal or better quality.
- I. Coordinate Work in this Section with requirements of other sections herein.

1.4 PROTECTION OF IRRIGATION

The CONTRACTOR shall be responsible for maintaining in good condition all irrigation systems within the easements, which could be damaged by construction activities. The CONTRACTOR shall repair any irrigation systems damaged by construction activities within two (2) days. Irrigation systems partially within the right-of-way and all intersecting side streets within project limits may be cut off and capped or connected to same system to maintain functionality. The CONTRACTOR shall be responsible for maintaining the functionality of the remaining portion of the system if it should fall outside of the right-of-way.

1.5 PROTECTION OF EXISTING STRUCTURES

- A. Underground Structures:
 - 1. Underground structures are defined to include, but not be limited to, all sewer, water, gas, and other piping, and manholes, chambers, electrical conduits, tunnels and other existing subsurface work located within or adjacent to the limits of the Work.
 - 2. All underground structures known to ENGINEER except service connections for water, sewer, electric, and telephone are shown. This information is shown for the assistance of CONTRACTOR in accordance with the best information available, but is not guaranteed to be correct or complete. The existing utilities shown on the Contract Drawings are located according to the information available to the ENGINEER at the time the Drawings were prepared and have not been independently verified by the OWNER or the ENGINEER. Guarantee is not made that all existing underground utilities are shown or that the locations of those shown are

accurate. The locations shown are for bidding purposes only. Finding the actual location of any existing utilities is the CONTRACTOR's responsibility and shall be done before it commences any work in the vicinity. Furthermore, the CONTRACTOR shall be fully responsible for any and all damages, which might be occasioned by the CONTRACTOR's failure to exactly locate and preserve any and all underground utilities. The OWNER or ENGINEER will assume no liability for any damages sustained or costs incurred because of the CONTRACTOR's operations in the vicinity of existing utilities or structures, nor for temporary bracing and shoring of same. If it is necessary to shore, brace, or swing a utility, contact the utility company or department affected and obtain their permission regarding the method to use for such work.

3. Contact the various utility companies which may have buried or aerial utilities within or near the construction area before commencing work. Provide 48 hours minimum notice to all utility companies prior to beginning construction.
4. Schedule and execute all work involving existing utilities in order to minimize necessary interruption of services. Whenever such interruption is necessary for completion of the work, notify the ENGINEER and the appropriate utility at least 48 hours in advance. Perform all work to repair/restore utility service to the satisfaction of the appropriate utility. Include all costs related to service maintenance, interruption, and restoration in the appropriate line item in the Contract.
5. Where it is necessary to temporarily interrupt house or business services, the CONTRACTOR shall notify the owner or occupant, both before the interruption (24-hour minimum), and again immediately before service is resumed. Before disconnecting and pipes or cables, the CONTRACTOR shall obtain permission from their owner, or shall make suitable arrangement for their disconnection by their owner.
6. Explore ahead of trenching and excavation work and uncover all obstructing underground structures sufficiently to determine their location, to prevent damage to them and to prevent interruption of the services which such structures provide. If CONTRACTOR damages an underground structure, restore it to original condition at CONTRACTOR's expense.
7. Necessary changes in the location of the Work may be made by ENGINEER, to avoid unanticipated underground structures.
8. If permanent relocation of an underground structure or other subsurface facility is required and is not otherwise provided for in the Contract Documents, ENGINEER will direct CONTRACTOR in writing to perform the Work, which shall be paid for under the provisions of Article 11 of the General Conditions.

B. Surface Structures:

1. Surface structures are defined as structures or facilities above the ground surface. Included with such structures are their foundations and any extension below the surface. Surface structures include, but are not limited to, buildings, tanks, walls, bridges, roads, dams, channels, open drainage, piping, poles, wires, posts, signs, markers, curbs, walks and all other facilities that are visible above the ground surface.

C. Protection of Underground and Surface Structures:

1. Sustain in their places and protect from direct or indirect injury, all underground and surface structures located within or adjacent to the limits of the Work. Such sustaining and supporting shall be done carefully, and as required by the party owning or controlling such structure. Before proceeding with the work of sustaining and supporting such structure, satisfy the ENGINEER that the methods and procedures to be used have been approved by the party owning same.
2. Assume all risks attending the presence or proximity of all underground and surface structures within or adjacent to the limits of the Work. CONTRACTOR shall be responsible for all damage and expense for direct or indirect injury caused by its Work to any structure. CONTRACTOR shall repair immediately all damage caused by his work, to the satisfaction of the OWNER of the damaged structure.

- D. All other existing surface facilities, including but not limited to, guard rails, posts, guard cables, signs, poles, markers, and curbs which are temporarily removed to facilitate installation of the Work shall be replaced and restored to their original condition at CONTRACTOR'S expense.

1.6 DAMAGE TO EXISTING STRUCTURES AND UTILITIES

- A. The CONTRACTOR shall be responsible for and make good all damage to pavement beyond the limits of this Contract, buildings, telephone or other cables, water pipes, sanitary pipes, or other structures which may be encountered, whether or not shown on the Drawings.
- B. Information shown on the Drawings as to the location of existing utilities has been prepared from the most reliable data available to the Engineer. This information is not guaranteed, however, and it shall be this CONTRACTOR's responsibility to determine the location, character and depth of any existing utilities. He shall assist the utility companies, by every means possible to determine said locations. Extreme caution shall be exercised to eliminate any possibility of any damage to utilities resulting from his activities.

1.7 ADJUSTMENTS OF UTILITY CASTINGS, COVERS AND BOXES

- A. All existing utility castings, including valve boxes, junction boxes, manholes, pull boxes, inlets and similar structures in the areas of construction that are to remain in service shall be adjusted by the CONTRACTOR to bring them flush with the surface of the finished work.

- B. The CONTRACTOR shall coordinate the utilities to ensure proper construction sequencing. CONTRACTOR shall make available survey reference markers to the various utility companies.

+ + END OF SECTION + +

SECTION 01550 - ACCESS ROADS, PARKING AREAS AND USE OF PUBLIC STREETS

1.1 GENERAL

- A. Provide all temporary construction roads, walks and parking areas required during construction and for use of emergency vehicles. Design and maintain temporary roads and parking areas so they are fully usable in all weather conditions.
- B. Prevent interference with traffic and the OWNER's operations on existing roads. Indemnify and save harmless the OWNER from any expenses caused by CONTRACTOR's operations over these roads.
- C. Roadways damaged by CONTRACTOR shall be restored to their original condition by the CONTRACTOR subject to approval of the OWNER or ENGINEER.
- D. Remove temporary roads, walks and parking areas prior to final acceptance and return the ground to its original condition, unless otherwise required by the Contract Documents.

1.2 USE OF PUBLIC STREETS

The use of public streets and alleys shall be such as to provide a minimum of inconvenience to the public and to other traffic. Any earth or other excavated material spilled from trucks shall be removed immediately by the CONTRACTOR and the streets cleaned to the satisfaction of the Owner.

1.3 USE OF PUBLIC STREETS FOR HAUL ROADS

- A. Prior to construction, the CONTRACTOR shall designate all proposed haul roads to be used during the life of the project. Any earth or other materials spilled from trucks shall be removed by the CONTRACTOR and streets cleaned to the satisfaction of the Owner. He further shall be responsible for repairs to any damages caused by his operations, prior to final payment.
- B. All trucks carrying earth shall be covered while moving with an appropriate tarpaulin. Should trucks hauling earth fail to cover their loads, the CONTRACTOR will be given two (2) written warnings, after which the CONTRACTOR shall pay a fine of \$50 per uncovered truck to the Owner when invoked by the Owner to Owner's Engineer. All cleanup shall be the responsibility of the CONTRACTOR.
- C. All trucks/moving equipment shall have backup warning horns in proper working order while on the job site.

++ END OF SECTION ++

SECTION 01610 - TRANSPORTATION AND HANDLING OF MATERIALS AND EQUIPMENT

1.1 GENERAL

- A. Make all arrangements for transportation, delivery and handling of equipment and materials required for prosecution and completion of the Work.
- B. Shipments of materials to CONTRACTOR or Subcontractors shall be delivered to the site only during regular working hours. Shipments shall be addressed and consigned to the proper party giving name of Project, street number and city. Shipments shall not be delivered to OWNER except where otherwise directed.
- C. If necessary, to move stored materials and equipment during construction, CONTRACTOR shall move or cause to be moved materials and equipment without any additional compensation.

1.2 DELIVERY

- A. Arrange deliveries of products in accord with construction schedules and in ample time to facilitate inspection prior to installation.
- B. Coordinate deliveries to avoid conflict with Work and conditions at site and to accommodate the following:
 - 1. Work of other contractors, or OWNER.
 - 2. Limitations of storage space.
 - 3. Availability of equipment and personnel for handling products.
 - 4. OWNER'S use of premises.
- C. Do not have products delivered to project site until related Shop Drawings have been approved by the ENGINEER.
- D. Do not have products delivered to site until required storage facilities have been provided.
- E. Have products delivered to site in manufacturer's original, unopened, labeled containers. Keep ENGINEER informed of delivery of all equipment to be incorporated in the Work.
- F. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts, and to facilitate assembly.
- G. Immediately on delivery, Contractor shall inspect shipment to assure:
 - 1. Product complies with requirements of Contract Documents and reviewed submittals.
 - 2. Quantities are correct.
 - 3. Containers and packages are intact, labels are legible.
 - 4. Products are properly protected and undamaged.

1.3 PRODUCT HANDLING

- A. Provide equipment and personnel necessary to handle products, including those provided by OWNER, by methods to prevent soiling or damage to products or packaging.
- B. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
- C. Handle products by methods to prevent bending or overstressing.
- D. Lift heavy components only at designated lifting points.
- E. Materials and equipment shall at all times be handled in a safe manner and as recommended by manufacturer or supplier so that no damage will occur to them. Do not drop, roll or skid products off delivery vehicles. Hand carry or use suitable materials handling equipment.

+ + END OF SECTION + +

SECTION 01611 - STORAGE OF MATERIAL AND EQUIPMENT

1.1 GENERAL

- A. Store and protect materials and equipment in accordance with manufacturer's recommendations and requirements of Specifications.
- B. Make all arrangements and provisions necessary for the storage of materials and equipment. Place all excavated materials, construction equipment, and materials and equipment to be incorporated into the Work, so as not to injure any part of the Work or existing facilities, and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work. Keep materials and equipment neatly and compactly stored in locations that will cause a minimum of inconvenience to other contractors, public travel, adjoining owners, tenants and occupants. Arrange storage in a manner to provide easy access for inspection.
- C. Areas available on the construction site for storage of material and equipment shall be as shown or approved by the ENGINEER.
- D. Store materials and equipment which are to become the property of the OWNER to facilitate their inspection and insure preservation of the quality and fitness of the Work, including proper protection against damage by extreme temperatures and moisture.
- E. Do not use lawns, grass plots or other private property for storage purposes without written permission of the OWNER or other person in possession or control of such premises.
- F. CONTRACTOR shall be fully responsible for loss or damage to stored materials and equipment.
- G. Do not open manufacturers containers until time of installation unless recommended by the manufacturer or otherwise specified.
- H. When appropriate store materials on wood blocking so there is no contact with the ground.

+ + END OF SECTION + +

SECTION 01630 - SUBSTITUTIONS

1.1 GENERAL

- A. Requests for review of a substitution shall conform to the requirements of Article 6.05, "Substitutes and Or-Equals," of the General Conditions, and shall contain complete data substantiating compliance of the proposed substitution with the Contract Documents.

1.2 CONTRACTOR'S OPTIONS

- A. For materials or equipment (hereinafter products) specified only by reference standard, select product meeting that standard by any manufacturer, fabricator, supplier or distributor (hereinafter manufacturer). To the maximum extent possible, provide products of the same generic kind from a single source.
- B. For products specified by naming several products or manufacturers, select any one of the products or manufacturers named which complies with Specifications.
- C. For products specified by naming one or more products or manufacturers and stating "or equivalent," submit a request for a substitution for any product or manufacturer which is not specifically named.
- D. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is permitted, there is no option and no substitution will be allowed.
- E. Where more than one choice is available as a CONTRACTOR's option, select product which is compatible with other products already selected or specified.

1.3 SUBSTITUTIONS

- A. During a period of 15 days after date of commencement of Contract Time, ENGINEER will consider written requests from CONTRACTOR for substitution of products or manufacturers, and construction methods (if specified).
 - 1. After end of specified period, requests will be considered only in case of unavailability of product or other conditions beyond control of CONTRACTOR.
- B. Submit 5 copies of Request for Substitution. Submit a separate request for each substitution. In addition to requirements set forth in Article 6.05 of General Conditions, include in the request the following:
 - 1. For products or manufacturers:
 - a. Product identification, including manufacturer's name and address.
 - b. Manufacturer's literature with product description, performance and test data, and reference standards.
 - c. Samples, if appropriate.

- d. Name and address of similar projects on which product was used, and date of installation.
 2. For construction methods (if specified):
 - a. Detailed description of proposed method.
 - b. Drawings illustrating method.
 3. Such other data as the ENGINEER may require to establish that the proposed substitution is equal to the product, manufacturer or method specified.
- C. In making Request for Substitution, CONTRACTOR represents that:
1. CONTRACTOR has investigated proposed substitution, and determined that it is equal to or superior in all respects to the product, manufacturer or method specified.
 2. CONTRACTOR will provide the same or better guarantees or warranties for proposed substitution as for product, manufacturer, or method specified.
 3. CONTRACTOR waives all claims for additional costs or extension of time related to a proposed substitution that subsequently may become apparent.
- D. A proposed substitution will not be accepted if:
1. Acceptance will require changes in the design concept or a substantial revision of the Contract Documents.
 2. It will delay completion of the Work, or the work of other contractors.
 3. It is indicated or implied on a Shop Drawing and is not accompanied by a formal Request for Substitution from CONTRACTOR.
- E. If the ENGINEER determines that a proposed substitute is not equal to that specified, furnish the product, manufacturer, or method specified at no additional cost to OWNER.
- F. Approval of a substitution will not relieve CONTRACTOR from the requirement for submission of Shop Drawings as set forth in the Contract Documents.
- G. The procedure for review by Engineer will include the following:
1. Requests for review of substitute items of material and equipment will not be accepted by Engineer from anyone other than CONTRACTOR.
 2. Upon receipt of an application for review of a substitution, Engineer will determine whether the review will be more extensive than a normal shop drawing review for the specified item.
 3. If the substitution will not require a more extensive review, Engineer will proceed with the review without additional cost to CONTRACTOR.
 4. If the substitution requires a more extensive review, Engineer will proceed with the review only after CONTRACTOR has agreed to reimburse Owner for the review cost.
 5. Engineer may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute.

- H. Any redesign of structural members shall be performed by, and the plans signed and sealed by, a Professional Engineer registered in the State of Florida. The redesign shall be at the CONTRACTOR's expense. Any redesign will require an extensive review by the Engineer. The CONTRACTOR must agree to reimburse the Owner for the review cost prior to the Owner's Engineer proceeding with the design review. The ENGINEER's estimated cost of review shall be provided to the CONTRACTOR prior to proceeding with the review to allow the CONTRACTOR the opportunity to rescind the request.
- I. Engineer will be allowed a reasonable time within which to evaluate each proposed substitution. Engineer will be the sole judge of acceptability and shall have the right to deny use of any proposed substitution. The CONTRACTOR shall not order, install, or utilize any substitution without either an executed Change Order or Engineer's notation on the reviewed shop drawing. Owner may require CONTRACTOR to furnish at CONTRACTOR's expense a special manufacturer's performance guarantee(s) or other surety with respect to any substitute and an indemnification by the CONTRACTOR. ENGINEER will record time required by Engineer and Engineer's consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not a proposed substitute is used, CONTRACTOR shall reimburse Owner for the charges of Engineer and Engineer's consultants for evaluating each proposed substitute.
- J. Substitute materials or equipment may be proposed for acceptance in accordance with this Section. In the event that substitute materials or equipment are used and are less costly than the originally specified material or equipment, than the net difference in cost shall benefit the Owner and CONTRACTOR in equal proportions. This cost difference shall not be reduced by any failure of the CONTRACTOR to base his bid on the named materials or equipment.

+ + END OF SECTION + +

SECTION 01710 - SITE CLEANUP AND RESTORATION

1.1 SCOPE

Furnish all labor, equipment, appliances, and materials required or necessary to clean up and restore the site after the construction is completed.

1.2 REQUIREMENTS

- A. During the progress of the project, keep the work and the adjacent areas affected thereby in a neat and orderly condition. Remove all rubbish, surplus materials, and unused construction equipment. Repair all damage so that the public and property owners will be inconvenienced as little as possible.
- B. Provide onsite containers for the collection of waste materials, debris, and rubbish and empty such containers in a legal manner when they become full.
- C. Where material or debris has been deposited in watercourses, ditches, gutters, drains, or catch-basins as a result of the CONTRACTOR's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, etc., shall be kept clean and open at all times.
- D. Before the completion of the project, unless otherwise especially directed or permitted in writing:
 - 1. Tear down and remove all temporary buildings and structures;
 - 2. Remove all temporary works, tools, and machinery, or other construction equipment furnished;
 - 3. Remove all rubbish from any grounds occupied; and
 - 4. Leave the roads, all parts of the premises, and adjacent property affected by construction operations, in a neat and satisfactory condition.
- E. Restore or replace any public or private property damaged by construction work, equipment, or employees, to a condition at least equal to that existing immediately prior to the beginning of the operations. To this end, the CONTRACTOR shall restore all highway, roadside, and landscaping work within any right-of-way, platted or prescriptive. Acceptable materials, equipment, and methods shall be used for such restoration.
- F. Thoroughly clean all materials and equipment installed and on completion of the work, deliver the facilities undamaged and in fresh and new-appearing condition.
- G. It is the intent of the Specifications to place the responsibility on the CONTRACTOR to restore to their original condition all items disturbed, destroyed, or damaged during construction. Particular attention will be placed on restoration of canals to equal or better condition than prior to construction.

- H. When finished surfaces require cleaning with cleaning materials, use only those cleaning materials which will not create hazards to health or property and which will not damage the surfaces. Use cleaning materials only on those surfaces recommended by the manufacturer. Follow the manufacturer's directions and recommendations at all times.
- I. Keep the amount of dust produced during construction activities to a minimum. At CONTRACTOR's expense, spray water or other dust control agents over the areas, which are producing the dust. Schedule construction operations so that dust and other contaminants will not fall on wet or newly coated surfaces.

1.3 SITE CLEANUP AND RESTORATION

Prior to final completion, the OWNER, ENGINEER, and CONTRACTOR shall review the site with regards to site cleanup and restoration. Clean and/or restore all items determined to be unsatisfactory by the OWNER or ENGINEER, at no additional expense.

+ + END OF SECTION + +

SECTION 01820 - POST FINAL INSPECTION

1.1 GENERAL

- A. Approximately one year after Final Completion, the OWNER will make arrangements with the Project Manager and the CONTRACTOR for a post final inspection and will send a written notice to said parties to inform them of the date and time of the inspection.
- B. Corrections of defective work noted by OWNER and Project Manager shall comply with the applicable sections of Article 13, General Conditions.
- C. After the inspection, the OWNER will inform the CONTRACTOR of any corrections required to release the performance and payment bonds.

++ END OF SECTION ++

DIVISION 2 - TECHNICAL PROVISIONS

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SECTION 001 - TECHNICAL SPECIFICATIONS

STANDARD SPECIFICATIONS

- A. All work of this Contract shall conform to the applicable technical specifications of Florida Department of Transportation Standard Specifications for Road and Bridge Construction, FY23-24, and Supplemental Specification, Special Provisions and addenda thereto, except as modified and supplemented hereinafter. Reference to Article numbers herein-after apply to the FDOT Standard Specifications, and reference in FDOT Standard Specifications to Department shall be taken as the Owner or its appointed Representative. Wherever the Specifications, Supplementals, etc. may refer to the "Owner", "Department", "State of Florida Department of Transportation", or words relating to offices of State Government, such words shall be taken as meaning Owner or Indian River County, Florida. Wherever the word "Owner's Engineer", "District Engineer", "Engineer", "Project Engineer", etc., appears, it shall be taken to mean the Registered Professional Project Engineer of the Indian River County Public Works Department, Engineering Division acting directly or through duly authorized representatives. Wherever the word "Resident Engineer" appears, it shall be taken to mean an authorized representative of the Owner's Engineer on the Project (Resident Construction Inspector) who will act as an agent for Indian River County, assigned to observe the progress quantity and quality of the work.

The work to be performed for utility work (if any) shall conform to the applicable technical specifications of the "Indian River County Department of Utility Services, Water, Wastewater, and Reclaimed Water Utility Construction Standards" March, 2018 or the current version.

The work to be performed per line items 700 through 711 shall conform to the applicable standards of Indian River County Typical Drawings for Pavement Markings, Signing & Geometrics Revised March 2012.

SECTION 004 - SCOPE OF WORK

Section 4-3.9 Value Engineering Incentive is deleted in its entirety.

SECTION 101 - MOBILIZATION

The work specified in this section shall conform to Section 101 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

- A. The Contractor shall maintain all grassed and landscaped areas within the project limits in a satisfactory condition until final acceptance of the project. Such maintenance within the limits of construction shall include the mowing of all existing grassed areas within the Right-of-Way, removal of all trash and debris on a weekly basis, and keeping vegetation

trimmed on all sidewalks. Grass height shall not exceed 6" without mowing. Clippings shall be removed from sidewalk.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 101-1 – Mobilization/ Demobilization – Per Lump Sum

SECTION 102 - MAINTENANCE OF TRAFFIC

The work specified in this item shall conform to Section 102 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, except as modified herein.

- A. **GENERAL PROVISIONS-DESCRIPTION:** The work specified in this Section consists of maintaining traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. It shall include the construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences, businesses, etc., along the project; the furnishing, installing and maintaining of traffic control and safety devices during construction, the control of dust through the use of calcium chloride if necessary, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term, Maintenance of Traffic, as used herein, shall include all of such facilities, devices and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance; all as specified in this Itemized Section 14 of these provisions and Paragraph 24 in General Conditions Section.
- B. **BEGINNING DATE OF CONTRACTOR'S RESPONSIBILITY:** The Contractor shall present his Maintenance of Traffic Plan at or before the pre-construction conference. The Maintenance of Traffic Plan shall indicate the type and location of all signs, lights, barricades, striping and barriers to be used for the safe passage of pedestrians and vehicular traffic through the project and for the protection of the workmen. The plan will indicate conditions and setups for each phase of the Contractor's activities.

When the project plans include or specify a specific Maintenance of Traffic Plan, alternate proposals will be considered when they are found to be equal to or better than the plan specified.

In no case may the Contractor begin work until the Maintenance of Traffic Plan has been approved in writing by the Engineer. Modifications to the Maintenance of Traffic Plan that become necessary shall also be approved in writing. Except in an emergency, no changes to the approved plan will be allowed until approval to change such plan has been received.

The cost of all work included in the Maintenance of Traffic Plan shall be included in the pay item for Maintenance of Traffic.

The Contractor shall be responsible for performing daily inspections, including weekends and holidays, with some inspections at nighttime, of the installations on the project and replace all equipment and devices not conforming with the approved standards during that inspection. The project personnel will be advised of the schedule of these inspections and be given the opportunity to join in the inspection as is deemed necessary.

- C. TRAFFIC CONTROL - STANDARDS: The FDOT Design Standards For Design, Construction, Maintenance and Utility Operations On The State Highway System, Edition as dated on the plans set forth the basic principles and prescribes minimum standards to be followed in the design, application, installation, maintenance and removal of all traffic control devices and all warning devices and barriers which are necessary to protect the public and workmen from hazards within the project limits. The standards established in the aforementioned manual constitute the minimum requirements for normal conditions, and additional traffic control devices warning devices, barriers or other safety devices will be required where unusual, complex or particularly hazardous conditions exist.

The above referenced standards were developed using F.H.W.A., U.S.D.O.T. Manual on Uniform Traffic Control Devices (MUTCD).

- D. TRAFFIC CONTROL DEVICES, WARNING DEVICES AND BARRIERS - INSTALLATION: The responsibility for installation and maintenance of adequate traffic control devices, warning devices and barriers, for the protection of the travel in public and workmen, as well as to safeguard the work area in general shall rest with the Contractor. Consideration shall be given to recommendations of the Engineer. The required traffic control devices, warning devices and barriers shall be erected by the Contractor prior to creation of any hazardous condition and in conjunction with any necessary re-routing of traffic. The Contractor shall immediately remove, turn or cover any devices or barriers which do not apply to existing conditions. All traffic control devices shall conform to MUTCD standards and shall be clean and relatively undamaged. Damaged devices diminishing legibility and recognition, during either night or day conditions, are not acceptable for use.
- E. NO WAIVER OF LIABILITY: The Contractor shall conduct his operations in such a manner that no undue hazard will result due to the requirements of this article, and the procedures and policies described therein shall in no way act as a waiver of any of the terms of the liability of the Contractor or his surety.
- F. Contractor's Maintenance of Traffic Plan shall maintain continuous vehicular traffic at all times.
- G. The Changeable Variable Message Sign shall be used as necessary. The location, message, and duration shall be as directed by Engineer.
- H. In addition to above, the Contractor shall comply with INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION in Appendix C.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 102-1 – Maintenance of Traffic – Per Lump Sum

SECTION 104 - PREVENTION, CONTROL, AND ABATEMENT OF EROSION AND WATER POLLUTION**PART 1 – GENERAL****1.1 SCOPE**

- A. This Section covers erosion control and the treatment of dewatering water and stormwater runoff from the construction site and work area. Pollution control measures shall prevent polluted or turbid waters from being discharged from the construction site or work area to undeveloped portions of the site or offsite, including but not limited to Multiple Separate Storm Sewer Systems (MS4s) and Waters of the State.
- B. The OWNER considers pollution from dewatering water and stormwater runoff from a construction site or work area to be a very serious offense. The CONTRACTOR is solely responsible for preventing pollution caused by dewatering water and stormwater runoff from the construction site or work area. Note that state regulations do not allow mixing stormwater and dewatering groundwater in the same release – separate and independent discharges are required.
- C. Pollution control measures specified herein represent minimum standards to be adhered to by the CONTRACTOR throughout the Project’s construction. The OWNER reserves the right to require the CONTRACTOR to employ additional pollution control measures, when in the sole opinion of the OWNER, they are warranted. If site specific conditions require additional erosion and stormwater pollution control measures during any phase of construction or operation to prevent erosion or to control sediment or other pollution, beyond those specified in the Drawings, the Project’s approved Stormwater Pollution Prevention Plan (SWPPP), or herein, implement additional best management practices as necessary, in accordance with [Chapter 4, “Best Management Practices for Erosion and Sedimentation Control” of the Florida Erosion and Sediment Control Inspector’s Manual](#) and other references as may be applicable or required by regulatory permits.
- D. The OWNER may terminate this Contract if the CONTRACTOR fails to comply with this Section. Alternatively, the OWNER may halt the CONTRACTOR’s operations until the CONTRACTOR is in full compliance with this Section. If the OWNER halts the CONTRACTOR’s Work as a result of failure to comply with this Section, the Contract time clock will continue to run.
- E. In addition to these Specifications, comply with [Chapter 4 - “Best Management Practices for Erosion and Sedimentation Control”](#) and [Chapter 5 – “Best Management Practices for](#)

Dewatering” of the Florida Erosion and Sediment Control Inspector’s Manual. In the event of a conflict between the referenced chapters and these Specifications, the more stringent requirement shall prevail.

- F, Submit to SJRWMD a “Notice to District of Dewatering Activity” (SJRWMD Form No. 40C-2.900(12)) prior to commencement of dewatering in accordance with F.A.C. 40C-2.042(9). Provide a copy of the Notice to Indian River County.

1.2 PERMITS

- A. The OWNER has obtained certain permits for this project and they are listed in [paragraph 6.08.B of the EJCDC Standard General Conditions of the Construction Contract \(General Conditions\)](#). Per [paragraph 6.08.C of the General Conditions](#), apply for and obtain all other required federal, state, and local permits, licenses, sampling, and tests.
- B. Provide copies of all approved permits to the OWNER and ENGINEER and comply with all conditions contained in all permits at no extra cost to the OWNER. If there is a conflict between any permit requirement and these Specifications or requirements between permits, the more stringent specification or requirement shall govern.
- C. Pay for all required water quality sampling and laboratory tests.

1.3 GENERAL

- A. Do not begin any other construction work until the pollution control and treatment system has been constructed in accordance with approved plans, permits, and these Specifications; and the installed system has been examined by the OWNER for compliance.
- B. From time to time, the OWNER or ENGINEER will inspect the pollution control and treatment system and may take effluent samples for analysis by a testing laboratory selected and paid for by the OWNER. If at any time, the OWNER or ENGINEER determines that the pollution control and treatment system is not in compliance with the approved system, the OWNER or ENGINEER will shut the portion of the project down that is not in compliance, and it shall remain shut-down until the pollution control and treatment system is properly constructed or repaired, and complies with the approved pollution control and treatment system plans, specifications, contract documents, and permits.
- C. Schedule construction to minimize erosion and stormwater runoff from the construction site. Implement erosion control measures on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased. In addition to other temporary erosion control measures that may be implemented, application of polyacrylamide is required on all such disturbed areas within 7 days after the construction activity in that portion of the site has temporarily or permanently ceased, unless final landscaping has been installed.

Polyacrylamide application shall be as specified herein. Include polyacrylamide application in the Project's SWPPP.

- D. Inspect each pollution control system at least once per day and after each rainfall event. Clean and maintain each pollution control system as required until the system is no longer needed. If a water quality violation occurs, immediately cease all work contributing to the water quality violation and correct the problem. Immediately report all water quality violations to the OWNER. Immediately report the discharge of any hazardous substance to the State Warning Point at 800-320-0519 or 850-413-9911.
- E. Discharge shall not violate State or local water quality standards in receiving waters, nor cause injury to the public health or to public or private property, nor to the Work completed or in progress. The receiving point for water from construction operations shall be approved by the applicable owner, regulatory agency, and the ENGINEER. The receiving point shall be shown on the Project SWPPP.
- F. Promptly repair all damage at no cost to the OWNER.

1.4 SUBMITTALS

- A. Shop Drawings: Submit shop drawings of the proposed pollution control and treatment systems in accordance with [Section 1340](#).
- B. Approved Stormwater Pollution Prevention Plan.
- C. "Contractor's Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater From Construction Activities"

1.5 STORMWATER TREATMENT AND EROSION CONTROL SYSTEM RESPONSIBILITY

- A. Prepare a site-specific design of the erosion and stormwater pollution control system. Install and maintain all erosion and stormwater pollution control devices under the supervision of a State Certified Stormwater, Erosion, and Sedimentation Control Inspector. Maintain the erosion and stormwater pollution control devices until in the ENGINEER's sole opinion, the devices are no longer necessary (such time not to extend past the date the OWNER formally accepts the project as complete). Before beginning construction, submit to Indian River County, Florida Department of Environmental Protection (FDEP) and other applicable regulatory agencies for review and approval, a Stormwater Pollution Prevention Plan (SWPPP), prepared by the certified erosion control subcontractor. Construction shall not begin until the SWPPP has been approved by Indian River County, FDEP, and all applicable regulatory agencies. Submit the approved SWPPP to the ENGINEER before beginning construction. Include in the SWPPP, the "Contractor's Affidavit Regarding Erosion Control and Treatment of Dewatering Water and Stormwater From Construction Activities" (located at the end of this Section).

1.6 "POLLUTION" AND CERTAIN UNCONTESTABLE POLLUTION EVENTS DEFINED

- A. With respect to this Section and as may be further defined in paragraphs [1.6.B](#), [1.6.C](#), and [1.6.D](#), "pollution" is the presence in off-site waters of any substances, contaminants, or manmade or human-induced impairment of off-site waters or alteration of the chemical, physical, biological, or radiological integrity of off-site water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property. Pollutants to be removed include but are not limited to, sediment and suspended solids, solid and sanitary wastes, phosphorus, nitrogen, pesticides, oil and grease, concrete truck washout, stucco mixer washout, curb machine washout, washout from other construction equipment, construction chemicals, and construction debris.
- B. When the Discharge is Directly Into an Existing Water Body An existing water body (including ditches and canals) is defined to be polluted by the CONTRACTOR's operations when at any time, the turbidity of the water immediately downstream of the CONTRACTOR's discharge point(s) is at least 29 nephelometric turbidity units (NTUs) higher than the turbidity of the background water upstream of the discharge point(s). [See [Fla. Administrative Code 62-302.530](#)] Exception: When the discharge is directly into or through an outfall discharging into "Outstanding Florida Waters," designated by [Florida Statute 403.061\(27\)](#), the turbidity of the discharged water cannot exceed the turbidity of the immediate receiving water. The ENGINEER or OWNER shall determine the locations where the turbidity is measured.
- C. When the Discharge is not Directly Into an Existing Water Body In some instances, dewatering water or stormwater runoff from the construction site or work area may reach a water body indirectly, such as by overland flow. If the discharge water's TSS and turbidity measurements exceed pre-construction background values by 20 percent for TSS and 29 NTUs for turbidity, then the discharge is defined to be polluted.
- D. When Pollution Always Occurs The discharge from a construction site or work area is defined to be polluted whenever the pH of the discharge is less than 6.5 or greater than 8.5, or whenever any of the following is present in the discharge water:
- (1) Hazardous waste or hazardous materials in any quantity,
 - (2) Any petroleum product or by-product in any quantity,
 - (3) Any chemical in any quantity, or
 - (4) Concentrated pollutants.
- E. Above paragraphs [1.6.B](#), [1.6.C](#), and [1.6.D](#) do not in any way, limit the types of conditions in which pollution may be determined to occur.

1.7 PENALTIES FOR NONCOMPLIANCE WITH THIS SECTION

- A. In addition to the OWNER's specific remedies, if erosion or pollution is caused by dewatering water or stormwater runoff from the construction site, the OWNER may report the violations to Indian River County Stormwater Enforcement, SJRWMD, FDEP, Indian River Farms Water Control District (or other F. S. Chapter 298 Drainage District, as appropriate), and other pertinent regulatory or enforcement agencies.

PART 2 - MATERIALS AND INSTALLATION

2.1 GENERAL

- A. Polyacrylamide: As required in Paragraph 1.3.C, place polyacrylamide (PAM) on bare ground to reduce the potential for erosion and cover it with hay, jute, or mulch. PAM may also be used in water bodies to remove turbidity. In all cases, use the anionic form of polyacrylamide that does not stick to fish gills. For PAM information and its proper application, a contact is Applied Polymer Systems, Inc., (678) 494-5998, www.siltstop.com.
- B. Staked Silt Fences:
1. General: Use silt fences to control runoff from the construction site where the soil has been disturbed.
 2. Installation: Install per the manufacture's recommendations and as specified herein. In general, install the silt fence in a manner that allows it to stop the water long enough for the sediment to settle while the water passes through the silt fence fabric. All supporting posts shall be on the down-slope side of the fencing. Place the bottom of the fabric 6-inches minimum, under compacted soil to prevent the flow of sediment underneath the fence. Place silt fences away from the toe of slopes. Otherwise, work shall conform to Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.
 3. Product: All material shall be new and unused. Use FDOT Types III through IV silt fences where large sediment loads are anticipated, where slopes are 1:2 (vertical: horizontal) or steeper, or as directed by the ENGINEER; otherwise use FDOT Type II silt fence.
- C. Turbidity Barriers:
1. General: Use turbidity barriers to control sediment contamination of rivers, lakes, ponds, canals, etc.
 2. Installation: Install per the manufacturer's recommendations and per Section 104 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction unless directed otherwise by the ENGINEER.
 3. Product: All material shall be new and unused. The turbidity barrier shall be a pervious barrier and the fabric color shall be yellow. Use staked turbidity barriers in water less than one-foot deep. Use floating turbidity barriers in water one-foot or deeper.
- D. Sedimentation Control From Dewatering or Pumping Operations Using Filter Bags:
1. Filter bags shall be manufactured using a polypropylene non-woven geotextile and sewn by a double-needle machine, using a high strength nylon thread. The bag shall have a fill spout large enough to accommodate a 4-inch pump discharge hose. Straps shall be attached to the bag to secure the hose and prevent pumped water from escaping without being filtered.
 2. Installation: Install in accordance with the manufacturer's specifications. Use as many filter bags as required, at no additional cost to the OWNER. Legally dispose of

the bags offsite, at no cost to the OWNER. If the bags are placed on aggregate to facilitate filtration efficiency, do not use limerock aggregate – use non-calcareous rock.

3. Product: The filter bag shall be supplied with lifting straps.
 - a. “DIRTBAG 53 or 55 as applicable,” supplied by ACF Environmental, Inc. (1-800-448-3636).
 - b. “DANDY DEWATERING BAG” supplied by Dandy Products, Inc. (1-800-591-2284).
 - c. Or equivalent.

E. Curb Inlet Protection:

1. Filter stormwater before it enters curb inlets.
2. Installation: Install in accordance with the manufacturer’s specifications. Use as many of the specified filtration devices as required, at no additional cost to the OWNER.
3. Product: All materials shall be new and unused. The length of the curb inlet filtration device shall be at least 2-feet longer than the curb inlet opening.
 - a. “GUTTERBUDDY,” supplied by ACF Environmental, Inc. (1-800-448-3636).
 - b. Or equivalent.

F. Catch Basin Protection:

1. Filter stormwater before it enters catch basins (drop inlets). The filter “sack” shall be manufactured from woven polypropylene geotextile and sewn by a double-needle machine, using a high strength nylon thread. The sack shall be manufactured to fit the opening of the catch basin or drop inlet and it shall have the following features: two dump straps attached at the bottom to facilitate emptying; lifting loops as an integral part of the system to be used to lift the sack from the basin; and a colored restraint chord approximately halfway up the sack to keep the sides away from the catch basin walls. The colored restraint chord shall also serve as a visual means of indicating when the sack should be emptied.
2. Installation: Install in each catch basin in accordance with the manufacturer’s specifications. Use as many of the specified filtration devices as required, at no additional cost to the OWNER.
3. Product: All materials shall be new and unused.
 - a. “SILTSACK” (regular flow), supplied by ACF Environmental, Inc. (1-800-448-3636).
 - b. “FloGuard+PLUS,” supplied by Kristar Enterprises, Inc. (1-800-579-8819).
 - c. Or equivalent.

- G. Construction Site Egress Driveways: Minimize the transport of sediment and soil from the construction site or work area by vehicle wheels. Construct a crushed rock driving surface at the vehicle exit point(s). Locate the site egress driveways a minimum of 25 feet from all drainage inlets or pipes. Provide an area large enough to remove the sediment and soil from vehicle wheels before the vehicle leaves the construction site or work area. Provide wash-down stations as required to wash vehicle tires and retain all washwater on-site. Do not use limerock.

- H. Rock and Stone for Erosion Control and Pollution Control and Treatment:
 - 1. Crushed Limerock: Limerock shall not be used under any circumstance.
 - 2. Acceptable Material: FDOT #4 non-calcareous aggregate, washed and meeting the requirements of FDOT Standard Specifications for Road and Bridge Construction, Section 901.

- I. Hay Bales: Hay bales shall not be used.

PART 3 - EXECUTION

- A. Design, construct, and maintain the pollution control and treatment system to minimize erosion and capture and remove pollutants from the construction site and from all other areas disturbed by construction activities.

- B. Apply polyacrylamide in strict accordance with the polyacrylamide manufacturer/supplier's recommendations and specifications.

- C. REPAIR ALL EROSION DAMAGE – At no additional cost to the OWNER and regardless of the state of completion of the Work, immediately clean all dirt and debris from all pipes and drainage structures; and repair all flooding, washouts, and all other erosion damage to the Work. This responsibility shall not end until Final Acceptance of the Work by the OWNER. Included is damage caused by erosion of any kind (e.g. wind, waves, stormwater runoff, hurricanes, etc.) including Acts of God. Restore all erosion damaged areas to design grades and elevations. Also, refer to [General Conditions 6.13.B](#).

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 104-2 – Sediment Barrier - Per Lump Sum

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PERMITTEE’S AFFIDAVIT REGARDING POLLUTION

This sworn statement is submitted to Indian River County for the following project:

IRC – 2104 – Traffic Operations Facility

STATE OF _____

COUNTY OF _____

Personally, before me the undersigned authority, appeared

_____, who upon oath duly administered, stated as follows:

1. This sworn statement is submitted by the PERMITTEE,

_____ whose business address is

and (if applicable) its Federal Identification No.(FEIN) is _____

2. My name is _____ and my relationship to the

entity named above is _____

(if signing as Owner’s Agent, attach Letter of Authorization to Sign from Owner)

3. PERMITTEE understands and agrees that in addition to complying with the terms and conditions of the Stormwater Management System Permit issued by Indian River County, Permittee is responsible for complying with the terms and conditions of the following as applicable to the site:

- (a) State of Florida Generic Permit for Stormwater Discharge From Large and Small Construction Activities (for projects one acre or larger),
- (b) Stormwater Pollution Prevention Plan (regardless of project size),
- (c) St. Johns River Water Management District permit(s) (regardless of project size),
- (d) Florida Department of Environmental Protection permit(s) (regardless of project size),
- (e) All other permits required for this project not specifically listed herein, and
- (f) All Codes and Ordinances of Indian River County.

4. PERMITTEE understands and agrees that “pollution” as defined by Florida Statutes Chapter 403.031(7) includes: “. . . the presence in the outdoor atmosphere or waters of the state of any substances, contaminants, noise, or manmade or human-induced impairment of air or waters or alteration of the chemical, physical, biological, or radiological integrity of air or water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation unless authorized by applicable law.”

5. PERMITTEE understands and agrees that in addition to the definition set forth in Item 4 above, "pollution" is also defined by Florida Administrative Code 62-302.530 and as may be further defined in the Indian River County permit(s).
6. PERMITTEE understands that Indian River County requires the design, installation, and maintenance of proper erosion control measures at all times UNTIL Final Acceptance of the Project by the OWNER.
7. PERMITTEE understands that there are civil and criminal penalties for pollution listed in Florida Statutes Ch. 403.141 and Ch. 403.161 and that there are other penalties listed in Indian River County's permits, including but not limited to, Indian River County issuing a Cease and Desist Order for the project. CONTRACTOR understands that it may be liable for these and other penalties if offsite pollution occurs as a result of activities associated with the Project.
8. Transfer of Ownership or County Issued Permits:
 - (a) Transfer of Interest in Real Property: Within twenty-one (21) days of any transfer of ownership or control of the real property at which the permitted activity, facility, or system is located or authorized, the Permittee shall notify in writing, both the Indian River County Engineering Division and the Indian River County Stormwater Division of the transfer. Permittee shall provide the name, mailing address, and telephone number of the transferee and a copy of the instrument effectuating the transfer. Said notification is in addition to notifying the County Attorney's Office as required by County Code.
 - (b) Transfer of a County Permit. To transfer a County issued permit, Permittee must provide (1) the information required in Item 8(a); (2) a written statement from the proposed transferee that it will be bound by all terms and conditions of the permit; and (3) a new "Permittee's Affidavit" form properly executed by the transferee. Upon proper receipt of these items the County shall transfer the permit to the transferee.
 - (c) Permittee is encouraged to request a permit transfer prior to the sale or legal transfer of the real property at which a permitted facility, system, or activity is located or authorized. However, the transfer shall not be effective prior to the sale or legal transfer.
 - (d) An "Illicit Discharge Sign" must be present at the site at the time of transfer. Replacement or additional signs may be obtained from the Indian River County Public Works Department at a cost of \$30.00 per sign.

Under penalty of perjury, PERMITTEE declares that it has read the foregoing affidavit and the facts stated in it are true.

FURTHER AFFIANT SAYETH NAUGHT

CONTRACTOR: _____

Authorized Signature: _____

Printed Name: _____

Date: _____

Work Telephone: _____

Mobile Telephone: _____

STATE OF _____

COUNTY OF _____

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this ____ day of _____, 20____, by _____ (name of person making statement).

(Signature of Notary Public - State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced _____ as identification.

++ END OF SECTION ++

SECTION 110 - CLEARING AND GRUBBING

The work specified in this item shall conform to Section 110 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction with the following modifications:

- A. Prior to any clearing and grubbing, the contractor will stake the right-of-way. Unimproved areas shall be cleared of trees, logs, stumps, brush, vegetation, rubbish and other perishable or objectionable matter within limits shown on the plans excepting for certain trees and shrubs shown on the plans or as directed by the Engineer which are to remain undisturbed and protected. Stumps and roots between slope stakes in cuts and in embankments 3 feet or less in depth shall be removed to a depth of 18 inches below subgrade. No stumps, roots, or perishable matter of any description shall remain under concrete slabs or footing, including pavement and sidewalks.
- B. No trees shall be removed or relocated until the Engineer or his representative has marked all trees to be saved, after a review of the project site with the Contractor's representative.
- C. Where the final pavement or structural work will be close to existing trees, the Contractor shall exercise care in the vicinity of the trees. Further, the Contractor shall saw cut along the edge of the outside limits of the stabilization, structure subgrade or sidewalk to a minimum depth of 4 feet below the finish grade and paint with a commercial grade pruning paint the ends of all sawn roots. If directed by the Engineer or where shown on the drawings, work shall be done by hand in order to protect the trees.
- D. The Contractor shall exercise care when working in the vicinity of all trees to remain so as to not damage or remove major root structures. The Contractor shall not pull hair or major root structures. All severed roots shall be sawn clean and paint with pruning paint. Stumps, roots, etc., shall be completely removed and disposed of by the Contractor. Undesirable, dead, and/or damaged trees (as so designated by the Engineer) shall be removed.
- E. All trees to be removed shall be disposed off site; burning will be strictly prohibited.
- F. All trees or shrubs which are to remain shall be preserved and protected by the Contractor. Where the removal of valuable trees or shrubs specifically for transplanting is required, this work shall be done in cooperation with the Owner and at no additional expense to the Owner.
- G. All items to be removed shall be excavated to their full depth. All culverts removed from residential driveway entrances within the right-of-way shall become the property of the respective homeowner. Those homeowners not desiring the culverts may donate them to the County free of charge. (See Paragraph C, Special Provisions) The Contractor shall transport the culverts to the County's storage yard. All metal castings for catch basins, manholes, or other structures shall be carefully removed and stored in the County's Storage Yard if they are deemed salvageable by the Engineer. The excavated materials shall be

removed from the job site and disposed in a location designated or approved by the Owner. Any culverts, structures or any material excavated or removed from the project site under clearing and grubbing deemed unsalvageable by the Engineer shall be disposed of in a legal manner by the Contractor. Where required, suitable material as approved by the Engineer shall then be backfilled and compacted to restore the original contour of the ground. The fill material shall be backfilled and compacted in accordance with Section 120 of these specifications.

- H. No additional payment will be made, nor will additional work, or change orders be authorized for work needed to remove, relocate, protect, or otherwise account for in the construction of the work depicted in the plans, for any feature, or item that would be apparent from a careful inspection of the site and review of the plans, even though such feature or item is not specifically called out in the plans. It is therefore essential the contractor make such inspection and review.
- I. The unit price bid for this item shall include the cost of all labor, tools, and equipment necessary to excavate, remove, and dispose of those items as directed by the Engineer and where designated on the Drawings. The cost of restoration and backfill and compaction for the specific area of removal shall also be included under this item.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 110-1-1 – Clearing and Grubbing – Per Acre

Bid Item No. 110-23 – Trees to be Removed (Oaks) (10” – 40”) – Per Each

Bid Item No. 110-4-10 – Removal of Existing Concrete (Sidewalks) – Per Square Yard

SECTION 120 - EXCAVATION AND EMBANKMENT

- A. Earthwork, including earthwork for drives outside the right-of-way limits, shall be paid for as embankment. Cost shall include all work specified in this section and Section 120 of the FDOT Standard Specifications for Road and Bridge Construction. Such price and payment shall specifically include all cost of any roadway, lateral ditch or canal, and final dressing operations.
- B. Earthwork quantities shall be considered as in-place material with no shrinkage or expansion factors.
- C. Subsoil Excavation - Any excavation below the proposed bottom elevation of the select fill, isolated swale bottom locations, isolated locations for pipe installations and as approved by the engineer shall be paid for as subsoil excavation. Approximately 2.0 ft of subsoil excavation is required in sublateral canals. Cost of replacement embankment shall be included in cost of subsoil excavation. Contractor shall coordinate with county representative prior to any subsoil excavation.

- D. Embankment - General Requirements for Embankment Materials: The following is added after the first paragraph of Subarticle 120-7.2:

Roadway Design Standard Index No. 505, Embankment Utilization Details is modified by the addition of the following:

Any stratum or stockpile or soil which contains obvious pockets of highly organic material may be designated as muck or unsuitable for construction of subgrade by the Owner.

Backfill material containing more than 2.0% by weight of organic material, as determined by FM 1-T 267 and by averaging the test results for three randomly selected samples from each stratum or stockpile of a particular material, shall not be used in construction of the reinforced volume. If an individual test value of the three samples exceeds 3.0%, the stratum or stockpile will not be suitable for construction of the reinforced volume.

No A-8 material permitted in embankment.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 120-1 – Regular Excavation – Per Cubic Yard

SECTION 160 - STABILIZING

- A. Section 160 is modified by the addition of the following:

"The stabilization thickness indicated on plans shall be considered a minimum thickness. Thickness will vary to conform to the lines, and grades shown in the plans." Minimum L.B.R. = 40 - No under-tolerance.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 160-4A – Type B Stabilization (Car Parking, Sidewalks and Service Yard Areas) (6")
– Per Square Yard

Bid Item No. 160-4B – Type B Stabilization (Heavy Duty Concrete Areas) (12") – Per Square Yard

SECTION 285 - OPTIONAL BASE COURSE

- A. Sub Article 285-4 is modified by the addition of the following:

Base material, thickness and requirements are described in the construction plans. Only one type of alternate base material shall be used. No additional payment will be made for base

thickness in excess of the specified thickness

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 285-704 – Optional Base, Group 4 (Car Parking Areas) – Per Square Yard

Bid Item No. 285-709 – Optional Base Group 6 (Service Yard) – Per Square Yard

SECTION 334 - SUPERPAVE ASPHALT CONCRETE

The work specified in this item shall conform to Section 334 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Sub article 334-8.1 through 334-8.3 – Basis of Payment shall be deleted in its entirety.

Sub article 334-8.4 – Payment shall be amended as follows:

Item of Payment

Bid Item No. 334-1-13 – Superpave Asphalt Concrete Traffic C (SP 9.5, 1.5") (Car Parking Areas) – Per Ton

Bid Item No. 334-1-13 – Superpave Asphalt Concrete Traffic C (SP 12.5, 1.5" – 1st Lift) (Service Yard) – Per Ton

Bid Item No. 334-1-13 – Superpave Asphalt Concrete Traffic C (SP9.5, 1" – 2nd Lift) (Service Yard) – Per Ton

SECTION 400 - CONCRETE STRUCTURES

The work specified in this item shall conform to Section 400 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 400-2-10 – Concrete Class II, Approach Slabs (7" Thickness) (Reinforced) (4,000 PSI) – Per Cubic Yard

SECTION 425 - INLETS, MANHOLES, AND JUNCTION BOXES

The work specified in this item shall conform to Section 425 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 425-1-54 – Inlet, Ditch Bottom (Type F) – Per Each

Bid Item No. 425-2-41 – Manhole (P-7)(<10') – Per Each

SECTION 430 - PIPE CULVERTS

The work specified in this item shall conform to Section 430 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 430-175-112 – Pipe Culvert, Round (12") (S/CD) (SCH 80 PVC)
– Per Linear Foot

Bid Item No. 430-175-115 – Pipe Culvert, Round (15") (S/CD) (RCP)
– Per Linear Foot

Bid Item No. 430-175-118 – Pipe Culvert, Round (18") (S/CD) (RCP)
– Per Linear Foot

Bid Item No. 430-175-124 – Pipe Culvert, Round (24") (S/CD) (RCP)
– Per Linear Foot

Bid Item No. 430-964-6 – PVC Pipe for Non-Standard Drainage (8") (SCH 80) – Per Linear Foot

Bid Item No. 430-964-7 – PVC Pipe for Non-Standard Drainage (6") (SCH 80) (Roof Leaders)
– Per Linear Foot

SECTION 507 – SIDEWALK FLOORS

The work specified in this section shall conform to Section 507 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 507-70 – Aluminum Sidewalk Floor – Per Square Foot

SECTION 515 – HAND RAILS

The work specified in this section shall conform to Section 515 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 515-1-2 – Pipe Handrail – Guardrail (Aluminum) – Per Linear Foot

SECTION 520 - CONCRETE GUTTER, CURB ELEMENTS, AND TRAFFIC SEPARATOR

The work specified in this section shall conform to Section 520 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 520-1-10 – Concrete Curb and Gutter (Type F) – Per Linear Foot

Bid Item No. 520-2-4 – Concrete Curb (Type D) – Per Linear Foot

SECTION 522 - CONCRETE SIDEWALK AND DRIVEWAYS

The work specified in this item shall conform to Section 522 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 522-2 – Concrete Sidewalk and Driveways (Fiber Reinforced) (6”) – Per Square Yard

SECTION 527 – DETECTABLE WARNINGS

The work specified in this item shall conform to Section 570 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 527-2 – Detectable Warnings (Yellow) – Per Square Foot

SECTION 550 - FENCING

The work specified in this item shall conform to Section 550 of the Florida Department of

Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 550-60-236 – Fence Gate (Type B) (Sliding/Cantilever) (24'-30' Opening) – Per Each

SECTION 570 - PERFORMANCE TURF

The work specified in this item shall conform to Section 570 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

- A. Description: Sod for the project shall be of the variety that is common to the area and of a variety approved by the Engineer. This work shall also include mowing, to be mowed at maximum 6" height with a mulching mower.
- B. Work Included: Scope of Work: The work specified in this section consists of the establishing of a stand of grass, within the project, right-of-way, easements, and other areas indicated on the Drawings, by furnishing and placing grass sod. Also included are fertilizing, watering and maintenance as required to assure a healthy stand of grass. Two applications of fertilizer will be required with the initial application being fertilizer and the second application being "weed and feed".
- C. Guarantee: All sodded areas shall be guaranteed for one year after date of final acceptance.

Replacement of Defective Sod: Any dead sod or sod showing (less than 95% of a square) indication of probable non survival or lack of health and vigor, or which do not exhibit the characteristics to meet specifications, shall be replaced within two weeks of notice from Owner or Engineer. All replacement sod shall be furnished/installed at no additional cost to the Owner and shall be guaranteed for three months. All replacement shall meet original specifications.

The Contractor shall notify the Owner and Engineer ten days prior to the end of the guarantee period and such guarantee shall be extended until notification is received.

At the end of the guarantee period, all sod that is dead or in unsatisfactory growth shall be replaced within two weeks.

- D. Fertilizer: Commercial fertilizers shall comply with the Indian River County Fertilizer Ordinance 2013-012 and Supplement Ordinance 2013-014 (see Appendix B).
- E. Water for Grassing: Contractor shall provide the water used in the sodding operations as necessary to meet the requirements of Article 570-3.6.
- F. Preparation of Ground: The area over which the sod is to be placed shall be scarified or loosened to a depth and then raked smooth and free from debris. Where the soil is

sufficiently loose and clean, the Owner, at his discretion, may authorize the elimination of ground preparation.

- G. Application of Fertilizer: Before applying fertilizer, the soil pH shall be brought to a range of 6.0 - 7.0.

Contractor shall apply two (2) applications. The initial shall be fertilizer and the second application shall be "weed and feed".

The fertilizer shall be spread uniformly over the sodded area at the rate of 436 pounds per acre, or 10 pounds per 1,000 square feet, by a spreading device capable of uniformly distributing the material at the specified rate.

Contractor shall apply applications as per manufacturer's specification. All tickets from bags shall be handed over to the County Inspector.

On steep slopes, where the use of a machine for spreading or mixing is not practicable, the fertilizer shall be spread by hand and raked in and thoroughly mixed with the soil to a depth of approximately 2 inches.

- H. Placing Sod: The sod shall be placed on the prepared surface, with edges in close contact and shall be firmly and smoothly embedded by light tamping with appropriate tools.

Where sodding is used in drainage ditches, the setting of the pieces shall be staggered so as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas, the offsets of individual strips shall not exceed 6 inches. In order to prevent erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped so as to produce a featheredge effect.

Where sodding is placed abutting paved shoulder, the contractor is to ensure that the finished sod elevation is 1½" below paved shoulder.

On slopes greater than 3:1, the Contractor shall prevent the sod from sliding by means of wooden pegs driven through the sod blocks into firm earth, at suitable intervals.

Sodding shall not be performed when weather and soil conditions are, in the Engineer's opinion, unsuitable for proper results.

Sod shall be placed around all structures, equipment pads, etc.

- I. Watering: The areas on which the sod is to be placed shall contain sufficient moisture, as determined by the Engineer, for optimum results. After being placed, the sod shall be kept in a moist condition to the full depth of the rooting zone for at least 2 weeks. Thereafter, the Contractor shall apply water as needed until the sod roots and starts to grow for a minimum of 60 days (or until final acceptance, whichever is latest).

- J. Maintenance: The Contractor shall, at his expense, maintain the sodded areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include repairing of any damaged areas and replacing areas in which the establishment of the grass stand does not appear to be developing satisfactorily.

Replanting or repair necessary due to the Contractor's negligence, carelessness or failure to

provide routine maintenance shall be at the Contractor's expense.

The Contractor shall maintain the sodded area up to the final acceptance date as directed by the Engineer. Grass height shall not exceed 6" without mowing. Clippings shall be removed from sidewalk.

- K. Article 570-9. The first two paragraphs under this Article are deleted and the following is added:

The contract unit price for performance turf shall include the costs of sod, fertilizer (2 applications), sidewalk sweeping after mowing, mowing, pegging disposal of clippings, water, tools, equipment, labor and all other incidentals necessary.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 570-1-2 – Performance Turf (Sod) (Match Existing) - Per Square Yard

SECTION 580 - LANDSCAPE AND IRRIGATION

The work specified in this item shall be performed per the landscaping and irrigation plans.

Item of Payment

Payment for the work specified in this item shall be made under:

- Bid Item No. 580-4-343 – Landscape – Palms (Sabal Palmetto) (9'-12') (Clear Trunk) – Per Each
- Bid Item No. 580-5-223 – Landscape – Trees (Live & Laurel Oak, Quercus Virgiana & Laurifolia) (11'-14' Overall Height) – Per Each
- Bid Item No. 580-5-242 – Landscape – Trees (Natchez Crepe Myrtle & Silver Buttonwood) (6' Overall Height) – Per Each
- Bid Item No. 580-5-783 – Landscape – Trees (Taxodium Ascenens, Pond Cypress) (11'-14' Overall Height) – Per Each
- Bid Item No. 580-5-67 – Landscape - Small Shrub (Specified) (7 Gallon) – Per Each

SECTION 590 - IRRIGATION

The work specified in this item shall be performed per the irrigation plans.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 0590-1 – Landscape – Irrigation System (Modification) – Per Lump Sum

SECTION 700 - HIGHWAY SIGNING

- A. Signing for traffic control shall conform to the requirements of the Standard Specifications, Manual on Uniform Traffic Control Devices, Supplemental Specifications, Roadway and Traffic Design Standards, manufacturer's specifications.
- B. Traffic Signs: All existing signs which are the property of the Owner shall be transported to the Indian River County Road and Bridge Maintenance Yard by the Contractor during construction if they are within the construction limits. Care shall be exercised by the Contractor during removal, storage and relocation so as not to damage the signs. If any damage occurs, as determined by the Owner's Engineer or Resident Construction Inspector, the sign shall be replaced by the Contractor with no compensation.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 700-1-11 – Single Sign Post (Up to 12 SF) – Per Assembly

SECTION 710 – PAINTED PAVEMENT MARKINGS

The work specified in this item shall conform to Section 710 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 710-90 – Painted Pavement Markings (808 LF of 4" Parking Stall Stripes)
– Per Lump Sum

Bid Item No. 710-90 – Painted Pavement Markings (50 LF of 6" Double Yellow Stripes)
– Per Lump Sum

SECTION 711 - THERMOPLASTIC PAVEMENT MARKINGS

The work specified in this item shall conform to Section 711 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 711-11-123 - Thermoplastic (Standard) (White) (Solid) (12") – Per Linear Foot

Bid Item No. 711-11-125 - Thermoplastic (Standard) (White) (Solid) (24") – Per Linear Foot

Bid Item No. 711-11-160 – Thermoplastic (Symbol) – Per Each

Bid Item No. 711-11-170 – Thermoplastic (Arrow) – Per Each

SECTION 715 – HIGHWAY LIGHTING SYSTEM

The work specified in this item shall conform to Section 715 of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 715-4-70 – Light Pole and Electric Box Complete (Removal) – Per Each

SECTION 999 - RECORDS/AS-BUILTS

GENERAL

Maintain, prepare and provide the ENGINEER with record documents as specified below, except where otherwise specified or modified within the scope of work provided in the specific project contract documents. The Contractor and/or Developer shall be responsible for, and required to provide, Record Drawings as outlined in this section.

MAINTENANCE OF RECORD DOCUMENTS:

1. Maintain in CONTRACTOR's field office in clean, dry, legible condition complete sets of the following project documents: Drawings, Specifications, Addenda, approved Shop Drawings, samples, photographs, Change Orders, other modifications of Contract Documents, test records, survey data, Field Orders, and all other documents pertinent to CONTRACTOR'S Work.
2. Provide files and racks for proper storage and easy access.
3. Make documents available at all times for inspection by ENGINEER and OWNER.
4. Do not use record documents for any other purpose and do not remove them from the field office.
5. Label each document "RECORD DRAWING" in 2-inch high printed letters.
6. Keep record documents current at all times.
7. No work shall be permanently concealed until the required record data has been obtained.

RECORD / AS-BUILT DRAWINGS

- A. During the construction operation, the CONTRACTOR shall maintain records of all deviations from the approved Project Plans and Specifications and shall prepare therefrom "RECORD" drawings showing correctly and accurately all changes and deviations from the work made during construction to reflect the work as it was actually constructed.

- B. The Record/As-Built survey shall be performed and subsequent plans prepared by a Professional Surveyor and Mapper, registered in the state of Florida and certified to the standards set forth in Chapter 472, Florida Statutes and Chapter 5J-17.050 Florida Administrative Code (Florida Minimum Technical Standards).
- C. Field measurements of vertical or horizontal dimensions of constructed improvements shall be obtained so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans. Clearly shown by symbols, notations, or delineations, those constructed improvements located by the survey.
- D. All vertical information (elevations) provided on the Record Drawings shall be referenced to the North American Vertical Datum of 1988 (NAVD 88) unless otherwise specified by the Project Engineer.
- E. The horizontal information provided on the Record Drawings shall be referenced to the State of Florida, State Plane Coordinate System, Florida East Zone as established by Global Positioning System (GPS) which meets or exceeds Third Order Class I Accuracy Standards according to current publication of the Federal Geodetic Control Committee (FGCC) procedures.
- F. All Record/As-Built drawings shall be prepared in digital format (ACAD Civil 3D 2013) and shall utilize the digital design drawings as prepared by the Project Engineer as a base for the Record/As-Built drawings. It is the responsibility of the Surveyor to request these files from the Contractor or Project Owner in order to produce the Record/As-Built drawing set.
- G. ALL improvements proposed to be constructed as shown on the approved construction plans shall be field measured upon completion and shown on the Record/As-Built survey. Any improvements that appear in both plan and profile views shall show the Record/As-Built information in both views.
- H. The following items are required to be shown on all Indian River County project Record/As-Built drawings submitted to the County:

DRAINAGE:

1. Right-of-way Swale/Drainage – All culvert inverts, elevations and station offsets; inlet grate and bottom elevations; swale beginning and end bottom elevations; and highs and lows along top of bank. Size of swale.
2. Pipe Culvert/PVC Sleeves – All inverts, pipe size, stations and offsets.
3. Outfalls – All pipe inverts, pipe size, elevations and station offsets, weir box elevations, weir elevation, bleeder elevation and sizes.
4. Roadway/Off Site Drainage – All inverts, elevations and station offsets; manhole top elevation; grate top elevations.

5. Retention Ponds – Provide perimeter elevations, grade breaks, depths and calculated pond areas at control elevation and grade breaks above and below water surface. Show as-built of typical cross section as shown on design plan.

ROADWAY:

1. Stations and offsets related to controlling baseline and elevations of all structures, side street and major driveway radius returns (edge of pavement), bends and/or change in direction of roadway alignment, minimum of 1000' intervals along roadway alignment.
2. Elevations along Profile Grade Line (PGL), of all edge of pavements on each side of Profile Grade Line (PGL), at medians at the high/low and PVI points along Profile Grade Line (PGL).
3. All final Elevations to be plotted on PGL AND Plan & Profile sheets as applicable.
4. Elevations of edge of pavement and flow line at curb inlets and on the adjacent edge of pavement at curb inlets.

WATER, FORCE, AND RECLAIMED WATER MAINS:

1. Show size and type of material used to construct mains.
2. Show horizontal location and elevation of all tees, crosses, bends, terminal ends, valves, fire hydrants, air release valves, and sampling points, etc., by distances from known reference points.
3. Show location, size and type of material of all sleeves and casing pipes.
4. Elevation and horizontal location of all storm sewers, gravity sewers including laterals, force mains, water mains, etc. which are crossed; including clearance dimension at all conflicts or crossings.
5. Top of pipe elevation and horizontal location of all water and force main stub-outs.
6. Horizontal location of all services at the property lines.
7. Horizontal and vertical location of pipe including size of all mains and ground elevation shall be obtained at one-hundred (100) foot intervals. Contractor shall place temporary PVC stand pipes (tell-tales) at each of the one-hundred (100) foot intervals and at all fittings and conflicts/crossings to facilitate the record drawing survey. The tell-tale pipes shall be constructed of 2-inch PVC pipe, shall be placed on the top of the pipes to be surveyed, and shall be removed by the Contractor after completion of the field survey by the "As-Built" Professional Surveyor.
8. Location of fire lines.
9. Dedicated easement locations, identified by O.R. Book and Page Number.

GRAVITY SEWER:

1. Manholes: Elevation of top rim, bottom elevation and invert of each influent and effluent line.
2. Show distance between manholes center-to-center and horizontal location by baseline station and offset.

3. Show material size and type used to construct sewer mains.
4. Show length (center of manhole to end of stub) distances from known reference points or baseline offsets, and elevation of stub-outs.
5. Show which services have twenty (20) foot length of DIP at water main crossings.
6. Show station and offset location of sanitary services' at property line. Particular care in dimensioning needed in special situations, i.e., cul-de-sacs and locations where services are not perpendicular to wye.
7. Show invert elevation of sanitary service at property line.
8. Any and all necessary dedicated easement locations, identified by O.R. Book and Page Number.

PUMP / LIFT STATION:

Record Drawings shall show elevations for the top and bottom and diameter of wet well along with invert of effluent line. Record Drawings should also indicate the make, model number, horsepower, impeller and condition point of pumps selected and installed, shape of wet well, location of control panel, location of pump out connection, float level settings, any deviation from the plans, and serial number(s) of the pump(s).

SURVEY CONTROL

1. Install/re-establish: It shall be the contractor's responsibility to hire a Professional Surveyor and Mapper as defined per Chapter 472, Florida Statutes, to replace any horizontal and vertical control shown on the engineering plans that was destroyed during construction.
2. New roadway alignment control points (survey baseline or controlling line and all points as indicated on the plans or control sheet) upon final roadway completion. Include all intersections and side streets. State plane coordinates and elevations for all control points.
3. If shown on plans or not: Any Public Land Corner or Governmental Survey Control point(s), vertical control (bench marks), property corners destroyed and/or disturbed during the scope of the project shall be properly re-established as per standards as set forth within Florida Statutes, Administrative code and Minimum Technical Standards for that type of survey. All said surveying mentioned above shall be performed under the direct supervision of a registered Professional Surveyor and Mapper in the state of Florida and certified accordingly. Said Governmental agency(s) shall be notified in writing of disturbance and re-establishments.

RECORD/AS-BUILTS DRAWINGS FORMAT - SUBMITTAL

- A. ENGINEER will supply the CONTRACTOR with the electronic file of the approved construction plans for the input of the As-Built (record) information.
- B. CONTRACTOR shall deliver seven (7) certified sets of Record/As-Builts with Electronic Drawing files prepared in AutoCAD Civil 3D 2013 AND PDF format or in current version as agreed by the ENGINEER.
- C. CONTRACTOR's surveyor shall review, sign and seal As-Builts or Record drawing(s). Said drawing(s) shall clearly state type of survey, positional tolerances, adhere and be certified to by a registered Professional Surveyor and Mapper in the state of Florida, any standards set forth by Florida Statutes, Administrative code and Minimum Technical Standards for As-Built/Record surveys.
- D. All Record/As-Built drawings are subject to review and approval by County Surveyor.

ACCURACY

The CONTRACTOR will be held responsible for the accuracy and completeness of Record Drawings and Electronic As-Builts and shall bear any costs incurred in finding utilities as a result of incorrect data furnished by the CONTRACTOR.

COMPLETION OF WORK

Upon Substantial Completion of the Work, deliver Record Drawings/As-Built Drawings to ENGINEER. Final payment will not be made until satisfactory record documents are received and approved by ENGINEER.

AERIAL PHOTOGRAPH

The CONTRACTOR shall provide aerial photographs of the project every 30 days during construction. The photographs shall be done in a manner to show the construction progress for the entire length of the project. The photographs can be angled and not prepared to a particular scale, however, must be detailed enough to identify the work in detail.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 999-1 – As-Built Surveying and Record Drawings preparation
(by Registered surveyor) – Per Lump Sum

Board of Professional Surveyors and Mappers
Record As-Built Survey Checklist

Lic. Name _____ Date: _____

Project Name: **TRAFFIC OPERATIONS FACILITY**

Project No.: **IRC-2104**

Chapter 61G17-6 Minimum Technical Standards F.A.C.

61G17-6.003 General Survey, Map, and Report Content Requirements

? **(1) REGULATORY OBJECTIVE: The public must be able to rely on the accuracy of measurements and maps produced by a surveyor and mapper. In meeting this objective, surveyors and mappers must achieve the following minimum standards of accuracy, completeness, and quality:**

? **(a) Accuracy of survey measurements based on the type of survey and expected use.**

? **(b) Measurements made in accordance with the United States standard, feet or meters.**

? **(c) Records of measurements maintained for each survey (check field notes.)**

? **(d) Measurement and computation records dated.**

? **(e) Measurement and computation records substantiate the survey map.**

? **(f) Measurement and computation records support accuracy statement (closure calculations or redundant measurements, if applicable.)**

(2) Other More Stringent Requirements:

? **(a) Met more stringent requirements set by federal, state, or local governmental agencies.**

(3) Other Standards and/or Requirements that Apply to All Surveys, Maps, and/or Survey Products:

? **(a) REGULATORY OBJECTIVE: In order to avoid misuse of a survey and map, the surveyor and mapper must adequately communicate the survey results to the public through a map, report, or report with an attached map.**

(b) Survey map or report identified the responsible surveyor and mapper and contain standard content. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

☐ (c) Type survey stated on map and report:

As-Built Survey

Construction Layout Survey

Boundary Survey

Control Survey

Condominium Survey

Hydrographic Survey

Mean High Water Line Survey

Specific or Special Purpose Survey

Quantity Survey

Topographic Survey

Record Survey

☐ (d) Name, certificate of authorization number, and street and mailing address of the business entity on the map and report.

☐ (e) Name and license number of the surveyor and mapper in responsible charge.

☐ (f) Name, license number, and street and mailing address of a surveyor and mapper practicing independent of any business entity on the map and report.

☐ (g) Survey date (date of data acquisition.)

☐ (h) Revision date for any graphic revisions (when survey date does not change.)

☐ (i) Map and report statement “Survey map and report or the copies thereof are not valid without the signature and the original raised seal of a Florida licensed surveyor and mapper.”

☐ (j) Insurance statement in ¼” high letters “The survey depicted here is not covered by professional liability insurance” if there is no professional liability insurance.

☐ (k) Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.

☐ (l) All computed data or plotted features shown on survey maps supported by accurate survey measurements unless clearly stated otherwise.

☐ (m) Bearings, distances, coordinates, and elevations shown on a survey map shall be substantiated by survey measurements unless clearly stated otherwise.

☐ (n) Bearing reference (well established and monumented line)

☐ (o) A designated “north arrow”

☐ (p) Stated scale or graphic scale

☐ (q) Abbreviations in legend or notes.

☐ (r) Special conditions and any necessary deviation from the standards noted upon the map or report.

☐ (s) Responsibility for all mapped features stated on the map or report

☐ (t) Map or report clearly states the individual primarily responsible for the map or report when mapped features have been integrated with others.

(u) Map Accuracy.**(1) Vertical Feature Accuracy:**

- ☐ **(a) Vertical Control:** Field-measured control for elevation information shown upon survey maps or reports shall be based on a level loop or closure to a second benchmark.
- ☐ **(b) Closure in feet must be accurate to a standard of plus or minus .05 ft. times the square root of the distance in miles.**
- ☐ **(c) All surveys and maps or reports with elevation data shall indicate the datum and a description of the benchmark(s) upon which the survey is based.**
- ☐ **(d) Minor elevation data may be obtained on an assumed datum provided the base elevation of the datum is obviously different than the established datum.**

(2) Horizontal Feature Accuracy:

- ☐ **(a) Horizontal Control:** All surveys and maps or reports expressing or displaying features in a publicly published coordinate system shall indicate the coordinate datum and a description of the control points upon which the survey is based.
- ☐ **(b) Minor coordinate data may be obtained and used on an assumed datum provided the numerical basis of the datum is obviously different than a publicly published datum.**
- ☐ **(c) The accuracy of control survey data shall be verified by redundant measurements or traverse closures. All control measurements shall achieve the following closures:**

Commercial/High Risk Linear: 1 foot in 10,000 feet;
Suburban: Linear: 1 foot in 7,500 feet;
Rural: Linear: 1 foot in 5,000 feet;
- ☐ **(d) When statistical procedures are used to calculate survey accuracies, the maximum acceptable positional tolerance, based on the 95% confidence level, should meet the same equivalent relative distance standards as set forth in 61G17- 6.003(3)(p)(2.) (c) F.A.C.**
- ☐ **(e) Intended Display Scale:** All maps or reports of surveys produced and delivered with digital coordinate files must contain a statement to the effect of: "This map is intended to be displayed at a scale of 1/___ or smaller".

61G17-6.004 Specific Survey, Map, and Report Requirements

(1) As-Built/Record Survey:

- ☐ (a) Obtained field measurements of vertical or horizontal dimensions of constructed improvements so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans.**
- ☐ (b) Clearly shows by symbols, notations, or delineations, those constructed improvements located by the survey.**
- ☐ (c) All maps prepared shall meet applicable minimum technical standards.**
- ☐ (d) Vertical and horizontal accuracy of the measurements made shall be such that it may be determined whether the improvements were constructed consistent with planned locations.**

(END OF SECTION)

SECTION 1050 to 1080 – WATERMAIN RELOCATION**Section 1 - Water Mains – Ductile Iron Pipes (DIP) and Fittings****1.01 General**

- A. DIP shall be allowed for use as water pipe where compatible with the specific conditions of the project. The use of material other than ductile iron may be required by IRCDUS during construction permit review or by IRCDUS field personnel during construction, if it is determined that DIP is unsuitable for the particular application.
- B. All DIP shall be manufactured in accordance with AWWA Specification C150 (A21.50-96), or latest revision and shall be pressure Class 300 or 350 minimum as depicted on Table 1.1 on page 1-2. All DIP crossings under roadways and other traffic areas shall be pressure Class 350 minimum.
- C. Unless specifically indicated otherwise, restrained push-on joint underground piping shall be manufactured restrained bell and spigot and above ground piping shall be flanged.
- D. Cutting of DIP shall be by sawing only.

1.02 Pipe

- A. DIP shall be bell and spigot cast in accordance with AWWA Specification C150 (ANSI A21.50), or latest revision. Cast ductile iron shall have a minimum tensile strength of 60,000 psi with a minimum yield strength of 42,000 psi. Pipe wall thicknesses shall be computed in accordance with AWWA Specification C150 (ANSI A21.51), or latest revision, using the physical characteristics cited above with a minimum working pressure of 200 psi and a Laying Condition "Type 2." Unless otherwise indicated or specified herein, the pipe shall have the minimum wall thickness according to class designation for diameters shown. All pipe shall be given a minimum factory hydrostatic test of 500 psi.

Table 1.1 - Pressure Class 300 and 350

Nominal Size Diameter (Inches)	Actual Outside Diameter (Inches)	300 psi Wall Thickness (Inches)	350 psi Wall Thickness (Inches)
3	3.96	---	0.25
4	4.80	---	0.25
6	6.90	---	0.25
8	9.05	---	0.25
10	11.10	---	0.26
12	13.20	---	0.28
14	15.30	0.30	0.31
16	17.40	0.32	0.34
18	19.50	0.34	0.36
20	21.60	0.36	0.38
24	25.80	0.40	0.43
30	32.00	0.45	0.49
36	38.30	0.51	0.56
42	44.50	0.52	0.63
48	50.80	0.64	0.70
54	57.56	0.72	0.79
60	61.61	0.76	0.83
64	65.67	0.80	0.87

1.03 Fittings

- A. All underground fittings shall be either push-on, restrained, or mechanical joint. Mechanical joints shall conform to AWWA Specification C110 (ANSI 21.10-98) or C153 (ANSI 21.53-00), or latest revisions. All aboveground fittings shall be flanged joint.
- B. The pressure rating shall be 350 psi (Class 350).
- C. Joint restraints, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or an approved equal.
- D. All fittings shall be lined with the same material as specified for the pipe as per paragraph 1.04.

1.04 Lining and Coating

- A. Unless otherwise indicated, all DIP shall be factory lined and coated.
- B. All pipe shall be cement mortar lined and seal coated in accordance with AWWA Standard C104 (ANSI A21.4-95), or latest revision unless double lining is required by IRCDUS.
- C. Unless specified otherwise, all ductile iron pipe shall be bituminous coated outside to a dry film thickness of at least 1 mil.
- D. Anywhere that the coating is removed purposely or accidentally, the area shall be cleaned of any rust, grease, and dirt and re-coated to a minimum dry film as specified for the individual piece.
- E. If and where directed by IRCDUS's Engineer, a polyethylene encasement shall be provided around pipe, fittings, and valves. The material, installation, and workmanship shall conform to applicable sections of AWWA C105 (ANSI A21.5-99), or latest revision. Installation methods A or B shall be employed using flat tube polyethylene. The Contractor shall make provisions to keep the polyethylene from direct exposure to sunlight prior to installation. Backfilling following installation shall be completed without delay to avoid exposure to sunlight.
- F. All exposed (i.e. aerial crossings) DIP water mains shall be primed and painted "blue" as per IRCDUS Approved Manufacturers' Products List or equal.

1.05 Bell and Spigot Connections

- A. Joints in bell and spigot pipe shall be push-on, mechanical, or restrained joints in accordance with AWWA Standard C111 (ANSI 21.11-00), or latest revision. Pipe restraints shall also be in accordance with IRCDUS Standards or as directed by IRCDUS's Engineer.

1.06 Flanged Connections

- A. All flanged pipe barrels shall comply with the physical and chemical requirements as set forth in the Handbook of DIP of the Cast Iron Pipe Research Association, latest revisions. Flanges shall be in accordance with ANSI Specification B16.1 for Class 125 flanges. Bolts shall comply with ANSI Specification B18.2.
- B. Flanged pipe shall be faced and drilled to the American Standard Drilling, unless special drilling is called for or required. Where tap or stud bolts are required, flanges shall be tapped. Flanges shall be accurately faced and drilled smooth and true, at right angles to the pipe axis and shall be covered with zinc dust and tallow or a rust preventive compound immediately after facing and drilling.

- C. Flanged pipe with screwed-on flanges shall be furnished with long hubs, and the flanges shall be screwed on the threaded end of the pipe in the shop, and the face of the flange and end of pipe refaced together. There shall be no leakage through the pipe threads and the flanges shall be designed to prevent corrosion of the threads from outside.
- D. Flanged joints shall be made with bolts or stud bolts and nuts. Bolts, stud bolts, and nuts shall conform to American Standard heavy dimensions, semi-finished with square or hexagonal heads and cold punched hexagonal nuts, meeting the requirements of ASTM Designation A-316SS. Bolt sizes shall be American Standard for the flanges specified, and bolts and nuts shall have good, true threads.
- E. Gaskets shall be in accordance with AWWA Standard C115 (ANSI A21.15-99), latest revision.

1.07 Submittals

- A. Before starting fabrication of the DIP and fittings, the Contractor shall submit one set of complete working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, valves, expansion joints, hangers, supports, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS will also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor. The drawings submitted shall show flanged jointed sections placed so as to be removable without disturbance to the main pipe sections.

1.08 Marking

- A. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details Drawing M-13 for specifications regarding installation.
- B. Trace wire is required over or around all pipes unless otherwise approved by IRCDUS.
- C. Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering.

1.09 Installation

- A. Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of this specification, the pipe shall be handled and installed in strict accordance with the manufacturers' instructions and with the applicable provisions

of AWWA C600-99, latest revision. If a conflict exists between the manufacturers' instructions and the AWWA Standards, the manufacturers' instructions shall govern. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment. All piping shall be placed in a dry trench, unless otherwise approved by IRCDUS.

- B. Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise approved by IRCDUS, all pipe shall have a minimum cover of 36 inches. Contractor shall determine top of pipe elevation and top of ground elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/- 0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to IRCDUS. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements, at no cost to IRCDUS.

END OF SECTION

Section 2 - Water Mains Polyvinyl Chloride Pipe (PVC) and Fittings

2.01 General

- A. PVC pipe shall be allowed for use as potable water pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material other than PVC during construction permit review or by IRCDUS field personnel during construction, if it is determined that PVC pipe is unsuitable for the particular application.
- B. The pipe shall be identified by its nominal pipe size, plastic pipe material code, SDR class, pressure rating, ASTM Designation, manufacturers' name, production code, and the National Sanitation Foundation seal for potable water (NSF-pw).

2.02 PVC Pipe 3 Inches in Diameter and Smaller

- A. PVC pipe 3 inches and smaller in diameter intended for conveying potable water shall conform to ASTM D2241, latest revision.
- B. Pipe shall be Iron Pipe Size (IPS), and SDR 21 with a pressure rating of 200 psi.
- C. Joint design tested to the requirements of ASTM D3139.
- D. Gaskets shall conform to ASTM F477 and D1869.
- E. No solvent weld joints are permitted.
- F. The pipe shall be "blue" in color.
- G. PVC pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

2.03 PVC Pipe 4 Inches in Diameter and Larger

- A. PVC pipe intended for conveying or transmitting potable water shall conform to AWWA Standard Specifications C900-16 (or latest revision) and ASTM D1784 Cell Class 12454.
- B. Pipe shall be Ductile Iron Pipe Size (DIPS), and SDR 18 with a pressure rating of 235 psi.
- C. Joint design tested to the requirements of ASTM D3139. Gaskets shall conform to ASTM F477.
- D. Gasket material shall conform to ASTM F477.
- E. The pipe shall be "blue" in color.
- F. The pipe shall be identified by its nominal pipe size, plastic pipe material code, DR class, pressure rating, ASTM Designation, manufacturers' name, code, and the National Sanitation Foundation seal for potable water (NSF-pw).
- G. PVC pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

2.04 Joints

- A. Joints for PVC pipe shall be bell and spigot push-on rubber gasket type only unless otherwise approved by IRCDUS. No solvent weld or threaded joints will be permitted.
- B. Restraining joints, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

2.05 Fittings

- A. All fittings shall be ductile iron mechanical joint and shall conform to AWWA Standard Specifications C110/A21.10-98 or C153/A 21.53-00, or latest revisions. Fittings shall be cement mortar lined and seal-coated in accordance with AWWA Standard Specifications C104/A21.4, or latest revision.
- B. The pressure rating shall be 350 psi (3" – 24" diameter), and 250 psi (30" – 48" diameter).
- C. Joint restraint, when required, shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

2.06 Submittals

- A. Before starting installation of the PVC pipe and fittings, the Contractor shall submit one set of complete working drawings (shop drawings) to the Engineer of Record and IRCDUS for approval. Such drawings shall show the pipe, fittings, valves, hydrants, blow-offs, services, and other appurtenances to be installed. Where special fittings are required, they shall be shown in large detail with all the necessary dimensions. The Engineer of Record shall review the drawings and notify IRCDUS of the drawings approved and not approved. IRCDUS shall also review the drawings and coordinate approvals and disapprovals with the Engineer of Record and Contractor.

2.07 Marking

- A. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details Drawing M-13 for specifications regarding installation.
- B. Trace wire is required over or around all pipes.
- C. Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS engineering.

2.08 Storage

- A. PVC pipes are not to be stored where exposed to direct sunlight because of possible ultraviolet light degradation. Pipes stored on the jobsite are to be covered. PVC pipes that exhibit discoloration or fading from their original color will be rejected by IRCDUS field representatives.

2.09 Installation

- A. Handling and Protection of Pipe: Unless otherwise noted on the drawings or in other sections of these standards, the pipe shall be handled and installed in strict accordance with the manufacturers' instructions and with the applicable provisions of AWWA Standard Specifications C605-94, or latest revision. If a conflict exists between the manufacturers' instructions and the AWWA Standard Specifications, the manufacturers' instructions shall govern. The Contractor shall use every precaution during construction to protect the pipe against the entry of non-potable water, dirt, wood, small animals, and any other foreign material that would hinder the operation of the pipeline. Where the groundwater elevation is above the bottom of the trench, the Contractor shall provide suitable dewatering equipment. All piping shall be placed in a dry trench, unless approved by IRCDUS.
- B. Depth of Cover and Pipe Elevation: Unless otherwise shown on the drawings, or otherwise authorized by IRCDUS, all pipe shall have a minimum depth of cover of 36 inches. Contractor shall determine top of pipe elevation and top of finished grade elevation for every two joints of pipe installed using a level. Pipe must have the minimum cover described above and must be within +/- 0.2 feet of the top of pipe elevation indicated on the drawings. Installed pipe, which does not meet these requirements, shall be reinstalled until it does meet these requirements. Contractor shall record top of pipe and top of ground elevations and the locations of where these elevations were determined and submit this information to Engineer or his representative. IRCDUS reserves the right to have Contractor excavate and check top of pipe and top of ground elevations to see if they conform to the aforementioned requirements.

END OF SECTION

Section 3 - Water Services - Crosslinked Polyethylene (PEXa) Tubing and Water Mains - High Density Polyethylene Pipe (HDPE)

Water Services Crosslinked Polyethylene Tubing (PEXa)

3.01 General

Crosslinked polyethylene (PEXa) tubing shall be allowed for use as potable water pipe where compatible with the specific conditions of the project. IRCDUS may require the use of material other than PEXa during construction permit review or by IRCDUS field personnel during construction if it is determined that PEXa pipe is unsuitable for the particular application.

3.02 Polyethylene (PEXa) Tubing 3 inches Diameter and Smaller

- A. This specification requires PEXa to be designated as PEXa, high pressure peroxide method.
- B. PEXa tubing shall comply with applicable requirements for extrusion compound PEXa plastic material as stated in AWWA Standard Specifications C904, or latest revision, and shall comply with the following:
 - 1. Tubing shall have a working pressure of 200 psi at 73.4° F.
 - 2. Tubing surfaces shall be glass smooth, and shall be free from bumps and irregularities. Materials must be completely homogeneous and uniform in appearance.
 - 3. Tubing dimensions and tolerances shall correspond with values listed in ASTM D-2239, with a standard outside dimension ratio (SDR) of 9.
 - 4. Tubing shall carry the following markings every (3) feet: Manufacturers' name or trademark, nominal size, PEXa 3306 (material designation) SDR (standard dimension ratio), POTABLE TUBING, ASTM F876/F877/F2080, CSA B137.5, NSF-pw, UP Code 200psi/73.4°F 100psi/180°F, manufacturing date and footage mark.

3.03 Joints

- A. Joints for PEXa tubing shall be of the compression type or compression-sleeve type, utilizing a totally confined grip seal and coupling nut, unless otherwise approved by IRCDUS. Stainless steel tube stiffener inserts shall also be used for PEXa tubing services.

3.04 Installation

- A. Backfill shall be free of rocks and debris.
- B. Bending radius shall be large enough so that tubing is not crimped or damaged and so that the flow of water is not restricted. Manufacturers' minimum radius recommendations are to be utilized during installation of PEXa tubing.
- C. PEXa tubing shall have ability for kink repair using a heat gun.

3.05 Marking

- A. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details M-14 for specifications regarding installation.

- B. Trace wire is required over or around all pipes.
- C. Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape adhered directly on top of the pipe if required by IRCDUS engineering.

3.06 Pressure PEXa Pipe

- A. PEXa pipe shall be allowed for use as all pressure utility pipes where compatible with the specific conditions of the project. The use of material other than PEXa pipe may be required by IRCDUS during construction permit review or by IRCDUS field personnel, if it is determined that PEXa is unsuitable for the particular application.
- B. Documentation from the resin's manufacturer showing results of the following tests for resin identification:
 1. Melt Flow Index ASTM D 1238
 2. Density ASTM F876
- C. All PEXa pipe and fittings shall be from a single manufacturer on the Approved Manufacturers' Product List. The pipe shall be designed, constructed and installed in accordance with the best practices and methods and shall comply with these Specifications. See Approved Manufacturers' Product List.
- D. Finished Product Evaluation
 1. Production staff for the items listed below shall check each length of pipe produced. The results of all measurements shall be recorded on production sheets that become part of the manufacturers' permanent records.
 - a. Pipe in process shall be checked visually, inside and out for cosmetic defects (grooves, pits, hollows, etc.)
 - b. Pipe outside diameter shall be measured using a suitable periphery tape to ensure conformance with ASTM F714 or ASTM D-3035 whichever is applicable.
 - c. Pipe wall thickness shall be measured at 12 equally spaced locations around the circumference at both ends of the pipe to ensure conformance with ASTM F714 or ASTM D-3035, whichever is applicable.
 - d. Pipe length shall be measured.
 - e. Pipe marking shall be examined and checked for accuracy.
 - f. Pipe ends shall be checked to ensure they are cut square and clean.
 - g. Subject inside surface to a "reverse bend test" to ensure the pipe is free of oxidation (brittleness).
- E. Stress Regression Testing
 1. The PEXa pipe manufacturer shall provide certification that stress regression testing has been performed on the specific PEXa resin being utilized in the manufacturing of this product. This stress regression testing shall have been done in accordance with ASTM D2837 and the manufacturer shall provide a product supplying a minimum Hydrostatic Design Basis (HDB) of 1,600 psi as determined in accordance with ASTM D2837.
- F. Developer is responsible for compatibility between pipe materials, fittings and appurtenances.
- G. The pipe manufacturer shall provide a warranty against manufacturing defects of material and workmanship for a period of ten (10) years after the final acceptance of the project by

the IRCDUS. The manufacturer shall replace at no expense to IRCDUS any defective pipe material including labor within the warranty period.

3.07 High Density Polyethylene Pipe (HDPE) 4 inches in Diameter and Larger

- A. HDPE pipe intended for conveying or transmitting potable water shall conform to AWWA Standard Specifications C906-15 (or latest revision).
- B. Pipe shall be Ductile Iron Pipe Size (DIPS) and SDR 11 with a pressure rating of 200 psi.
- C. HDPE pipe shall be made from a PE 4710 resin compound conforming to ASTM D3350 with the cell classification 445574/4C/E.
- D. Dimensions and workmanship shall be as specified by ASTM F714. HDPE fittings and transitions shall meet ASTM D3261. HDPE pipe shall have a minimum density of 0.955 grams per cubic centimeter. All HDPE pipe and fittings shall have a Hydrostatic Design Basis (HDB) of 1,600 psi.
- E. If rework compounds are required, only those generated in the manufacturers' own plant from resin compounds of the same class and type from the same raw material supplier shall be used.
- F. The pipe manufacturer must certify compliance, with the above requirements.
- G. HDPE flange adapters at pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturers' specified torques. Bolts shall be tightened alternatively and evenly.
- H. HDPE pipe shall be striped blue for potable water, green for wastewater, and purple for reclaimed/reuse water.
- I. HDPE pipe shall be in accordance with IRCDUS Approved Manufacturers' Products List or equal.

3.08 Fittings

- A. All molded fittings and fabricated fittings shall be fully pressure rated to match the pipe SDR pressure rating to which they are made. All fittings shall be molded or fabricated by the manufacturer. No fabricated fittings shall be used unless approved by IRCDUS.
- B. The manufacturer of the HDPE pipe shall supply or specify all HDPE fittings and accessories as well as any adapters and/or specials required to perform the work as shown on the drawings and specified herein.
- C. All transitions from HDPE pipe to PVC or ductile iron shall be made per the HDPE, PVC, or ductile iron pipe manufacturers' recommendations and specifications whichever is more stringent. A molded flange connector adapter within a carbon steel back-up ring assembly shall be used for pipe type transitions. Ductile iron back-up rings shall mate with cast iron flanges per ANSI B16.1. A 316 stainless steel back-up ring shall mate with a 316 stainless flange per ANSI B16.1.
- D. The pipe manufacturer must certify compliance with the above requirements.

3.09 Joints

- A. The HDPE pipe shall be joined with butt, heat fusion joints. All joints shall be made in strict compliance with the manufacturers' recommendations.
- B. Lengths of pipe shall be assembled into suitable installation lengths by the butt-fusion process. All pipes so joined shall be made from the same class and type of raw material made by the same raw material supplier. Pipe shall be furnished in standard lay lengths not to exceed 50 feet.
- C. All above ground HDPE pipe shall have flange adapters. Below ground shall be MJ adapters. Stainless Steel inserts allowed on water main only 4" to 6". FM 4" and larger MJ adapter only with no insert. Pipe material transitions shall be backed up by stainless steel flanges conforming to ANSI B16.1 and shaped as necessary to suit the outside dimensions of the pipe. The flange adapter assemblies shall be connected with corrosion resisting bolts and nuts of Type 316 Stainless Steel as specified in ASTM A726 and ASTM A307. All bolts shall be tightened to the manufacturers' specified torques. Bolts shall be tightened alternately and evenly.

3.10 Pipe Identification

- A. The following shall be continuously indent printed on the pipe or spaced at intervals not exceeding 5-ft.
 1. Name and/or trademark of the pipe manufacturer.
 2. Nominal pipe size and OD base.
 3. Material Code
 4. Dimension ratio.
 5. Pressure Class
 6. Current AWWA C906 (if Applicable)
 7. Manufacturing standard reference, e.g., ASTM F714 or D-3035, as required.
 8. A production code from which the date and place of manufacture can be determined.
- B. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of all pipe and fittings. See Trace Wire Details Drawing M-13 for specifications regarding installation.

3.11 Installation by Open Cut Method

- A. HDPE Pipe shall be installed in accordance with the instruction of the manufacturer, as shown on the Drawings and as specified herein. A factory qualified joining technician as designated by the pipe manufacturer shall do all heat fusion joints.
- B. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe. Pipe or fittings shall not be dropped. All pipe or fittings shall be examined before installation, and no piece shall be installed which is found to be defective. Any damage to the pipe shall be repaired as directed by the Engineer of Record and IRCDUS. If any defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner by the Contractor, at his own expense.

- C. Under no circumstances shall the pipe or accessories be dropped into the trench.
- D. Care shall be taken during transportation of the pipe such that it will not be cut, kinked, or otherwise damaged.
- E. Ropes, fabric, or rubber protected slings and straps shall be used when handling pipes. Chains, cables, or hooks inserted into the pipe ends shall not be used. Two slings spread apart shall be used for lifting each length of pipe.
- F. Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects, which could damage the pipe. Stacking of the PE pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions. Where necessary due to ground conditions, the pipe shall be stored on wooden sleepers, spaced suitably and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.
- G. Care shall be exercised when lowering pipe into the trench to prevent damage or twisting of the pipe.
- H. Pipe shall be laid to lines and grade shown on the Drawings with bedding and backfill as shown on the Drawings.
- I. When installation of pipe is not in progress, including lunchtime, the open ends of the pipe shall be closed by fabricated plugs, or by other approved means.
- J. Pipe shall be stored on clean level ground to prevent undue scratching or gouging. The handling of the pipe shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. The maximum allowable depth of cuts, scratches or gouges on the exterior of the pipe is 5 percent of wall thickness. Sections of pipe with cuts, scratches or gouges exceeding five percent of the pipe wall thickness shall be removed completely and the ends of the pipeline rejoined. The interior pipe surface shall be free of cuts, gouges or scratches.
- K. HDPE pipe shall be joined by the method of thermal butt fusion, as outlined in ASTM D2657. All joints shall be made in strict compliance with the manufacturers' recommendations.
- L. Mechanical connections of the HDPE pipe to auxiliary equipment such as valves, pumps and tanks shall be through flanged connections which shall consist of the following:
 - 1. An HDPE flange shall be thermally butt-fused to the stub end of the pipe. A stainless steel or ductile iron back-up ring shall be used on both sides of the connection prior to thermally butt-fusing the PE flange.
 - 2. A 316 stainless steel back-up ring shall mate with a 316 stainless steel flange.
 - 3. Ductile iron back-up rings shall mate with cast iron flanges.
- M. Flange connections shall be provided with a full-face neoprene gasket.
- N. All HDPE pipe must be at the temperature of the surrounding soil at the time of backfilling and compaction.
- O. No single piece of pipe shall be laid unless it is straight. The centerline of the pipe shall not deviate from a straight line drawn between the centers of the openings at the ends of the pipe by more than 1/16-in per foot of length. If a piece of pipe fails to meet this requirement check for straightness, it shall be rejected and removed from the site. Laying instructions of the manufacturer shall be explicitly followed.

- P. If a defective pipe is discovered after it has been installed, it shall be removed and replaced with a sound pipe in a satisfactory manner. All pipe and fittings shall be thoroughly cleaned before installation, shall be kept clean until they are used in the work and when laid, shall conform to the lines and grades required.
- Q. As soon as the excavation is complete to normal grade of the bottom of the trench, bedding shall be placed, compacted and graded to provide firm, uniform and continuous support for the pipe. Bell holes shall be excavated so that only the barrel of the pipe bears upon the bedding. The pipe shall be laid accurately to the lines and grades indicated on the Construction Plans. Blocking under the pipe will not be permitted. Bedding shall be placed evenly on each side of the pipe to mid-diameter and hand tools shall be used to force the bedding under the haunches of the pipe and into the bell holes to give firm continuous support for the pipe. Bedding shall then be placed to 12-in above the top of the pipe. The initial 3 feet of backfill above the bedding shall be placed in 1 foot layers and carefully compacted. Generally, the compaction shall be done evenly on each side of the pipe and compaction equipment shall not be operated directly over the pipe until sufficient backfill has been placed to ensure that such compaction equipment will not have a damaging effect on the pipe. The pipe manufacturers' representative prior to use shall approve equipment used in compacting the initial 3 feet of backfill. Pipe shall be installed per IRCDUS Drawing M-1 or M-2, Trench Details.
- R. Good alignment shall be preserved during installation. The deflection at joints shall not exceed that recommended by manufacturer. Fittings, in addition to those shown on the Drawings, shall be provided, if required, in crossing of utilities that may be encountered upon opening the trench.
- S. Each length of the pipe shall have the assembly mark aligned with the pipe previously laid and held securely until enough backfill has cramped.
- T. Before any joint is made, the pipe shall be checked to assure that a close joint with the next adjoining pipe has been maintained and that the inverts are matched and conform to the required grade. The pipe shall not be driven down to grade by striking it.
- U. Precautions shall be taken to prevent flotation of the pipe in the trench.
- V. When moveable trench bracing such as trench boxes, moveable sheeting, shoring or plates are used to support the sides of the trench, care shall be used in placing and moving the boxes or supporting bracing to prevent movement of the pipe, or disturbance of the pipe bedding and the backfill. Trench boxes, moveable sheeting, shoring or plates shall not be allowed to extend below the top of the pipe. As trench boxes, moveable sheeting, shoring or plates are moved, pipe bedding shall be placed to fill any voids created and the backfill shall again be compacted to provide uniform side support for the pipe.
- W. Sheeting and shoring will be required as determined in the field in accordance with OSHA regulations.
- X. Restrained joints shall be installed where shown on the Construction Plans, as required by IRCDUS Standards, or otherwise as directed by IRCDUS.

3.12 Marking

- A. Number 10 stranded conductor copper trace wire shall be spiral wrapped or affixed to the top of the pipe. See Trace Wire Details, M-13 for specifications regarding installation.
- B. Trace wire is required over or around all pipes.
- C. Location tape is required over all pipes. Tape is to be installed 12" below proposed grade and additional tape shall be adhered directly on top of the pipe if required by IRCDUS.

3.13 Trenchless Installation of High Density Polyethylene (HDPE) Pressure Mains by Directional Bore**A. Description**

- 1. Portions of the pressure mains shall be installed by the directional bore method within the limits indicated of the contract plans and as specified here in. Generally, as a minimum, the pressure main is to be located within the road right-of-way and shall be installed by directional boring.
- 2. This section includes material, performance and installation standards, and the contractor's responsibilities associated with the furnishing of labor, material, equipment, and identical required to install, complete, required trenchless installation of pressure mains, as shown on the Drawings and as specified herein.

B. Experience

- 1. The Contractor must demonstrate expertise in trenchless method by providing a list of ten utility references for which similar work has been performed in the last two years. The references should include a name and phone number where the contact can be made to verify the Contractor's capability. The Contractor must provide documentation showing successful completion of the projects used for reference. Conventional trenching experience will not be considered applicable.
- 2. Supervisory personnel must be adequately trained and shall have at least four years of experience in directional boring. The Contractor shall submit the names and resumes of all supervisory field personnel prior to construction.
- 3. Directional boring equipment shall be capable of installing the minimum pipe diameter noted on the drawings.

C. Submittals

- 1. Submit technical data for equipment including clay slurry material, method of installation with working drawings, and proposed sequence of construction for approval by the IRCDUS.
- 2. Prior to approval for directional boring, the Contractor must submit the names of supervisory personnel, and history information of the directional boring experience. In addition, the Contractor must submit for approval the nameplate, data for the drilling equipment, mobile spoils removal units and Material Safety Data Sheets (MSDS) for the drilling slurry compounds.

3. The Contractor is required to bring to the attention of the engineer any known design discrepancies with actual tunneling methods that the contractor will be performing. This shall be stated in writing to the Engineer at the pre-construction meeting.

D. Installation

1. Installation shall be in a trenchless manner producing continuous bores.
2. The tunneling system shall be remotely steerable and permit electronic monitoring of tunnel depth and location. Accurate placement of pipe within a +/- 2-inch window is required both horizontally and vertically. Turning capability of 90-degrees radius in 40 feet is required. Continuous monitoring of the boring head is required, including across open water if necessary.
3. The directional boring Contractor shall submit certification, by a Professional Engineer licensed in the State of Florida, that the directional boring has been performed in accordance to the construction drawings, and shall submit signed and sealed drawings. AS-Built Record Drawings shall be provided both in electronic format and hard paper copy.
4. Tunneling shall be performed by a fluid-cutting process (high pressure-low volume) utilizing liquid clay i.e. bentonite. The clay lining will maintain tunnel stability and provide lubrication in order to reduce frictional drag while the pipe is being installed. In addition, the clay fluid must be totally inert and contain no environmental risk. The Contractor must also have a mobile vacuum spoils recovery vehicle on site to remove the drilling spoils from the access pits. The spoils must then be transported from the job site and be properly disposed off the site. The drilling spoils shall not, under any circumstances, be disposed into a sanitary sewer, storm, or other public or private drainage system. Spoils may be transported to the County's Solid Waste Facility and the cost of disposal shall be at the Contractor's expense.
5. Liquid clay type colloidal drilling fluid shall consist of at least 10 percent of high-grade carefully processed bentonite to consolidate cuttings of the soil, to seal the walls of the hole, and to furnish lubrication for subsequent removal of cuttings. The slurry that is heavier than the surrounding material, is high in colloids of the bentonite type and it will deposit a thin filter cake of low permeability material on the walls of the bore. This will allow only a small amount of the fluid to pass into the surrounding soils and will stabilize the bore. The colloidal content of the fluid imparts excellent lubricating qualities to the slurry that is a distinct aid to the removal of the soil cuttings.
6. Pneumatic or water-jetting methods will be considered unacceptable due to the possibility of surface subsidence.
7. After an initial bore has been completed, a reamer will be installed at the termination pit and the pipe shall be pulled back to the starting pit. The reamer shall be capable of discharging liquid clay to facilitate the installation of the pipe into a stabilized and lubricated tunnel.
8. A minimum of two insulated #6 stranded conductor copper tracer wire shall be wrapped or affixed to the top of the pipe and fittings along with the HDPE pipe. The tracer wire shall be tested for continuity or traceability upon completed installation. Should both tracer wires fail to test for continuity then the test shall be considered a failure and the wires shall be replaced.
9. Upon completion of boring and pipe installation, the Contractor shall remove all spoils from the starting and termination pits. All pits shall be restored to their original condition.
10. Restoration shall be as required by IRCDUS. The shoulders, ditches, banks, and slopes of roads and railroads crossed and paralleled shall not wash out before becoming accepted.

END OF SECTION

SECTION 1050 TO 1080 – WATERMAIN RELOCATION, cont.

The work specified in these items shall conform to Indian River County Department of Utility Services Standards and Specifications.

Item of Payment

Payment for the work specified in this item shall be made under:

Bid Item No. 1050-31202 – Utility Pipe – Poly Vinyl Chloride (Furnish & Install) (Water) (2”) – Per Linear Foot

Bid Item No. 1050-31206 – Utility Pipe – Poly Vinyl Chloride (Furnish & Install) (Sewer) (6”) – Per Linear Foot

Bid Item No. 1060-11211 – Utility Structure (Below Ground) (Furnish & Install) (Storm) (0-6’)
(500-Gal Oil/Water Interceptor) – Per Each

Bid Item No. 1080-21102 – Utility Fixture – Valve (Furnish & Install) (2”) – Per Each

Bid Item No. 1080-23102 – Utility Fixture – Tapping Saddle (Furnish & Install) (2”) – Per Each

Bid Item No. 1080-23106 – Utility Fixture – Tapping Saddle/Sleeve (Furnish & Install) (6” w/ 2” Corp Stop)
– Per Each

Bid Item No. U-1 – Underground Utility – Misc. Existing 4” force main abandon in place – Per Linear Foot

+++END OF SECTION+++

SECTION 02413 - HORIZONTAL DIRECTIONAL DRILLING**PART 1 – GENERAL****1.01 SCOPE OF WORK**

- A. The CONTRACTOR shall furnish all labor, equipment, and materials necessary to install carrier pipe by horizontal directional drilling (HDD) at the locations shown on the Contract Documents and as specified herein.
- B. The directional boring scope shall include, but not be limited to, steerable directional boring equipment, operator control cabin, mud plant, entry and exit pits, pumps, hoses, and other equipment, sheeting, location signs as required, and miscellaneous appurtenances to complete the entire Work as shown on the Contract Drawings. Directional boring operations shall be performed within the right-of-way and/or easements shown on the Contract Drawings.
- C. The ENGINEER has relied upon subsurface data for general information purposes only and the data are not part of the Contract Documents. The CONTRACTOR shall examine the site and or undertake his own geotechnical investigation prior to submitting his bid, taking into consideration all conditions that may affect his work. The OWNER and ENGINEER will not assume responsibility for variations of subsurface conditions at locations other than places shown and at the time the investigation was made.

1.02 RELATED WORK

- A. High density polyethylene (HDPE) pipe and fittings are included in Section 3.
- B. Trenching, backfilling and compaction are included in Section 1.

1.03 DEFINITIONS

- A. Annular Space: The space between the excavated HDD final reamed bore diameter and the pipe.
- B. Bent Sub: A section of drill pipe behind the cutting tools that is inclined at an angle at one to three degrees from the axis of the bore in the desired direction of steering. The bent sub allows steering while rotating the cutting tools.
- C. Drilling Fluid/Mud: A mixture of water, bentonite, and/or polymers continuously pumped to the drilling tools to facilitate the removal of soil cuttings, and stabilization of the bore. These fluids also cool the cutting tools and lubricate the drill pipe and product pipe string.
- D. Drill String: The total length of the drill pipe in the borehole.
- E. Drilling Tool/Bit: Any tool or system of tools which excavates at the face of a bore.
- F. Entry Pit: The location where the pilot bore initially penetrates the ground surface and where the HDD rig is positioned.
- G. Exit pit: The location where the pilot bore exists the ground surface.
- H. Horizontal Directional Drilling: A surface-launched, guided, steerable drilling system used for the trenchless installation of pipes, conduits, and cables.
- I. HDD Work Plan: Written descriptions, together with sketches, profile drawings, schedules, and other documents defining CONTRACTOR's plans and procedures for horizontal directional drilling.
- J. Inadvertent Return – Uncontrolled flow of drilling fluid/mud to the surface at a location other than the entry or exit pit. In certain conditions, this may also be known as hydrofracture or frac-out.
- K. Geotechnical Investigation Report: A report which provides the geotechnical boring locations and logs, geotechnical and environmental laboratory data results, and testing procedures.
- L. Obstruction: Any object lying completely or partially within the design pathway of the bore and pipe that prevents further advancement of the drill pipe, pre-reamer, reamer, and/or pipe, after all reasonable CONTRACTOR attempts to advance past the object or re-drill around the object have failed.
- M. Pilot Bore: The action of creating the first guided pass of the HDD process which is then reamed in one or more passes to the size required to allow pullback of the pipe.
- N. Pullback: The part of a horizontal directional drilling process in which the drill pipe, swivel, and product pipe or cable is pulled back through the bore to the entry.
- O. Pullback Loads: The loads (forces) applied to a drill string and product pipe during the pullback process. In addition to the tensile pullback loads, bending, buckling and combination loads must be considered during construction.
- P. Reamer: A cutting tool pushed or pulled through the borehole in order to enlarge the pilot bore hole to a diameter sufficient for the installation of the product pipe.
- Q. Settlement Point: A fixed point with elevation and spatial location established by survey prior to construction to monitor ground movements.

1.04 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. API Bulletin 13D, 1985. Bulletin on the Rheology of Oil-Well Drilling Fluids, Second Edition, Dallas, Texas, American Petroleum Institute.
- B. API Recommended Practice 13B-1, 1990. Standard Procedures for Field Testing Water-Based Drilling Fluids, First Edition, Dallas, Texas, American Petroleum Institute.
- C. API Recommended Practice 13B-1, 1990. Standard Procedures for Field Testing Water-Based Drilling Fluid Materials, Fifteenth Edition, Dallas, Texas. American Petroleum Institute.
- D. Horizontal Directional Drilling Good Practices Guidelines, Latest Edition, HDD Industry Consortium, 300pp.
- E. IADC Drilling Manual, 1992. Eleventh Edition, Houston, Texas, International Associated of Drilling Contractors.
- F. Installation of Pipelines Beneath Levees Using Horizontal Directional Drilling, US Army Corps of Engineers, Waterways Experiment Station, Final Report, CPAR-GL-98-1, April 1998.
- G. Installation of Pipelines Beneath Levees Using Horizontal Directional Drilling, US Army Corps of Engineers, Waterways Experiment Station, Final Report, CPAR-GL-98-1, April 1998.
- H. Installation of Pipelines by Horizontal Directional Drilling, Pipeline Research Committee, American Gas Association, PR-227-9424, April 1995.
- I. Pipeline Design for Installation by Horizontal Directional Drilling, ASCE Manuals and reports on Engineering Practice No. 108, 2005.
- J. Pressure Pipelines Design for Water and Wastewater, American Society for Civil Engineers, 2nd ed., 1992.
- K. Tables for Hydraulic Design of Pipes and Sewers, American Society for Civil Engineers, 5th ed., 1990.

1.05 SUBMITTALS

- A. Following is the summary of information to be included in submittals required for the HDD Work. The CONTRACTOR may combine submittals at his discretion but at a minimum the following information must be addressed and provided for review.
 - 1. Risk Mitigation
 - 2. Contingency Plan for Remediation of Potential Problems
 - 3. Disposal of Spoils and Drilling Fluids Plan
 - 4. Equipment Layout Plan and confirmation of work area on design plans is acceptable.
 - 5. Inadvertent Return (Frac-Out) and Surface Spill Contingency Plan
 - 6. Horizontal Directional Drilling Work Plan
 - 7. Maximum Allowable Drilling Fluid Pressure Calculations
 - 8. Methods, Equipment, and Materials Description Plan
 - 9. Pipe Filling Methods and Testing during Pullback
 - 10. Protection of Adjacent Structures and Facilities Plan
 - 13. Qualifications of Superintendent and Key Personnel

14. Radius of Curvature Confirmation
 - 15 Rig Capacity Plan
 16. Health and Safety Plan
 17. Construction Activities Schedule
 19. Surveying Equipment and Procedures
 20. Construction Progress
 21. Settlement Monitoring Plan
- B. In addition to other requirements indicated throughout this Specification, the following sections describe the above required submittals in more detail.
1. Submittals shall be in accordance with the requirements of the Specifications, providing sufficient detail to allow the ENGINEER to judge whether or not the proposed equipment, materials, and procedures will meet the Contract requirements. The ENGINEER's review of submittal details and data will be based on considerations for the completed Work, utilities, and the possibility of necessary delays in the execution of the Work to be constructed under this Contract. Review and acceptance of the CONTRACTOR's submittals by the ENGINEER shall not be construed in any way as relieving the CONTRACTOR of its responsibilities under this Contract.
 2. The CONTRACTOR shall submit all Shop Drawings to the ENGINEER. Unless otherwise noted, all Shop Drawings shall have been reviewed and accepted by the ENGINEER prior to CONTRACTOR's mobilization. All Drawings shall be legible with dimensions accurately shown and clearly marked in English.
- C. Contingency Plan for Remediation of Potential Problems: The CONTRACTOR shall submit a Contingency Plan for Remediation of Potential Problems that may be encountered during the drilling operations. The contingency plans shall address the observations that would lead to the discovery of the problem and the methods that would be used to mitigate the problem. Potential problems that shall be addressed in this Plan include, but are not limited to, the following:
1. Loss of returns/loss of circulation of drilling fluids.
 2. Inadvertent returns (frac-out)/hydrofracture or surface spills resulting in drilling fluids entering water or reaching the surface. Stand-by equipment shall be provided by the CONTRACTOR to recover fluids. Turbidity barriers or other appropriate methods of containing and clean-up shall be part of the stand-by equipment to minimize dispersion in the event that drilling fluids reach the surface.
 3. Encountering obstruction during pilot bore or reaming/pullback.
 4. Drill pipe or product pipe cannot be advanced.
 5. Deviations from design line and grade exceed allowable tolerances.
 6. Drill pipe or product pipe broken off in borehole.
 7. Product pipe collapse or excessive deformation.
 8. Utility strike.
 9. Deviation from planned bore path.
 10. Hydrolock occurs or is suspected.
 11. Excessive ground settlement or heave.

- D. Disposal of Spoils and Drilling Fluids Plan: The CONTRACTOR shall submit Plans for disposal of waste materials resulting from the pipeline construction, including drilling fluids, cuttings, waste oil, fuel, discharge water, etc. The CONTRACTOR shall identify the disposal site and submit a letter indicating willingness and legal authority to accept the described and anticipated waste products.
- E. Equipment Layout Plan: The CONTRACTOR shall submit a plan which provides sketches depicting the layout and locations of equipment within the rig side work area and pipe side work area, including any proposed drilling fluid containment and recirculation pits. The CONTRACTOR shall confirm that all operations shall be completely contained within the permanent and Right of Way, and any temporary construction easement that may be shown on the Contract Documents.
- F. CONTRACTOR shall be responsible to for design and implementation (including all required costs, equipment and personnel) of Maintenance of Traffic (MOT) Plans necessary for the completion of the work as depicted in the design drawings, specifications and all referenced documents. MOT Plan shall be prepared submitted to the Indian River County Public Works Department for review and approval prior to any implementation or construction activities.
- G. Inadvertent Return (Frac-Out) and Surface Spill Contingency Plan: An Inadvertent Return (Frac-Out) and Surface Spill Contingency Plan shall be prepared for the installation of the pipeline using HDD. The Contractor shall submit letter signed by an authorized representative of Contractor confirming that the Plan will be followed. If required by permit conditions, Contractor shall revise the Plan as necessary to satisfy the associated regulatory agency.
- H. Horizontal Directional Drilling Work Plan: The CONTRACTOR shall submit a HDD Work Plan complete with drawings and written description identifying details of the proposed method of construction and the sequence of operations to be performed during construction including placement, entry and exit points, and method of attachment and pullback of bundled carrier pipes.
 - 1. The Plan shall include a detailed plan and profile of the bore showing any proposed deviations from the drawings included in design documents and plotted at a scale no smaller than one inch equals 40 feet horizontal and one inch equals four feet vertical.
 - 2. The drilling plan shall provide detail of the planned drilled bore path and the method for monitoring and controlling the speed, line, grade, and rate of fluids delivery. It shall include the sequence, size, and description of each reamer and capabilities of each through various geologic formations. Any drill plan should include a swabbing of the bore path prior to pipe pullback.
- I. Maximum Allowable Drilling Fluid Pressure Calculations: The CONTRACTOR shall submit calculations identifying the critical downhole pressure that would cause hydrofracture or inadvertent return of drilling fluid. The calculations shall identify the critical points in the alignment beneath the channel and near the exit point where the soil cover above the bore is low. The calculations shall identify all parameters used and state all assumptions made in the calculations.
- J. Methods, Equipment, and Materials Description Plan: The CONTRACTOR shall submit detailed description of methods, equipment, and materials to be used for the pipeline installation. Descriptions of drilling fluid additives shall be accompanied by Materials Safety Data Sheets (MSDS) and Manufacturers' descriptions and warranties. Descriptions of equipment shall include Manufacturers' specifications, calibrations, appropriate drawing, photographs, and descriptions of any modifications since manufacture. This plan shall also include the CONTRACTORs means for complying with all local noise ordinances.
- K. Pipe Filling Methods and Testing during Pullback: The CONTRACTOR shall submit methods and procedures for filling the pipe with water during pull back and testing.
- L. Protection of Adjacent Structures and Facilities Plan: The Contractor shall submit a plan that provides details on measures to be taken to monitor and protect adjacent utilities, structures, roadways and

sidewalks, and provide details on monitoring equipment and provisions, including the layout of all settlement points and other monitoring points. Provide two (2) copies of pre-construction survey of adjacent structures and photographs with captions to document pre-construction conditions prior to beginning HDD construction.

- M. Qualifications of Superintendent and Key Personnel: The CONTRACTOR shall submit written documentation of HDD superintendent and key personnel experience in accordance with Paragraph 1.07A and 1.07B. Submit evidence of OSHA Certification for the Site Safety Representative.
- N. Radius of Curvature Confirmation: The CONTRACTOR shall confirm that the bore can be completed using the radius of curvature and geometry shown on the Contract Drawings along with the calculations showing that installation stresses do not exceed allowable pipe stresses.
- O. Rig Capacity Plan: The CONTRACTOR shall submit a plan which provides details on the capacity of the drill rig verifying that the pullback capacity is greater than the required pullback calculated and submitted by the CONTRACTOR under paragraph 1.05N.
- P. Health and Safety Plan: The CONTRACTOR shall submit a Health and Safety Plan, including the name of the CONTRACTOR's Site Safety Representative, emergency telephone numbers for medical facilities, and precautions for handling and disposal of any hazardous or flammable materials. The Safety Plan shall include a code of safe practices and an emergency plan in accordance with OSHA and Florida/OSHA requirements.
- Q. Construction Activities Schedule: At least fifteen (15) working days prior to mobilization for HDD operations, the CONTRACTOR shall submit a detailed schedule for the HDD installation showing all major construction activities and durations, with beginning and completion dates shown. The schedule shall be updated at least every week or more frequently, as directed by the ENGINEER, and shall include:
1. "One call" utility locate requests and visual confirmation of all crossing utilities and all parallel utilities within the vicinity of the bore centerline.
 2. Rig mobilization and setup.
 3. Pilot bore drilling.
 4. Pre-reaming and reaming.
 5. Layout and fusing of pipe.
 6. Pressure testing of pipe prior to pullback.
 7. Final reaming and pullback of pipe.
 8. Pressure testing of pipe after installation.
 9. Mandrel/pig test to confirm deformations of pipe are within allowable tolerances.
 10. Cleanup, surface restoration, and demobilization.
- R. The following shall be submitted as construction progresses and at the completion of construction.
1. Daily Logs and Records: The CONTRACTOR shall submit complete, legible, written daily logs and records as specified in Paragraph 1.07C and as directed by the ENGINEER, by noon of the following day to which the records correspond.
 2. Drilling and Reaming Rates: The CONTRACTOR shall submit maximum drilling speeds and reaming rates for pilot bore and each reaming pass and confirm that the pump capacity is adequate for these anticipated drilling rates for the mud and/or drilling fluid weights and viscosities anticipated. These shall be submitted to the ENGINEER on a daily basis.

3. Drilling Fluid Viscosity and Density (Mud Weight): The CONTRACTOR shall submit measured mud and/or drilling fluid weights used during pilot boring and reaming of the bore measured at a minimum of three times per shift or at least once per 200 feet of drilled or reamed length, whichever is more frequent, with at least two (2) hours between readings.
 4. Pilot Bore As-Built Profile: The CONTRACTOR shall submit an as-built profile of the pilot bore within 24 hours of completion of the pilot bore.
 5. Pressure Test Records: The CONTRACTOR shall submit all pressure test records for both the pre-installation and post-installation tests. These shall be submitted within 24 hours of completion of such tests.
 6. Variations in Plan and Profile: The CONTRACTOR shall document any variations between the actual Contract Drawings and profile of the bore path and the location shown on the Contract Drawings. The CONTRACTOR shall notify in writing and by telephone the ENGINEER immediately upon discovery of any deviations.
- S. Settlement Monitoring Plan: The Contractor shall submit a settlement monitoring plan showing location of proposed settlement points and frequency of readings.
- T. Risk Mitigation: At least seven (7) working days prior to each major operations milestone, the CONTRACTOR and HDD superintendent shall attend a risk mitigation meeting with representatives of the ENGINEER and OWNER for each HDD crossing. The major operations milestones shall include the following as a minimum:
1. Rig mobilization and setup.
 2. Pilot bore drilling.
 3. Pre-reaming and reaming.
 4. Layout and fusing of pipe.
 5. Pressure testing of pipe prior to pullback.
- U. CONTRACTOR to provide Record Drawings of the completed Directional Drill including a vertical record of the location of the drilling head at a minimum of 20 Ft. horizontal increments along the path of the Bore.

1.06 PERFORMANCE REQUIREMENTS

- A. The CONTRACTOR shall provide all equipment, materials, and personnel necessary for completing the installation as shown on the Contract Drawing and specified herein. The equipment and materials shall include but are not limited to:
1. Directional drilling rig with all ancillary equipment, including drill pipe, drilling fluid, cutting tools, reaming bits, swivels, expanders, motors, pumps, hoses, mixing equipment, drilling fluid processing equipment (cuttings separation equipment), downhole survey equipment, energized surface grid tracking system, fluid pressure and flow rate monitoring equipment, spare parts, pipe handling equipment (cranes, backhoes, rollers, side boom tractors) control equipment, and office equipment.
 2. Drilling fluids, water, fuel, lubricant, polymers, or other additives.
 3. Any other expendable or reusable materials, supplies, and equipment needed for the installation.

- B. The drilling equipment shall be capable of advancing through the geologic conditions to be encountered at the site, as presented in the Contract Documents, the Geotechnical Report and as anticipated by the CONTRACTOR.
- C. The drilling fluid shall be designed for the geologic conditions to be encountered at the site and as anticipated by the CONTRACTOR.
- D. The drilling system shall include a fluid pump and separation plant that can achieve the rates of drilling fluid pumping, spoil separation, and slurry cleaning required by the CONTRACTOR to achieve planned production rates for the soils described in the Geotechnical Report, and as anticipated by the CONTRACTOR. Shaker screens and hydrocyclones may be required for efficient separation of spoils. The CONTRACTOR is advised that the separation plant must fit within the allowable Work areas shown on the Contract Drawings.
- E. All spoil and slurry must be contained in trucks, tanks, approved recirculation pits, or other containers at all times. Dumping of spoil or slurry on the ground, discharge into sewers, or discharge into the water bodies will not be permitted. All spoils will be transported and disposed of off-site at an approved disposal facility that meets all State of Florida and local requirements.
- F. Perform all Work within Work areas shown on the Contract Drawings.
- G. The pipeline shall be installed using the radii of curvature and entry and exit angles shown on the Contract Drawings; unless deviations are approved in writing by the ENGINEER.
- H. Pipe rollers and lifters will be required to help the transition of the carrier pipe into the bore and to minimize the pull force. The number of pipe rollers and lifters shall be determined by the Contractor in accordance with the pipe supplier's recommendations. Location and spacing of the rollers and lifters will be done in accordance with the pipe manufacturer's recommendations based on bend radius.
- I. It shall be the CONTRACTOR's sole responsibility that all Work is done in conformance with all applicable federal, state, and local safety requirements. Required safety equipment and procedures shall be employed by the CONTRACTOR at all times. All materials and methods of construction shall meet the applicable requirements of the State of Florida Administrative Code.
- J. The pipe shall be certified by the CONTRACTOR as meeting all requirements of the Contract Documents. The fabricated pipe will be pressure-tested by the CONTRACTOR prior to pullback and after installation is completed.
- K. The CONTRACTOR shall allow access to the OWNER and/or ENGINEER and shall furnish necessary assistance and cooperation to aid the ENGINEER in observations and data and sample collection, including, but not limited to the following:
 - 1. The OWNER and/or ENGINEER shall have full access to the operator control center prior to, during, and following all HDD operations. This shall include, but not be limited to, providing visual access to real-time operator control screens, gauges, and indicators.
 - 2. The OWNER and/or ENGINEER shall have full access to the slurry separation plant prior to, during, and following all HDD operations. This shall include, but not be limited to, full access to shaker screens, hydrocyclones, conveyor belts, and slurry and spoil holding tanks. The ENGINEER shall be allowed to collect soil samples from the shaker screens and/or spoil holding tanks on the slurry separation plant a minimum of once per installed pipe section, and whenever changes in conditions are observed or suspected. If requested, the CONTRACTOR shall assist in the collection of these samples as directed by the ENGINEER.
- L. CONTRACTOR shall comply with all local noise ordinances. Sound levels in excess of these values are sufficient cause to have the Work halted until equipment can be quieted to these levels. Work

stoppage for excessive noise shall not relieve the CONTRACTOR of the portions of this Specification including, but not limited to completion of all Work within specified Contract Time and Contract Price. The CONTRACTOR shall submit a Plan prior to construction identifying all noise reduction/abatement procedures. The Plan will be reviewed by the ENGINEER prior to construction.

1. If mufflers cannot achieve the necessary noise reduction, noise abatement shall be accomplished by the CONTRACTOR's installation of baffles (or other acceptable means) positioned to break line-of-sight from the noise source to affected residences and/or commercial structures. Minimum noise abatement measures shall consist of equipping all engines with hospital grade mufflers or silencers.

1.07 QUALITY ASSURANCE

A. Contractor Qualifications and Experience: The Contractor shall meet the following minimum qualifications:

1. Contractor must be licensed in the State of Florida as an underground utility Contractor for a minimum of five (5) years.
2. The Contractor shall have at least five (5) years of demonstrated successful experience installing pipelines by the means of HDD.
3. The Contractor must have successfully completed three (3) water or sewer projects where the pipe was installed with HDD techniques, each (unless otherwise noted) meeting the following criteria.
 - a. Minimum carrier pipe nominal diameter of at least 16-inches.
 - b. Minimum length of 600 linear feet in a single pull through soil.
 - c. The carrier pipe must be high density fusible polyethylene (HDPE) pipe.

And provide the following for each project.

- a. Project Description.
 - b. Pipe-Size, Length, Material.
 - c. Bore Length.
 - d. Soil Types.
 - e. OWNER's Contact Information.
 - f. ENGINEER's Contact Information.
 - g. Change Orders.
 - h. Scheduled Completion Date and Actual Completion Date.
4. The Contractor will be required to employ skilled, experienced superintendent(s), equipment operator(s) and personnel throughout the project. The superintendent for this project shall have at least five (5) years of successful experience using the HDD process, with at least two (2) projects meeting the criteria identified in Paragraph 1.07A.3.
 5. The HDD equipment operator for this project shall have at least five (5) years of successful experience using the HDD process, with at least one (1) project meeting the criteria identified in Paragraph 1.07A.3.

B. The Contractor shall furnish resumes of the superintendent(s) and key personnel. Personnel experience records should include project names, locations, pullback lengths, ground conditions,

pipe materials, project description, project Owner, Engineer, and references with names, addresses, and telephone numbers. The superintendent listed in the submittal shall be on site during all construction related activities required for the HDD installation for this project.

- C. Daily Logs and Records: Daily logs and records shall be maintained by the Contractor and shall include the following
1. drilling lengths,
 2. location of drill head,
 3. drilling fluid pressures and flow rates,
 4. drilling fluid losses,
 5. inadvertent returns (Frac-out),
 6. drilling times required for each pipe joint,
 7. any instances of retraction and re-drilling of the pilot bore or segments thereof, and
 8. any other relevant observations, including any observed settlement, heave, frac-outs, or surface spills.

The downhole annular drilling fluid pressures shall be measured and recorded throughout the pilot hole drilling. These records shall be maintained and provided daily to the Engineer. The position of the drill head shall be continuously tracked and recorded by a downhole tracking locator system. A plot of actual locations of the bore path shall be maintained and updated daily, or more frequently, as directed by the Engineer. These records shall be maintained and provided daily to the Engineer.

- D. Advance Notices and Inspections: The Contractor shall provide at least 24 hours advance written notice to the Engineer of the planned inspection of major drilling activities, including pilot bore launch, pre-reaming, reaming, and pipe pullback. The Contractor shall immediately notify the Engineer, in writing, when any significant problems are encountered or if ground conditions are considered by the Contractor to be materially and significantly different than those represented with the Geotechnical Report. All Work by the Contractors shall be performed in the presence of the Engineer unless Engineer grants prior written approval to perform such Work in Engineer's absence.
- E. Surveying Equipment and Procedures: All surveying equipment used for downhole surveying and tracking of the bore path and drill head shall be inspected and calibrated by the equipment manufacturer prior to use. Proof of this inspection and calibration shall be provided to the Engineer prior to commencement of drilling operations.

PART 2 – PRODUCTS

2.01 DRILLING FLUIDS

- A. The CONTRACTOR shall select drilling fluid mixture proportions to ensure continuous circulation, bore stability, reduce drag on the pipe, and completely fill the annular space between the bore and the pipe to control settlement. Management and disposal of drilling fluids shall be the CONTRACTOR's responsibility. Drilling fluids shall not be disposed of on-site or discharged to sanitary or storm sewers, or the waterways or adjacent wetlands.

2.02 DRILL PIPE

- A. The CONTRACTOR shall provide high quality drill pipes that have been inspected and determined to be adequate for the project requirements. Bent, racked, or fatigued drill pipes shall not be used. Threads must be in good condition. The length of each drill pipe shall be measured and recorded.

2.03 PIPE

- A. The CONTRACTOR shall provide and HDPE pipe in accordance with Section 3.
- B. The pipe thickness must conform to the most conservative design with respect to design calculations for the critical combination of internal and external pressure, pullback and bending. The carrier pipe shall meet the dimension ratio (DR-11) or greater as depicted in the design drawings.

2.04 WATER

- A. Testing and construction water will be provided via construction water connection as detailed on the design drawings and located on the 12" Dia. bypass connection to be installed on the existing 30" Dia. DIP watermain at the north end of the project.
- B. Water required for the HDD operations shall be provided by the OWNER

PART 3 - EXECUTION

3.01 GENERAL

- A. The CONTRACTOR shall provide adequate control of surface water and drilling fluids drainage and runoff, and provide silt fences, hay bales, and wattles to prevent surface water or drilling fluids from being transported off-site.
- B. The CONTRACTOR shall not initiate HDD until all submittals as specified in Paragraph 1.05 are received, reviewed, and approved by the ENGINEER.
- C. The CONTRACTOR shall not initiate HDD until all required permits are obtained. Copies of all permits shall be provided to the ENGINEER prior to construction.
- D. It is the CONTRACTOR's responsibility to provide barricades, fencing, or other safety measures to prevent public access into Work and staging areas.

3.02 PROTECTION OF UNDERGROUND UTILITIES

- A. The Contract Drawings show existing buried utilities that are believed to be near the directional drill alignment. There is no guarantee that these utilities are located as shown or that other utilities are not present. It will be the CONTRACTOR's responsibility to field locate all nearby utilities or other potential subsurface obstructions that may interfere with the Work.
- B. The CONTRACTOR shall notify "One Call" system to request marking of utilities that subscribe to One Call, at least 72 hours (excluding Saturdays, Sundays and Legal Holidays) before excavating in any public way and shall individually notify all other known or suspected utilities to request marking of these utilities. The CONTRACTOR shall confirm that all requested locates are made prior to commencing drilling operations. CONTRACTOR shall make all diligent efforts to locate any unmarked or abandoned utilities using all available information, maps, and drawings. The CONTRACTOR shall visually confirm and stake all existing lines, cables, or other underground facilities including exposing all crossing utilities and utilities within twenty (20) feet laterally of the centerline of designed drilled path at the discretion of the ENGINEER.

- C. The CONTRACTOR shall control drilling practices to prevent damage to existing utilities, existing pavement and sidewalks.
- D. The CONTRACTOR shall make diligent effort to locate surface evidence of any other potential subsurface obstructions, such as piers and piles.
- E. The CONTRACTOR shall be responsible for all losses and repairs occasioned by damage to underground utilities, structures and pavement/sidewalks resulting from drilling operations.

3.03 WORK STAGING AREA

- A. Barricades, Warning Signs, and Lights: The CONTRACTOR shall, in accordance with FDOT Standards erect appropriate barriers, warning lights, and signs, painted with approved colors, warnings, and graphics to ensure adequate warnings to personnel and the public.
- B. Combustible Materials: Combustible materials (fuel, oil, lubricants, etc.) shall be stored off-site or in a well-ventilated storage facility removed from the immediate vicinity of the drilling area by at least twenty (20) feet.
- C. Construction Impacts: The CONTRACTOR shall maintain the Work area in a manner that shall minimize adverse impacts on other public use activities. The CONTRACTOR shall proceed with Work in a safe, orderly manner, while maintaining the Work site free of debris and unnecessary equipment and materials.
- D. Control of Drilling Fluids: The CONTRACTOR shall follow all requirements of the Inadvertent Return (Frac-Out) and Surface Spill Contingency Plan as submitted and approved and shall control operational pressures, drilling mud weights, drilling speeds, and any other operational factors required to avoid hydrofracture fluid losses to formations, and control drilling fluid spillage. This includes any spillages or returns at entry and exit locations or at any intermediate point. All inadvertent returns (Frac-Outs) or spills shall be promptly contained and cleaned up by the CONTRACTOR. The CONTRACTOR shall maintain on-site mobile spoil removal equipment during all drilling, pre-reaming, reaming, and pullback operations and shall be capable of quickly removing spoils. The CONTRACTOR shall immediately notify ENGINEER of any inadvertent returns (Frac-Outs) or spills and immediately contain and clean up the return or spill.
- E. Removal of Temporary Facilities: At the completion of construction, the CONTRACTOR shall remove all temporary facilities installed by the CONTRACTOR. Unused soil, aggregate, and other materials shall be removed and disposed of at approved sites in accordance with Federal, State, and Local regulations. Any damage to streets, lawns, common areas, and sidewalks shall be restored to original or better conditions. All disturbed areas shall be re-vegetated.
- G. Temporary Lighting: The CONTRACTOR shall procure and maintain all temporary lighting needed for CONTRACTOR's operations, safety, testing, and inspection. Temporary lighting shall be removed immediately after completion of construction.
- H. Work Staging: The CONTRACTOR shall limit staging and Work operations to the areas shown on the Contract Drawings, or as otherwise accepted in writing by the ENGINEER and all necessary approvals and permits for storage of equipment and materials, parking, drilling and other Work.
- I. Pipe Layout Staging Areas:
 - 1. The Contractor shall visit and fully evaluate the proposed work areas prior to submitting a bid for this work.

2. CONTRACTOR is responsible for securing all necessary permits and approvals for the use of the temporary staging area layout of the pipe. All costs associated with this shall be included in the CONTRACTOR's bid price.

3.04 MOBILIZATION

- A. The CONTRACTOR shall mobilize all equipment, materials, and personnel necessary to construct the casing and carrier pipes using the HDD process at the locations shown in the Contract Drawings.
 1. Entry Area: The CONTRACTOR shall set up temporary workspace within the areas delineated on the Contract Drawings. Appropriate precautions and measures shall be employed by the CONTRACTOR to prevent erosion, surface drainage, and spillage of drilling fluids or other materials that could adversely impact the environmental quality of the site. Silt fences, hay wattles, and hay bales shall be used to line the Work area to minimize erosion and contain any spillage or runoff. Shovels, brooms, buckets, and barrels shall be kept on-site to facilitate containment and cleanup. A vacuum truck or trailer unit will be on standby and capable of responding within one hour to any spill or inadvertent return incident.
 2. Exit Area: The exit area shall have appropriate precautions and measures for containing drilling fluids and cuttings. The CONTRACTOR shall use appropriate methods to minimize erosion and runoff. Containment and cleanup equipment shall be available to contain and clean up any surface spills and frac-outs.
 3. Pipe Layout Area: Layout area shall be free of stones, wood, debris, and obstructions. Pipe rollers shall be provided by the CONTRACTOR during the fusion process to facilitate pipe fusion and pullback. The pipe layout area may not allow the entire length to be fused in a single length before start of pull-in. CONTRACTOR will plan work accordingly.

3.05 HORIZONTAL DIRECTIONAL DRILLING

- A. Drill Rig Capacity: The capacity of the directional drilling system used by the CONTRACTOR shall be adequate to install the specified pipes.
- B. Pump Capacity: The pumps used by the CONTRACTOR shall be adequate to supply the required flow rate and pressures at the anticipated drilling fluid viscosity at all times. Drilling speeds shall not exceed pump capacity. Drilling speeds shall be monitored continuously during HDD operations.
- C. Bore Tracking and Monitoring: At all times during the pilot bore the CONTRACTOR shall provide and maintain a bore tracking system that is capable of accurately locating the position of the drill head in the x, y, and z axes. The CONTRACTOR shall record these data at least once per drill pipe length or every thirty (30) feet, whichever is less.
 1. Downhole and Surface Grid Tracking System: CONTRACTOR shall monitor and record x, y, and z coordinates relative to an established surface survey benchmark from downhole survey data. The data shall be continuously monitored and recorded at least once per drill pipe length.
 2. Deviations between the recorded and design bore path shall be calculated and reported on the daily log. If the deviations exceed tolerances specified, such occurrences shall be reported immediately to the ENGINEER. The CONTRACTOR shall undertake all necessary measures to correct deviations and return to design line and grade.
 3. Drilling Fluid Pressures and Flow Rates: Drilling fluid pressures and flow rates shall be continuously monitored and recorded by the CONTRACTOR. The pressure shall be monitored at

- the pump. These measurements shall be made during pilot bore drilling, reaming, and pullback operations.
4. Drilling Speeds: Maximum allowable drilling speeds shall be calculated by the CONTRACTOR for pilot boring and each reaming pass and shall not be exceeded for pilot boring or reaming passes. Measurements shall be taken every thirty (30) feet or thirty (30) minutes, whichever is more frequent.
 5. Drilling Fluid Viscosity and Density (Mud Weight): The CONTRACTOR shall measure and record drilling fluid viscosity and density at least three (3) times per shift or at least once per 200 feet of drilled and reamed length, whichever is more frequent with at least two (2) hours between readings, using calibrated Marsh funnel and mud balance. These measurements shall be included in daily logs submitted to the ENGINEER. The CONTRACTOR shall document modifications to the drilling fluids, by noting the types and quantities of drilling fluid additives and the dates and times when introduced. The reason for the addition of drilling fluid additives or other modifications shall be documented and reported.
- D. Location of Entry and Exit Points: Entry and exit points shall be as shown on the Contract Drawings, unless otherwise approved in writing by the ENGINEER or as shown on the approved HDD Work Plan. The CONTRACTOR shall employ experienced licensed surveyors registered in the state of Florida to locate the entry and exit points, and to establish horizontal and vertical datum for the bore and the pipe layout and fabrication areas.
 - E. Entry and Exit Angles: Drill entry and exit angles shall be as shown on the Contract Drawings, unless otherwise approved in writing by the ENGINEER.
 - F. Pilot Bore: The pilot bore shall follow the design path of the bore shown on the Contract Drawings.
 1. Horizontal and Vertical Tolerances: Horizontal and vertical deviations shall be less than plus or minus two (2) feet from the design path centerline. The CONTRACTOR shall continuously monitor horizontal and vertical position and record the position at least once per drill pipe length, or at thirty (30) feet, whichever is less.
 2. Radius of Curvature: The radius of curvature shall not be less than that shown on the Contract Drawings. The radius of curvature shall be calculated over the distance of three (3) drill pipe sections.
 3. Entry and Exit Tolerances: The location of the entry and exit points shall be in accordance with the approved HDD Work Plan. The CONTRACTOR shall be solely responsible for all Work necessary to correct excessive deviations from line and grade, including redrilling, redesigning connections, and acquiring additional easement, at no additional cost to the OWNER and without schedule extension.
 - G. Pre-reaming and Reaming: The pilot bore shall be pre-reamed and reamed using equipment and methods submitted by the CONTRACTOR. The CONTRACTOR shall completely pre-ream the bore to the final diameter prior to pullback.
 - H. Hydrostatic Pretest: CONTRACTOR shall perform a low hydrostatic water pressure test per Section 1. Test shall be at a reduced pressure (Minimum 50 psig) prior to pipe pullback.
 - I. Pipe Pullback:
 1. A final swabbing of the bore path prior to pipe pullback is required, unless otherwise approved by the ENGINEER prior to the start of drilling operations, pipe pullback of new pipe without prior swabbing of the bore path to the furnished bore path inside diameter will not be permitted. The pipe shall be installed by pulling it into the reamed bore path in a continuous operation, behind a final reaming tool selected by the CONTRACTOR.

2. The pipe shall be isolated from excessive torsional and axial stresses by a swivel device.
3. All measurements shall be made, recorded, and submitted on the daily logs during final reaming and pipe pullback.
4. Pulling Loads: The maximum pull (axial tension force) exerted on the carrier pipeline shall be measured continuously in the control center and at the pulling head and limited to the maximum allowed by the pipe Manufacturer so that the pipe or joints are not overstressed. A factor of safety over the maximum allowable is not required.
5. Pipeline Support: The pipelines shall be adequately supported during installation so as to prevent overstressing or buckling. The CONTRACTOR shall provide adequate support/rollers along the stringing area to support the required length of the carrier pipe for each bore. Such support/rollers shall be spaced according to the pipe supplier, and the rollers be comprised of a non-abrasive material arranged in a manner to provide support to the bottom and bottom quarter points of the pipeline allowing for free movement of the pipeline during pullback. The pipe layout area shall be cleared of all large stones, construction debris, or other foreign objects that could damage the piping during pullback.
6. The pipe shall have ballast during pullback (filled with water).
7. The leading end of the pipe shall be closed during the pullback operation, in accordance with the pipe supplier's recommendations. A pulling head shall be used that is rated at the allowable pull force capability of the pipe section being installed, in accordance with the pipe supplier's recommendations.
8. Each length of pipe shall be inspected and cleaned as necessary to be free of debris immediately before joining.
9. Two separate and complete runs of tracer wire will be attached to the leading end of the pipe pulling head and shall extend the full length of the installed pipe. No mid span splices will be permitted. Tracer wire and continuity testing shall be in accordance with IRCDUS construction standards and specifications.
10. The CONTRACTOR shall at all times handle the pipe in a manner that does not overstress or otherwise damage the pipe. Vertical and horizontal curves shall be limited to manufacturer's recommended bend radius so that wall stresses do not exceed the allowable bending radius as recommended by the pipe supplier. If the pipe is buckled or otherwise damaged due to CONTRACTOR's acts or omissions, the damaged section shall be removed and replaced by the CONTRACTOR at his expense. The CONTRACTOR shall take appropriate steps during pullback to ensure that the carrier pipe and tracer wires will be installed without damage.
11. If the pipe has mid-welds, the CONTRACTOR shall engage the pipe supplier to provide a fusion technician to ensure Quality Assurance and Quality Control (QA/QC) of the mid-welds during the pullback operation.
12. The CONTRACTOR shall monitor and inspect pipe rollers and method for suspending pipe at entry during the pullback operation to avoid damage to the pipe.
13. The CONTRACTOR shall cease operations if the pipe is damaged and shall remove the pipe from the bore and repair the pipe using the Manufacturer's recommended procedure or replace the damaged pipe before resuming installation.
14. Damage to the pipe resulting from installation or contact grouting is the responsibility of the CONTRACTOR, including costs for replacement and labor and materials at no cost to the OWNER. To confirm no damage to the pipe, upon completing of pullback and grouting, the CONTRACTOR shall perform the following test on the completed pipeline.

- a. A mandrel or pig, one inch less in diameter than the internal diameter (including fusion beads) of the product pipe, which is capable of allowing water to pass through it, complete with a pulling cable on either side of mandrel or pig, shall be pulled through the entire length of the pipeline. If the pig or mandrel cannot pass through the pipe, it shall be considered collapsed and damaged and the CONTRACTOR shall be responsible for replacement of the carrier pipe and all costs associated with the replacement. Check Manufacturer's tolerance and fuse bead size.
15. After the casing pipe is completely pulled through the bore, a sufficient period as recommended by the pipe Manufacturer shall be provided before the final pipe tie-in.
 16. Final Hydrostatic Test: The CONTRACTOR shall conduct a final hydrostatic test of the installed pipeline. Final test shall be in accordance with Section 3. The CONTRACTOR shall repair any defects discovered during the test, and repeat until the pipe passes the test.
 17. Upon completion of the installation and successful pressure testing of the directional bore and ancillary piping, CONTRACTOR shall provide bacteriological testing of the main in accordance with FDEP standards for certification.
- K. Obstructions: The CONTRACTOR shall notify the ENGINEER immediately in the event that any obstruction is encountered that prevents further advancement of the drill pipe, or pullback of the pre-reamer, reamer, and/or pipe. The CONTRACTOR shall make all diligent and reasonable efforts to advance past the object by drilling slowly through the object, pulling back, and drilling along a new bore path that avoids the object, or excavating and exposing and removing the object, and all other reasonable attempts to continue the bore. The CONTRACTOR shall notify the ENGINEER or proposed measures to attempt to advance past the object, prior to initiating the attempt. If the CONTRACTOR attempts to pullback and re-drill, the CONTRACTOR shall adhere to line and grade tolerances established in this Specification section, unless the ENGINEER approves variance, in writing, prior to the CONTRACTOR's attempt to re-drill. The CONTRACTOR and ENGINEER shall investigate the cause and together determine an appropriate response. Appropriate response may include revisions to equipment or methods, retraction and re-drilling of a portion of the bore, or abandonment of the hole. If abandonment is deemed necessary, the CONTRACTOR shall recover, to the extent practicable, any drill pipe, product pipe, and tools in the bore, and properly abandon the bore by contact grouting unless otherwise directed in writing by the ENGINEER. If the bore is abandoned, the CONTRACTOR shall be allowed to begin a second attempt to install the pipeline at an alternate location subject to approval, in writing, by the ENGINEER. The CONTRACTOR shall take all reasonable actions to complete the installation with minimal delays. The extra costs and payments associated with encountering a confirmed obstruction shall be negotiated between the Owner and Contractor, based on reasonable time and materials.
- L. Site Restoration and Demobilization: The CONTRACTOR shall remove all equipment, materials, drilling fluids, muck, waste, and debris from the site and restore the site to its original condition upon completion of the installation. Restoration and demobilization shall be completed by the CONTRACTOR within seven (7) calendar days of the completion of the pipeline installation.

* * END OF SECTION * *

SECTION 18 Approved Manufacturers' Products List

Air Release Valves – Sewer

- A.R.I.

Air Release Valves – Water

- APCO
- A.R.I.
- GA Industries
- Val-Matic

Backflow Preventer (RPZ) and Double Detector Check Valves with RPZ Assembly

- AMES Fire and Waterworks -Silver Bullet Series
- FEBCO
- Watts
- Wilkins

Blow-Off Valves

- John C. Kupferle Foundry Co. – Model Eclipse #85 or approved equal

Bronze Gate Valves

- American Valve Inc.
- East Jordan
- NIBCO
- Red-White Valve Corp.
- United Brass Works

Casing Spacers/Insulators

- APS- Advance Product &Systems
- Cascade Waterworks Mfg.
- GPT
- Raci North America

Check Valves- Weight & Lever Resilient Seat

- American Darling
- Clow Valve Company
- Kennedy Valve
- M&H Valve
- Mueller Co.
- Val-Matic

Corporation Stops

- A.Y. McDonald Mfg. Co
- The Ford Meter Box Co. Inc. - FB1100 x G-NL Style, FB1700
- Mueller Co. Part #'s H-15028 & H10046

Couplings

- EBAA-Iron
- Krausz-HYMAX
- Smith-Blair (Pump Stations EZ with Seal and Restraint)
- Wal-Rich Dresser™ Pipeline Solutions

Curb Stops

- The Ford Meter Box Co. Inc. - KV43-342WG, KV43444WG, BA43342WG, BA43444WG, B41666WG, B41777WG, BFA43-666WG *& BFA43777WG
- AY McDonald: (Equal to Ford Part Numbers)

- Mueller: (Equal to Ford Part Numbers)

Ductile Iron Pipe

Water: Cement Lined Class 350/50

Sewer/Force Main: Protecto 401 Lines Class 350/50

- American
- Clow Valve Co.
- Griffin Pipe Products Co.
- McWane
- U.S. Pipe

Ductile Iron Fittings

Water: Cement Lined Class 350/50

Sewer/Force Main: Protecto 401 Lines Class 350/50

- American Valve
- Clow
- McWane Ductile
- Star Pipe Products
- Tyler
- U.S. Pipe

Electrical Equipment as listed or approved equal

- Crouse-Hinds
 1. Cable Connectors "CGB" Series
 2. Emergency Power Receptacle – 3W, No. AR1042-S22 with AR610 Panel Adaptor for pumps less than 25hp, AR2042-S22 with AR610 Panel Adaptor for pumps greater than 25hp
- Eagle Signal Bulletin 705
 1. HK series Elapsed Timer Meter
- Square D
 1. Unfused Safety Switch
 2. Thermal Magnetic Air Circuit Breaker
 3. Magnetic Motor Starter
 4. Reduced Voltage Motor Starter
 5. Pump Mode Selector Switch
 6. Indicator Lamps

Fire Hydrants 5 ¼" Valve Opening

- Clow – Medallion F2545
- East Jordan Iron Works – Part no. 5CD250
- Mueller-Centurion 250

Generator Sets

1000 KW or Greater

- Caterpillar
- Cummins/Onan
- Detroit Diesel

1000 KW or Less

- Atlas-Copco
- Katolight
- Kohler Power
- Tradewinds Power
- Winco

Lift Station Access Door

- Bilco – Type J-AL Single Leaf with Stainless Steel Hardware-Waterproof
- Halliday Products – Single Leaf with Stainless Steel Hardware-Waterproof

Lift Station Control Panels

- ECS (Economy Control Systems, Jacksonville, FL)

Lift Station Joint Sealer

- Marbri Supply Co.
 1. Embeco 636 Grout
 2. Embeco 885 Grout

Lift Station and Manhole Sealant and Coatings

- Pro-Tech EW-1 Water Base Epoxy
- CANUSA WRAPID SEAL

Lift Station Submersible Pumps

- ABS Pump - If a grinder pump is proposed, only ABS type grinder pumps under 5.0 hp are permitted. ABS V2 Pirana Grinder Pumps are not permitted
- Xylem Flygt.

Lift Station Valve Pit Access Door

- Bilco
- Halliday Products

Lift Station Valve Pit Quick Disconnect

- Kamloc Male Kwik Disconnect
- Kamloc Coupler 4"

Lift Station Valve Pit Safety Gate

- Halliday Products
- Bilco

Line Setter for Meter Boxes

6" – Part # Retro-2BVBHH-NL
5/8" X 3/4" Meter Retrosetter

12" – Part # VHH42-12W-NL
5/8" X 3/4" Meter Retrosetter
No Lead 3/4" Key Valve
By Dual Check Valve

- Ford Meter Box

Marker Balls Electronic

- 3M – Water 3M 1403XR, Sewer 3M 1404XR

Manhole Frames and Covers

- U. S. Foundry – Drawing No. 420-C
- PAM –Pamrex Hinged Manhole Cover and Frame

Manholes Flexible Plastic Gaskets

- Press Seal Gasket Corp
- Ram-Nek

Manhole and Lift Station Linings

- AP/M Permaform
- Associated Fiberglass Enterprises
- GU Florida
- LF Manufacturing Co. Inc.

Manhole Pipe Connection (Boot)

- Kor-N-Seal –Neoprene Boot with Stainless Steel Accessories
- PBX (Press Seal Gasket Corp)

Manhole Watertight Rain Guard Boot

- LF Manufacturing Co. Inc.
- Parson Environmental Products

Mechanical Joint Restraints

- EBAA –Megalugs and Bell Restraints
- SIGMA Corp
- Star Pipe Products
- U.S. Pipe – Field Lock Gaskets

Meter Boxes

Polymer Concrete & Fiberglass sizes 11”X18”, 13”X24”, 17”X30”, 24”X36”

- CDR Systems Corp.
- GlasMasters, Pre-Plumbed Box
- Hubbell

Meters for Sewer Force Mains and Reuse Mains

- Mag-Meter (on a case by case basis)
- The Abb Group/Fisher Porter

PE Pipe & Tubing

3/4” to 2” SDR 9 CTS

3” to 48” DR11 DIPS

- Chevron-Phillips

- Flying W Plastics Inc.
- JM Eagle
- Municiplex
- Polypipe

Plug Valves

- Clow Valve Co
- DeZurik-Series 100
- Henry Pratt Co.
- Kennedy Valve
- M&H Valve Co.
- Val-Matic-Series 1500

PVC Pipe & Fittings

Water/Force Main - DR18 C900/C909 (for Fittings, see Ductile Iron Fittings on Page 18-2)

Sewer - SDR 26 3034 (for Fittings, see Sewer Fittings ASTM D-3034 on Page 18-7)

- Diamond Plastics
- ETI Pipe and Supply
- Freedom Plastics
- J-M Manufacturing Co. Inc.
- National Pipe and Plastic
- North American Pipe Corp.

Reduce Pressure Backflow Preventer Assembly

- AMES Fire and Waterworks - 400SS & 400SS
- Wilkins –Part No. 975
- FEBCO- Part No. LF825Y
- Watts – Part No. LF909

Remote Telemetry Unit

- DataFlow Systems Inc. - Model TAC II telemetry unit, complete with Model PCU-001 pump control module, BPR backpack radio/TAC pack, power supply with battery backup, Model RTU-03 enclosure, cable and antenna

Resilient Seat Gate Valves

- American Flow Control
- Clow Valve Co.
- Kennedy Valve
- M&H Valve Co.
- Mueller Co.

Service Saddles-Stainless Steel Straps

- The Ford Meter Box Co.
- JCM Industries
- Romac Industries Inc.

Sewer Fittings ASTM D-3034

- The Harrington Corp./HARCO

- Multi Fittings
- Royal Building Products

Sleeve Type Couplings

- The Ford Meter Box Co.
- Smith-Blair - Style 413
- JCM Industries

Tapping Sleeves- Stainless Steel

- The Ford Meter Box Co. – Style FTSS
- JCM Industries- Model 432
- Smith-Blair – Style 663
- Romac Industries Inc.

Tie Rods

All tie rods shall be stainless steel all-thread rods

Trace Wire Covering

- King Innovation –Dryconn Weatherproof Connectors
- SKRINK WRAP
- 3M-ScotchKote Weatherproofing Compound
- 3M- Scotch 33 tape

Trace Wire Port

- Snake Pit (Cast Iron Cover)

Valve Boxes (Domestic Heavy Duty)

- East Jordan Iron Works – Long Throat Lid General Foundries Inc
- Russell
- Star Pipe Products
- Tyler Union
- U. S. Foundry

Valve Name Plate

- LF Mfg. Co
- Shiedow Bronze Corp.
- Wager Co.

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A NEW TRAFFIC OPERATIONS FACILITY

for

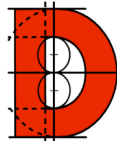
**INDIAN RIVER COUNTY
FLORIDA**



Architectural Project Manual Bid Set

Project No. 2021.20

June 30, 2023



Donadio & Associates, Architects, P.A.

A Spiegle Group Inc

Architectural, Planning, and Construction Management

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SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

- 1. Work covered by the Contract Documents.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

Project Identification: **A NEW TRAFFIC OPERATIONS FACILITY
FOR INDIAN RIVER COUNTY
DONADIO & ASSOCIATES PROJECT NO. 2021.20**

- 1. Project Location: **4548 41 STREET, VERO BEACH, FLORIDA, 32967**

- B. Owner: **INDIAN RIVER COUNTY BOARD OF COUNTY COMMISSIONERS**

- C. Architect: **DONADIO & ASSOCIATES ARCHITECTS P. A.
A Spiezle Group Inc.
2001 9th AVENUE, SUITE 308
VERO BEACH, FLORIDA 32960
772-794-2929 (PH)
772-562-8600 (FAX)
adonadio@Spiezle.com (E-MAIL)**

- D. The Work consists of the following:

- 1. The Work includes. The construction of a Single-Story New Traffic Operations Structure consisting of a approximate total area of 16,617 sq. ft. The building floor area will be divided into two (2) areas, an Office/Shop Area consisting of 7,206 sq. ft. and the remainder of the floor area a Warehouse Space consisting of 9,411 sq. ft., along with Two (2) Pre-Engineered open parking structures; one 2,400 sq. ft and the other 3,200 sq. ft.
- 2. The work shall include complete installation of all Site/Civil, Landscaping, Architectural, Structural, Electrical and Mechanical, and Demolition work as detailed in the plans and these specifications. The Proposed Building is to be constructed on the existing Traffics Operation facility site.

1.4 1.5 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

1.5 USE OF PREMISES

- A. General: Contractor shall have use of premises for construction operations, including use of Project site, during construction period. Contractor shall provide for a safe/secure site access of the existing Traffic Operation Center, along with Parking Area.

END OF SECTION 01100

SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 and Division 0 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications. Where Indian River County Division 0 Bidding Requirements are more Stringent or Conflict with these Division 1 Specifications, the County Specifications shall take precedence.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Contractor will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

END OF SECTION 01250

SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment. Where Indian River County Division 0 Bidding Requirements are more Stringent or Conflict with these Division 1 Specifications, the County Specifications shall take precedence.
- B. Related Sections include the following:
 - 1. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 1 Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Submit draft of AIA Document G703 Continuation Sheets.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
 6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
 8. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: Progress payments shall be submitted to Architect by the 25th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.
 5. Submittals Schedule (preliminary if not final).
 6. Certificates of insurance and insurance policies.
 7. Performance and payment bonds.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.

END OF SECTION 01290

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section. Where Indian River County Division 0 Bidding Requirements are more Stringent or Conflict with these Division 1 Specifications, the County Specifications shall take precedence.

1.2 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Project meetings.
- B. Related Sections include the following:
 - 1. Division 1 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
 - 2. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
 9. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate required installation sequences.
 - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
 2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
 3. Number of Copies: Submit five opaque copies of each submittal. Architect will return four copies, unless they are engineering submittals, then four copies will be submitted.
 - a. Submit five copies where Coordination Drawings are required for operation and maintenance manuals. Architect will retain two copies; remainder will be returned.
 4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
 - 1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.5 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. The Contract Documents.
 - b. Related requests for interpretations (RFIs).
 - c. Related Change Orders.
 - d. Submittals.
 - e. Review of mockups.
 - f. Time schedules.
 - g. Weather limitations.
 - h. Manufacturer's written recommendations.
 - i. Warranty requirements.
 - j. Compatibility of materials.
 - k. Testing and inspecting requirements.
 - l. Required performance results.
 - m. Protection of adjacent work.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

- C. Progress Meetings: Conduct progress meetings at weekly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Status of submittals.
 - 3) Work hours.
 - 4) Quality and work standards.
 - 5) Status of correction of deficient items.
 - 6) Field observations.
 - 7) Requests for interpretations (RFIs).
 - 8) Status of proposal requests.
 - 9) Pending changes.
 - 10) Status of Change Orders.
 - 11) Pending claims and disputes.
 - 12) Documentation of information for payment requests.
 3. Minutes: Architect will record and distribute to Contractor the meeting minutes.
 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

END OF SECTION 01310

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section. Where Indian River County Division 0 Bidding Requirements are more Stringent or Conflict with these Division 1 Specifications, the County Specifications shall take precedence.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Preliminary Construction Schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Submittals Schedule.
 - 4. Daily construction reports.
 - 5. Field condition reports.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
 - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 - 3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Architect.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time belongs to Owner.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- H. Major Area: A story of construction, a separate building, or a similar significant construction element.
- I. Milestone: A key or critical point in time for reference or measurement.
- J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

- A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- B. Preliminary Construction Schedule: Submit three opaque copies.
 - 1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.
- C. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.
 - 1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

- D. CPM Reports: Concurrent with CPM schedule, submit three copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 - 3. Total Float Report: List of all activities sorted in ascending order of total float.
- E. Daily Construction Reports: Submit two copies at weekly intervals.
- F. Field Condition Reports: Submit two copies at time of discovery of differing conditions.

1.5 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 4. Startup and Testing Time: Include not less than five days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 1 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 3. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Seasonal variations.
 - b. Environmental control.
 4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Installation.
 - e. Tests and inspections.
 - f. Startup and placement into final use and operation.
 5. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion

- F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
1. Refer to Division 1 Section "Payment Procedures" for cost reporting and payment procedures.
 2. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Architect's approval, be assigned to fabrication and delivery activities. Costs shall be under required principal subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
 3. Each activity cost shall reflect an accurate value subject to approval by Architect.
 4. Total cost assigned to activities shall equal the total Contract Sum.
- G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

2.3 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for commencement of the Work.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. CPM Schedule: Prepare Contractor's Construction Schedule using a computerized, time-scaled CPM network analysis diagram for the Work.
1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for commencement of the Work.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 4. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule.

- C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Installation.
 - c. Testing.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Sub networks on separate sheets are permissible for activities clearly off the critical path.
- D. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Principal events of activity.
 4. Immediately preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the Schedule of Values).
- E. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.
 4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.
 7. Changes in the Contract Time.

- F. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
 2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
 3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
 4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.5 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.
 4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions.
 7. Stoppages, delays, shortages, and losses.
 8. Meter readings and similar recordings.
 9. Emergency procedures.
 10. Equipment or system tests and startups.
 11. Substantial Completions authorized.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Actual Completion percentage for each activity.

- B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01320

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals. Where Indian River County Division 0 Bidding Requirements are more Stringent or Conflict with these Division 1 Specifications, the County Specifications shall take precedence.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
 - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
 - 3. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
 - 4. Division 1 Section "Closeout Procedures" for submitting warranties.
 - 5. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 6. Divisions 2 through 16 Sections and Construction Drawings for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will[**not**] be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 10 days for review of each resubmittal.
 4. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 10 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- E. Identification: Place a permanent label or title block on each submittal for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

- G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
 2. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- H. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Use AIA Document G810.
 2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked "**REVIEWED AS NOTED, NO EXCEPTIONS TAKEN**".
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating "**REVIEWED AS NOTED, NO EXCEPTIONS TAKEN**" taken by Architect.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
1. Submit electronic submittals directly to extranet specifically established for Project.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Standard product operation and maintenance manuals.
 - i. Testing by recognized testing agency.
 4. Submit Product Data before or concurrent with Samples.
 5. Number of Copies: Submit five copies of Product Data, unless otherwise indicated. Architect will return four copies, unless it is a Engineering submittal, then three copies will be returned.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
 - m. Relationship to adjoining construction clearly indicated.
 - n. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
 3. Number of Copies: Submit five opaque copies of each submittal, unless copies are required for operation and maintenance manuals. Submit five copies where copies are required for operation and maintenance manuals. Architect will retain two copies; remainder will be returned.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit three full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

- E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product.
 2. Number and name of room or space.
 3. Location within room or space.
 4. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Architect will return two copies.
 - a. Mark up and retain one returned copy as a Project Record Document.

- F. Submittals Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."

- G. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."

- H. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."

- B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- F. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- G. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- H. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Requirements."
- I. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- J. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- K. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- L. Construction Photographs and Videotapes: Comply with requirements specified in Division 1 Section "Photographic Documentation."
- M. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect, except as required in "Action Submittals" Article.
 - 1. Architect will not review submittals that include MSDSs and will return the entire submittal for resubmittal.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S/ ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01330

SECTION 01732 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of buildings and site improvements.
2. Removing below-grade construction.
3. Disconnecting, capping or sealing, and removing site utilities.
4. Salvaging items for reuse by Owner.
5. Coordination with Civil Site Demolition Sheets C4a and C4b

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site

1.4 INFORMATIONAL SUBMITTALS

A. Engineering Survey: Submit engineering survey of condition of building.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust, for noise control. Indicate proposed locations and construction of barriers.

1. Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to means of egress from those buildings.

C. Schedule of building demolition activities with starting and ending dates for each activity.

D. Predemolition photographs or video.

E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.5 CLOSEOUT SUBMITTALS

- A. Inventory of items that have been removed and salvaged.

1.6 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

1.7 FIELD CONDITIONS

- A. Buildings to be demolished will be vacated and their use discontinued before start of the Work.
- B. Buildings immediately adjacent to demolition area will be occupied. Conduct building demolition so operations of occupied buildings will not be disrupted.
 - 1. Provide not less than **72** hours' notice of activities that will affect operations of adjacent occupied buildings.
 - 2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
 - a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.
- C. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 1. Before building demolition, Owner will remove all items from the building that they wish to keep.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. On-site storage or sale of removed items or materials is not permitted.
- F. Arrange demolition schedule so as not to interfere with Owner's on-site operations and/or operations of adjacent occupied buildings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting demolition operations.
- B. Perform or engage a Florida Professional Engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during building demolition operations.
- C. Inventory and record the condition of items to be removed and salvaged.

3.2 PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.
- B. Salvaged Items: Comply with the following:
 - 1. Clean salvaged items of dirt and demolition debris.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to storage area designated by Owner.
 - 5. Protect items from damage during transport and storage.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Utilities to Be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and structures to be demolished.
 - 1. Owner will arrange to shut off utilities when requested by Contractor.
 - 2. Arrange to shut off utilities with utility companies.
 - 3. If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.

4. Cut off pipe or conduit a minimum of **24 inches (610 mm)** below grade, unless otherwise directed by the Owner. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
5. Do not start demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.4 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.
- B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.
- C. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
- D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated.
 1. Protect adjacent buildings and facilities from damage due to demolition activities.
 2. Protect existing site improvements, appurtenances, and landscaping to remain.
 3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
 4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
 6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
 7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.
- E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.5 DEMOLITION

- A. General: Demolish indicated buildings and site improvements completely. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 2. Maintain fire watch during and for at least 24 hours after flame-cutting operations.
 3. Maintain adequate ventilation when using cutting torches.

4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
 2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
 - C. Explosives: Use of explosives is not permitted.
 - D. Proceed with demolition of structural framing members systematically, from higher to lower level. Complete building demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - E. Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - F. Demolish foundation walls and other below-grade construction that are within footprint of new construction and extending **5 feet (1.5 m)** outside footprint indicated for new construction.
 1. Remove below-grade construction, including footings, completely.
 - G. Existing Utilities: Demolish existing utilities and below-grade utility structures that are within **5 feet (1.5 m)** footprint indicated for new construction. Abandon utilities outside this area.
 - H. Hydraulic Elevator Systems: Demolish and remove elevator system, including cylinder, plunger, well assembly, steel well casing and liner, oil supply lines, and tanks.
 - I. Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with satisfactory soil materials.
 - J. Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades.
 - K. Promptly repair damage to adjacent buildings caused by demolition operations.

3.6 CLEANING

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
- B. Do not burn demolished materials.

- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

END OF SECTION 024116

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section. Where Indian River County Division 0 Bidding Requirements are more Stringent or Conflict with these Division 1 Specifications, the County Specifications shall take precedence.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Warranties.
 - 3. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Advise Owner of changeover in heat and other utilities.
 - 4. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 - 5. Complete final cleaning requirements, including touchup painting.
 - 6. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report and warranty.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive **8-1/2-by-11-inch (215-by-280-mm)** paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Sweep concrete floors broom clean in unoccupied spaces.
 - h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

- i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Replace parts subject to unusual operating conditions.
 - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - p. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - r. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770

SECTION 01781 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section. Where Indian River County Division 0 Bidding Requirements are more Stringent or Conflict with these Division 1 Specifications, the County Specifications shall take precedence.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Product Data.
- B. Related Sections include the following:
 - 1. Division 1 Section "Closeout Procedures" for general closeout procedures.
 - 2. Divisions 2 through 16 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit two set(s) of marked-up Record Prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal: Submit one set(s) of corrected Record Transparencies and one set(s) of marked-up Record Prints. Architect will initial and date each transparency and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return transparencies and prints for organizing into sets, printing, binding, and final submittal.
 - b. Final Submittal: Submit two set(s) of marked-up Record Prints, one set(s) of Record Transparencies, and three copies printed from Record Transparencies. Print each Drawing, whether or not changes and additional information were recorded.
 - c. Final Submittal: Submit two set(s) of marked-up Record Prints, one set(s) of Record CAD Drawing files, one set(s) of Record CAD Drawing plots, and three copies printed from record plots. Plot and print each Drawing, whether or not changes and additional information were recorded.
- B. Record Product Data: Submit two copy of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.
1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
 2. Refer instances of uncertainty to Architect for resolution.
 3. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.

- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
 - 1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 - 2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- D. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.
 - 3. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders and Record Drawings where applicable.

2.3 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 01781

**Subsurface Soil Exploration and
Geotechnical Engineering Evaluation
Proposed Traffic Operations Building
4548 41st Street
Vero Beach, Florida**



Ardaman & Associates, Inc.

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MEMBERS:

ASTM International
American Concrete Institute
Geoprofessional Business Association
Society of American Military Engineers
American Council of Engineering Companies



September 23, 2021
File No. 21-23-5281

Donadio & Associates, Architects, P.A.
2001 9th Avenue, Suite 308
Vero Beach, Florida 32960

Attention: Mr. Anthony Donadio, President

Subject: Subsurface Soil Exploration and
Geotechnical Engineering Evaluation
Proposed Traffic Operations Building
4548 41st Street
Vero Beach, Florida

Dear Mr. Donadio:

As requested, we have completed a shallow subsurface soil exploration and geotechnical engineering evaluation for the subject project. The purposes of performing this exploration were to evaluate the general subsurface conditions within the proposed structure areas and to provide recommendations for site preparation and foundation support. In addition, we have estimated the normal seasonal high groundwater level at the boring locations. This report documents our findings and presents our engineering recommendations.

SITE LOCATION AND SITE DESCRIPTION

The project site is located on the north side of 41st Street in Vero Beach, Indian River County, Florida (Section 28, Township 32 South, Range 39 East). The general site location is shown superimposed on the Vero Beach, Florida USGS quadrangle map presented on Figure 1.

The project site is a currently developed with an asphalt parking area that will be removed. A few existing structures are located adjacent to the project site.

PROPOSED CONSTRUCTION AND GRADING

It is our understanding that the proposed construction includes a 1-story traffic operations building that will have footprint plan dimensions of approximately 200 feet by 80 feet. Additionally, metal parking canopy structures will be constructed on the north and east sides of the new building.

For the purposes of our analysis, we have assumed the maximum loading for the 1-story structures to be on the order of 30 to 40 kips for individual column/spread foundations and 2 to 3 klf for continuous wall foundations. Floor loads are assumed to be less than approximately 100 to 150 pounds per square foot. Grading plans are not complete at this time; therefore, we have assumed that no more than 1 to 2 feet of fill is required to raise the building and canopy areas to final elevation(s). If actual building loads or fill height exceed our assumptions, then the recommendations in this report may not be valid.

REVIEW OF SOIL SURVEY MAPS

Based on the 1987 Soil Survey for Indian River County, Florida, as prepared by the U.S. Department of Agriculture Soil Conservation Service, the project site is located in an area mapped as the "Arents, 0 to 5 percent slopes" soil series. A description of this soil type, as obtained from the Soil Survey, is provided below.

Arents, 0 to 5 percent slopes (#23):

"Arents, 0 to 5 percent slopes" consists of material dug from several areas that have different kinds of soils. This fill material is the result of earthmoving operations. The soil is used to fill such areas as sloughs, marshes, shallow depressions, swamps, and other low-lying areas above their natural ground level. A typical profile consists of 30 to 50 inches of fine sand or sand mixed with loamy textured fragments. Below that is undisturbed soil to a depth of 80 inches. In most years, the water table is at a depth of 24 to 36 inches for 2 to 4 months. During dry periods, no water table is within 5 feet of the surface.

FIELD EXPLORATION PROGRAM

SPT Borings

The field exploration program included performing seven Standard Penetration Test (SPT) borings within the proposed "footprints" of the building and parking canopy structures. The borings were advanced to a depth of 15 feet below the existing ground surface using the methodology outlined in ASTM D-1586. A summary of this field procedure is included in Appendix I. Split-spoon soil samples recovered during performance of the borings were visually classified in the field and representative portions of the samples were transported to our laboratory in sealed sample jars.

The groundwater level at each of the boring locations was measured during drilling. Upon completion, the borings were grouted with neat cement grout. The asphalt surface at each boring location was filled with asphalt cold patch.

Test Locations

The approximate locations of the borings are schematically illustrated on a site plan shown on Figure 2. These locations were determined in the field by estimating distances from existing site features and should be considered accurate only to the degree implied by the method of measurement used.

LABORATORY PROGRAM

Representative soil samples obtained during our field sampling operation were packaged and transferred to our laboratory for further visual examination and classification. The soil samples were visually classified in general accordance with the Unified Soil Classification System (ASTM D-2488). The resulting soil descriptions are shown on the soil boring profiles presented in Appendix II.

GENERAL SUBSURFACE CONDITIONS

General Soil Profile

The results of the field exploration and laboratory programs are graphically summarized on the soil boring profiles presented in Appendix II. The stratification of the boring profiles represents our interpretation of the field boring logs and the results of laboratory examinations of the recovered samples. The stratification lines represent the approximate boundary between soil types. The actual transitions may be more gradual than implied.

Asphaltic concrete and base material were encountered at the ground surface at the soil boring locations. The soils encountered in the SPT borings consisted of very loose to medium dense fine sand (Unified Soil Classification SP) and fine sand with silt (SP-SM) from existing top of pavement surface to the termination depth of the borings, 15 feet below the top of pavement surface. It is noted that hardpan-type soil was also encountered in Boring TH-5 at depths ranging from approximately 6 to 7.5 feet below the top of pavement surface. This soil profile is outlined in general terms only. Please refer to Appendix II for soil profile details.

Groundwater Level

The groundwater level was measured in the boreholes on the day drilled. As shown in Appendix II, groundwater was encountered in the borings at depths ranging from approximately 8 to 9 feet below the existing ground surface on the date indicated. Fluctuations in groundwater levels should be anticipated throughout the year primarily due to seasonal variations in rainfall and other factors that may vary from the time the borings were conducted.

NORMAL SEASONAL HIGH GROUNDWATER LEVEL

The normal seasonal high groundwater level each year is the level in the August-September period at the end of the rainy season during a year of normal (average) rainfall. The water table elevations associated with a higher than normal rainfall and in the extreme case, flood, would be higher to much higher than the normal seasonal high groundwater level. The normal high water levels would more approximate the normal seasonal high groundwater levels.

The seasonal high groundwater level is affected by a number of factors. The drainage characteristics of the soils, the land surface elevation, relief points such as drainage ditches, lakes, rivers, swamp areas, etc., and distance to relief points are some of the more important factors influencing the seasonal high groundwater level.

In addition to evaluating the conditions above, we have reviewed annual precipitation data available from the Melbourne Office of the National Weather Service. Based on this data, the annual rainfall to date in Indian River County is approximately 29.4 inches, which is approximately 8.2 inches below normal for this time of year.

Based on our interpretation of the site conditions using our boring logs, we estimate the normal seasonal high groundwater level at the boring locations to be approximately 1 to 2 feet above the groundwater levels measured at the time of our field exploration.

ENGINEERING EVALUATION AND RECOMMENDATIONS

General

The results of our exploration indicate that, with proper site preparation as recommended in this report, the existing soils are suitable for supporting the proposed building and parking canopy structures on conventional shallow foundation systems. Spread footings should provide an adequate support system for the one-story structures.

The following are our recommendations for overall site preparation and foundation support which we feel are best suited for the proposed facility and existing soil conditions. The recommendations are made as a guide for the design engineer, parts of which should be incorporated into the project's specifications.

Stripping and Grubbing

The "footprints" of the proposed building and parking canopy structure areas, plus a minimum margin of 5 feet, should be stripped of all surface vegetation, stumps, asphalt, debris, organic topsoil or other deleterious materials, as encountered. Buried utilities should be removed or plugged to eliminate conduits into which surrounding soils could erode.

After stripping, the site should be grubbed or root-raked such that roots with a diameter greater than ½ inch, stumps, or small roots in a dense state, are completely removed. The actual depth(s) of stripping and grubbing must be determined by visual observation and judgment during the earthwork operation.

All existing foundations, slabs, asphalt, and any other underground structures should be removed from the proposed construction area. If pipes or any collapsible or leak prone utilities are not removed or completely filled (with grout or concrete), they might serve as conduits for subsurface erosion resulting in excessive settlements. Over-excavated areas resulting from the removal of underground structures and unsuitable materials should be backfilled in accordance with the fill soils section of this report.

It has been our experience that soils surrounding existing buildings and pavement areas sometimes contain pockets of construction debris or other deleterious materials requiring removal and replacement with compacted clean fine sands. Therefore, we strongly recommend that the stripped surface be inspected by Ardaman & Associates, Inc.

Proof-rolling

We recommend proof-rolling the cleared surface to locate any unforeseen soft areas or unsuitable surface or near-surface soils, to increase the density of the upper soils, and to prepare the existing surface for the addition of the fill soils (as required). Proof-rolling of the structure areas should consist of at least 10 passes of a compactor capable of achieving the density requirements described in the next paragraph. Each pass should overlap the preceding pass by 30 percent to achieve complete coverage. If deemed necessary, in areas that continue to "yield", remove all deleterious material and replace with clean, compacted sand backfill. The proof-rolling should occur after cutting and before filling.

A density equivalent to or greater than 95 percent of the modified Proctor (ASTM D-1557) maximum dry density value for a depth of 2 feet in the building area and 1 foot in the parking canopy areas must be achieved beneath the stripped and grubbed ground surface. Additional passes and/or overexcavation and recompaction may be required if these minimum density requirements are not achieved. The soil moisture should be adjusted as necessary during compaction.

Care should be exercised to avoid damaging any neighboring structures while the compaction operation is underway. Prior to commencing compaction, occupants of adjacent structures should be notified and the existing condition (i.e. cracks) of the structures documented with photographs and survey (if deemed necessary). Compaction should cease if deemed detrimental to adjacent structures, and Ardaman & Associates should be notified immediately. Heavy vibratory compaction equipment should not be used within 200 feet of existing structures.

Suitable Fill Material and the Compaction of Fill Soils

All fill soil should be free of organic materials, such as roots and vegetation. We recommend using fill with less than 12 percent by dry weight of material passing the U.S. Standard No. 200 sieve size. The fine sand and fine sand with silt (Soil Strata Nos. 1 and 2 as shown in Appendix II) are suitable for use as fill soil and, with proper moisture control, should densify using conventional compaction methods. Soils with more than 12 percent passing the No. 200 sieve can be used in some applications but will be more difficult to compact due to their inherent nature to retain soil moisture.

All structural fill should be placed in level lifts not to exceed 12 inches in uncompacted thickness. Each lift should be compacted to at least 95 percent of the modified Proctor (ASTM D-1557) maximum dry density value. The filling and compaction operations should continue in lifts until the desired elevation(s) is achieved. If hand-held compaction equipment is used, the lift thickness should be reduced to no more than 6 inches.

Foundation Support by Spread Footings and Foundation Compaction Criteria

Excavate the foundations to the proposed bottom of footing elevations and, thereafter, verify the in-place compaction for a depth of 2 feet below the footing bottoms. If necessary, compact the soils at the bottom of the excavations to at least 95 percent of the modified Proctor maximum dry density (ASTM D-1557) for a depth of 2 feet below the footing bottoms. Based on the existing soil conditions and, assuming the above outlined stripping, proof-rolling, and compaction criteria are implemented, an allowable soil bearing pressure of 2,500 pounds per square foot (psf) may be used in the foundation design for the building and parking canopy structures. This bearing pressure should result in foundation settlement within tolerable limits (i.e., 1 inch or less).

All bearing wall foundations should be a minimum of 18 inches wide and column/individual spread foundations 24 inches wide. A minimum soil cover of 18 inches should be maintained from the bottom of the foundations to the adjacent finished grades.

Floor Slab Moisture Reducer and Slab Compaction Requirements

Compaction beneath all floor slabs should be verified for a depth of 12 inches and meet the 95 percent criteria (modified Proctor, ASTM D-1557). Precautions should be taken during the slab construction to reduce moisture entry from the underlying subgrade soils. Moisture entry can be reduced by installing a membrane between the subgrade soils and floor slab. Care should be exercised when placing the reinforcing steel (or mesh) and slab concrete such that the membrane is not punctured. We note that the membrane alone does not prevent moisture from occurring beneath or on top of the slab.

If interior columns are isolated from the floor slab, an expansion joint should be provided around the columns and sealed with a water-proof sealant.

Dewatering

If the control of groundwater is required to achieve the necessary stripping, excavation, proof-rolling, filling, compaction, and any other earthwork, sitework, and/or foundation subgrade preparation operations required for the project, the actual method(s) of dewatering should be determined by the contractor. Dewatering should be performed to lower the groundwater level to depths that are adequately below excavations and compaction surfaces. Adequate groundwater level depths below excavations and compaction surfaces vary depending on soil type and construction method, and are usually 2 feet or more. Dewatering solely with sump pumps may not achieve the desired results.

QUALITY ASSURANCE

We recommend establishing a comprehensive quality assurance program to verify that all site preparation and foundation construction is conducted in accordance with the appropriate plans and specifications. Materials testing and inspection services should be provided by Ardaman & Associates.

As a minimum, an on-site engineering technician should monitor all stripping and grubbing to verify that all deleterious materials have been removed and should observe the proof-rolling operation to verify that the appropriate number of passes are applied to the subgrade. In-situ density tests should be conducted during filling activities and below all footings and floor slabs to verify that the required densities have been achieved. In-situ density values should be compared to laboratory Proctor moisture-density results for each of the different natural and fill soils encountered.

Finally, we recommend inspecting and testing the construction materials for the foundations and other structural components.

IN-PLACE DENSITY TESTING FREQUENCY

In Central Florida, earthwork testing is typically performed on an on-call basis when the contractor has completed a portion of the work. The test result from a specific location is only representative of a larger area if the contractor has used consistent means and methods and the soils are practically uniform throughout. The frequency of testing can be increased and full-time

construction inspection can be provided to account for variations. We recommend that the following minimum testing frequencies be utilized.

In the building area, we recommend performing in-place density testing at a minimum of four locations. In-place density testing should be performed at this minimum frequency for a depth of 2 feet below natural ground and for every 1-foot lift of fill placed in the structural area. In addition, density tests should be performed in each column/spread footing for all structures for a depth of 2 feet below the bearing surface. For continuous or wall footings, density tests should be performed at a minimum frequency of one test for every 50 linear feet of footing, and for a depth of 2 feet below the bearing surface.

Representative samples of the various natural ground and fill soils should be obtained and transported to our laboratory for Proctor compaction tests. These tests will determine the maximum dry density and optimum moisture content for the materials tested and will be used in conjunction with the results of the in-place density tests to determine the degree of compaction achieved.

CLOSURE

The analyses and recommendations submitted herein are based on the data obtained from the soil borings presented on Figure 2 and in Appendix II, and on the assumed loading conditions. This report does not reflect any variations which may occur adjacent to or between the borings. The nature and extent of the variations between the borings may not become evident until during construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations presented in this report after performing on-site observations during the construction period and noting the characteristics of the variations. This study does not include an evaluation of the environmental (ecological or hazardous/toxic material related) condition of the site and subsurface.

This report has been prepared for the exclusive use of Donadio & Associates, Architects, P.A. in accordance with generally accepted geotechnical engineering practices. In the event any changes occur in the design, nature, or location of the proposed facility, we should review the applicability of conclusions and recommendations in this report. We recommend a general review of final design and specifications by our office to verify that earthwork and foundation recommendations are properly interpreted and implemented in the design specifications. Ardaman & Associates should attend the pre-bid and preconstruction meetings to verify that the bidders/contractor understand the recommendations contained in this report.

We are pleased to be of assistance to you on this phase of the project. When we may be of further service to you or should you have any questions, please contact us.

Very truly yours,

ARDAMAN & ASSOCIATES, INC.

Certificate of Authorization No. 5950



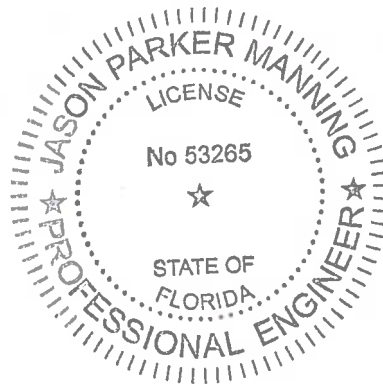
Janie C. Ross
Assistant Project Engineer

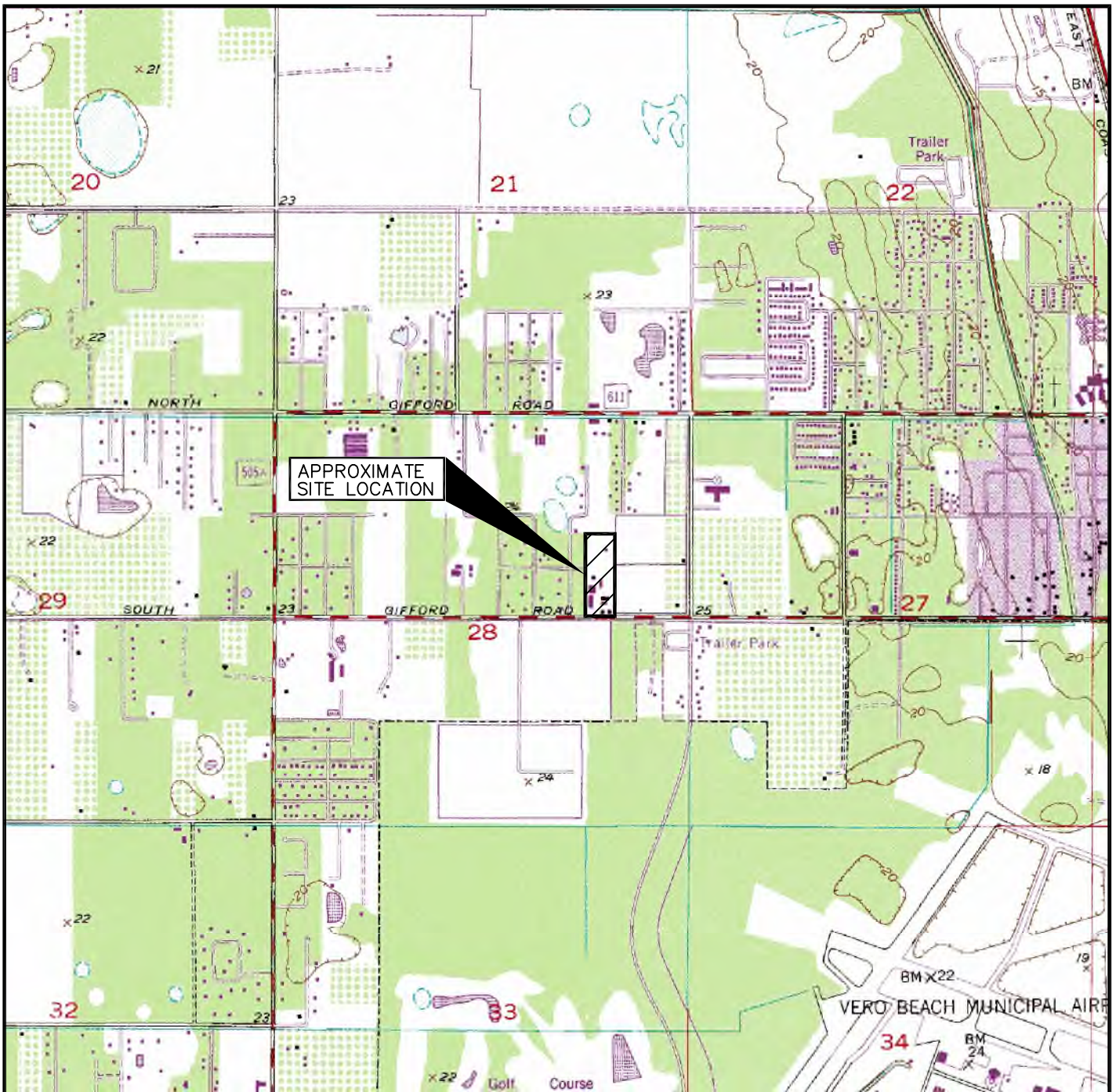
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Jason P. Manning, P.E.
Branch Manager
Florida License No. 53265

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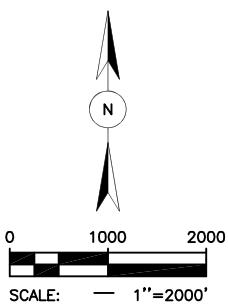





SECTION 28
TOWNSHIP 32 SOUTH
RANGE 39 EAST

OBTAINED FROM U.S.G.S. QUAD MAP: VERO BEACH, FLORIDA

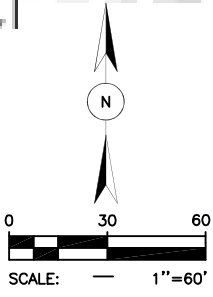
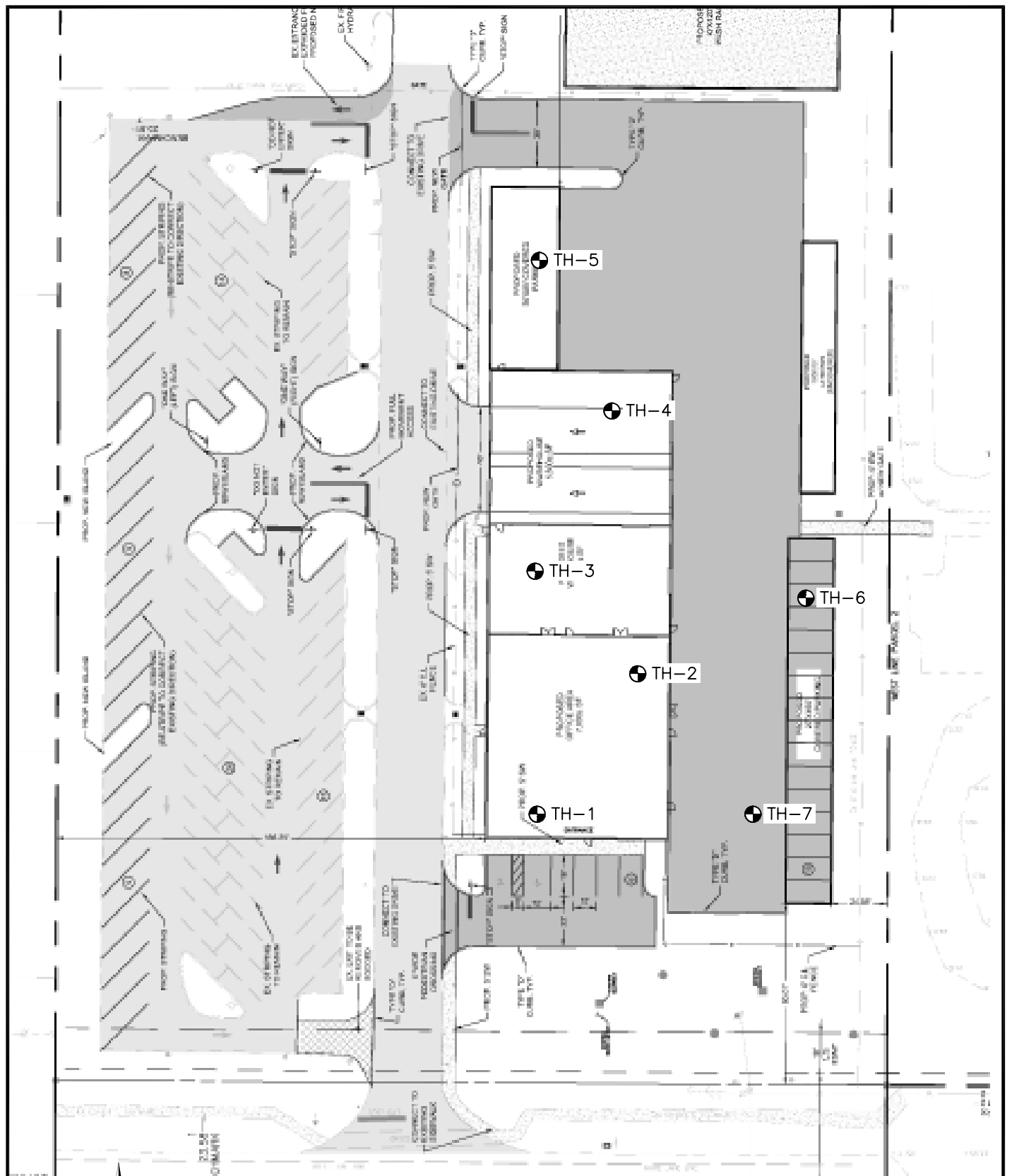
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QUADRANGLE LOCATION

SITE LOCATION MAP		
 Ardaman & Associates, Inc. Geotechnical, Environmental and Materials Consultants		
SUBSURFACE SOIL EXPLORATION PROPOSED TRAFFIC OPS BUILDING VERO BEACH, FLORIDA		
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FILE NO. 21-5281	APPROVED BY:	FIGURE: 1


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LEGEND

● TH STANDARD PENETRATION TEST (SPT) BORING LOCATION

BORING LOCATION PLAN

 **Ardaman & Associates, Inc.**
Geotechnical, Environmental and Materials Consultants

SUBSURFACE SOIL EXPLORATION
PROPOSED TRAFFIC OPS BUILDING
VERO BEACH, FLORIDA

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FILE NO. 21-5281	APPROVED BY:	FIGURE: 2

APPENDIX I

Standard Penetration Test Procedure

STANDARD PENETRATION TEST

The standard penetration test is a widely accepted test method of *in situ* testing of foundation soils (ASTM D 1586). A 2-foot long, 2-inch O.D. split-barrel sampler attached to the end of a string of drilling rods is driven 18 inches into the ground by successive blows of a 140-pound hammer freely dropping 30 inches. The number of blows needed for each 6 inches of penetration is recorded. The sum of the blows required for penetration of the second and third 6-inch increments of penetration constitutes the test result or N-value. After the test, the sampler is extracted from the ground and opened to allow visual examination and classification of the retained soil sample. The N-value has been empirically correlated with various soil properties allowing a conservative estimate of the behavior of soils under load.

The tests are usually performed at 5-foot intervals. However, more frequent or continuous testing is done by our firm through depths where a more accurate definition of the soils is required. The test holes are advanced to the test elevations by rotary drilling with a cutting bit, using circulating fluid to remove the cuttings and hold the fine grains in suspension. The circulating fluid, which is a bentonitic drilling mud, is also used to keep the hole open below the water table by maintaining an excess hydrostatic pressure inside the hole. In some soil deposits, particularly highly pervious ones, NX-size flush-coupled casing must be driven to just above the testing depth to keep the hole open and/or prevent the loss of circulating fluid.



Representative split-spoon samples from the soils at every 5 feet of drilled depth and from every different stratum are brought to our laboratory in air-tight jars for further evaluation and testing, if necessary. Samples not used in testing are stored for 30 days prior to being discarded. After completion of a test boring, the hole is kept open until a steady state groundwater level is recorded. The hole is then sealed, if necessary, and backfilled.

APPENDIX II

Soil Boring Profiles

LEGEND

SOIL DESCRIPTIONS

-  ① FINE SAND (SP)
-  ② FINE SAND WITH SILT (SP-SM)

COLORS

- Ⓐ LIGHT BROWN TO BROWN
- Ⓑ GRAYISH-BROWN
- Ⓒ LIGHT GRAY TO GRAY

TH STANDARD PENETRATION TEST (SPT) BORING

N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT

 GROUNDWATER LEVEL MEASURED ON DATE DRILLED

SP,SP-SM
SM,SC,CH UNIFIED SOIL CLASSIFICATION SYSTEM

WHILE THE BORINGS ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THEIR RESPECTIVE LOCATIONS AND FOR THEIR RESPECTIVE VERTICAL REACHES, LOCAL VARIATIONS CHARACTERISTIC OF THE SUBSURFACE MATERIALS OF THE REGION ARE ANTICIPATED AND MAY BE ENCOUNTERED. THE BORING LOGS AND RELATED INFORMATION ARE BASED ON THE DRILLER'S LOGS AND VISUAL EXAMINATION OF SELECTED SAMPLES IN THE LABORATORY. THE DELINEATION BETWEEN SOIL TYPES SHOWN ON THE LOGS IS APPROXIMATE AND THE DESCRIPTION REPRESENTS OUR INTERPRETATION OF SUBSURFACE CONDITIONS AT THE DESIGNATED BORING LOCATIONS ON THE PARTICULAR DATE DRILLED.

GROUNDWATER ELEVATIONS SHOWN ON THE BORING LOGS REPRESENT GROUNDWATER SURFACES ENCOUNTERED ON THE DATES SHOWN. FLUCTUATIONS IN WATER TABLE LEVELS SHOULD BE ANTICIPATED THROUGHOUT THE YEAR.

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SOIL PROFILES LEGEND



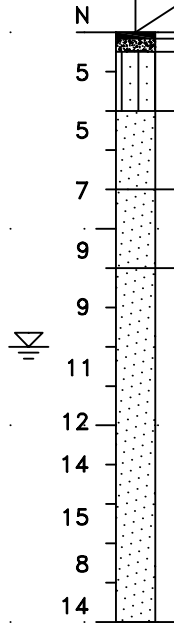
SUBSURFACE SOIL EXPLORATION
PROPOSED TRAFFIC OPS BUILDING
VERO BEACH, FLORIDA

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FILE NO. 21-5281	APPROVED BY:	FIGURE:

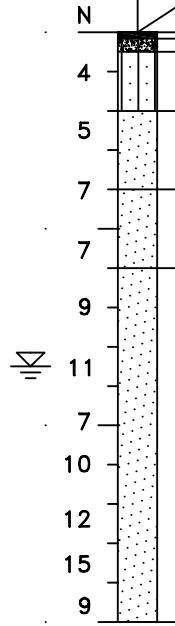
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FEET
DEPTH

9/9/21
TH-1
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4" BASE



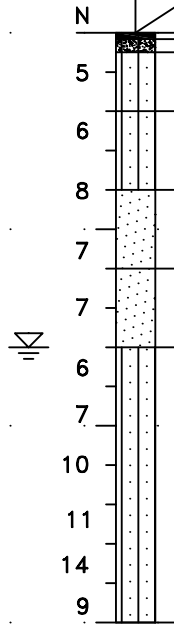
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TH-2
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4" BASE



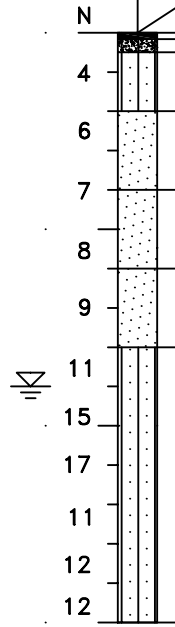
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FEET
DEPTH

9/9/21
TH-3
2" ASPHALT,
4" BASE



9/9/21
TH-4
2" ASPHALT,
4" BASE



SOIL BORING PROFILES



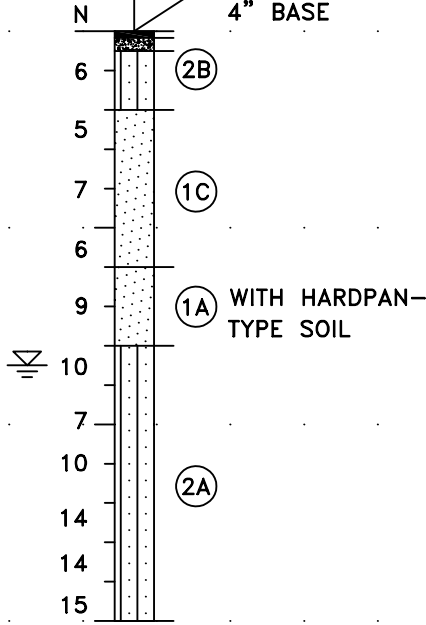
SUBSURFACE SOIL EXPLORATION
PROPOSED TRAFFIC OPS BUILDING
VERO BEACH, FLORIDA

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FILE NO. 21-5281	APPROVED BY:	FIGURE:

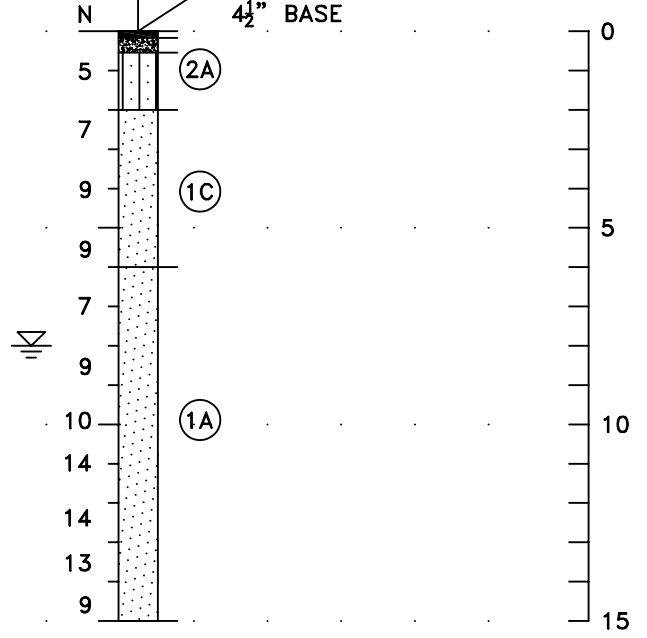
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DEPTH FEET

9/9/21
TH-5
2 1/4" ASPHALT,
4" BASE



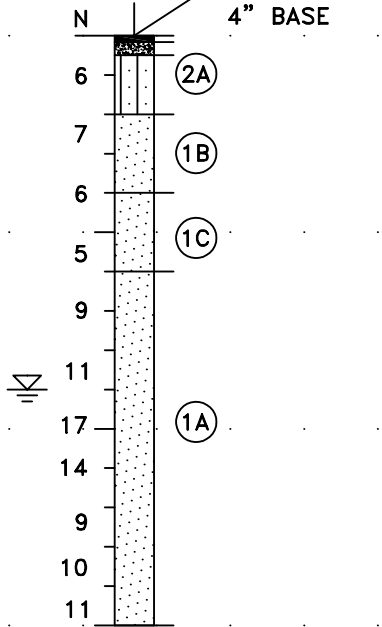
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TH-6
2" ASPHALT,
4 1/2" BASE



DATE DRILLED:

DEPTH FEET

9/9/21
TH-7
2" ASPHALT,
4" BASE



SOIL BORING PROFILES

 **Ardaman & Associates, Inc.**
Geotechnical, Environmental and
Materials Consultants

SUBSURFACE SOIL EXPLORATION
PROPOSED TRAFFIC OPS BUILDING
VERO BEACH, FLORIDA

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SECTION 02361 - TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Soil treatment with termiticide.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood preservative treatment by pressure process.
 - 2. Division 7 Section "Sheet Metal Flashing and Trim" for custom-fabricated metal termite shields.

1.3 PERFORMANCE REQUIREMENTS

- A. Service Life of Soil Treatment: Soil treatment by use of a termiticide that is effective for not less than [five] years against infestation of subterranean termites.

1.4 SUBMITTALS

- A. Product Data: For termiticide.
 - 1. Include the EPA-Registered Label for termiticide products.
- B. Product Certificates: For termite control products, signed by product manufacturer.
- C. Qualification Data: For Installer of termite control products.
- D. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's record information, including the following:
 - 1. Date and time of application.
 - 2. Moisture content of soil before application.
 - 3. Brand name and manufacturer of termiticide.
 - 4. Quantity of undiluted termiticide used.
 - 5. Dilutions, methods, volumes, and rates of application used.
 - 6. Areas of application.
 - 7. Water source for application.
- E. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.
- B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.
- C. Source Limitations: Obtain termite control products from a single manufacturer for each product.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.

1.7 COORDINATION

- A. Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs before construction.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Termiticides:
 - a. Bayer Corporation; Premise 75.
 - b. Dow AgroSciences LLC; Dursban TC.
 - c. FMC Corporation, Agricultural Products Group; Torpedo.
 - d. Syngenta; Demon TC.

2.2 SOIL TREATMENT

- A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil, interfaces with earthwork, slab and foundation work, landscaping, and other conditions affecting performance of termite control.
 - 1. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparation before beginning application of termite control treatment. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
 - 1. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

3.3 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

3.4 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.
 - 1. Slabs-on-Grade: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
 - 2. Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers; also along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
 - 3. Masonry: Treat voids.
 - 4. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

- B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- D. Post warning signs in areas of application.
- E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 02361

SECTION 04815 - GLASS UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes exterior glass block set in mortar.
- B. Related Sections include the following:
 - 1. Division 5 Section "Metal Fabrications" for steel channel frames and loose steel lintels at glass unit masonry assemblies.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include glass block, cementitious materials, and accessories.
- B. Product Approval: Provide Miami-Dade product approval for exterior application of glass block assembly, complying with wind pressures shown on the structural drawings.
- C. Shop Drawings: Show fabrication and installation details for glass unit masonry, including vertical and horizontal coursing, anchors, reinforcement, and expansion strips.
- D. Samples for Initial Selection: Manufacturer's actual glass-block units.
- E. Samples for Verification: Panels consisting of four full-size glass-block units with mortar joints.
 - 1. Provide Samples for each form, pattern, and color of glass block and color of joint material indicated or selected by Architect.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Glass Block: Obtain each type and pattern of glass block through one source from a single manufacturer.
- B. Source Limitations for Accessory Materials: Obtain each cementitious material and accessory component through one source from a single manufacturer and each aggregate from one source or producer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store glass block in unopened cartons on elevated platforms, under cover, and in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation of glass unit masonry assemblies only when ambient and material temperatures are 40 deg F (5 deg C) or higher.
 - 1. Maintain temperature in installation areas at 40 deg F (5 deg C) or above for 48 hours after installing.

1.7 SEQUENCING AND SCHEDULING

- A. Sequence and coordinate completion of glass unit masonry assemblies so sealants can be installed immediately after mortar has attained final set.

PART 2 - PRODUCTS

2.1 GLASS BLOCK

- A. Hollow Glass Block: Hollow units made from transparent glass, with manufacturer's standard edge coating.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Oberland Glas AG, Bauglas Div.; Solaris Glasstein.
 - b. Pittsburgh Corning Corporation.
 - c. J. Weck GmbH.
 - 2. Glass Color: Colorless.
 - 3. Pattern: Wavy, light-diffusive design on inner faces, and smooth outer faces.
 - 4. Edge-Coating Color: White.
 - a. Provide one color throughout for each pattern indicated.
 - 5. Unit Sizes: Manufacturer's standard sizes corresponding to nominal sizes indicated on Drawings.

2.2 MORTAR MATERIALS

- A. Portland Cement: ASTM C 150, Type I or Type II, natural color, white, or a blend to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Aggregate: ASTM C 144, with 100 percent passing No. 8 (2.36-mm) sieve.
 - 1. For and, use aggregate graded with 100 percent passing No. 16 (1.18-mm) sieve.
- D. Water: Potable.

2.3 GLASS UNIT MASONRY ACCESSORIES

- A. Panel Reinforcement: Ladder-type units, butt welded, not lapped and welded; complying with ASTM A 951 in straight lengths of not less than 10 feet (3 m), and as follows:
 - 1. Exterior Walls: Stainless-steel wire.
 - 2. Wire Size: W1.7 or 0.148-inch (3.8-mm) diameter.
 - 3. Width: 2 inches (50 mm).
 - 4. Spacing of Cross Rods: Not more than 16 inches (407 mm) apart.
- B. Panel Anchors: Glass-block manufacturer's standard perforated stainless steel strips, 0.0359 inch (0.9 mm) by 1-3/4 inches (44 mm) wide by 24 inches (600 mm) long.
- C. Fasteners, General: Unless otherwise indicated, provide Type 304 or Type 316 stainless-steel fasteners at exterior walls and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at interior walls. Select fasteners for type, grade, and class required.
- D. Sealants: Manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated below that comply with applicable requirements in Division 7 Section "Joint Sealants."
 - 1. Single-component, -curing silicone sealant.
 - 2. Provide interior sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Sealant Accessories: Provide sealant accessories, including primers, bond-breaker tape, and cylindrical sealant backing, that comply with applicable requirements in Division 7 Section "Joint Sealants."

2.4 MORTAR MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, or antifreeze compounds, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar.
 - 2. Limit cementitious materials in mortar to portland cement and lime.

- B. Mortar for Glass Unit Masonry Assemblies: Comply with ASTM C 270, Proportion Specification for Type S mortar.
 - 1. Combine and thoroughly mix cementitious materials, water, and aggregates in a mechanical batch mixer, unless otherwise indicated. Mix mortar to produce a stiff but workable consistency that is drier than mortar for brick or concrete masonry. Discard mortar when it has reached initial set.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine sills, jambs, and heads surrounding glass unit masonry assemblies for compliance with requirements for installation tolerances and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLING GLASS BLOCK WITH MORTAR

- A. Set glass block with completely filled bed and head joints, with no furrowing, accurately spaced and coordinated with other construction. Maintain **3/8-inch (10-mm)** exposed joint widths, unless otherwise indicated.
- B. Install panel reinforcement in horizontal joints at spacing indicated and continuously from end to end of panels; comply with the following requirements:
 - 1. Vertical Spacing of Panel Reinforcement for Exterior Panels: Every other course but not more than **16 inches (407 mm)** o.c., starting with first course above sill.
 - 2. Vertical Spacing of Panel Reinforcement for Interior Panels: Not more than **16 inches (407 mm)** o.c..
 - 3. Do not bridge expansion joints with panel reinforcement.
 - 4. Place panel reinforcement in joints immediately above and below all openings within glass unit masonry assemblies.
 - 5. Lap panel reinforcement not less than **6 inches (150 mm)** if more than 1 length is necessary.
 - 6. Embed panel reinforcement in mortar bed by placing lower half of mortar bed first, pressing panel reinforcement into place and covering with upper half of mortar bed.
- C. Install panel anchors at locations indicated and in same horizontal joints where panel reinforcement occurs. Extend panel anchors at least **12 inches (300 mm)** into joints, and bend within expansion joints at edges of panels and across the head. Attach panel anchors as follows:
 - 1. For new unit masonry assemblies, embed other ends of panel anchors, after bending portions crossing expansion joint, in horizontal mortar joints closest in elevation to joints in glass unit masonry assemblies containing panel anchors.
- D. Use rubber mallet to tap units into position. Do not use steel tools, and do not allow units to come into contact with metal accessories and frames.
- E. Use plastic spacers in mortar joints to produce uniform joint widths and to prevent mortar from being squeezed out of joints.
 - 1. If temporary wedges are used, remove them after mortar has set and fill voids with mortar.

- F. Keep expansion joints free of mortar.
- G. Point joints by filling with sealant to comply with requirements in Division 7 Section "Joint Sealants."
- H. Clean glass unit masonry assemblies as work progresses. Remove mortar fins and smears immediately, using a clean, wet sponge or a scrub brush with stiff fiber bristles. Do not use harsh cleaners, acids, abrasives, steel wool, or wire brushes when removing mortar or cleaning glass unit masonry assemblies.
- I. Install sealant at jambs, heads, mullions and other locations indicated. Prepare joints, including installation of primer and bond-breaker tape or cylindrical sealant backing, and apply elastomeric sealants to comply with requirements in Division 7 Section "Joint Sealants."
- J. Construction Tolerances: Set glass block to comply with the following tolerances:
 - 1. Variation from Plumb: For lines and surfaces of vertical elements and arris, do not exceed **1/4 inch in 10 feet (6 mm in 3 m)**, **3/8 inch in 20 feet (9 mm in 6 m)**, or **1/2 inch in 40 feet (12 mm in 12 m)** or more.
 - 2. Variation from Level: For bed joints, and other conspicuous lines, do not exceed **1/4 inch in 20 feet (6 mm in 6 m)** or **1/2 inch in 40 feet (12 mm in 12 m)** or more.
 - 3. Variation of Linear Building Line: For positions shown in plan and related portions of walls and partitions, do not exceed **1/2 inch in 20 feet (12 mm in 6 m)** or **3/4 inch in 40 feet (19 mm in 12 m)** or more.
 - 4. Variation in Mortar-Joint Thickness: Do not vary from joint thickness indicated by more than plus or minus **1/16 inch (1.5 mm)**.

3.3 CLEANING

- A. On surfaces adjacent to glass unit masonry assemblies, remove mortar, sealants, and other residue resulting from glass-block installation, in a manner approved by manufacturers of materials involved.
- B. Remove excess sealants with commercial solvents of type recommended by sealant manufacturer. Exercise care not to damage sealant in joints.
- C. Perform final cleaning of glass unit masonry assemblies when surface is not exposed to direct sunlight. Start at top of panel using generous amounts of clean water. Remove water with clean, dry, soft cloths; change cloths frequently to eliminate dried mortar particles and aggregate.

END OF SECTION 04815

SECTION 05400 – COLD- FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Types of cold-formed metal framing units include the following:
 - 1. C-shaped steel framing members.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 - 1. Shop drawings shall show all connections and details for installation. Design loads are indicated on the structural drawings.
 - a. Include placing drawings for framing members showing size and gauge designations, number, type, location, and spacing. Indicate supplemental strapping, bracing, splices, bridging, accessories, and details required for proper installation.
 - 2. Product data and installation instructions for each item of cold-formed metal framing and accessories.

1.4 QUALITY ASSURANCE

- A. Component Design: Calculate structural properties of studs and joists in accordance with American Iron and Steel Institute (AISI) “Specification for Design of Cold-Formed Steel Structural Members.”
- B. Welding: Use qualified welders and comply with American Welding Society (AWS) D1.3, “Structural Welding Code – Sheet Steel.”
- C. Fire-Rated Assemblies: Where framing units are components of assemblies indicated for a fire-resistance rating, including those required for compliance with governing regulations, provide units that have been approved by governing authorities that have jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, provide materials manufactured by one of the following
1. Dale Industries, Inc.
 2. Dietrich Industries, Inc.
 3. Marino Industries, Inc.
 4. Superior Steel Studs, Inc.
 5. Unimast, Inc.

2.2 METAL FRAMING

- A. System Components: Manufacturers' standard non load-bearing steel studs, size, shape, and gauge as indicated. With each type of metal framing required, provide manufacturer's standard, steel runners (tracks), blocking, lintels, clip angles, shoes, reinforcements, fasteners, and accessories for applications indicated, as needed to provide a complete metal framing system.
- B. Materials and Finishes:
1. For 18-gauge, fabricate metal framing components of commercial quality steel sheet with a minimum yield point of 33,000 psi, ASTM A 446, A570, or A 611.
 2. Provide galvanized finish to metal framing components complying with ASTM A 525 for minimum G 60 coating.
 - a. Finish of installation accessories to match that of main framing components, unless otherwise indicated.
- C. Fasteners: Provide nuts, bolts, washers, screws, and other fasteners with corrosion-resistant plated finish.
- D. Electrodes for Welding: Comply with AWS Code and as recommended by stud manufacturer.
- E. Galvanizing Repair: Where galvanized surfaces are damaged, prepare surfaces and repair in accordance with procedures specified in ASTM A 780.

2.3 FABRICATION

- A. General: Framing components may be prefabricated into assemblies before erection. Fabricate panels plumb, square, true to line, and braced against racking with joints welded. Perform lifting of prefabricated units to prevent damage or distortion.
- B. Fabricate units in jig templates to hold members in proper alignment and position and to assure consistent component placement.
- C. Fastenings: Attach similar components by welding. Attach dissimilar components by welding, bolting, or screw fasteners, as standard with manufacturer.
- D. Wire tying of framing components is not permitted.

- E. Fabrication Tolerances: Fabricate units to a maximum allowable tolerance variation from plumb, level, and true to line of 1/8 inch in 10 feet.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Install metal framing systems in accordance with manufacturer's printed or written instructions and recommendations.
- B. Runner Tracks: Install continuous tracks sized to match studs. Align tracks accurately to layout at base and tops of studs. Secure tracks as recommended by stud manufacturer for type of construction involved, except do not exceed 24 inches o.c. spacing for all nail or power-driven fasteners or 16 inches o.c. for other types of attachment. Provide fasteners at corners and ends of tracks.
- C. Installation of Wall Studs: Secure studs to top and bottom runner tracks by either welding or screw fastening at both inside and outside flanges.
- D. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.
- E. Where stud system abuts structural columns or walls, including masonry walls, anchor ends of stiffeners to supporting structure.
- F. Install supplementary framing, blocking, and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work requiring attachment to the wall or partition. Where type of supplementary support is not otherwise indicated, comply with stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.
- G. Frame wall openings larger than 2 feet square with double stud at each jamb of frame except where more than two are either shown or indicated in manufacturer's instructions. Install runner tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with stud shoes or by welding, and space jack studs same as full-height studs of wall. Secure stud system wall opening frame in manner indicated.
- H. Frame both sides of expansion and control joints with separate studs; do not bridge the joint with components of stud system.
- I. Install horizontal stiffeners in stud system, spaced (vertical distance) at not more than 54 inches o.c. Weld at each intersection.
- J. Erection Tolerances: Bolt or weld wall panels (at both horizontal and vertical junctures) to produce flush, even, true-to-line joints.
 - 1. Maximum variation in plane and true position between prefabricated assemblies should not exceed 1/16 inch.
- K. K.Field Painting: Touch-up damaged shop-applied protective coatings. Use compatible primer for prime-coated surfaces; use galvanizing repair system for galvanized surfaces.

END OF SECTION 05400

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Metal ladders.
 - 2. Metal bollards.
- B. Products furnished, but not installed, under this Section include the following:
- C. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for metal framing anchors.

1.3 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.4 SUBMITTALS

- A. Product Data: For the following:
 - 1. Nonslip aggregates and nonslip-aggregate surface finishes.
 - 2. Metal nosings and treads.
 - 3. Paint products.
- B. Shop Drawings: Show fabrication and installation details for metal fabrications.
 - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
 - 2. Provide templates for anchors and bolts specified for installation under other Sections.
 - 3.

1.5 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1, "Structural Welding Code--Steel."
 - 2. AWS D1.2, "Structural Welding Code--Aluminum."
 - 3. AWS D1.3, "Structural Welding Code--Sheet Steel."

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.
 - 2. Provide allowance for trimming and fitting at site.

1.7 COORDINATION

- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 - 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.3 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

- B. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- C. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
- D. Cast Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.

2.4 NONFERROUS METALS

- A. Aluminum Plate and Sheet: **ASTM B 209** (**ASTM B 209M**), Alloy 6061-T6.
- B. Aluminum Extrusions: **ASTM B 221** (**ASTM B 221M**), Alloy 6063-T6.
- C. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.
- D. Bronze Plate, Sheet, Strip, and Bars: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper).
- E. Bronze Castings: ASTM B 584, Alloy UNS No. C83600 (leaded red brass) or No. C84400 (leaded semired brass).
- F. Nickel Silver Extrusions: ASTM B 151/B 151M, Alloy UNS No. C74500.
- G. Nickel Silver Castings: ASTM B 584, Alloy UNS No. C97600 (20 percent leaded nickel bronze).

2.5 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, **ASTM A 307, Grade A** (**ASTM F 568M, Property Class 4.6**); with hex nuts, **ASTM A 563** (**ASTM A 563M**); and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; **ASTM F 593** (**ASTM F 738M**) for bolts and **ASTM F 594** (**ASTM F 836M**) for nuts, Alloy Group 1 (**A1**).
- D. Anchor Bolts: ASTM F 1554, Grade 36.
 - 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.
- E. Eyebolts: ASTM A 489.
- F. Machine Screws: **ASME B18.6.3** (**ASME B18.6.7M**).
- G. Lag Bolts: **ASME B18.2.1** (**ASME B18.2.3.8M**).
- H. Wood Screws: Flat head, ASME B18.6.1.
- I. Plain Washers: Round, **ASME B18.22.1** (**ASME B18.22M**).

- J. Lock Washers: Helical, spring type, [ASME B18.21.1](#) ([ASME B18.21.2M](#)).
- K. Cast-in-Place Anchors in Concrete: Anchors capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.
- L. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material for Anchors in Exterior Locations: Alloy Group [[1 \(A1\)](#)] [[2 \(A4\)](#)] stainless-steel bolts complying with [ASTM F 593](#) ([ASTM F 738M](#)) and nuts complying with [ASTM F 594](#) ([ASTM F 836M](#)).

2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. Shop Primers: Provide primers that comply with Division 9 painting Sections.
 - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- D. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
 - 1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 2. Available Products:
 - a. Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19.
 - b. Carboline Company; Carbozinc 621.
 - c. ICI Devoe Coatings; Catha-Coat 313.
 - d. International Coatings Limited; Interzinc 315 Epoxy Zinc-Rich Primer.
 - e. PPG Architectural Finishes, Inc.; Aquapon Zinc-Rich Primer 97-670.
 - f. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.
 - g. Tnemec Company, Inc.; Tneme-Zinc 90-97.
- E. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

- G. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa), unless otherwise indicated.

2.7 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated, coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
 - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.

2.8 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

- B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
 - 1. Furnish inserts if units are installed after concrete is placed.
- C. Fabricate supports for operable partitions from continuous steel beams of sizes indicated with attached bearing plates, anchors, and braces as indicated. Drill bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.
- D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

2.9 METAL LADDERS

A. General:

- 1. Comply with ANSI A14.3, unless otherwise indicated.
- 2. For elevator pit ladders, comply with ASME A17.1.
- 3. Space siderails **18 inches (457 mm)** apart, unless otherwise indicated.
- 4. Support each ladder at top and bottom and not more than **60 inches (1500 mm)** o.c. with welded or bolted brackets, made from same metal as ladder.

B. Steel Ladders:

- 1. Siderails: Continuous, **1/2-by-2-1/2-inch (12.7-by-64-mm)** steel flat bars, with eased edges.
- 2. Rungs: **3/4-inch- (19-mm-)** square steel bars.
- 3. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
- 4. Provide nonslip surfaces on top of each rung by coating with abrasive material metallurgically bonded to rung by a proprietary process.
- 5. Available Products:
 - a. IKG Industries, a Harsco company; Mebac.
 - b. W. S. Molnar Company; SlipNOT.
- 6. Galvanize exterior ladders, including brackets and fasteners.
- 7. Prime interior ladders, where indicated, including brackets and fasteners, with zinc-rich primer.

Aluminum ladders are acceptable and must comply with Section 2.4 Nonferrous Metals as stated above.

2.10 METAL BOLLARDS

A. Fabricate metal bollards from Schedule 80 steel pipe.

- 1. Cap bollards with **1/4-inch- (6.4-mm-)** thick steel plate.
- 2. Where bollards are indicated to receive push-button controls for door operators, provide necessary cutouts for push-button controls and hole for wire.

2.11 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

2.12 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
 - 1. ASTM A 123/A 123M, for galvanizing steel and iron products.
 - 2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.
- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B) and Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

2.13 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

- C. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

3.3 INSTALLING METAL BOLLARDS

- A. Anchor bollards in place with concrete footings. Center and align bollards in holes **3 inches (75 mm)** above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.
- B. Fill bollards solidly with concrete, mounding top surface to shed water.

3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum **2.0-mil (0.05-mm)** dry film thickness.
- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 painting Sections.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05500

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Wood pressure treated blocking, cants, and nailers.
 - 2. Wood sleepers.
 - 3. Plywood backing panels.
- B. Related Sections include the following:
 - 1. Division 2 Section "Termite Control" for site application of borate treatment to wood framing.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of **2 inches nominal (38 mm actual)** or greater but less than **5 inches nominal (114 mm actual)** in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NLGA: National Lumber Grades Authority.
 - 2. SPIB: The Southern Pine Inspection Bureau.

1.4 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 - 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

1. Wood-preservative-treated wood.
2. Power-driven fasteners.
3. Powder-actuated fasteners.
4. Expansion anchors.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed lumber, S4S, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPAC2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPAC31 with inorganic boron (SBX).

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat all rough carpentry, unless otherwise indicated.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 15 percent maximum moisture content and any of the following species:
 - 1. Hem-fir (north); NLGA.
 - 2. Mixed southern pine; SPIB.
 - 3. Spruce-pine-fir; NLGA.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, in thickness indicated or, if not indicated, not less than **1/2-inch (13-mm)** nominal thickness.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Power-Driven Fasteners: NES NER-272.
- C. Lag Bolts: **ASME B18.2.1 (ASME B18.2.3.8M)**.
- D. Bolts: Steel bolts complying with **ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6)**; with **ASTM A 563 (ASTM A 563M)** hex nuts and, where indicated, flat washers.
- E. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Stainless steel with bolts and nuts complying with **ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4)**.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Do not splice structural members between supports, unless otherwise indicated.
- D. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim. Provide backing in walls for wall stops, ADA grab bars and TV brackets.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than **16 inches (406 mm)** o.c.
- E. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than **96 inches (2438 mm)** o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and **2-inch nominal- (38-mm actual-)** thickness.
- F. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- G. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.
- H. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2306.1, "Fastening Schedule," in Florida Building Code.
- I. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.

3.2 WOOD SLEEPER, BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06100

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Cavity-wall insulation.
 - 2. Concealed building insulation.
 - 3. Sound batts.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for foam-plastic board sheathing over wood framing.
 - 2. Division 9 Section "Portland Cement Plaster" for installation in metal-framed assemblies of insulation specified by referencing this Section.
 - 3. Division 15 Section "Mechanical Insulation."

1.3 DEFINITIONS

- A. Mineral-Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers; produced in boards and blanket with latter formed into batts (flat-cut lengths) or rolls.

1.4 PERFORMANCE REQUIREMENTS

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: Full-size units for each type of exposed insulation indicated.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for insulation products.
- D. Research/Evaluation Reports: For foam-plastic insulation.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.

- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 1. Surface-Burning Characteristics: ASTM E 84.
 - 2. Fire-Resistance Ratings: ASTM E 119.
 - 3. Combustion Characteristics: ASTM E 136.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 GLASS-FIBER BLANKET INSULATION

- A. Available Manufacturers:
 - 1. CertainTeed Corporation.
 - 2. Johns Manville.
 - 3. Knauf Fiber Glass.
 - 4. Owens Corning.
- B. Unfaced, Glass-Fiber Blanket Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- C. Faced, Glass-Fiber Blanket Insulation: ASTM C 665, Type III (blankets with reflective membrane facing), Class A (membrane-faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with foil-scrim-kraft, foil-scrim, or foil-scrim-polyethylene vapor-retarder membrane on 1 face.
- D. Where glass-fiber blanket insulation is indicated by the following thicknesses, provide blankets in batt or roll form with thermal resistances indicated:
 - 1. **3-5/8 inches (92 mm)** thick with a thermal resistance of **11 deg F x h x sq. ft./Btu at 75 deg F (1.9 K x sq. m/W at 24 deg C)**.
 - 2. **6-1/2 inches (165 mm)** thick with a thermal resistance of **19 deg F x h x sq. ft./Btu at 75 deg F (3.3 K x sq. m/W at 24 deg C)**.

2.3 MASONRY CELL INSULATION

- A. Manufacturer: Tailored Chemical Products, Inc., or equal
- B. Foamed in place insulation, non-toxic, amino-palst resin, R value for 8" concrete block equals 14.2 complying with HUD use of materials bulletin #74, DOE proposed standards (using ASTM Procedures) and Florida Building Standards. Core Fill 500 Insulation

2.4 AUXILIARY INSULATING MATERIALS

- A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by insulation manufacturers for sealing joints and penetrations in vapor-retarder facings.
- B. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Water-Piping Coordination: If water piping is located within insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. For preformed insulating units, provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units to produce thickness indicated unless multiple layers are otherwise shown or required to make up total thickness.

3.4 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Install mineral-fiber insulation in cavities formed by framing members according to the following requirements:
1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
 2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 3. Maintain **3-inch (76-mm)** clearance of insulation around recessed lighting fixtures.
 4. Install eave ventilation troughs between roof framing members in insulated attic spaces at vented eaves.
 5. For metal-framed wall cavities where cavity heights exceed **96 inches (2438 mm)**, support unfaced blankets mechanically and support faced blankets by taping stapling flanges to flanges of metal studs.

3.5 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07210

SECTION 07551 - SBS-MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Modified bituminous membrane roofing system.
 - 2. Roofing insulation.
 - 3. Treated wood blocking.
 - 4. Roof Walkway Pads.
- B. This Section includes the installation of acoustical roof deck rib insulation strips furnished under Division 5 Section "Steel Deck."
- C. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood nailers, cants, curbs, and blocking.
 - 2. Division 7 Section "Building Insulation" for insulation beneath the roof deck.
 - 3. Division 7 Section "Sheet Metal Flashing and Trim" for metal roof penetration flashings, flashings, and counterflashings.
- D. Unit Prices: Refer to Division 1 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.3 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency.

- D. Roofing System Design: Provide a roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE latest Edition.
1. Corner Uplift Pressure: As stated on the structural engineering drawings.
 2. Perimeter Uplift Pressure: As stated on the structural engineering drawings.
 3. Field-of-Roof Uplift Pressure: As stated on the structural engineering drawings.
- A. Wind Load: Roof system installation shall also be in compliance with FM 4450 and FM 4470, U.L. 580, or U.L. The roof system and installation shall meet or exceed requirements for basic wind speed and uplift resistance requirements complying with Florida Building Code 2020 for peak gust wind speed. See Structural Drawings for Wind load Design Pressures.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.
1. Base flashings, cants, and membrane terminations.
 2. Crickets, saddles, and tapered edge strips, including slopes.
 3. Insulation fastening patterns.
- C. Samples for Verification: For the following products:
1. **3-by-5-inch** of base sheet.
 2. **3-by-5-inch** of mineral-granule-surfaced roofing membrane cap sheet, of color specified.
 3. Manufacturer's standard sample packaging of roof insulation and coverboard.
 4. Six insulation and membrane fasteners of each type, length, and finish. Retain paragraph below if Installer certification is required in "Quality Assurance" Article or a special warranty is required.
- D. Installer Certificates: Signed by roofing system manufacturer certifying that the Installer is approved, authorized, or licensed by the manufacturer to install the roofing system.
1. Certification that all materials to be furnished for the roofing system comply with the requirements of the specifications, including referenced standards, approved shop drawings, and are compatible one to the other, and are recommended by their respective manufacturer's for their intended use as defined by the Contract Documents, and comply with the roofing membrane manufacturer's warranty/guarantee requirements for specified warranty/guarantee.
- E. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article and complies with recognized building codes having jurisdiction at the Project site.
1. Submit evidence of complying with performance requirements.
 2. Certify that materials are chemically and physically compatible with each other and are suitable for inclusion within the total roofing system specified herein.
 3. Manufacturer certifies that it approves the fasteners to be used based on pull-out tests performed by the roofing system manufacturer on the type of decks included on this project.
 4. Certify that shop drawings have been reviewed and comply with manufacturer's requirements and are approved by the manufacturer and prior to submission to Architect.
 5. Certify that the manufacturer will issue specified warranty for roofing installation complying with approved shop drawings.

- F. Product Test Reports: Based on evaluation of comprehensive tests performed by the manufacturer and witnessed by a qualified independent testing agency, for components of the membrane roofing system.
- G. Work on the roof(s) shall not begin until submittals have been reviewed, approved and returned to the Contractor by the Architect.
- H. Pre-Installation Roofing Conference: Submit (3) copies of Pre-installation roofing conference records.
- I. Maintenance Data: For the entire roofing system to include in maintenance manuals.
- J. Warranties: Special warranties specified in this Section.
- K. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty and has completed (3) projects of similar size and difficulty.
- B. Manufacturer Qualifications: A qualified manufacturer that has UL listing for roofing system identical to that used for this Project.
- C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
- D. Source Limitations: Obtain components for roofing system from roofing system manufacturer.
- E. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
 - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
 - 2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.
- F. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site. Comply with requirements for preinstallation conferences in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roof deck construction and roofing system including, but not limited to, the following:
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 - 5. Review structural loading limitations of roof deck during and after roofing.

6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.
- G. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:
1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 5. Review structural loading limitations of roof deck during and after roofing.
 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 7. Review governing regulations and requirements for insurance and certificates if applicable.
 8. Review temporary protection requirements for roofing system during and after installation.
 9. Review roof observation and repair procedures after roofing installation.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.8 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.9 WARRANTY

- A. General Contractor, Roofing Installer and Roofing Membrane Manufacturer's Technical Representative. All inspection reports shall be submitted to the Architect for review prior to final acceptance of the roof system.
- B. The Roofing Membrane Manufacturer shall furnish the Owner with a Manufacturer's Twenty Five (25) Year NDL (No Dollar Limit Warranty) Total Roofing System Warranty from date of final acceptance including all labor and material costs to repair defects, leaks, etc. occurring in roofing system including, but not limited to, all components of membrane roofing system such as membrane roofing, base sheets, base flashing, asphalts and/or adhesives roof insulation, fasteners, cover boards, substrate boards, blocking, metal flashings, fascia and roof edge metal, walkway products, and other components of the membrane roofing system, from top of roof deck and up.
- C. Warranties shall cover all components of the roofing system including insulation, roofing membranes, sheets, asphalts, expansion joints, flashings, metal components, blocking, fasteners, drains, etc., above the deck line.
- D. The Roofing Membrane Manufacturer will provide an annual inspection for the life of the warranty.
- E. Warranty Service Agreement:
 - 1. Upon project completion, Roofing Membrane Manufacturer's acceptance, and once complete payment has been received by both Contractor and Roofing Membrane Manufacturer, The Roofing Membrane Manufacturer shall deliver to Owner a twenty five (25) year Roofing System Service Agreement. The Roofing Membrane Manufacturer will, during the second, fifth and tenth year of this warranty service agreement, provide the following for the Roof System Installation:
 - a. Inspection by a Roofing Membrane Manufacturer's Technical Service Representative and delivery of a written inspection report documenting roof conditions.
 - b. Preventive maintenance and necessary repairs, including splits, tears, or breaks in the roof membrane system and flashings which threaten the integrity of the roof system and are not exempt due to neglect, negligence, vandalism, or some other exclusion.
 - c. General rooftop housekeeping and cleanup, subject to limits, but generally including removal of incidental debris.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. SBS-Modified Bituminous Membrane Roofing:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following, or approved equal:
 - a. Soprema. US. (**Basis of Design**)
 - b. Garland Company, Inc.
 - c. Tremco Incorporated.
 - d. Johns Manville
 - e. or Approved Equal

2.2 SBS-MODIFIED ASPHALT-SHEET MATERIALS

- A. Roofing Membrane Base Sheet: ASTM D-6164, Type I, Grade “S”, Soprafix (“S” for steel decks and “F” for LWIC decks).
- B. Roofing Membrane Cap Sheet: ASTM D-6164, Type II, Grade “S” tested in accordance with ASTM D 1547, Soprastar Flam (92),, heat welded.
 - 1. Topside: Highly Reflective Reinforced Film
 - 2. Color: White.

2.3 SBS-MODIFIED ASPHALT INTER-PLY MATERIAL

- A. Roofing Membrane Inter-ply Sheet: ASTM D-6164, Type II, Grade “S”, Sopralene Flam 250, heat welded.

2.4 BASE FLASHING SHEET MATERIALS

- A. Backer Sheet: SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
- B. Flashing Sheet: SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.

2.5 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- B. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with base flashings.
- C. Mastic Sealant: Polyisobutylene, plain or modified bitumen, nonhardening, nonmigrating, nonskinning, and nondrying.
- D. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- E. Metal Flashing Sheet: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim."
- F. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing **No. 8 (2.36-mm)** sieve and 98 percent of mass retained on **No. 40 (0.425-mm)** sieve, color to match roofing membrane.
- G. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.6 ROOF INSULATION

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.
 - 1. Available Manufacturers:
 - a. Apache Products Company.
 - b. Hunter.
 - c. GAF Materials Corporation.
 - d. Johns Manville International, Inc.
 - e. RMAX.
- C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.7 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Cant Strips: ASTM C 728, perlite insulation board.
- D. Wood Nailer Strips: Comply with requirements in Division 6 Section "Rough Carpentry."
- E. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, **1/4 inch (6 mm)** thick.
 - 1. Product: Subject to compliance with requirements, provided "Dens-Deck" by Georgia-Pacific Corporation or Securock by USG.
 - 2. Product: Semi-rigid asphaltic roofing substrate board composed of a mineral fortified asphaltic core formed between two asphaltic saturated fiberglass liners, minimum 1/8" thickness.
- F. Substrate Joint Tape: **6- or 8-inch- (150- or 200-mm-)** wide, coated, glass-fiber joint tape.

2.8 WALKWAYS

- A. Walkway Pads: Polymer-modified, reconstituted rubber pads with slip-resisting textured surface, manufactured as a traffic pad for foot traffic and acceptable to roofing system manufacturer, **3/4 inch (19 mm)** thick, minimum.
 - 1. Pad Size: 24 inches x 36 inches.
 - 2. Granule Material: Mineral ceramic coated.
 - 3. Granule Color: White or Contrasting Color.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
 2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 5 Section "Steel Deck."
 4. Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed.
 5. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
 6. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of **1/16 inch (1.6 mm)** out of plane relative to adjoining deck.
 7. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.3 INSULATION INSTALLATION

- A. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- B. Install one lapped base sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions.
- C. Nailer Strips: Mechanically fasten **4-inch nominal- (89-mm actual-)** width wood nailer strips of same thickness as insulation perpendicular to sloped roof deck at the following spacing:
1. **16 feet (4.88 m)** apart for roof slopes greater than **1 inch per 12 inches (1:12)** but less than **3 inches per 12 inches (3:12)**.
- D. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes greater than 45 degrees.
- E. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding **1/4 inch (6 mm)** with insulation.
1. Cut and fit insulation within **1/4 inch (6 mm)** of nailers, projections, and penetrations.

- F. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is **2 inches (50 mm)** or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of **6 inches (150 mm)** in each direction.
- G. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- H. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 - 1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.
- I. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of **6 inches (150 mm)** in each direction. Loosely butt cover boards together and fasten to roof deck. Tape joints if required by roofing system manufacturer.
 - 1. Fasten to resist uplift pressure at corners, perimeter, and field of roof.
 - 2. Apply hot roofing asphalt to underside and immediately bond cover board to substrate.

3.4 ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Where roof slope exceeds **1/2 inch per 12 inches (1:24)**, install roofing membrane sheets parallel with slope.
 - 1. Backnail roofing membrane sheets to substrate according to roofing system manufacturer's written instructions.
- D. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.
- E. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
 - 1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
 - 2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
 - 3. Remove and discard temporary seals before beginning work on adjoining roofing.
- F. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

3.5 BASE-SHEET INSTALLATION

- A. Install lapped base sheet course, extending sheet over and terminating beyond cants. Attach base sheet as follows:
 - 1. Mechanically fasten to substrate.
- B. Install a second lapped base sheet course, extending sheet over and terminating beyond cants. Attach base sheet as follows:
 - 1. Mechanically fasten to substrate.

3.6 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing membrane ply sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
 - 1. Torch apply to substrate.
 - 2. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.
- B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
 - 1. Repair tears and voids in laps and lapped seams not completely sealed.
 - 2. Apply roofing granules to cover exuded bead at laps while bead is hot.
- C. Install roofing membrane sheets so side and end laps shed water.

3.7 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
 - 1. Backer Sheet Application: Install backer sheet and adhere to substrate in cold-applied adhesive at rate required by roofing system manufacturer.
 - 2. Flashing Sheet Application: Adhere flashing sheet to substrate in cold-applied adhesive at rate required by roofing system manufacturer.
- B. Extend base flashing up walls or parapets a minimum of **8 inches (200 mm)** above roofing membrane and **4 inches (100 mm)** onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.
 - 1. Seal top termination of base flashing.
- D. Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions.

- E. Scupper and Overflow Drains: Set **30-by-30-inch (760-by-760-mm)** metal flashing in bed of roofing-manufacturer-approved asphaltic adhesive on completed parapet roofing membrane. Cover metal flashing with roofing membrane cap-sheet stripping and extend a minimum of **6 inches (150 mm)** beyond edge of metal flashing onto field of parapet roofing membrane.

- 1. Install stripping according to roofing system manufacturer's written instructions.

3.8 WALKWAY INSTALLATION

- A. Walkway Pads: Install walkway pads over roofing membrane using units of size indicated or, if not indicated, of manufacturer's standard size according to walkway pad manufacturer's written instructions.

- 1. Set walkway pads in dabs of **cold-applied adhesive at four corners and at center** or manufacturer's recommended application..
 - 2. Set walkway pads in additional pour coat of **hot roofing asphalt** after aggregate surfacing of modified bituminous roofing membrane.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.

- B. Test Cuts: Test specimens will be removed to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:

- 1. Approximate quantities of components within roofing membrane will be determined according to ASTM D 3617.
 - 2. Test specimens will be examined for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."

- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.

- 1. Notify Architect or Owner 48 hours in advance of date and time of inspection.

- D. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.11 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Architect, Construction manager, installer, installer of associated work, Owner, roofing system manufacturer's technical representative, and other representatives directly concerned with performance of roofing system.
- B. Walk roof surface areas of the building, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. The roofing system manufacturer shall have the right to request a thermographic scan of the roof during final inspection to determine if any damp or wet materials have been installed. The thermographic scan shall be provided by the roof system installer at no additional cost.
- D. If core cuts verify the presence of damp or wet materials, the roof system installer shall be required to replace the damaged areas at his own expense.
- E. Repair or replace deteriorated or defective work found at time above inspection as required to produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- F. Notify the Architect and Construction Manager upon completion of corrections.
- G. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.12 ROOFING INSTALLER'S WARRANTY

- A. WHEREAS **<Insert name>** of **<Insert address>**, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 - 1. Owner: **<Insert name of Owner.>**
 - 2. Address: **<Insert address.>**
 - 3. Building Name/Type: **<Insert information.>**
 - 4. Address: **<Insert address.>**
 - 5. Area of Work: **<Insert information.>**
 - 6. Acceptance Date: **<Insert date.>**
 - 7. Warranty Period: **<Insert time.>**
 - 8. Expiration Date: **<Insert date.>**
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.

D. This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. lightning;
 - b. peak gust wind speed exceeding **<Insert wind speed> mph (m/sec)**;
 - c. fire;
 - d. failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. vapor condensation on bottom of roofing; and
 - g. activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this **<Insert day>** day of **<Insert month>**, **<Insert year>**.

1. Authorized Signature: **<Insert signature.>**
2. Name: **<Insert name.>**
3. Title: **<Insert title.>**

END OF SECTION 07552

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following sheet metal flashing and trim:
 - 1. Formed low-slope roof flashing and trim.
 - 2. Formed wall flashing and trim.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood nailers, curbs, and blocking.
 - 2. Division 7 Section SBS – Modified Bituminous Membrane Roofing" for installing sheet metal flashing and trim integral with roofing membrane.
 - 3. Division 7 Section "Manufactured Roof Specialties" for manufactured roof specialties not part of sheet metal flashing and trim.
 - 4. Division 7 Section "Joint Sealants" for field-applied sheet metal flashing and trim sealants.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Fabricate and install flashing at roof edges to comply with recommendations of FM Loss Prevention Data Sheet 1-49 for the wind zone as designated on the structural engineering drawings.
- C. Thermal Movements: Provide sheet metal flashing and trim that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal and trim thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show layouts of sheet metal flashing and trim, including plans and elevations. Distinguish between shop- and field-assembled work. Include the following:
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work.
 - 3. Include identification of material, thickness, weight, and finish for each item and location in Project.
 - 4. Include details for forming, including profiles, shapes, seams, and dimensions.
 - 5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 - 6. Include details of termination points and assemblies.
 - 7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
 - 8. Include details of roof-penetration flashing.
 - 9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings as applicable.
 - 10. Include details of special conditions.
 - 11. Include details of connections to adjoining work.
 - 12. Detail formed flashing and trim at scale of not less than **1-1/2 inches per 12 inches (1:10)**.
- C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Sheet Metal Flashing: **12 inches (300 mm)** long. Include fasteners, cleats, clips, closures, and other attachments.
 - 2. Trim: **12 inches (300 mm)** long. Include fasteners and other exposed accessories.
 - 3. Accessories: Full-size Sample.

1.5 QUALITY ASSURANCE

- A. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- B. Mockups: Build mockups to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical roof eave fascia trim, approximately **48 inches (1200 mm)** long, including supporting construction cleats, seams, attachments and accessories.
 - 2. Approval of mockups is for other material and construction qualities specifically approved by Architect in writing.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless such deviations are specifically approved by Architect in writing.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver sheet metal flashing materials and fabrications undamaged. Protect sheet metal flashing and trim materials and fabrications during transportation and handling.

- B. Unload, store, and install sheet metal flashing materials and fabrications in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack materials on platforms or pallets, covered with suitable weathertight and ventilated covering. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1.7 COORDINATION

- A. Coordinate installation of sheet metal flashing and trim with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 SHEET METALS

- B. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- C. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- D. Sheet Metal Standard for Copper: Comply with CDA's "Copper in Architecture Handbook." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- E. FM Approvals Listing: Manufacture and install copings roof edge flashings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-90 Identify materials with name of fabricator and design approved by FM Approvals.
- F. SPRI Wind Design Standard: Manufacture and install copings roof edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressure:
 - 1. Design Pressure: As indicated on Structural Drawings.
- A.
- B. Aluminum Sheet: **ASTM B 209 (ASTM B 209M)**, Alloy 3003, 3004, 3105, or 5005, Temper suitable for forming and structural performance required, but not less than H14, finished as follows:
 - 1. Anodized Finish: Apply the following coil-anodized finish:
 - a. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.
- C. Lead Sheet: ASTM B 749, Type L51121, copper-bearing lead sheet.

2.2 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
 - 1. Exposed Fasteners: Heads matching color of sheet metal by means of plastic caps or factory-applied coating.
 - 2. Fasteners for Flashing and Trim: Blind fasteners or self-drilling screws, gasketed, with hex washer head.
 - 3. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
 - 4. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
- C. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
- D. Solder for Lead-Coated Copper: ASTM B 32, Grade Sn60, 60 percent tin and 40 percent lead.
- E. Solder for Lead: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
- F. Burning Rod for Lead: Same composition as lead sheet.
- G. Sealing Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
- H. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- I. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, heavy bodied for hooked-type expansion joints with limited movement.
- J. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- K. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- L. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.3 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Shop fabricate items where practicable. Obtain field measurements for accurate fit before shop fabrication.
- B. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.

- C. Fabricate sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - 1. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 - 2. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- D. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant to comply with SMACNA recommendations.
- E. Expansion Provisions: Where lapped or bayonet-type expansion provisions in the Work cannot be used, form expansion joints of intermeshing hooked flanges, not less than **1 inch (25 mm)** deep, filled with butyl sealant concealed within joints.
- F. Conceal fasteners and expansion provisions where possible on exposed-to-view sheet metal flashing and trim, unless otherwise indicated.
- G. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
 - 1. Thickness: As recommended by SMACNA's "Architectural Sheet Metal Manual" and FMG Loss Prevention Data Sheet 1-49 for application but not less than thickness of metal being secured.

2.4 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. Roof Edge Flashing (Gravel Stop) and Fascia Caps: Fabricate in minimum **96-inch- (2400-mm-)** long, but not exceeding **10-foot- (3-m-)** long, sections. Furnish with **6-inch- (150-mm-)** wide joint cover plates.
 - 1. Joint Style: Butt, with **12-inch- (300-mm-)** wide concealed backup plate and **6-inch- (150-mm-)** wide exposed cover plates.
 - 2. Fabricate with scuppers spaced **10 feet (3 m)** apart, of dimensions required with **4-inch- (100-mm-)** wide flanges and base extending **4 inches (100 mm)** beyond cant or tapered strip into field of roof. Fasten gravel guard angles to base of scupper.
 - 3. Fabricate scuppers from the following material:
 - a. Aluminum: **0.050 inch (1.2 mm)** thick.
- B. Roof to Wall Transition Expansion-Joint Cover: Fabricate from the following material:
 - 1. Aluminum: **0.040 inch (1.0 mm)** thick.
- C. Base Flashing: Fabricate from the following material:
 - 1. Aluminum: **0.040 inch (1.0 mm)** thick.
- D. Counterflashing and Wind Clips: Fabricate from the following material:
 - 1. Aluminum: **0.040 inch (1.0 mm)** thick.
- E. Flashing Receivers: Fabricate from the following material:
 - 1. Aluminum: **0.040 inch (1.0 mm)** thick.
- F. Roof-Penetration Flashing: Fabricate from the following material:
 - 1. Lead-Coated Copper: **17.2 oz./sq. ft. (0.60 mm thick).**

G. Splash Pans: Fabricate from the following material:

1. Aluminum: 0.040 inch (1.0 mm) thick.

H. Continuous Cleat: Fabricate from the following material:

1. Aluminum: 0.050 inch (1.2 mm) thick.

2.5 WALL SHEET METAL FABRICATIONS

A. Through-Wall Flashing: Fabricate continuous flashings in minimum 96-inch- (2400-mm-) long, but not exceeding 12 foot (3.6 m) long, sections, under copings, at shelf angles, and where indicated. Fabricate discontinuous lintel, sill, and similar flashings to extend 6 inches (150 mm) beyond each side of wall openings. Form with 2-inch- (50-mm-) high end dams. Fabricate from the following material:

1. Lead-Coated Copper: 17.2 oz./sq. ft. (0.60 mm thick).

2.6 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of work.

1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.

1. Torch cutting of sheet metal flashing and trim is not permitted.

B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by fabricator or manufacturers of dissimilar metals.

1. Coat side of lead sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene underlayment.
 3. Bed flanges in thick coat of asphalt roofing cement where required for waterproof performance.
- C. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
- D. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and butyl sealant.
- E. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
1. Space cleats not more than **12 inches (300 mm)** apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
- F. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of **10 feet (3 m)** with no joints allowed within **24 inches (600 mm)** of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than **1 inch (25 mm)** deep, filled with [**elastomic**] butyl sealant concealed within joints.
- G. Fasteners: Use fasteners of sizes that will penetrate substrate not less than **1-1/4 inches (32 mm)** for nails and not less than **3/4 inch (19 mm)** for wood screws.
1. Aluminum: Use aluminum or stainless-steel fasteners.
 2. Copper: Use copper, hardware bronze, or stainless-steel fasteners.
- H. Seal joints with butyl sealant as required for watertight construction.
1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than **1 inch (25 mm)** into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between **40 and 70 deg F (4 and 21 deg C)**, set joint members for 50 percent movement either way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below **40 deg F (4 deg C)**.
 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- I. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pretin edges of sheets to be soldered to a width of **1-1/2 inches (38 mm)** except where pretinned surface would show in finished Work.
1. Do not solder aluminum sheet.
 2. Pretinning is not required for lead-coated copper and lead.
 3. Copper Soldering: Tin uncoated copper surfaces at edges of sheets using solder recommended for copper work.
 4. Where surfaces to be soldered are lead coated, do not tin edges, but wire brush lead coating before soldering.
 5. Lead-Coated Copper Soldering: Wire brush edges of sheets before soldering.
 6. Do not use open-flame torches for soldering. Heat surfaces to receive solder and flow solder into joints. Fill joints completely. Completely remove flux and spatter from exposed surfaces.

- J. Aluminum Flashing: Rivet or weld joints in uncoated aluminum where necessary for strength.

3.3 ROOF FLASHING INSTALLATION

- A. General: Install sheet metal roof flashing and trim to comply with performance requirements and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight.
- B. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for butyl sealant, extending a minimum of **4 inches (100 mm)** over base flashing. Install stainless-steel draw band and tighten.
- C. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing **4 inches (100 mm)** over base flashing. Lap counterflashing joints a minimum of **4 inches (100 mm)** and bed with butyl sealant.
 - 1. Secure in a waterproof manner by means of interlocking folded seam or blind rivets and sealant.
- D. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Install flashing as follows:
 - 1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.
 - 2. Seal with butyl sealant and clamp flashing to pipes penetrating roof except for lead flashing on vent piping.

3.4 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Through-Wall Flashing: Installation of formed through-wall flashing is specified in Division 4 Section "Unit Masonry Assemblies."

3.5 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07620

SECTION 07621 – ANCHOR-TITE FASCIA MODIFIED VERSION – **Basis of Design**

PART ONE - GENERAL

1.01 SUMMARY:

- A. Work included: Furnishing and installing factory fabricated and finished roof edging.

1.02 REFERENCES:

- A. Factory Mutual Research Corporation (FMRC), P.O. Box 9102, Norwood, MA 02082, 617-762-4300.
- B. SPRI Sheet Membrane & Component Suppliers to the Commercial Roofing Industry, 175 Highland Ave., Needham, MA 02194, 617-444-0242, fax: 617-444-6111.

1.03 SUBMITTALS:

- A. Product Data: Provide manufacturer's product and complete installation data for all materials in this specification.
- B. Shop Drawings: Show profiles, joining method, location of accessory items, anchorage and flashing details, adjacent construction interface, and dimensions, along with a current Miami-Dade NOA.
- C. Samples: Available on request; size to adequately represent material.
- D. Installation Guide: The product manufacturer shall provide a written installation guide.

1.04 QUALITY ASSURANCE:

- A. High performance roof edge system shall be CERTIFIED by the manufacturer to comply with ANSI/SPRI Standard ES- 1 latest edition. Roof edge shall meet performance design criteria according to the following test standards: :
1. ANSI/SPRI ES-1 Latest Edition Test Method RE-1 Test for Roof Edge Termination of Single-Ply Roofing Membranes: The fascia system shall be tested to secure the membrane to minimum of 100 lbs/ft in accord with the ANSI/SPRI ES-1, Test Method RE-1. Use the current edition of ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.
 2. ANSI/SPRI ES-1 Latest Edition Test Method RE-2 Pull-Off Test for Fascia: The fascia system shall be tested in accord with the ANSI/SPRI ES-1, Test Method RE-2. Use the current edition of ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.
 3. Tested per ANSI/SPRI ES-1 Standard to a design pressure of 290 lbs./ft² to comply with the International Building Code.
- B. The fascia product shall be listed in current Factory Mutual Research Corporation Approval Guide approved for FM-1-645 for wind uplift..
- C. The fascia product shall be approved for use in Miami-Dade County and has been designed to comply with Florida Building Code, including the High Velocity Hurricane Zone. Provide a current Miami-Dade NOA.

- 1.05 PRODUCT HANDLING:
- A. All material shall arrive in the manufacturer's original sealed, labeled containers.
 - B. Store materials in a dry, protected, well-vented area. The contractor shall report damaged material immediately to the delivering carrier and note such damage on the carrier's freight bill of lading.
 - C. Remove protective plastic surface film immediately before installation.
- 1.06 SUBSTITUTIONS:
- A. Proposals for substitution products shall be accepted only from bidding contractors a minimum of 10 working days before bid due date. The proposed substitution shall meet the performance and quality standards of this specification (see section 1.04).
 - B. Where pre-engineered manufactured systems are specified, other field fabricated or shop/field-fabricated substitutions will not be accepted. However, where shop/field fabrications are indicated, pre-engineered systems will be considered with architect approval.
- 1.07 JOB CONDITIONS:
- A. Verify that other trades are complete before installing the roof edging.
 - B. Mounting surfaces shall be straight and secure; substrates shall be of proper width.
 - C. Refer to the construction documents, shop drawings and manufacturer's installation instructions.
 - D. Coordinate installation with roof membrane manufacturer's installation instructions.
 - E. Observe all appropriate OSHA safety guidelines for this work.
- 1.08 WARRANTY/GUARANTEE:
- A. Provide a Lifetime warranty for roof edge system, when installed per manufacturer's instructions, covering blow-off from winds up to 170 mph.
 - B. Provide a 20-year warranty for painted finish covering color fade, chalk, and film integrity.

PART TWO - PRODUCTS

- 1.09 MANUFACTURER: **Basis of Design**
- A. Metal-Era, Inc.
1600 Airport Road
Waukesha, WI 53188
1-262-549-6900
Fax: 1-262-549-6009
Internet address: www.metalera.com
- 1.10 ROOF EDGING SYSTEM:
- A. Anchor-Tite: Decorative metal fascia with continuous extruded aluminum bar. To terminate built-up or modified bitumen roofs at perimeter. The system shall be watertight with no exposed fasteners. Model shall be AFM65. The rise above the nailer for all models is 1-1/4".

- B. PERFORMANCE CHARACTERISTICS:
 - 1. Extruded bar shall lock membrane, prevent wind pullback.
 - 2. Injection molded EPDM splices to allow thermal expansion of extruded aluminum anchor bar.
 - 3. Fascia shall freely thermal cycle on extruded bar, preventing periodic maintenance.
 - 4. Fascia may be factory modified for true radius application.
- C. Fascia metal gauge: .050" thick formed with Kynar 500 finish.
- D. Fascia: standard 12'-0" (3.65 m) lengths.
- E. Extruded bar: Shall be continuous 6063-T6 alloy aluminum in 12'-0" (3.65 m) standard lengths with pre-punched slotted holes. All bar miters are welded.
- F. Fasteners: #9 x 2" stainless steel fasteners provided with drivers. No exposed fasteners permitted.
- G. Exterior fascia finishes: Kynar 500 from manufacturer's standard colors.

PART THREE - EXECUTION

- 1.11 INSPECTION:
 - A. Verify that the roof edging installation will not disrupt other trades. Verify that the substrate is dry, clean and free of foreign matter. Report and correct defects prior to any installation.
- 1.12 INSTALLATION OF ANCHOR-TITE ROOF EDGING SYSTEM:
 - A. Submit product design drawings for review and approval to Architect or Specifier before fabrication.
 - B. Installing contractor shall check as-built conditions and verify the manufacturer's roof edge details for accuracy to fit the wall assembly prior to fabrication. The installer shall comply with the roof edging manufacturer's installation guide when setting edging.
 - C. Installer shall use provided fasteners consistent with manufacturer's instructions, suitable for the substrate to which it is being installed.
 - D. Install mastic as recommended by the membrane manufacturer, under the anchor bar.

END OF SECTION 07621

SECTION 07710 - MANUFACTURED ROOF SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following manufactured roof specialties:
 - 1. Roof drainage systems consisting of Scuppers, Conductor Heads, Over Flow Scuppers and Downspouts.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood nailers, curbs, and blocking.
 - 2. Division 7 Section "Sheet Metal Flashing and Trim" for custom- and site-fabricated sheet metal flashing and trim.
 - 3. Division 7 Section "Joint Sealants" for field-applied sealants.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Manufacture and install manufactured roof specialties to resist thermally induced movement and exposure to weather without failing, rattling, leaking, and fastener disengagement.
- B. Thermal Movements: Provide manufactured roof specialties that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- C. Water Infiltration: Provide manufactured roof specialties that do not allow water infiltration to building interior.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

- B. Shop Drawings: Show layouts of manufactured roof specialties, including plans and elevations. Identify factory- vs. field-assembled work. Include the following:
 - 1. Details for fastening, joining, supporting, and anchoring manufactured roof specialties including fasteners, clips, cleats, and attachments to adjoining work.
 - 2. Details for expansion and contraction.
- C. Samples for Initial Selection: For each type of manufactured roof specialty indicated with factory-applied color finishes.
- D. Fabrication Samples: For roof edge drainage systems made from 12-inch (300-mm) lengths of full-size components including fasteners, cover joints, accessories, and attachments.
- E. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

1.6 COORDINATION

- A. Coordinate installation of manufactured roof specialties with interfacing and adjoining construction to provide a leakproof, secure, and noncorrosive installation.

PART 2 - PRODUCTS

2.1 EXPOSED METALS

- A. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy and temper recommended by manufacturer for use and finish indicated, finished as follows:
 - 1. Surface: Smooth, flat Embossed finish.
 - 2. Anodic Finish: Apply the following finish:
 - a. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

2.2 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, separators, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to withstand design loads.
 - 1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.
- C. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- D. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 ROOF EDGE DRAINAGE SYSTEMS

- A. Products:
- B. Scuppers, Conductor Heads and Downspouts: Manufactured formed scuppers with mitered and welded or soldered corner units, end caps, outlet tubes, and other accessories.
 - 1. Fabricate Scuppers, Conductor Heads and Downspouts, from the following exposed metal:
 - a. Aluminum: 0.050 inch thick.
 - 2. Scupper, Leader Head and Downspout Style: according to SMACNA's "Architectural Sheet Metal Manual."
 - 3. Applied Fascia Cover: Exposed, formed aluminum, 0.050 inch thick, with mitered corners, end caps, and concealed splice joints.

2.4 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.
 - 1. Examine walls, roof edges, and parapets for suitable conditions for manufactured roof specialties.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
 - 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install manufactured roof specialties according to manufacturer's written instructions. Anchor manufactured roof specialties securely in place and capable of resisting forces specified in performance requirements. Use fasteners, separators, sealants, and other miscellaneous items as required to complete manufactured roof specialty systems.
 - 1. Install manufactured roof specialties with provisions for thermal and structural movement.
 - 2. Torch cutting of manufactured roof specialties is not permitted.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 - 1. Coat concealed side of uncoated aluminum manufactured roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
- C. Install manufactured roof specialties level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil-canning, buckling, or tool marks.
- D. Install manufactured roof specialties to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
- E. Expansion Provisions: Provide for thermal expansion of exposed manufactured roof specialties. Space movement joints at a maximum of **12 feet (3.6 m)** with no unplanned joints within **18 inches (450 mm)** of corners or intersections.
- F. Fasteners: Use fasteners of type and size recommended by manufacturer but of sizes that will penetrate substrate not less than **1-1/4 inches (32 mm)** for nails and not less than **3/4 inch (19 mm)** for wood screws.
- G. Seal joints with elastomeric sealant as required by manufacturer of roofing specialties.

3.3 ROOF EDGE DRAINAGE SYSTEM INSTALLATION

- A. General: Install Scuppers, Conductor Heads, Overflow Scuppers and Downspouts to produce a complete roof drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Downspouts: Provide fasteners designed to hold downspouts securely **1 inch (25 mm)** away from walls; locate fasteners at top and bottom and at approximately **60 inches (1500 mm)** o.c. in between.
 - 1. Connect downspouts to underground drainage system indicated.

3.4 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as manufactured roof specialties are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain in a clean condition during construction.
- D. Replace manufactured roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 07710

SECTION 07720 - ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Roof hatches.
- B. Related Sections include the following:
 - 1. Division 5 Section "Metal Fabrications" for metal vertical ladders, ships' ladders, and stairs for access to roof hatches.
 - 2. Division 6 Section "Rough Carpentry" for roof sheathing, wood cants, and wood nailers.
 - 3. Division 7 Section "Sheet Metal Flashing and Trim" for shop- and field-fabricated metal flashing and counterflashing, roof expansion-joint covers, and miscellaneous sheet metal trim and accessories.
 - 4. Division 7 Section "Manufactured Roof Specialties" for fascia, copings, and gravel stops.

1.3 SUBMITTALS

- A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Show fabrication and installation details for roof accessories. Show layouts of roof accessories including plans and elevations. Indicate dimensions, weights, loadings, required clearances, method of field assembly, and components. Include plans, elevations, sections, details, and attachments to other work.
- C. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:
 - 1. Size and location of roof accessories specified in this Section.
 - 2. Method of attaching roof accessories to roof or building structure.
 - 3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.
- D. Samples: For each type of exposed factory-applied finish required and for each type of roof accessory indicated, prepared on Samples of size to adequately show color.

1.4 QUALITY ASSURANCE

- A. Sheet Metal Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" details for fabrication of units, including flanges and cap flashing to coordinate with type of roofing indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Pack, handle, and ship roof accessories properly labeled in heavy-duty packaging to prevent damage.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify required openings for each type of roof accessory by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
 - 1. With Architect's approval, adjust location of roof accessories that would interrupt roof drainage routes.

PART 2 - PRODUCTS

2.1 METAL MATERIALS

- A. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, AZ50 (AZM150) coated.
- B. Stainless-Steel Shapes or Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304 or Type 316, No. 2D finish.
- C. Steel Shapes: ASTM A 36/A 36M, hot-dip galvanized to comply with ASTM A 123/A 123M, unless otherwise indicated.
- D. Steel Tube: ASTM A 500, round tube, baked-enamel finished.
- E. Galvanized Steel Tube: ASTM A 500, round tube, hot-dip galvanized to comply with ASTM A 123/A 123M.
- F. Galvanized Steel Pipe: ASTM A 53/A 53M.

2.2 MISCELLANEOUS MATERIALS

- A. Glass-Fiber Board Insulation: ASTM C 726, 1 inch (25 mm) thick.

- B. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
- C. Polyethylene Sheet: 6-mil- (0.15-mm-) thick, polyethylene sheet complying with ASTM D 4397.
- D. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
 - 1. Slip Sheet: Rosin-sized paper, minimum 3 lb/100 sq. ft. (0.16 kg/sq. m).
- E. Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal as recommended by roof accessory manufacturer. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners.
- F. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, or PVC; or flat design of foam rubber, sponge neoprene, or cork.
- G. Elastomeric Sealant: ASTM C 920, polyurethane sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- H. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant, polyisobutylene plasticized, and heavy bodied for hooked-type expansion joints with limited movement.
- I. Roofing Cement: ASTM D 4586, nonasbestos, fibrated asphalt cement designed for trowel application or other adhesive compatible with roofing system.

2.3 ROOF HATCHES

- A. Roof Hatches: Fabricate roof hatches with insulated double-wall lids and insulated double-wall curb frame with integral deck mounting flange and lid frame counterflashing. Fabricate with welded or mechanically fastened and sealed corner joints. Provide continuous weathertight perimeter gasketing and equip with corrosion-resistant or hot-dip galvanized hardware.
 - 1. Available Manufacturers:
 - a. Bilco Company (The).
 - b. J. L. Industries, Inc.
 - c. Milcor Inc.; a Gibraltar Company.
 - d. Nystrom, Inc.
 - e. Roof Products & Systems Corporation.
 - 2. Loads: Fabricate roof hatches to withstand 40-lbf/sq. ft. (1.9-kPa) external and 20-lbf/sq. ft. (0.95-kPa) internal loads. Comply with wind pressures as stated on the structural drawings. Provide Miami-Dade Notice of Acceptance for product used.
 - 3. Type and Size: Single-leaf lid, 36 by 36 inches .
 - 4. Curb and Lid Material: Aluminum-zinc alloy-coated steel sheet, 0.079 inch (2.0 mm) thick.
 - 5. Insulation: Glass-fiber board.
 - 6. Fabricate units to minimum height of 12 inches (300 mm), unless otherwise indicated.
 - 7. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate hatch curbs with height constant.
 - 8. Hardware: Stainless-steel spring latch with turn handles, butt- or pintle-type hinge system, and padlock hasps inside and outside.

9. Ladder Safety Post: Manufacturer's standard ladder safety post. Post to lock in place on full extension. Provide release mechanism to return post to closed position.
 - a. Test Load: As required to meet the Florida Building Code for vertical and lateral loads.
 - b. 42 inches (1060 mm) is typical standard height. Consult authorities having jurisdiction.
 - c. Height: 42 inches (1060 mm) above finished roof deck.
 - d. Material and Finish: Aluminum, mill finished.
 - e. Diameter: Pipe with 1-5/8-inch (41-mm) OD tube.

10. Safety Railing System: Manufacturer's standard complete system including rails, clamps, fasteners, safety barrier at railing opening, and all accessories required for a complete installation.
 - a. Test Load: As required to meet the Florida Building Code for vertical and lateral loads.
 - b. Height: 42 inches (1060 mm) above finished roof deck.
 - c. Pipe or Tube: 1-1/4-inch (31-mm) ID galvanized pipe or 1-5/8-inch (41-mm) OD galvanized tube.
 - d. Flat Bar: 2-inch- (50-mm-) high by 3/8-inch- (9-mm-) thick galvanized steel.
 - e. Self-Latching Gate: Fabricated of same materials and rail spacing as safety railing system. Provide manufacturer's standard hinges and self-latching mechanism.
 - f. Pipe Ends and Tops: Covered or plugged with weather-resistant material.
 - g. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members that are exposed to exterior or to moisture from condensation or other sources.
 - h. Fabricate joints that will be exposed to weather in a watertight manner.
 - i. Close exposed ends of handrail and railing members with prefabricated end fittings.
 - j. Fasteners: Manufacturer's standard.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of work.
 1. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored and is ready to receive roof accessories.
 2. Verify dimensions of roof openings for roof accessories.
 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install roof accessories according to manufacturer's written instructions. Anchor roof accessories securely in place and capable of resisting forces specified. Use fasteners, separators, sealants, and other miscellaneous items as required for completing roof accessory installation. Install roof accessories to resist exposure to weather without failing, rattling, leaking, and fastener disengagement.

- B. Install roof accessories to fit substrates and to result in watertight performance.

- C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 - 1. Coat concealed side of stainless-steel roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing exposed-to-view components of roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene underlayment.
 - 3. Bed flanges in thick coat of asphalt roofing cement where required by roof accessory manufacturers for waterproof performance.
- D. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.
- E. Roof Hatch Installation:
 - 1. Check roof hatch for proper operation. Adjust operating mechanism as required. Clean and lubricate joints and hardware.
 - 2. Attach safety railing system to roof hatch curb.
 - 3. Attach ladder safety post according to manufacturer's written instructions.
- F. Seal joints with butyl sealant as required by manufacturer of roof accessories.

3.3 TOUCH UP

- A. Touch up factory-primed surfaces with compatible primer ready for field painting in accordance with Division 9 painting Sections.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.4 CLEANING

- A. Clean exposed surfaces according to manufacturer's written instructions.

END OF SECTION 07720

SECTION 07841 - THROUGH-PENETRATION FIRESTOP SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes through-penetration firestop systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.

1.3 PERFORMANCE REQUIREMENTS

- A. General: For penetrations through the following fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.
 - 1. Fire-resistance-rated walls including fire partitions.
- B. Rated Systems: Provide through-penetration firestop systems with the following ratings determined per ASTM E 814 or UL 1479:
 - 1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
 - 2. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:
 - a. Penetrations located outside wall cavities.
 - b. Penetrations located outside fire-resistance-rated shaft enclosures.
- C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.
 - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 - 2. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- D. For through-penetration firestop systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For each through-penetration firestop system, show each type of construction condition penetrated, relationships to adjoining construction, and type of penetrating item. Include firestop design designation of qualified testing and inspecting agency that evidences compliance with requirements for each condition indicated.
 - 1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
 - 2. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.
- C. Through-Penetration Firestop System Schedule: Indicate locations of each through-penetration firestop system, along with the following information:
 - 1. Types of penetrating items.
 - 2. Types of constructions penetrated, including fire-resistance ratings and, where applicable, thicknesses of construction penetrated.
 - 3. Through-penetration firestop systems for each location identified by firestop design designation of qualified testing and inspecting agency.
- D. Qualification Data: For Installer.
- E. Product Test Reports: From a qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that has been approved by FMG according to FMG 4991, "Approval of Firestop Contractors."
- B. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single qualified installer.
- C. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, through one source from a single manufacturer.
- D. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in Part I "Performance Requirements" Article:
 - 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
 - 2. Through-penetration firestop systems are identical to those tested per testing standard referenced in "Part I Performance Requirements" Article. Provide rated systems complying with the following requirements:
 - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.

b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:

- 1) UL in its "Fire Resistance Directory."
- 2) OPL in its "Directory of Listed Building Products, Materials, & Assemblies."
- 3) ITS in its "Di of qualified testing and inspecting agency."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life if applicable, qualified testing and inspecting agency's classification marking applicable to Project, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until each installation has been examined by building inspector, if required by authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, through-penetration firestop systems that may be incorporated into the Work include, but are not limited to, those systems indicated.

2.2 FIRESTOPPING, GENERAL

- A. Compatibility: Provide through-penetration firestop systems that are compatible with one another; with the substrates forming openings; and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

- B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
1. Permanent forming/damming/backing materials, including the following:
 - a. Slag-/rock-wool-fiber insulation.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Fillers for sealants.
 2. Collars.
 3. Steel sleeves.
- C. VOC Content: Penetration firestopping sealants and sealant primers shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
- D. Low-Emitting Materials: Penetration firestopping sealants and sealant primers shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.3 FILL MATERIALS

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by referencing the types of materials described in this Article. Fill materials are those referred to in directories of referenced testing and inspecting agencies as "fill," "void," or "cavity" materials.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- F. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

- H. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.
- I. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives.
- J. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- K. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
 - 2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
 - 3. Grade for Vertical Surfaces: Nonsag formulation for openings in vertical and other surfaces.

2.4 MIXING

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of work.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with firestop system manufacturer's written instructions and with the following requirements:
 - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
 - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.

- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. General: Install through-penetration firestop systems to comply with Part 1 "Performance Requirements" Article and with firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

- A. Identify through-penetration firestop systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of edge of the firestop systems so that labels will be visible to anyone seeking to remove penetrating items or firestop systems. Use mechanical fasteners for metal labels. For plastic labels, use self-adhering type with adhesives capable of permanently bonding labels to surfaces on which labels are placed and, in combination with label material, will result in partial destruction of label if removal is attempted. Include the following information on labels:
 - 1. The words "Warning - Through-Penetration Firestop System - Do Not Disturb. Notify Building Management of Any Damage."
 - 2. Contractor's name, address, and phone number.
 - 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Through-penetration firestop system manufacturer's name.
 - 6. Installer's name.

3.5 CLEANING AND PROTECTING

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce systems complying with specified requirements.

END OF SECTION 07841

SECTION 07920 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes joint sealants for the following applications, including those specified by reference to this Section: following applications:

- 1. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:

- a. Control and expansion joints on exposed interior surfaces of exterior walls.
- b. Perimeter joints of exterior openings where indicated.
- c. Vertical joints on exposed surfaces of interior unit masonry concrete walls and partitions.
- d. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
- e. Joints between plumbing fixtures and adjoining walls, floors, and counters.
- f. Other joints as indicated.

- 2. Interior joints in the following horizontal traffic surfaces:

- a. Control and expansion joints in tile flooring.
- b. Other joints as indicated.

- B. Related Sections include the following:

- 1. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
- 2. Division 9 Section "Ceramic Tile" for sealing tile joints.
- 3. Division 9 Section "Acoustical Panel Ceilings" for sealing edge moldings at perimeters of acoustical ceilings.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.

- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.
- F. Qualification Data: For Installer.
- G. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- H. Field Test Report Log: For each elastomeric sealant application.
- I. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.
- J. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period preceding the Notice to Proceed with commencement of the Work.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
 - 2. Test elastomeric joint sealants for compliance with requirements specified by reference to ASTM C 920, and where applicable, to other standard test methods.
 - 3. Test elastomeric joint sealants according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
 - 4. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.
- D. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:
 - 1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.

- E.
1. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of nonelastomeric sealant and joint substrate indicated.
 2. Notify Architect seven days in advance of dates and times when test joints will be erected.
 3. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 4. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: two years from date of Substantial Completion.
- B. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.
- C. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Architectural Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 3. Sealant Primers for Porous Substrates: 775 g/L.

2.3 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- D. Single-Component Nonsag Polysulfide Sealant:
 - 1. Available Products:
 - a. Pacific Polymers, Inc.; Elastoseal 230 Type I (Gun Grade).
 - b. Polymeric Systems Inc.; PSI-7000.
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 25.
 - 4. Use Related to Exposure: NT (nontraffic).
 - 5. Uses Related to Joint Substrates: M, G, A, and, as applicable to joint substrates indicated, O.

2.4 LATEX JOINT SEALANTS

- A. Latex Sealant: Comply with ASTM C 834, Type P, Grade NF.
- B. Available Products:
 - 1. Pecora Corporation; AC-20+.
 - 2. Sonneborn, Division of ChemRex Inc.; Sonolac.
 - 3. Tremco; Tremflex 834.

2.5 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.
 - 1. Available Products:
 - a. Pecora Corporation; BA-98.
 - b. Tremco; Tremco Acoustical Sealant.

2.6 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to **minus 26 deg F (minus 32 deg C)**. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.

3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
 5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 5C in ASTM C 1193.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
1. Extent of Testing: Test completed elastomeric sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet (300 m) of joint length for each type of elastomeric sealant and joint substrate.
 - b. Perform 1 test for each 1000 feet (300 m) of joint length thereafter or 1 test per each floor per elevation.
 2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab in Appendix X1 in ASTM C 1193, as appropriate for type of joint-sealant application indicated.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
 4. Inspect tested joints and report on the following:
 - a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.

- b. Whether sealants filled joint cavities and are free of voids.
 - c. Whether sealant dimensions and configurations comply with specified requirements.
 - 5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
 - 6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07920

SECTION 08111 - STANDARD STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Standard hollow-metal steel doors.
 - 2. Standard hollow-metal steel frames.
- B. Related Sections include the following:
 - 1. Division 8 Section "Glazing" for glazed lites in standard steel doors and frames.
 - 2. Division 8 Sections for door hardware for standard steel doors. See Architectural Drawings Sheet A6.10.
 - 3. Division 9 painting Sections for field painting standard steel doors and frames.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.

1.4 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, core descriptions, label compliance, fire-resistance and temperature-rise ratings, and finishes for each type of steel door and frame specified.
- B. Shop Drawings: In addition to requirements below, provide a schedule of standard steel doors and frames using same reference numbers for details and openings as those on Drawings:
 - 1. Elevations of each door design.
 - 2. Details of doors, including vertical and horizontal edge details.
 - 3. Frame details for each frame type, including dimensioned profiles.
 - 4. Details and locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition.
 - 6. Details of anchorages, accessories, joints, and connections.
 - 7. Details of glazing frames and stops showing glazing.
 - 8. Details of conduit and preparations for electrified door hardware and controls.
- C. Coordination Drawings: Drawings of each opening, including door and frame, drawn to scale and coordinating door hardware. Show elevations of each door design type, showing dimensions, locations of door hardware, and preparations for power, signal, and control systems.

- D. Oversize Construction Certification: For standard steel door assemblies required to be fire rated and exceeding limitations of labeled assemblies; include statement that doors comply with requirements of design, materials, and construction but have not been subjected to fire test.
- E. Product Test Reports: Based on evaluation of comprehensive fire tests performed by a qualified testing agency, for each type of standard steel door and frame.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Testing Agency Qualifications: An independent agency qualified according to ASTM E 329 for testing indicated, as documented according to ASTM E 548.
- C. Source Limitations: Obtain standard steel doors and frames through one source from a single manufacturer.
- D. Fire-Rated Door Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated.
 - 1. Test Pressure: Test at atmospheric (neutral) pressure according to NFPA 252 or UL 10B.
 - 2. Test Pressure: Test according to NFPA 252 or UL 10C. After 5 minutes into the test, the neutral pressure level in furnace shall be established at 40 inches (1000 mm) or less above the sill.
 - 3. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-protection-rated door assemblies except for size.
 - 4. Temperature-Rise Rating: At exit enclosures, provide doors that have a temperature-rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (102-mm-) high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber.
 - 1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION

- A. Coordinate installation of anchorages for standard steel frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Amweld Building Products, LLC.
 - 2. Ceco Door Products; an ASSA ABLOY Group Company.
 - 3. CURRIES Company; an ASSA ABLOY Group Company.
 - 4. Republic Builders Products Company.
 - 5. Steelcraft; an Ingersoll-Rand Company.

2.2 MATERIALS

- A. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum **A60** zinc-iron-alloy (galvannealed) coating designation.
- B. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, Commercial Steel (CS), Class B coating; mill phosphatized.
- C. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.
- D. Inserts, Bolts, and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153/A 153M.
- E. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching standard steel door frames of type indicated.
- F. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with **6- to 12-lb/cu. ft. (96- to 192-kg/cu. m)** density; with maximum flame-spread and smoke-developed indexes of 25 and 50 respectively; passing ASTM E 136 for combustion characteristics.
- G. Glazing: Comply with requirements in Division 8 Section "Glazing."
- H. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for **15-mil (0.4-mm)** dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD STEEL DOORS

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces, unless otherwise indicated. Comply with ANSI A250.8.
1. Design: Flush panel.
 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, mineral-board, or vertical steel-stiffener core that produces doors complying with ANSI A250.8.
 - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
 - b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than **6.0 deg F x h x sq. ft./Btu (1.057 K x sq. m/W)** when tested according to ASTM C 1363.
 - 1) Locations: Exterior doors and interior doors where indicated.
 3. Vertical Edges for Single-Acting Doors: Square edge.
 - a. Beveled Edge: **1/8 inch in 2 inches (3 mm in 50 mm)**.
 4. Vertical Edges for Double-Acting Doors: Round vertical edges with **2-1/8-inch (54-mm)** radius.
 5. Top and Bottom Edges: Closed with flush or inverted **0.042-inch- (1.0-mm-)** thick end closures or channels of same material as face sheets.
 6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:
1. Level 4 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
- C. Interior Doors: Face sheets fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior door requirements. Provide doors complying with requirements indicated below by referencing ANSI A250.8 for level and model and ANSI A250.4 for physical-endurance level:
1. Level 3 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
- D. Hardware Reinforcement: Fabricate reinforcement plates from same material as door face sheets to comply with the following minimum sizes:
1. Hinges: Minimum **0.123 inch (3.0 mm)** thick by **1-1/2 inches (38 mm)** wide by **6 inches (152 mm)** longer than hinge, secured by not less than 6 spot welds.
 2. Pivots: Minimum **0.167 inch (4.2 mm)** thick by **1-1/2 inches (38 mm)** wide by **6 inches (152 mm)** longer than hinge, secured by not less than 6 spot welds.
 3. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum **0.067 inch (1.7 mm)** thick.
 4. All Other Surface-Mounted Hardware: Minimum **0.067 inch (1.7 mm)** thick.
- E. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 STANDARD STEEL FRAMES

- A. General: Comply with ANSI A250.8 and with details indicated for type and profile.
- B. Exterior Frames: Fabricated from metallic-coated steel sheet.
 - 1. Fabricate frames with mitered or coped and welded face corners and seamless face joints.
 - 2. Frames for Level 4 Steel Doors: **0.078-inch** thick steel sheet, unless otherwise indicated.
- C. Interior Frames: Fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior frame requirements.
 - 1. Fabricate frames with mitered or coped and welded face corners and seamless face joints, unless otherwise indicated.
 - 2. Fabricate knocked-down frames with mitered or coped corners, for field assembly.
 - 3. Frames for Level 3 Steel Doors: **0.063-inch** thick steel sheet, unless otherwise indicated.
 - 4. Frames for Wood Doors: **0.063-inch** thick steel sheet.
 - 5. Frames for Borrowed Lights: **0.042-inch- (1.0-mm-)** thick steel sheet.
- D. Hardware Reinforcement: Fabricate reinforcement plates from same material as frames to comply with the following minimum sizes:
 - 1. Hinges: Minimum **0.123 inch (3.0 mm)** thick by **1-1/2 inches (38 mm)** wide by **6 inches (152 mm)** longer than hinge, secured by not less than 6 spot welds.
 - 2. Pivots: Minimum **0.167 inch (4.2 mm)** thick by **1-1/2 inches (38 mm)** wide by **6 inches (152 mm)** longer than hinge, secured by not less than 6 spot welds.
 - 3. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum **0.067 inch (1.7 mm)** thick.
 - 4. All Other Surface-Mounted Hardware: Minimum **0.067 inch (1.7 mm)** thick.
- E. Supports and Anchors: Fabricated from electrolytic zinc-coated or metallic-coated steel sheet.
- F. Jamb Anchors:
 - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than **0.042 inch (1.0 mm)** thick, with corrugated or perforated straps not less than **2 inches (50 mm)** wide by **10 inches (250 mm)** long; or wire anchors not less than **0.177 inch (4.5 mm)** thick.
 - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than **0.042 inch (1.0 mm)** thick.
- G. Floor Anchors: Formed from same material as frames, not less than **0.042 inch (1.0 mm)** thick, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than **2-inch (50-mm)** height adjustment. Terminate bottom of frames at finish floor surface.
- H. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.5 STOPS AND MOLDINGS

- A. Moldings for Glazed Lites in Doors: Minimum **0.032 inch (0.8 mm)** thick, fabricated from same material as door face sheet in which they are installed.
- B. Fixed Frame Moldings: Formed integral with standard steel frames, minimum **5/8 inch (16 mm)** high, unless otherwise indicated.
- C. Loose Stops for Glazed Lites in Frames: Minimum **0.032 inch (0.8 mm)** thick, fabricated from same material as frames in which they are installed.

2.6 FABRICATION

- A. General: Fabricate standard steel doors and frames to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Standard Steel Doors:
 - 1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
 - 2. Glazed Lites: Factory cut openings in doors.
- C. Standard Steel Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
 - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners, unless otherwise indicated.
 - 3. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 - 4. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than **18 inches (457 mm)** from top and bottom of frame. Space anchors not more than **32 inches (813 mm)** o.c. and as follows:
 - 1) Two anchors per jamb up to **60 inches (1524 mm)** in height.
 - 2) Three anchors per jamb from **60 to 90 inches (1524 to 2286 mm)** in height.
 - 3) Four anchors per jamb from **90 to 120 inches (2286 to 3048 mm)** in height.
 - 4) Four anchors per jamb plus 1 additional anchor per jamb for each **24 inches (610 mm)** or fraction thereof more than **120 inches (3048 mm)** in height.
 - b. Stud-Wall Type: Locate anchors not more than **18 inches (457 mm)** from top and bottom of frame. Space anchors not more than **32 inches (813 mm)** o.c. and as follows:
 - 1) Three anchors per jamb up to **60 inches (1524 mm)** in height.
 - 2) Four anchors per jamb from **60 to 90 inches (1524 to 2286 mm)** in height.
 - 3) Five anchors per jamb from **90 to 96 inches (2286 to 2438 mm)** in height.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each **24 inches (610 mm)** or fraction thereof more than **96 inches (2438 mm)** in height.
 - 5) Two anchors per head for frames more than **42 inches (1066 mm)** wide and mounted in metal-stud partitions.

5. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

- D. Hardware Preparation: Factory prepare standard steel doors and frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping, according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."
 1. Reinforce doors and frames to receive nontemplated mortised and surface-mounted door hardware.
 2. Comply with applicable requirements in ANSI A250.6 and ANSI/DHI A115 Series specifications for door and frame preparation for hardware. Locate hardware as indicated on Shop Drawings or, if not indicated, according to ANSI A250.8.

- E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.
 1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of door or frame.
 2. Multiple Glazed Lites: Provide fixed and removable stops and moldings such that each glazed lite is capable of being removed independently.
 3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 4. Provide loose stops and moldings on inside of doors and frames.
 5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.7 STEEL FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
 1. Finish standard steel door and frames after assembly.

- B. Metallic-Coated Steel Surface Preparation: Clean surfaces with nonpetroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
 1. Galvanizing Repair Paint: High-zinc-dust-content paint for reglazing welds in steel, complying with SSPC-Paint 20.

- C. Steel Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning"; remove dirt, oil, grease, or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel; comply with SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

- D. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than **0.7 mils (0.018 mm)**.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of standard steel doors and frames.
1. Examine roughing-in for embedded and built-in anchors to verify actual locations of standard steel frame connections before frame installation.
 2. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory.
- B. Prior to installation and with installation spreaders in place, adjust and securely brace standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
1. Squareness: Plus or minus **1/16 inch (1.6 mm)**, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 2. Alignment: Plus or minus **1/16 inch (1.6 mm)**, measured at jambs on a horizontal line parallel to plane of wall.
 3. Twist: Plus or minus **1/16 inch (1.6 mm)**, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 4. Plumbness: Plus or minus **1/16 inch (1.6 mm)**, measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap doors and frames to receive nontemplated mortised and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install standard steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

- B. Standard Steel Frames: Install standard steel frames for doors and borrowed lights and other openings, of size and profile indicated. Comply with SDI 105.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-protection-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Install frames with removable glazing stops located on secure side of opening.
 - d. Install door silencers in frames before grouting.
 - e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - f. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - g. Apply bituminous coating to backs of frames that are filled with mortar, grout, and plaster containing antifreezing agents.
 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar as specified in Division 4 Section "Unit Masonry Assemblies."
 5. Installation Tolerances: Adjust standard steel door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus **1/16 inch (1.6 mm)**, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus **1/16 inch (1.6 mm)**, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus **1/16 inch (1.6 mm)**, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus **1/16 inch (1.6 mm)**, measured at jambs at floor.
- C. Standard Steel Doors: Fit hollow-metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: **1/8 inch (3 mm)** plus or minus **1/16 inch (1.6 mm)**.
 - b. Between Edges of Pairs of Doors: **1/8 inch (3 mm)** plus or minus **1/16 inch (1.6 mm)**.
 - c. Between Bottom of Door and Top of Threshold: Maximum **3/8 inch (9.5 mm)**.
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum **3/4 inch (19 mm)**.
 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

- D. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with standard steel door and frame manufacturer's written instructions.
 - 1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than **9 inches (230 mm)** o.c., and not more than **2 inches (50 mm)** o.c. from each corner.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including standard steel doors or frames that are warped, bowed, or otherwise unacceptable.
- B. Clean grout and other bonding material off standard steel doors and frames immediately after installation.
- C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
- D. Galvanized Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 08111

SECTION 08211 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Solid-core doors with wood-veneer, faces.
 - 2. Factory finishing flush wood doors.
 - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
 - 4. Louvers for flush wood doors.
- B. Related Sections include the following:
 - 1. Division 8 Section "Glazing" for glass view panels in flush wood doors.

1.3 SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction, louvers, and trim for openings. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
 - 1. Indicate dimensions and locations of mortises and holes for hardware.
 - 2. Indicate dimensions and locations of cutouts.
 - 3. Indicate requirements for veneer matching.
 - 4. Indicate doors to be factory finished and finish requirements.
 - 5. Indicate fire ratings for fire doors.
- C. Samples for Initial Selection: Color charts consisting of actual materials in small sections for the following:
 - 1. Faces of Factory-Finished Doors: Show the full range of colors available for stained finishes.
- D. Samples for Verification:
 - 1. Factory finishes applied to actual door face materials, approximately **8 by 10 inches (200 by 250 mm)**, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.

2. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edgings representing typical range of color and grain for each species of veneer and solid lumber required. Finish sample with same materials proposed for factory-finished doors.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- B. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated."
 1. Provide AWI Quality Certification Labels or an AWI letter of licensing for Project indicating that doors comply with requirements of grades specified.
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
 1. Oversize, Fire-Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide oversize fire door label or certificate of inspection, from a testing and inspecting agency acceptable to authorities having jurisdiction, stating that doors comply with requirements of design, materials, and construction.
 2. Temperature-Rise Rating: At exit enclosures, provide doors that have a temperature-rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in cardboard cartons and wrap bundles of doors in plastic sheeting.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 17 and 50 percent during the remainder of the construction period.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span.

1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
2. Warranty shall be in effect during the following period of time from date of Substantial Completion:
 - a. Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Flush Wood Doors:
 - a. Algoma Hardwoods Inc.
 - b. Buell Door Company.
 - c. Eggers Industries; Architectural Door Division.
 - d. Weyerhaeuser Company.
 2. Metal Louvers for Doors:
 - a. Air Louvers, Inc.
 - b. Gulfport Industries, Inc.
 - c. Leslie-Locke, Inc.

2.2 DOOR CONSTRUCTION, GENERAL

- A. Certified Wood: Fabricate doors with cores veneers not less than 70 percent of wood products produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."
- B. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that do not contain urea formaldehyde.
- C. Doors for Transparent Finish:
 1. Grade: Custom (Grade A faces).
 2. Species and Cut: White birch, rotary cut.
 3. Match between Veneer Leaves: Book match.
 4. Assembly of Veneer Leaves on Door Faces: Running match.
 5. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
 6. Stiles: Same species as faces or a compatible species.

2.3 SOLID-CORE DOORS

A. Particleboard Cores: Comply with the following requirements:

1. Particleboard: ANSI A208.1, Grade LD-1.
2. Blocking: Provide wood blocking in particleboard-core doors as follows:
 - a. 5-inch (125-mm) top-rail blocking, in doors indicated to have closers.
 - b. 5-inch (125-mm) bottom-rail blocking, in exterior doors and doors indicated to have kick, mop, or armor plates.
 - c. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.

B. Interior Veneer-Faced Doors:

1. Core: Either glued block or structural composite lumber.
2. Construction: Five plies with stiles and rails bonded to core, then entire unit abrasive planed before veneering.
3. Construction: Seven plies, either bonded or nonbonded construction.

C. Fire-Rated Doors:

1. Construction: Construction and core specified above for type of face indicated or manufacturer's standard mineral-core construction as needed to provide fire rating indicated.
2. Blocking: For mineral-core doors, provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated as follows:
 - a. 5-inch (125-mm) top-rail blocking.
 - b. 5-inch (125-mm) bottom-rail blocking, in doors indicated to have protection plates.
 - c. 5-inch (125-mm) midrail blocking, in doors indicated to have armor plates.
 - d. 5-inch (125-mm) midrail blocking, in doors indicated to have exit devices.
3. Edge Construction: At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching face veneer.
4. Pairs: Provide fire-rated pairs with fire-retardant stiles matching face veneer that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals..

2.4 LOUVERS AND LIGHT FRAMES

A. Metal Louvers:

1. Blade Type: Vision-proof, inverted V.
2. Metal and Finish: Extruded aluminum with Class II, clear anodic finish complying with AA-C22A31.

B. Wood Beads for Light Openings in Wood Doors:

1. Wood Species: Same species as door faces.
2. Profile: Flush rectangular beads.
3. At 20-minute, fire-rated, wood-core doors, provide wood beads and metal glazing clips approved for such use.

- C. Metal Frames for Light Openings in Fire Doors: Manufacturer's standard frame formed of 0.0478-inch- (1.2-mm-) thick, cold-rolled steel sheet; factory primed and approved for use in doors of fire rating indicated.

2.5 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
 - 1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
 - 1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.
 - 2. Metal Astragals: Premachine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Louvers: Factory install louvers in prepared openings.

2.6 FACTORY FINISHING

- A. General: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated" for factory finishing.
- B. Finish doors at factory.
- C. Finish doors at factory that are indicated to receive transparent finish. Field finish doors indicated to receive opaque finish.
- D. Finish doors at factory where indicated in schedules or on Drawings as factory finished.
- E. Transparent Finish:
 - 1. Grade: Custom.
 - 2. Staining: As selected by Architect from manufacturer's full range.
 - 3. Effect: Semi filled finish.
 - 4. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Division 8 Section "Door Hardware."
- B. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
 - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08211

SECTION 08331 OVERHEAD COILING DOORS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes insulated overhead coiling service doors.

1.02 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design exterior door and frame assemblies, including comprehensive engineering analysis by a qualified Florida registered professional engineer, using performance requirements and design criteria indicated.
 - 1. Wind Loads and Wind Pressures: As indicated on Structural Drawings. Design and fabricate exterior overhead coiling door and frame assemblies to resist wind load and large missile impact forces in accordance with the Florida Building Code, ASCE 7, and local amendment requirements for Components and Cladding.
 - 2. Exterior overhead coiling door and frame assemblies shall be designed as a system with minimum properties and to resist minimum load requirements as indicated. Design of the assemblies shall include associated hardware, connections of the hardware, anchorage components and supporting structural connections.
 - 3. Deflection Limits: Design overhead coiling doors to withstand design wind load without evidencing permanent deformation or disengagement of door components.
- B. Operation Cycles: Provide overhead coiling door components and operators capable of operating for not less than number of cycles indicated for each door. One operation cycle is complete when a door is opened from the closed position to the fully open position and returned to the closed position

1.03 SUBMITTALS

- A. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Wiring Diagrams: For power, signal, and control wiring.
- B. Samples: For each exposed product and for each color and texture specified.
- C. Delegated-Design Submittal: When required by Authorities Having Jurisdiction, submit performance requirements and design criteria, to certify that exterior overhead coiling door and frame assemblies comply with the Florida Building Code, ASCE 7, and local

amendment requirements for component and cladding design, all signed and sealed by the qualified Florida registered professional engineer responsible for their preparation.

1. Design Data: Calculations for design loading and anchorage of door assemblies.
2. Product Certificates: Miami-Dade Product Approval or FBC Product Approval data.
3. Summary of forces and loads on walls and jambs.

D. Maintenance Data.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for both installation and maintenance of units required for this Project.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

PART 2 - PRODUCTS

2.01 DOOR CURTAIN MATERIALS AND CONSTRUCTION

- A. Door Curtains: Fabricate overhead coiling-door curtains of interlocking metal slats, designed to withstand wind loading indicated, in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:
 1. Insulation: Fill slats for insulated doors with manufacturer's standard thermal insulation complying with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E 84. Enclose insulation completely within slat faces.
 2. Metal Interior Curtain-Slat Facing: Match metal of exterior curtain-slat face.
- B. Bottom Bars: Consisting of two angles, each not less than 1-1/2 by 1-1/2 by 1/8 inch thick; fabricated from metal to match curtain slats and finish.
- C. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overtravel of curtain.

2.02 HOODS

- A. Form sheet metal hoods to entirely enclose coiled curtain and operating mechanisms at opening heads. Contour to fit end brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods. Equip hoods with intermediate support brackets as required to prevent sagging. Fabricate hoods to act as weather protection and with a perimeter sealant joint- bead profile for applying joint sealant.

2.03 LOCKING DEVICES

- A. Chain Lock Keeper: Suitable for padlock.
- B. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.

2.04 CURTAIN ACCESSORIES

- A. Weatherseals: Equip doors with weather-stripping gaskets fitted to entire perimeter of door for a weathertight installation.

2.05 COUNTERBALANCING MECHANISM

- A. Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use resealed bearings or self-lubricating graphite bearings for rotating members.
- B. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.

2.06 ELECTRIC DOOR OPERATORS

- A. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operation-cycles requirement specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, remote-control stations, control devices, integral gearing for locking door, and accessories required for proper operation.
 - 1. Comply with NFPA 70.
 - 2. Provide control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 Class 2 control circuit, maximum 24 V, ac or dc.
- B. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.
- C. Electric Motors: Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for Common Motor Requirements for Equipment unless otherwise indicated.
 - 1. Electrical Characteristics: 480 Volt, 3-Phase, 60 Hertz.

2. Motor Type and Controller: Reversible motor and controller (disconnect switch) for motor exposure indicated.
 3. Motor Size: Minimum size as indicated. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. and not more than 12 in./sec., without exceeding nameplate ratings or service factor.
 4. Operating Controls, Controllers (Disconnect Switches), Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.
- D. Obstruction Detection Device: Equip motorized doors with indicated external automatic safety sensor capable of protecting full width of door opening. For non-fire-rated doors, activation of device immediately stops and reverses downward door travel. For fire-rated doors, activation delays closing.
1. Photoelectric Sensor: Manufacturer's standard system designed to detect an obstruction in door opening without contact between door and obstruction. Provide self-monitoring capability designed to interface with door operator control circuit to detect damage to or disconnection of sensing device.
 2. Sensor Edge: Automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable. Provide self-monitoring capability designed to interface with door operator control circuit to detect damage to or disconnection of sensing device.
- E. Remote-Control Station: Momentary-contact, 4-button control station with push-button controls labeled "Open," "Close," "Mid-Stop" and "Stop." Provide exterior units, full-guarded, standard-duty, surface-mounted, weatherproof type, NEMA ICS 6, Type 4 enclosures.
- F. Emergency Manual Operation: Equip each electrically powered door with capability for emergency manual operation with chain pulley. Design manual mechanism so required force for door operation does not exceed 30 lbf.
- G. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual chain operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include interlock device to automatically prevent motor from operating when emergency operator is engaged.
- H. Motor Removal: Design operator so motor may be removed without disturbing limit switch adjustment and without affecting emergency manual operation.
- I. Audible and Visual Signals: Audible alarm and visual indicator lights in compliance with regulatory requirements for accessibility.

2.07 DOOR ASSEMBLY

- A. Manufacturer (**Basis of Design**): Cornell Iron Works, Inc., Crestwood Industrial Park, Mountaintop, PA 18707. Telephone: (800) 233-8366, Fax: (800) 526-0841. Underwriters Laboratories, Inc. (UL), ISO 9001:2008 Registered.
- B. Performance Requirements:

1. Provide doors with Underwriters' Laboratories, Inc. label for the fire rating classification, 1 hr label.
 2. Minimum R-value of 8.0 (U-factor of 0.125) as calculated using the ASHRAE Handbook of Fundamentals.
 3. Insulation to be CFC Free with an Ozone Depletion Potential (ODP) rating of zero.
- C. Manufacturer: Cornell Iron Works, Inc., Crestwood Industrial Park, Mountaintop, PA 18707. Telephone: (800) 233-8366, Fax: (800) 526-0841. Underwriters Laboratories, Inc. (UL), ISO 9001:2008 Registered.
- D. Model: ESD20 - Thermal Insulated 15/16" thick door slats.
- E. Curtain: GalvaNex™ Coating System and phosphate treatment followed by baked-on polyester powder coat, color as selected by Architect from manufacturer's standard color range, minimum 32 colors, minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
- F. Locking: Masterkeyable cylinder operable from both sides of bottom bar. Provide interlock switches on motor operated units.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install overhead coiling doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and equipment supports; according to manufacturer's written instructions and as specified.
- B. Adjust hardware and moving parts to function smoothly so that doors operate easily, free of warp, twist, or distortion. Lubricate bearings and sliding parts as recommended by manufacturer. Adjust seals to provide weathertight fit around entire perimeter.

3.02 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain overhead coiling doors.

END OF SECTION 08331

SECTION 08411 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

- 1. Exterior aluminum-framed storefronts.
 - a. Glazing is retained mechanically with gaskets on four sides.
- 2. Exterior manual-swing aluminum doors.

- B. Related Sections include the following:

- 1. Division 7 Section "Joint Sealants" for installation of joint sealants installed with aluminum-framed systems and for sealants to the extent not specified in this Section.
- 2. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
- 3. Division 8 Section "Glazing" for glazing requirements to the extent not specified in this Section.

- C. General: Provide aluminum-framed systems, including anchorage, capable of withstanding, without failure, the effects of the following:

- 1. Structural loads.
- 2. Thermal movements.
- 3. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
- 4. Dimensional tolerances of building frame and other adjacent construction.
- 5. Failure includes the following:
 - a. Deflection exceeding specified limits.
 - b. Thermal stresses transferred to building structure.
 - c. Framing members transferring stresses, including those caused by thermal and structural movements, to glazing.
 - d. Noise or vibration created by wind and thermal and structural movements.
 - e. Loosening or weakening of fasteners, attachments, and other components.
 - f. Sealant failure.
 - g. Failure of operating units to function properly.

- D. Structural Loads:
1. Wind Loads: As indicated on Structural Drawings.
- E. Deflection of Framing Members:
1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13 feet 6 inches (4.1 m) and to 1/240 of clear span plus 1/4 inch (6.35 mm) for spans greater than 13 feet 6 inches (4.1 m) or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19 mm), whichever is less.
 2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8 inch (3.2 mm), whichever is smaller.
- F. Structural-Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:
1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
 2. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
 3. Test Durations: As required by design wind velocity but not less than 10 seconds.
- G. Windborne-Debris-Impact-Resistance-Test Performance: Provide aluminum-framed systems that pass large and small missile-impact tests and cyclic-pressure tests according to the Florida Building Code.
- H. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- I. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa).
- J. Water Penetration Under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft. (300 Pa).
1. Maximum Water Leakage: According to AAMA 501.1. Water controlled by flashing and gutters that is drained to exterior and cannot damage adjacent materials or finishes is not considered water leakage.
- K. Average Thermal Conductance: Provide aluminum-framed systems with fixed glazing and framing areas having average U-factor of not more than 0.69 Btu/sq. ft. x h x deg F (3.92 W/sq. m x K) when tested according to AAMA 1503.

- L. Sound Transmission: Provide aluminum-framed systems with fixed glazing and framing areas having minimum STC 32 according to ASTM E 413 and an OITC 26 according to ASTM E 1332, as determined by testing according to ASTM E 90.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of product indicated.
- B. Shop Drawings: For aluminum-framed systems. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 - 2. Include details of provisions for system expansion and contraction and for draining moisture occurring within the system to the exterior.
 - 3. For entrances, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.
- C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- D. Fabrication Sample: Of each vertical-to-horizontal intersection of systems, made from 12-inch (300-mm) lengths of full-size components and showing details of the following:
 - 1. Joinery.
 - 2. Anchorage.
 - 3. Expansion provisions.
 - 4. Glazing.
 - 5. Flashing and drainage.
- E. Qualification Data: For Installer.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems.
- G. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Capable of assuming engineering responsibility and performing work of this Section and who is acceptable to manufacturer.
 - 1. Engineering Responsibility: Preparation of data for aluminum-framed systems including Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project and submission of reports of tests performed on manufacturer's standard assemblies.
- B. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to

verification by one or more methods including preconstruction testing, field testing, and in-service performance.

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

C. Accessible Entrances: Comply with FED-STD-795, "Uniform Federal Accessibility Standards."

1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Arch Aluminum & Glass Co., Inc.
2. Kawneer.
3. Vistawall Architectural Products.

2.2 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Sheet and Plate: **ASTM B 209 (ASTM B 209M)**.
2. Extruded Bars, Rods, Profiles, and Tubes: **ASTM B 221 (ASTM B 221M)**.
3. Extruded Structural Pipe and Tubes: ASTM B 429.
4. Structural Profiles: ASTM B 308/B 308M.

2.3 FRAMING SYSTEMS

- A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Construction: Framing members are composite assemblies of two separate extruded-aluminum components permanently bonded by an elastomeric material of low thermal conductance.

- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.

1. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
 2. Reinforce members as required to receive fastener threads.
- D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123M or ASTM A 153/A 153M requirements.
- E. Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials. Form exposed flashing from sheet aluminum finished to match framing and of sufficient thickness to maintain a flat appearance without visible deflection.
- F. Framing System Gaskets and Sealants: Manufacturer's standard recommended by manufacturer for joint type.

2.4 GLAZING SYSTEMS

- A. Glazing: As specified in Division 8 Section "Glazing."
- B. Glazing Gaskets: Manufacturer's standard compression types, replaceable, molded or extruded, that maintain uniform pressure and watertight seal.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric types.

2.5 DOORS

- A. Doors: Manufacturer's standard glazed doors, for manual swing operation.
1. Door Construction: 1-3/4-inch (44.5-mm) overall thickness, with minimum 0.125-inch- (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deep penetration and fillet welded or that incorporate concealed tie rods.
 2. Door Design: Wide stile; 5-inch (127-mm) nominal width.
 - a. Accessible Doors: Smooth surfaced for width of door in area within 10 inches (255 mm) above floor or ground plane.
 3. Glazing Stops and Gaskets: Beveled, snap-on, extruded-aluminum stops and preformed gaskets.
 - a. Provide nonremovable glazing stops on outside of door.
- B. Door Hardware: As specified in Division 8 Section "Door Hardware."

2.6 ACCESSORY MATERIALS

- A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 7 Section "Joint Sealants."
- B. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.7 FABRICATION

- A. Form aluminum shapes before finishing.
- B. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Means to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
 - 4. Physical and thermal isolation of glazing from framing members.
 - 5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 6. Provisions for field replacement of glazing from exterior.
 - 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- C. Mechanically Glazed Framing Members: Fabricate for flush glazing (without projecting stops).
- D. Door Frames: Reinforce as required to support loads imposed by door operation and for installing hardware.
 - 1. At exterior doors, provide compression weather stripping at fixed stops.
- E. Doors: Reinforce doors as required for installing hardware.
 - 1. At pairs of exterior doors, provide sliding weather stripping retained in adjustable strip mortised into door edge.
 - 2. At exterior doors, provide weather sweeps applied to door bottoms.
- F. Hardware Installation: Factory install hardware to the greatest extent possible. Cut, drill, and tap for factory-installed hardware before applying finishes.
- G. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.8 ALUMINUM FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- C. High-Performance Organic Finish (2-Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: conversion coating; Organic Coating: manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturers' written instructions.
 - 1. Color and Gloss: White.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General:
 - 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.
 - 4. Rigidly secure nonmovement joints.
 - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
 - 6. Seal joints watertight, unless otherwise indicated.
- B. Metal Protection:
 - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing nonconductive spacers as recommended by manufacturer for this purpose.
 - 2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
- D. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" and to produce weathertight installation.
- E. Install components plumb and true in alignment with established lines and grades, without warp or rack.
- F. Install glazing as specified in Division 8 Section "Glazing."
- G. Entrances: Install to produce smooth operation and tight fit at contact points.
 - 1. Exterior Entrances: Install to produce tight fit at weather stripping and weathertight closure.
 - 2. Field-Installed Hardware: Install surface-mounted hardware according to hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.
- H. Install perimeter joint sealants as specified in Division 7 Section "Joint Sealants" and to produce weathertight installation.

- I. Erection Tolerances: Install aluminum-framed systems to comply with the following maximum tolerances:
 - 1. Location and Plane: Limit variation from true location and plane to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
 - 2. Alignment:
 - a. Where surfaces abut in line, limit offset from true alignment to 1/16 inch (1.5 mm).
 - b. Where surfaces meet at corners, limit offset from true alignment to 1/32 inch (0.8 mm).
 - 3. Diagonal Measurements: Limit difference between diagonal measurement to 1/8 inch (3 mm).

3.3 ADJUSTING

- A. Entrances: Adjust operating hardware for smooth operation according to hardware manufacturers' written instructions.
 - 1. For doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches (75 mm) from the latch measured to the leading door edge.

END OF SECTION 08411

SECTION 08581 ALUMINUM SLIDING SERVICE WINDOW

PART 1 – GENERAL

1.01 SUMMARY

- A. This section includes:
 - 1. Aluminum, heavy-duty commercial sliding service windows as indicated in drawings and in sections.

1.02 SUBMITTALS

- A. Product Data: Submit Manufacturer's technical product data substantiating that products comply.
- B. Shop drawings: Submit for fabrication and installation of windows. Include details, elevations and installation requirement of finish hardware and cleaning.
- C. Certification: Provide printed data in sufficient detail to indicate compliance with the contract documents.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver windows crated to provide protection during transit and job storage
- B. Inspect windows upon delivery for damage. Unless minor defects can be made to meet the Architect's specifications and satisfaction, damaged parts should be removed and replaced.
- C. Store windows at building site under cover in dry location.

1.04 PROJECT CONDITIONS

- A. Field measurements: Check opening by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.

1.05 WARRANTY

All material and workmanship shall be warranted against defects for a period of one (1) year from the original date of purchase.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURER'S

- A. **Basis of Design:** Design is based on aluminum (DW) series, deluxe sliding service window manufactured by C.R. Laurence Co., Inc. (800) 421-6144

2.02 MATERIALS

- A. **Frames:** 4" Aluminum frame modules shall be constructed of 6063-T5 extruded aluminum. Replacement and servicing of glass shall be from the clerk side of the window by means of an access panel in the top header and does not require the removal of the frame from the opening. Window glides on top-hung heavy-duty ball bearing slides. Poly-pile weather stripping and self-latching handle. Overall frame sizes are to be in accordance with the contract drawings.
- B. **Finish:** All aluminum to be clear anodized, duranodic bronze, powder or Kynar painted (specify color).
- C. **Glazing:** The glazing is ¼" to ½" in thickness. Options include tempered, wire, laminated, tinted, and insulating glass (specify type of glazing material desired).
- D. **Options:** Laminated Shelf, stainless steel shelf, keyed lock, full bottom track, or burglar bar. (specify desired options).

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install window in accordance with manufacturer's printed instructions and recommendations. Repair damaged units as directed (if approved by the manufacturer and the architect) or replace with new units.

3.02 CLEANING

- A. Clean frame and glazing surfaces after installation, complying with requirements contained in the manufacturer's instructions. Remove excess glazing sealant compounds, dirt or other substances.

3.03 PROTECTION

- A. Institute protective measures required throughout the remainder of the construction period to ensure that all the windows do not incur any damage or deterioration, other than normal weathering, at the time of acceptance.

END OF SECTION 08581

SECTION 08710 - FINISH HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 06 Section "Rough Carpentry"
2. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
3. Division 08 Sections:
 - a. "Metal Doors and Frames"
 - b. "Flush Wood Doors"
 - c. "Stile and Rail Wood Doors"
 - d. "Aluminum-Framed Entrances and Storefronts"
 - e. "Entrances"
4. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
5. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
 - b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.

3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule:
 - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
 - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
 - c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.
 - 9) Degree of door swing and handing.
 - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

5. Key Schedule:
 - a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
 - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
 - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.
3. Florida Building Code; Wind load: Submit certified independent lab test or NOA report on each type of exterior opening. All exterior opening submittals shall include door number, door and frame elevations and all finish hardware as tested as an assembly. These reports are to be forwarded to the building department.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Final approved hardware schedule edited to reflect conditions as installed.
 - d. Final keying schedule
 - e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
 - f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
 - a. Fire door assemblies, in compliance with NFPA 80.
 - b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.

3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
 4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
- B. Certifications:
1. Fire-Rated Door Openings:
 - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
 2. Smoke and Draft Control Door Assemblies:
 - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
 - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
 3. Electrified Door Hardware
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
 4. Accessibility Requirements:
 - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.
- C. Pre-Installation Meetings
1. Keying Conference
 - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.

- 4) Requirements for access control.
 - 5) Address for delivery of keys.
2. Pre-installation Conference
 - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Inspect and discuss preparatory work performed by other trades.
 - c. Inspect and discuss electrical roughing-in for electrified door hardware.
 - d. Review sequence of operation for each type of electrified door hardware.
 - e. Review required testing, inspecting, and certifying procedures.
 - f. Review questions or concerns related to proper installation and adjustment of door hardware.
 3. Electrified Hardware Coordination Conference:
 - a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.
 4. Hurricane and Wind Load Assemblies:
 - a. Provide hardware that meets the hurricane and wind load test requirements in accordance with the Florida Building code and in compliance with the local authority having jurisdiction.
 - b. All openings required to meet either the impact test or wind load test as indicated by the architect shall be tested as systems with the finish hardware, hollow metal doors, and frames.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 - 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
 - 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.
 - a. Mechanical Warranty
 - 1) Locks
 - a) Schlage ND Series: 10 years
 - 2) Exit Devices
 - a) Von Duprin: 3 years
 - 3) Closers
 - a) LCN 4000 Series: 30 years

1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 - 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
- C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.
2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. Cable and Connectors:

1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 5BB series
2. Acceptable Manufacturers and Products:
 - a. Hager BB1191/1279 series
 - b. McKinney TB series
 - c. Stanley FBB series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high

4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Rockwood
 - c. Trimco

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.05 SURFACE BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Rockwood
 - c. Trimco

B. Requirements:

1. Surface bolts to have 1" throw for maximum security with concealed mounting that prevents vandalism. Units to be constructed of heavy-duty steel and UL listed up to three (3) hours when used on the inactive door of a pair up to 8' in height.

2.06 COORDINATORS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Rockwood
 - c. Trimco

B. Requirements:

1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.
2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers, surface vertical rod exit device strikes, or other stop mounted hardware. Factory-prepared coordinators for vertical rod devices as specified.

2.07 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage ND series

2. Acceptable Manufacturers and Products:

- a. No Substitute - Owner Standard

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets.
8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

- a. Lever Design: RHO

2.08 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

- a. Von Duprin 99/33A series

2. Acceptable Manufacturers and Products:

- a. No Substitute - Owner Standard

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide grooved touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
7. Provide flush end caps for exit devices.
8. Provide exit devices with manufacturer's approved strikes.
9. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
10. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
11. Provide cylinder or hex-key dogging as specified at non fire-rated openings.

12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.
17. Special Options:
 - a. HH
 - 1) Provide wind and impact rated hurricane exit devices and mullions certified to comply with Florida Building Code (FBC) TAS 201, 202, 203.

2.09 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer and Product:
 - a. Schlage Everest 29 Primus XP. Verify with Owner on Core.
2. Acceptable Manufacturers and Products:
 - a. No Substitute - Owner Standard.

B. Requirements:

1. Provide cylinders/cores to match Owner's existing key system, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.

2.10 KEYING

A. Scheduled System:

1. Existing factory registered system:
 - a. Provide cylinders/cores keyed into Owner's existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Permanent Keying:

- a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - 1) Master Keying system as directed by the Owner.
- b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
- c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
- d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
- e. Quantity: Furnish in the following quantities.
 - 1) Change (Day) Keys: 3 per cylinder/core.
 - 2) Permanent Control Keys: 3.
 - 3) Master Keys: 6.

2.11 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Telkee
2. Acceptable Manufacturers:
 - a. HPC
 - b. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.

- a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
- b. Provide hinged-panel type cabinet for wall mounting.

2.12 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. LCN 4040XP series
2. Acceptable Manufacturers and Products:
 - a. No Substitute - Owner Standard

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.13 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives

2. Acceptable Manufacturers:

- a. Trimco
- b. Burns
- c. Rockwood

B. Requirements:

- 1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.14 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:

- a. Ives

2. Acceptable Manufacturers:

- a. Burns
- b. Trimco
- c. Rockwood

B. Requirements:

- 1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
- 2. Size plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
- 3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.15 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:

- a. Glynn-Johnson

2. Acceptable Manufacturers:

- a. Rixson
- b. ABH

B. Requirements:

- 1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2. Provide friction type at doors without closer and positive type at doors with closer.

2.16 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:

- a. Ives

2. Acceptable Manufacturers:

- a. Trimco
- b. Burns
- c. Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.17 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:

- a. Zero International

2. Acceptable Manufacturers:

- a. National Guard
- b. Reese
- c. Legacy
- d. Pemko

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.18 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Rockwood
 - c. Trimco

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.19 FINISHES

A. FINISH: BHMA 626/652 (US26D); EXCEPT:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)
5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

3.03 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Connections to panel interface modules, controllers, and gateways.
 - 6. Testing and labeling wires with Architect's opening number.
- J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- K. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- L. Closer/holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- M. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- N. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

- R. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.04 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.05 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.06 DOOR HARDWARE SCHEDULE - SEE SHEET A6.10

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

END OF SECTION 08710

SECTION 08800 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

- 1. Storefront Windows

1.3 DEFINITIONS

- A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
 - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - a. Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in **miles per hour (meters per second)** at **33 feet (10 m)** above grade, according to ASCE 7-10, "Minimum Design Loads for Buildings and Other Structures": Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.
 - b. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.
 - 1) Load Duration: 3 seconds.

- c. Maximum Lateral Deflection: For the following types of glass supported on all 4 edges, provide thickness required that limits center deflection at design wind pressure to 1/50 times the short side length or 1 inch (25 mm), whichever is less.
 - 1) For monolithic-glass lites heat-treated to resist wind loads.
 - d. Minimum Glass Thickness for Exterior Lites: Not less than 6.0 mm.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
 - 1. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for the following methodologies:
 - a. U-Factors: NFRC 100 expressed as Btu/ sq. ft. x h x deg F (W/sq. m x K).
 - b. Solar Heat Gain Coefficient: NFRC 200.
 - c. Solar Optical Properties: NFRC 300.

1.5 SUBMITTALS

- A. Product Data: For each glass product and glazing material indicated.
- B. Samples: For the following products, in the form of 12-inch- (300-mm-) square Samples for glass.
 - 1. Fire-resistive glazing products.
- C. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
- E. Qualification Data: For installers.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- B. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source from a single manufacturer for each product and installation method indicated.

- C. Glass Product Testing: Obtain glass test results for product test reports in "Submittals" Article from a qualified testing agency based on testing glass products.
 - 1. Glass Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
 - 2. Glass Testing Agency Qualifications: An independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

- D. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201.
 - 1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of the Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.
 - 2. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2 articles for glazing lites more than 9 sq. ft. (0.84 sq. m) in exposed surface area of one side, provide glazing products that comply with Category II materials, for lites 9 sq. ft. (0.84 sq. m) or less in exposed surface area of one side, provide glazing products that comply with Category I or II materials, except for hazardous locations where Category II materials are required by 16 CFR 1201 and regulations of authorities having jurisdiction.

- E. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. GANA Publications: GANA's "Glazing Manual."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Product: Subject to compliance with requirements, provide product specified.

2.2 GLASS PRODUCTS

- A. Annealed Float Glass: ASTM C 1036, Type I (transparent flat glass), Quality-Q3; of class indicated.

2.3 FIRE-RATED GLAZING PRODUCTS

- A. Specially Tempered Monolithic Glass: Proprietary Category II safety glazing product in the form of a specially tempered ~~3/8-inch~~ (9.5-mm) thick monolithic lite, and as follows:
 - 1. Fire-Protection Rating: 20 minutes, and permanently labeled by a testing and inspecting agency acceptable to authorities having jurisdiction.
 - 2. Product: Subject to compliance with requirements, "SuperLite" by SAFTI; a Division of O'Keeffe's Inc.

2.4 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - 1. AAMA 804.3 tape, where indicated.
 - 2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - 3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
 - 1. Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.5 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

- G. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistance rating.

2.6 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

2.7 MONOLITHIC FLOAT-GLASS UNITS

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep system.
 - 3. Minimum required face or edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm) as follows:
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- J. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- E. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 08800

SECTION 09220 - PORTLAND CEMENT PLASTER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Exterior portland cement plasterwork (stucco) on solid- plaster bases.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood framing and furring included in portland cement plaster assemblies.
 - 2. Division 7 Section "Building Insulation" for thermal insulations and vapor retarders included in portland cement plaster assemblies.
 - 3. Division 7 Section "Joint Sealants" for sealants installed with exterior portland cement plaster (stucco).

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each type of textured finish coat indicated; 12 by 12 inches (305 by 305 mm), and prepared on rigid backing.

1.4 QUALITY ASSURANCE

- A. Mockups: Before plastering, install mockups of at least 100 sq. ft. (9 sq. m) in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Install mockups for each type of finish indicated.
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

1.6 PROJECT CONDITIONS

- A. Comply with ASTM C 926 requirements.
- B. Exterior Plasterwork:
 - 1. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.
 - 2. Apply plaster when ambient temperature is greater than 40 deg F (4.4 deg C).
 - 3. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.

PART 2 - PRODUCTS.

2.1 METAL LATH

- A. Expanded-Metal Lath: ASTM C 847 with ASTM A 653/A 653M, G60 (Z180), hot-dip galvanized zinc coating.
 - 1. Available Manufacturers:
 - a. Alabama Metal Industries Corporation (AMICO).
 - b. California Expanded Metal Products Company (CEMCO).
 - c. Dale/Incor.
 - d. Marino/Ware; Division of Ware Industries, Inc.
 - e. Phillips Manufacturing Co.
 - f. Unimast, Inc.
 - g. Western Metal Lath & Steel Framing Systems.
 - 2. Diamond-Mesh Lath: Self-furring.
 - a. Weight: 2.5 lb/sq. yd. (1.4 kg/sq. m).
 - 3. Flat Rib Lath: Rib depth of not more than 1/8 inch (3.1 mm).
 - a. Weight: 2.75 lb/sq. yd. (1.5 kg/sq. m).

2.2 ACCESSORIES

- A. General: Comply with ASTM C 1063 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
- B. Zinc and Zinc-Coated (Galvanized) Accessories:
 - 1. Available Manufacturers:
 - a. Alabama Metal Industries Corporation (AMICO).
 - b. California Expanded Metal Products Company (CEMCO).
 - c. Dale/Incor.
 - d. Dietrich Industries, Inc.
 - e. Phillips Manufacturing Co.
 - f. Unimast, Inc.

- g. Western Metal Lath & Steel Framing Systems.
- h. Insert manufacturer's name.

C. Plastic Trim: Fabricated from high-impact PVC.

1. Available Manufacturers:

- a. Alabama Metal Industries Corporation (AMICO).
- b. Plastic Components, Inc.
- c. Vinyl Corp.

2. Casing Beads: With perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated.

- a. Square-edge style; use unless otherwise indicated.
- b. Bull-nose style, radius **3/4 inch (19.1 mm)** minimum; use at locations indicated on Drawings.

3. Control Joints: One-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.

2.3 MISCELLANEOUS MATERIALS

A. Water for Mixing: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

B. Bonding Compound: ASTM C 932.

C. Steel Drill Screws: For metal-to-metal fastening, ASTM C 1002 or ASTM C 954, as required by thickness of metal being fastened; with pan head that is suitable for application; in lengths required to achieve penetration through joined materials of not fewer than three exposed threads.

D. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C 1063.

2.4 PLASTER MATERIALS

A. Portland Cement: ASTM C 150, Type I.

1. Color for Finish Coats: Gray.

B. Lime: ASTM C 206, Type S; or ASTM C 207, Type S.

C. Sand Aggregate: ASTM C 897.

2.5 PLASTER MIXES

A. General: Comply with ASTM C 926 for applications indicated.

- 1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed **1 lb of fiber/cu. ft. (16 kg of fiber/cu. m)** of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.

- B. Base-Coat Mixes for Use over Concrete Unit Masonry: Single base coats for two-coat plasterwork as follows:
 - 1. Portland Cement Mix: For cementitious material, mix 1 part portland cement and 3/4 to 1-1/2 parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material (sum of separate volumes of each component material).
- C. Job-Mixed Finish-Coat Mixes:
 - 1. Portland Cement Mix: For cementitious materials, mix 1 part portland cement and 1-1/2 to 2 parts lime. Use 1-1/2 to 3 parts aggregate per part of cementitious material (sum of separate volumes of each component material).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
- B. Prepare solid-plaster bases that are smooth or that do not have the suction capability required to bond with plaster according to ASTM C 926.

3.3 INSTALLING METAL LATH

- A. Expanded-Metal Lath: Install according to ASTM C 1063.
 - 1. Flat-Ceiling and Horizontal Framing: Install flat diamond-mesh lath.
 - 2. On Solid Surfaces, Not Otherwise Furred: Install self-furring diamond-mesh lath.

3.4 INSTALLING ACCESSORIES

- A. Install according to ASTM C 1063 and at locations indicated on Drawings.
- B. Control Joints: Install control joints at locations indicated on Drawings.
 - 1. As required to delineate plasterwork into areas (panels) of the following maximum sizes:
 - a. Vertical Surfaces: 144 sq. ft. (13.4 sq. m).
 - b. Horizontal and other Nonvertical Surfaces: 100 sq. ft. (9.3 sq. m).

2. At distances between control joints of not greater than 18 feet (5.5 m) o.c.
3. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.
4. Where control joints occur in surface of construction directly behind plaster.
5. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

3.5 PLASTER APPLICATION

A. General: Comply with ASTM C 926.

1. Do not deviate more than plus or minus 1/4 inch in 10 feet (6.4 mm in 3 m) from a true plane in finished plaster surfaces, as measured by a 10-foot (3-m) straightedge placed on surface.
2. Grout hollow-metal frames, bases, and similar work occurring in plastered areas, with base-coat plaster material, before lathing where necessary. Except where full grouting is indicated or required for fire-resistance rating, grout at least 6 inches (152 mm) at each jamb anchor.
3. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
4. Provide plaster surfaces that are ready to receive field-applied finishes indicated.

B. Bonding Compound: Apply on unit masonry plaster bases.

C. Plaster Finish Coats: Apply to match stucco finish on existing building. .

3.6 CUTTING AND PATCHING

- #### A.
- Cut, patch, replace, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

3.7 CLEANING AND PROTECTION

- #### A.
- Remove temporary protection and enclosure of other work. Promptly remove plaster from doorframes, windows, and other surfaces not indicated to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

END OF SECTION 09220

SECTION 09250 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum board.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood framing and furring that supports gypsum board.
 - 2. Division 7 Section "Building Insulation" for insulation and vapor retarders installed in assemblies that incorporate gypsum board.
 - 3. Division 7 Section "Joint Sealants" for acoustical sealants installed in assemblies that incorporate gypsum board.
 - 4. Division 9 painting Sections for primers applied to gypsum board surfaces.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

1.5 STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.

- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 PANELS, GENERAL

- A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. G-P Gypsum.
 - b. National Gypsum Company.
 - c. USG Corporation.
- B. Regular Type:
 - 1. Thickness: 5/8 inch (15.9 mm).
 - 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
- C. Type X:
 - 1. Thickness: 5/8 inch (15.9 mm).
 - 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
- D. Moisture- and Mold-Resistant Type: With moisture- and mold-resistant core and surfaces.
 - 1. Core: 5/8 inch (15.9 mm), Type X.
 - 2. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Plastic.
 - 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. Expansion (control) joint.

2.5 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
 - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.
- D. Joint Compound for Tile Backing Panels:
 - 1. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from **0.033 to 0.112 inch (0.84 to 2.84 mm)** thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- C. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

- D. Acoustical Sealant: As specified in Division 7 Section "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than **1/16 inch (1.5 mm)** of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than **8 sq. ft. (0.7 sq. m)** in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow **1/4- to 3/8-inch- (6.4- to 9.5-mm-)** wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide **1/4- to 1/2-inch- (6.4- to 12.7-mm-)** wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Regular Type: As indicated on Drawings.
 - 2. Type X: As indicated on Drawings.
- B. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
 - 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
 - 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners, unless otherwise indicated.
 - 2. LC-Bead: Use at exposed panel edges.

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below:
 - 1. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in other Division 9 Sections.

3.6 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 09250

SECTION 09310 - CERAMIC TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Glazed wall tile.
 - 2. Porcelain Floor Tile
 - 3. Stone thresholds installed as part of tile installations.
 - 4. Waterproof membrane for thin-set tile installations.
 - 5. Cementitious backer units installed as part waterproof membrane for thin-set tile installations.
- B. Related Sections include the following:
 - 1. Division 7 Section "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.3 DEFINITIONS

- A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.
- B. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).
- C. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.4 PERFORMANCE REQUIREMENTS^k

- A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:
 - 1. Level Surfaces: Minimum 0.6.
 - 2. Ramp Surfaces: Minimum 0.8.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.

- C. Samples for Verification:
 1. Full-size units of each type and composition of tile and for each color and finish required.
 2. Full-size units of each type of trim and accessory for each color and finish required.
 3. Stone thresholds in 6-inch (150-mm) lengths.
- D. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.
- E. Product Certificates: For each type of product, signed by product manufacturer.
- F. Qualification Data: For Installer.
- G. Material Test Reports: For each tile-setting and -grouting product.

1.6 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.
 1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:
 1. Stone thresholds.
 2. Waterproofing.
 3. Joint sealants.
 4. Cementitious backer units.
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store liquid latexes in unopened containers and protected from freezing.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
 - 2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
 - 1. As selected by Architect from manufacturer's full range.
- D. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
 - 1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.2 TILE PRODUCTS

A. Manufacturers:

1. Daltile; Div. of Dal-Tile International Inc. e

B. Porcelain Floor Tile: Flat tile as follows:

1. Module Size: 2 by 2 inches.
2. Thickness: 5/16 inch (8 mm).
3. Face: Plain with cushion edges.
4. Finish: Mat, clear glaze.
5. Mounting: Factory back-mounted.

C. Glazed Wall Tile: Flat tile as follows:

1. Module Size: 4-1/4 by 4-1/4 inches (108 by 108 mm).
2. Thickness: 5/16 inch (8 mm).
3. Face: Plain with cushion edges.
4. Finish: Mat, clear glaze.
5. Mounting: Factory back-mounted.

D. Glazed Wall Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes as follows, selected from manufacturer's standard shapes:

1. Base for Thin-Set Mortar Installations: Straight, module size 4-1/4 by 4-1/4 inches (108 by 108 mm).
2. Wainscot Cap for Flush Conditions: Regular flat tile for conditions where tile wainscot is shown flush with wall surface above.
3. External Corners for Thin-Set Mortar Installations: Surface bullnose.
4. Internal Corners: Field-buttet square corners except with coved base and cap angle pieces designed to fit with stretcher shapes.
5. External Corners for Thin-Set Mortar Installations: Surface bullnose, module size 2 by 1 inch (50.8 by 25.4 mm).
6. Internal Corners: Cove, module size 2 by 1 inch (50.8 by 25.4 mm).
7. Tapered Transition Tile: Shape designed to effect transition between thickness of tile floor and adjoining floor finishes of different thickness, tapered to provide reduction in thickness from 1/2 to 1/4 inch (12.7 to 6.35 mm) across nominal 4-inch (100-mm) dimension.

2.3 THRESHOLDS

A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.

1. Bevel edges at 1:2 slope, aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to 1/2 inch (12.7 mm) or less, and finish bevel to match face of threshold.

B. Marble Thresholds: ASTM C 503 with a minimum abrasion resistance of [10] [12] per ASTM C 1353 or ASTM C 241 and with honed finish.

1. Description: Uniform, fine- to medium-grained white stone with gray veining.
2. Description: Match Architect's sample.

2.4 SETTING AND GROUTING MATERIALS

A. Available Manufacturers:

1. Bonsal, W. R., Company.
2. LATICRETE International Inc.
3. TEC Specialty Products Inc.

B. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:

1. Prepackaged dry-mortar mix containing dry, redispersible, ethylene vinyl acetate additive to which only water must be added at Project site.
2. Prepackaged dry-mortar mix combined with acrylic resin liquid-latex additive.
 - a. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.

C. Medium-Bed, Latex-Portland Cement Mortar: Provide materials composed as follows, with physical properties equaling or exceeding those required for thin-set mortars based on testing of medium-bed specimens according to ANSI A118.4:

1. Prepackaged dry-mortar mix combined with acrylic resin liquid-latex additive.

D. Polymer-Modified Tile Grout: ANSI A118.7, color as indicated.

1. Polymer Type: Ethylene vinyl acetate, in dry, redispersible form, prepackaged with other dry ingredients.
2. Polymer Type: Acrylic resin in liquid-latex form for addition to prepackaged dry-grout mix.
3. Polymer Type: Either ethylene vinyl acetate, in dry, redispersible form, prepackaged with other dry ingredients, or acrylic resin or styrene-butadiene rubber in liquid-latex form for addition to prepackaged dry-grout mix.
 - a. Unsanded grout mixture for joints **1/8 inch (3.2 mm)** and narrower.

2.5 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 7 Section "Joint Sealants."

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.

1. Available Products:

- a. Dow Corning Corporation; Dow Corning 786.
- b. GE Silicones; Sanitary 1700.
- c. Pecora Corporation; Pecora 898 Sanitary Silicone Sealant.
- d. Tremco, Inc.; Tremsil 600 White.
- e. Insert manufacturer's name; product.

- C. Multipart, Pourable Urethane Sealant for Use T: ASTM C 920; Type M; Grade P; Class 25; Uses T, M, A, and, as applicable to joint substrates indicated, O.
1. Available Products:
 - a. Bostik; Chem-Calk 550.
 - b. Mameco International, Inc.; Vulkem 245.
 - c. Pecora Corporation; NR-200 Urexpan.
 - d. Tremco, Inc.; THC-900.
 - e. Insert manufacturer's name; product.

2.6 CEMENTITIOUS BACKER UNITS

- A. Provide cementitious backer units complying with ANSI A118.9 extending up the wall a minimum of 12 inches at the floor to wall transition for all walls to receive ceramic tile.
1. Thickness: **1/2 inch (12.7 mm)**.
 2. Width: **48 inches (1219 mm)**.
- B. Available Products:
1. C-Cure; C-Cure Board 990.
 2. Custom Building Products; Wonderboard.
 3. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
 4. USG Corporation; DUROCK Cement Board.
 5. Insert manufacturer's name; product.

2.7 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- C. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.
1. Available Products:
 - a. Bonsal, W. R., Company; Grout Sealer.
 - b. Bostik; CeramaSeal Grout Sealer.
 - c. C-Cure; Penetrating Sealer 978.
 - d. Custom Building Products; Sealer.
 - e. Jamo Inc.; Sealer.
 - f. MAPEI Corporation; KER .
 - g. Southern Grouts & Mortars, Inc.; Silicone Grout Sealer.
 - h. Summitville Tiles, Inc.; SL-15, Invisible Seal Penetrating Grout and Tile Sealer.
 - i. TEC Specialty Products Inc.; Grout Sealer.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
 - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
 - 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- B. Provide concrete substrates for tile floors installed with thin-set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
 - 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
 - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- C. Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.
- C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
 - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- F. Lay out tile wainscots to next full tile beyond dimensions indicated.
- G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- H. Grout tile to comply with requirements of the following tile installation standards:
 - 1. For ceramic tile grouts (sand-portland cement; dry-set, commercial portland cement; and latex-portland cement grouts), comply with ANSI A108.10.
 - 2. For chemical-resistant epoxy grouts, comply with ANSI A108.6.
- I. At locations where indicated, install cementitious backer units and treat joints to comply with ANSI A108.11 and manufacturer's written instructions for type of application indicated.

3.4 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written instructions to produce waterproof membrane of uniform thickness bonded securely to substrate. All Walls to receive ceramic tile shall have a waterproof membrane extended underneath the floor tile a minimum of 12 inches, and up the wall a minimum of 12 inches, to provide a watertight condition at the floor to wall transition.

- B. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.5 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.
 - 1. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
 - a. Tile floors in wet areas.
 - b. Tile floors composed of tiles **13 by 13 inches** or larger.
 - c. Tile floors composed of rib-backed tiles.
- B. Joint Widths: Install tile on floors with the following joint widths:
 - 1. Porcelain Tile: **3/16 inch**.
- C. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile, unless otherwise indicated.
 - 1. Set thresholds in latex-portland cement mortar for locations where mortar bed would otherwise be exposed above adjacent nontile floor finish.
- D. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.6 WALL TILE INSTALLATION

- A. Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Joint Widths: Install tile on walls with the following joint widths:
 - 1. Glazed Wall Tile: **1/16 inch (1.6 mm)**.

3.7 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove epoxy and latex-portland cement grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

- B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.8 FLOOR TILE INSTALLATION SCHEDULE

- A. Tile Installation: Interior floor installation on concrete; thin-set mortar, grout; TCA F115 and ANSI A108.5.
 - 1. Tile Type: Porcelain Tile.
 - 2. Thin-Set Mortar: Latex- portland cement mortar.
 - 3. Grout: Chemical-resistant, water-cleanable, tile-setting and -grouting epoxy.

3.9 WALL TILE INSTALLATION SCHEDULE

- A. Tile Installation: Interior wall installation over cementitious backer units; thin-set mortar; TCA W244 and ANSI A108.5.
 - 1. Tile Type: Glazed wall tile.
 - 2. Thin-Set Mortar: Latex- portland cement mortar.
 - 3. Grout: Polymer-modified unsanded grout.

END OF SECTION 09310

SECTION 09511 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes acoustical panels and exposed suspension systems for ceilings.
- B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete at ceilings.

1.3 DEFINITIONS

- A. CAC: Ceiling Attenuation Class.
- B. LR: Light Reflectance coefficient.
- C. NRC: Noise Reduction Coefficient.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Ceiling suspension members.
 - 2. Method of attaching hangers to building structure.
- B. Samples for Initial Selection: For components with factory-applied color finishes.
- C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
 - 1. Acoustical Panel: Set of **6-inch- (150-mm-)** square Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension System Members, Moldings, and Trim: Set of **12-inch- (300-mm-)** long Samples of each type, finish, and color.
- D. Qualification Data: For testing agency.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical panel ceiling.
- F. Research/Evaluation Reports: For each acoustical panel ceiling and components and anchor type.
- G. Maintenance Data: For finishes to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Acoustical Testing Agency Qualifications: An independent testing laboratory, or an NVLAP-accredited laboratory, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548. NVLAP-accredited laboratories must document accreditation, based on a "Certificate of Accreditation" and a "Scope of Accreditation" listing the test methods specified.
- B. Source Limitations:
 - 1. Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
 - 2. Suspension System: Obtain each type through one source from a single manufacturer.
- C. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system through one source from a single manufacturer.
- D. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
 - 1. Surface-Burning Characteristics: Provide acoustical panels with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:
 - a. Smoke-Developed Index: 450 or less.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
 - 1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

1.8 COORDINATION

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Panels: Full-size panels equal to 2.0 percent of quantity installed.
 - 2. Suspension System Components: Quantity of each exposed component equal to 2.0 percent of quantity installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer:
 - 1. Celotex Corporation.
 - 2. Armstrong
 - 3. CertainTeed

2.2 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
 - 1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches (400 mm) away from test surface per ASTM E 795.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
 - 1. Where appearance characteristics of acoustical panels are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.
- C. Coating-Based Antimicrobial Treatment: Provide acoustical panels with face and back surfaces coated with antimicrobial treatment consisting of manufacturer's standard formulation with fungicide added to inhibit growth of mold and mildew and showing no mold or mildew growth when tested according to ASTM D 3273.
- D. Panel-Based Antimicrobial Treatment: Provide acoustical panels treated with manufacturer's standard antimicrobial solution that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria.

2.3 WATER-FELTED, MINERAL-BASE ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

- A. Classification: Provide panels complying with ASTM E 1264 for Type III, mineral base with painted finish; Form 2, water felted; and pattern as follows:
 - 1. Pattern: Random Fissured.
- B. Color: White.
- C. LR: Not less than 0.85.
- D. NRC: Not less than 0.55
- E. CAC: Not less than 35.
- F. Edge Detail: Square.
- G. Thickness: 5/8 inch (15 mm).
- H. Size: 24 by 24 inches (610 by 610 mm) As indicated on Reflected Ceiling Plan.

2.4 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.
- B. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.
 - 1. High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.
- C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
- D. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 - 1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.135-inch- (3.5-mm-) diameter wire.

2.5 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

- A. Wide-Face, Capped, Double-Web, Hot-Dip Galvanized, G60 (Z180), Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, hot-dip galvanized according to ASTM A 653/A 653M, G60 (Z180) coating designation, with prefinished, cold-rolled, 15/16-inch- (24-mm-) wide, aluminum caps on flanges.
 - 1. Structural Classification: Heavy-duty system.
 - 2. Face Design: Flat, flush.
 - 3. Face Finish: Painted white.

2.6 METAL EDGE MOLDINGS AND TRIM

A. Manufacturers:

1. Armstrong World Industries, Inc.
2. Celotex Corporation; Architectural Ceilings Marketing Dept.
3. Chicago Metallic Corporation.
4. USG Interiors, Inc.

B. Roll-Formed Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

2.7 ACOUSTICAL SEALANT

A. Products:

1. Acoustical Sealant for Exposed and Concealed Joints:
 - a. Pecora Corp; AC-20 FTR Acoustical and Insulation Sealant.
 - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

B. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION, GENERAL

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and Cisca's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
 - 4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 6. Do not attach hangers to steel deck tabs.
 - 7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 8. Space hangers not more than **48 inches (1200 mm)** o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than **8 inches (200 mm)** from ends of each member.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 - 2. Screw attach moldings to substrate at intervals not more than **16 inches (400 mm)** o.c. and not more than **3 inches (75 mm)** from ends, leveling with ceiling suspension system to a tolerance of **1/8 inch in 12 feet (3.2 mm in 3.66 m)**. Miter corners accurately and connect securely.
- D. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
 - 1. Arrange directionally patterned acoustical panels as follows:
 - a. Install panels with pattern running in one direction parallel to short axis of space.

2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.
3. For reveal-edged panels on suspension system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
4. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09511

SECTION 09651 - RESILIENT FLOOR TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Vinyl composition tile (VCT).

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of product indicated.
- C. Samples for Verification:
 - 1. Full-size units of each color and pattern of resilient floor tile required.
- D. Maintenance Data: For resilient products to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide products identical to those tested for fire-exposure behavior per test method indicated by a testing and inspecting agency acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C). Store tiles on flat surfaces.

1.6 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F (21 deg C) or more than 95 deg F (35 deg C), in spaces to receive floor tile during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.

- B. After post installation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 95 deg F (35 deg C).
- C. Close spaces to traffic during floor covering installation.
- D. Close spaces to traffic for 48 hours after floor covering installation.
- E. Install resilient products after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Floor Score Compliance: Resilient tile flooring shall comply with requirements of FloorScore Standard.

- 2.2 Low-Emitting Materials: Flooring system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.3 COLORS AND PATTERNS

- A. Colors and Patterns: Four (4) tile colors from manufactures standard solid color selection for floor tile pattern. Provide 15% of colored tile selected.

2.4 VINYL COMPOSITION TILE

- A. Vinyl Composition Tile (VCT): ASTM F 1066.
 - 1. Azrock by Tarkett Commercial Flooring, DOMCO.
 - 2. Armstrong
- B. Class: 2
- C. Wearing Surface: Smooth.
- D. Thickness: 1/8 inch 0.125 inch (3.2 mm).
- E. Size: 12 by 12 inches (305 by 305 mm).
- F. Fire-Test-Response Characteristics:
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

- G. Smoke Density: Provide materials with smoke density of less than 450 when tested in accordance with ASTM E 662.
- H. Static Load: Provide materials with static load limit of 150 psi or higher.
- I. Slip Resistance: Provide materials with minimum rating for floors of > 0.60.
- J. Color and Pattern:
 - 1. Standard Pattern, Class 2, Cortina Colors (27 colors).

2.5 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
 - 1. Adhesives shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. VCT and Asphalt Tile Adhesives: Not more than 50 g/L.
- C. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of tiles, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
 - 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

2. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
3. Moisture Testing:
 - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of **3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m)** in 24 hours.
 - b. Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
- C. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Access Flooring Panels: Remove protective film of oil or other coating using method recommended by access flooring manufacturer.
- E. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.
- F. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
 1. Do not install resilient products until they are same temperature as space where they are to be installed.
- G. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 TILE INSTALLATION

- A. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 1. Lay tiles square with room axis.
- B. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 1. Lay tiles with grain running in one direction.
- C. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.
- D. Extend tiles into toe spaces, door reveals, closets, and similar openings.
- E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.

- F. Install tiles on covers for telephone and electrical ducts and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of tile installed on covers. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- G. Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
 - a. Do not wash surfaces until after time period recommended by manufacturer.
- B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.
 - 1. Apply 5 coats of protective floor polish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes if recommended in writing by manufacturer.
 - a. Use commercially available product acceptable to manufacturer.
 - b. Coordinate selection of floor polish with Owner's maintenance service.
 - 2. Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.
 - 3. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

END OF SECTION 09651

SECTION 09653 - RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient base.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of product indicated.
- C. Samples for Verification: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches (300 mm) long, of each resilient product color, texture, and pattern required.
- D. Product Schedule: For resilient products.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C).

1.6 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than **70 deg F (21 deg C)** or more than **95 deg F (35 deg C)**, in spaces to receive resilient products during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than **55 deg F (13 deg C)** or more than **95 deg F (35 deg C)**.
- C. Install resilient products after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish not less than **10 linear feet (3 linear m)** for every **500 linear feet (150 linear m)** or fraction thereof, of each type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

- A. Resilient Base:
 - 1. Manufacturers: Subject to compliance with requirements,:
 - a. Armstrong World Industries, Inc.
 - b. Burke Mercer Flooring Products; Division of Burke Industries, Inc.
 - c. Johnsonite.
 - d. Musson, R. C. Rubber Co.
 - e. Roppe Corporation, USA.
- B. Resilient Base Standard: ASTM F 1861.
 - 1. Material Requirement: Type TS (rubber, vulcanized thermoset) or Type TP (rubber, thermoplastic).
 - 2. Manufacturing Method: Group I (solid, homogeneous).
 - 3. Style: Cove (base with toe).
- C. Minimum Thickness: **0.125 inch (3.2 mm)**.
- D. Height: **4 inches (102 mm)**.
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Preformed.

- G. Inside Corners: Preformed.
- H. Finish: As selected by Architect from manufacturer's full range.
- I. Colors and Patterns: As selected by Architect from full range of industry colors.

2.2 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
- C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of tiles, and in maximum available lengths to minimize running joints.
- D. Floor Polish: Provide protective liquid floor polish products as recommended by resilient stair tread manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are same temperature as the space where they are to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- D. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient products until Substantial Completion.

END OF SECTION 09653

SECTION 09681 - CARPET TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes modular, fusion-bonded carpet tile.
- B. Related Requirements:
 - 1. Division 9 Section " Resilient Wall Base and Accessories" for resilient wall base and accessories installed with carpet tile.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to carpet tile installation including, but not limited to, the following:
 - a. Review delivery, storage, and handling procedures.
 - b. Review ambient conditions and ventilation procedures.
 - c. Review subfloor preparation procedures.

1.4 ACTION SUBMITTALS

- A. Manufacturer's Data, Carpeting: Submit data to show compliance with requirements, including independent laboratory test reports and Manufacturer's instructions and recommendations for installation and maintenance.
- B. Submit samples of approved carpet tile for Owner/Architect's color selection as soon as construction begins, so that a color schedule can be prepared for all other interior surfaces. After color is identified, provide the Owner/Architect with 3 identical samples approximately 18" square.
- C. Colors: The Architect reserves the right to reject any carpet tile meeting all other requirements if the currently available color choices are unacceptable. Listing of "acceptable" carpet products is conditional, pending approval of available colors - at the sole discretion of the Architect.
- D. Delivery and Storage: Arrange with General Contractor for any required storage in building at least seven (7) days in advance of arrival of material. Do not deliver materials to project site until permission to do so has been received from Contractor. Deliver materials to job site in manufacturer's bundles, clearly marked as to size, dye lot and materials. Schedule delivery to allow sufficient time for

examination of materials by Architect before installation begins. Store materials in designated areas provided by General Contractor and carefully protect against soil, damage, theft and vandalism.

- E. Product Data: For each type of product.
 - 1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
 - 2. Include installation recommendations for each type of substrate.
- F. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.
 - 2. Exposed Edge, Transition, and Other Accessory Stripping: **12-inch- (300-mm-)** long Samples.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.
- C. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than **10 sq. yd. (8.3 sq. m)**.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the International Certified Floor covering Installers Association at the Commercial II certification level.
- B. Fire-Test-Response Ratings: Where indicated, provide carpet tile identical to those of assemblies tested for fire response according to NFPA 253 by a qualified testing agency.
- C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockups at locations and in sizes shown on Drawings.

2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104.

1.10 FIELD CONDITIONS

- A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.11 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 2. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, excess static discharge, loss of tuft bind strength, loss of face fiber, Insert failure characteristic and delamination.
 3. Warranty Period: 10 years from date of Substantial Completion.
- B. Failures:
 1. Upon notification during warranty period by Architect or Owner or failure in materials or workmanship, replace, repair or otherwise correct failure at no cost to owner.

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. Products:
 1. [J&J Invision; J&J Industries, Inc.](#)
 2. [Milliken & Company.](#)
 3. [Mohawk Group \(The\); Mohawk Carpet, LLC.](#)
 4. [Patcraft; a division of Shaw Industries, Inc.](#)
 5. [Shaw Contract Group; a Berkshire Hathaway company.](#)
 6. [Tandus; a Tarkett company.](#)

- B. Color: As selected from the manufactures color chart.
- C. Applied Soil-Resistance Treatment: Manufacturer's standard material.
- D. Antimicrobial Treatment: Manufacturer's standard material.
Each carpeted area to be from the same dye lot excepted where carpeted areas are not connected. Side and end matches; visually excellent with no discernible difference in shading.
Certifications:
- E. A certified statement from an independent testing laboratory shall be issued to the Owner from the carpet tile manufacturer stating that the particular fabric supplied and used meets the following test requirement of the Florida State Board of Education, Chapter 6A_2.58, Florida Administrative Code:
 1. Carpet tile, both face and back, used in spaces other than corridors and other means of egress shall meet Federal Flammability standard DOC_FF_1_70, "Standard for the Surface Flammability Carpets" (Methenamine Table Test), ASTM D 2859-70T.
 2. Floor Radiant Panel Test: Rating of 0.44 watts/cm2 for corridors, circulation spaces, and rooms larger than 400 sq. ft.; ASTM E 648 and NFPA 253.
 3. Tunnel Test: Maximum flame spread of 75, ASTM E 84.
 4. Static Electricity: 3.0 KV max. at 70 deg F and 20% relative.
 5. All carpet tile shall fulfill the following smoke development requirement: A specific optical density (DM) of 450 or less (flaming), as determined by NFPA 258, Smoke Generation of Solid Materials, 1982.
 6. The Product shall meet the above flammability requirements and have independent certified test data no older than two (2) years.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Metal Edge/Transition Strips: Extruded aluminum with mill finish of profile and width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Installer must examine substrates, areas and conditions under which carpet tile is to be installed for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Notify Contractor in writing of conditions detrimental to proper completion of the work. Do not proceed with installation of carpeting until unsatisfactory conditions have been corrected in a manner acceptable to installer and carpet manufacturer. Examine carpet tile for type, color, pattern, and potential defects.

- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 2. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
 4. Do not install carpet tile over concrete with either excessive moisture or dust producing surface which is not adequately sealed.
 5. Concrete should be checked for acidity/alkalinity and should test in the 6.0 to 8.0 range.
 6. Concrete must be checked for excessive moisture content or hydro-static moisture content. Excessive moisture is defined as no more than 2.5 lbs. per square foot.
 7. Moisture Testing: Perform tests so that each test area does not exceed **200 sq. ft. (18.6 sq. m)**, and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Anhydrous Calcium Chloride Test: ASTM F1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of **3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m)** in 24 hours.
 - b. Relative Humidity Test: Using in situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
 - c. Perform additional moisture tests recommended in writing by adhesive and carpet tile manufacturers. Proceed with installation only after substrates pass testing.
- C. Coordination:
1. Coordinate carpet tile installation with Contractor's to preclude delays and interferences with other trades and prompt completion of project. Delay installation until space enclosures and other general finish work has been completed; and until construction traffic in carpeted areas will be minimal; and until ambient conditions are being maintained by operation of HVAC system to comply with a minimum temperature of 65 F in spaces to receive flooring for a period of twenty-four (24) hours prior to and during the installation. In no case shall carpet be installed until wall and ceiling finishes are complete and fixed cabinets are in place.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions **1/8 inch (3 mm)** wide or wider and protrusions more than **1/32 inch (0.8 mm)** unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Clean metal substrates of grease, oil, soil and rust, and prime if directed by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: As recommended in writing by carpet tile manufacturer.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove yarns that protrude from carpet tile surface.
 - 2. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protecting Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 09681

SECTION 09911 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Exterior Portland cement plaster (stucco).
Concrete Masonry Units-Exterior and Interior.
- B. Related Sections include the following:
 - 1. Division 9 Section "Interior Painting" for surface preparation and the application of paint systems on interior substrates.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."

2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
 - b. Other Items: Architect will designate items or areas required.
 2. Final approval of color selections will be based on benchmark samples.
 - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
1. Quantity: Furnish an additional 5 Insert number percent, but not less than 1 gal. (3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Benjamin Moore & Co.
 - 2. ICI Paints
 - 3. PPG Architectural Finishes, Inc.
 - 4. Sherwin-Williams Company .

2.2 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- B. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.
- C. Colors: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (Clay and CMU): 12 percent.
 - 3. Wood: 15 percent.
 - 4. Plaster: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- F. Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance of paint materials with product requirements.

3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

- A. Stucco Substrates:
 - a. Prime Coat: Alkali-resistant primer.
 - b. Intermediate Coat: Exterior latex matching topcoat.
 - c. Topcoat: Exterior latex.(eggshell or satin)
- B. CMU Substrates: Exterior Exposed CMU
 - a. Prime Coat: 100% acrylic resin surfacer.
 - b. Sealer Coat: Block filler primer/sealer.
 - c. Intermediate Coat: Single Component 100% Acrylic.
 - d. Topcoat: Single Component 100% Acrylic. (eggshell or satin)

END OF SECTION 09911

SECTION 09912 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Interior Concrete masonry units (CMU).
 - 2. Gypsum board.
- B. Related Sections include the following:
 - 1. Division 9 Section "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

- B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
 - b. Other Items: Architect will designate items or areas required.
 2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
 3. Final approval of color selections will be based on benchmark samples.
 - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS -

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Benjamin Moore & Co.
 2. ICI Paints
 3. PPG Architectural Finishes, Inc.
 4. Sherwin-Williams Company .

2.2 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
1. Submit Samples on rigid backing, 8 inches (200 mm) square.
 2. Step coats on Samples to show each coat required for system.
 3. Label each coat of each Sample.
 4. Label each Sample for location and application area.
- D. Product List: For each product indicated, include the following:
1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

2.3 PAINT, GENERAL

- A. Material Compatibility:
1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24) and the following chemical restrictions; these requirements do not apply to primers or finishes that are applied in a fabrication or finishing shop:
1. Flat Paints and Coatings: VOC content of not more than 50 g/L.
 2. Nonflat Paints and Coatings: VOC content of not more than 150 g/L.
 3. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).

4. Restricted Components: Paints and coatings shall not contain any of the following:

- a. Acrolein.
- b. Acrylonitrile.
- c. Antimony.
- d. Benzene.
- e. Butyl benzyl phthalate.
- f. Cadmium.
- g. Di (2-ethylhexyl) phthalate.
- h. Di-n-butyl phthalate.
- i. Di-n-octyl phthalate.
- j. 1,2-dichlorobenzene.
- k. Diethyl phthalate.
- l. Dimethyl phthalate.
- m. Ethylbenzene.
- n. Formaldehyde.
- o. Hexavalent chromium.
- p. Isophorone.
- q. Lead.
- r. Mercury.
- s. Methyl ethyl ketone.
- t. Methyl isobutyl ketone.
- u. Methylene chloride.
- v. Naphthalene.
- w. Toluene (methylbenzene).
- x. 1,1,1-trichloroethane.
- y. Vinyl chloride.

C. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Colors: As selected by Architect from manufacturer's full range.

2.4 BLOCK FILLERS

A. Interior/Exterior Latex Block Filler: MPI #4.

- 1. VOC Content: E Range of E2.

2.5 PRIMERS/SEALERS

A. Interior Latex Primer/Sealer: MPI #50.

- 1. VOC Content: E Range of E1.
- 2. Environmental Performance Rating: EPR 1.

B. Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint systems indicated.

2.6 LATEX PAINTS

- A. High-Performance Architectural Latex (Low Sheen): MPI #138 (Gloss Level 2).
 - 1. VOC Content: E Range of E1.
 - 2. Environmental Performance Rating: EPR 4.
- B. High-Performance Architectural Latex (Eggshell): MPI #139 (Gloss Level 3).
 - 1. VOC Content: E Range of E2.
 - 2. Environmental Performance Rating: EPR 5.
- C. High-Performance Architectural Latex (Satin): MPI #140 (Gloss Level 4).
 - 1. VOC Content: E Range of E1.
 - 2. Environmental Performance Rating: EPR 4.5.
- D. High-Performance Architectural Latex (Semigloss): MPI #141 (Gloss Level 5).
 - 1. VOC Content: E Range of E1.
 - 2. Environmental Performance Rating: EPR 5.

2.7 ALKYD PAINTS

- A. Interior Alkyd (Flat): MPI #49 (Gloss Level 1).
 - 1. VOC Content: E Range of E1.
- B. Interior Alkyd (Eggshell): MPI #51 (Gloss Level 3).
 - 1. VOC Content: E Range of E1.
- C. Interior Alkyd (Semigloss): MPI #47 (Gloss Level 5).
 - 1. VOC Content: E Range of E1.
 - 2. Environmental Performance Rating: EPR 1.
- D. Interior Alkyd (Gloss): MPI #48 (Gloss Level 6).
 - 1. VOC Content: E Range of E1.
 - 2.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Masonry (Clay and CMU): 12 percent.
 - 3. Wood: 15 percent.
 - 4. Gypsum Board: 12 percent.
 - 5. Plaster: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Clay Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceed that permitted in manufacturer's written instructions.
- F. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- G. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

- I. Aluminum Substrates: Remove surface oxidation.
- J. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
- L. Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.
- M. Spray-Textured Ceiling Substrates: Do not begin paint application until surfaces are dry.
- N. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
 - 1. Mechanical Work:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Tanks that do not have factory-applied final finishes.
 - e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

- g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- 2. Electrical Work:
 - a. Switchgear.
 - b. Panelboards.
 - c. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. CMU Substrates:
 - 1. Interior Exposed CMU:
 - a. Prime Coat: 100% acrylic resin surfacer.
 - b. Sealer Coat: Block filler primer/sealer.
 - c. Intermediate Coat: Single Component 100% Acrylic.
 - d. Topcoat: Single Component 100% Acrylic. (eggshell or satin)

A. Gypsum Board Substrates:

1. Alkyd Over Latex Primer System:
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Interior alkyd matching topcoat.
 - c. Topcoat: Interior alkyd (eggshell).

2. High-Performance Architectural Latex System: (**Sign Shop-120, Signal Shop-124, Warehouse -125 and 126.**)
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: High-performance architectural latex matching topcoat.
 - c. Topcoat: High-performance architectural latex (semi-gloss)).

END OF SECTION 09912

SECTION 10155 - TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes solid-polymer units as follows:
 - 1. Toilet Enclosures: Floor anchored.
 - 2. Urinal Screens: Wall hung.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry".
 - 2. Division 10 "Toilet and Bath Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Show locations of cutouts for compartment-mounted toilet accessories.
- C. Samples for Initial Selection: For each type of unit indicated.
- D. Samples for Verification: Of each type of color and finish required for units, prepared on ~~6-inch-~~ (150-mm-) square Samples of same thickness and material indicated for Work.

1.4 QUALITY ASSURANCE

- A. Comply with requirements in CID-A-A-60003, "Partitions, Toilets, Complete."

1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating toilet compartments without field measurements. Coordinate wall, floor, ceilings, and other contiguous construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 SOLID-POLYMER UNITS - SEE SECTION 09000 FINISH SELECTION LIST

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Ampco.
 - 2. Comtec Industries.
 - 3. Santana Products, Inc.
- B. Door, Panel, and Pilaster Construction: Solid, high-density polyethylene (HDPE) or polypropylene (PP) panel material, not less than 1 inch (25 mm) thick, seamless, with eased edges, and with homogenous color and pattern throughout thickness of material.
 - 1. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range of colors and patterns.
- C. Pilaster Shoes: Manufacturer's standard design; polymer.
 - 1. Polymer Color and Pattern: Matching pilaster.
- D. Brackets (Fittings):
 - 1. Full-Height (Continuous) Type: Manufacturer's standard design; polymer.
 - a. Polymer Color and Pattern: Matching pilaster.
- E. Heat-Sink Strip: Manufacturer's standard continuous, extruded-aluminum strip fastened to exposed bottom edges of solid-polymer components to prevent burning.

2.2 ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.
 - 1. Material: Chrome-plated brass.
- B. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.

2.3 FABRICATION

- A. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
- B. Doors: Unless otherwise indicated, provide **24-inch- (610-mm-)** wide in-swinging doors for standard toilet compartments and **36-inch- (914-mm-)** wide out-swinging doors with a minimum **32-inch- (813-mm-)** wide clear opening for compartments indicated to be accessible to people with disabilities.
 - 1. Hinges: Manufacturer's standard self-closing type that can be adjusted to hold doors open at any angle up to 90 degrees.
 - 2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit designed for emergency access and with combination rubber-faced door strike and keeper. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be accessible to people with disabilities.
 - 3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories.
 - 4. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
 - 5. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with accessibility requirements of authorities having jurisdiction. Provide units on both sides of doors at compartments indicated to be accessible to people with disabilities.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Maximum Clearances:
 - a. Pilasters and Panels: **1/2 inch (13 mm)**.
 - b. Panels and Walls: **1 inch (25 mm)**.

- B. Floor-Anchored Units: Set pilasters with anchors penetrating not less than 2 inches (50 mm) into structural floor, unless otherwise indicated in manufacturer's written instructions. Level, plumb, and tighten pilasters. Hang doors and adjust so tops of doors are level with tops of pilasters when doors are in closed position.
- C. Wall-Hung Urinal Screens: Attach with continuous angle anchoring devices to suit supporting structure. Set units level and plumb and to resist lateral impact.

3.2 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doorsto return doors to fully closed position.

END OF SECTION 10155

SECTION 10440 - IDENTIFYING DEVICES

1.1 SUMMARY

- A. Provide labor, materials and equipment necessary for the complete installation of identifying devices as indicated on the Drawings and specified herein.

1. Interior Signage - Laser Cut

1.2 SECTION INCLUDES:

- A. Required sign type:
 - 1. Interior room, space and area ID signs.
 - 2. International symbols of accessibility for accessible spaces and exits.
 - 3. Accessible routes and spaces
 - 4. Tactile "exit" signs
 - 5. Hazard and safety signs

1.2 REFERENCES

- A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible To and Usable By Physically Handicapped People
- B. Florida Building Code, Chapter 11 and Section 423.14.2
- C. NFPA 101-00: 7.10.1.3.

1.3 SUBMITTALS

- A. Submit shop drawings under provisions of Section 01330.
- B. Shop Drawings: Indicate sign styles, lettering font, foreground and background colors, locations, overall dimensions of each sign and anchorage. Sign Schedule: Provide complete interior and exterior sign schedule showing sign type, location, and verbage.
- C. Samples: Submit two sample signs in size illustrating type, style, letter font and colors specified method of attachment.
 - 1. Framed or Unframed Room Number and Name Signs.
- D. Manufacturer's Installation Instructions: Included installation template and attached devices.
- E. Colors: Colors shall be as selected by the Architect.

1.4 QUALITY ASSURANCE

- A. Reference Codes and Specifications: Florida Building Code

1.5 AMERICANS WITH DISABILITIES ACT (A.D.A.) REQUIREMENTS

- A. Signage shall be provided to conform with A.D.A. requirements. Manufacturer shall conform to tactile, Grade 2 Braille, size and stroke width of letters, pictograms and any other that are required by A.D.A. Accessibility Guidelines for Buildings and Facilities, Section 4.30, Signage, and other applicable sections; and State and Local Codes and Regulations.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Interior Identifying Devices shall be manufactured by one of the following:
1. Rick's Quality Printing & Signs, Cocoa, Florida
 2. Andco Industries Corporation, Greensboro, North Carolina
 3. ARK Ramos, Oklahoma City, Oklahoma
 4. Gold Coast Signs and Design, Delray Beach, Florida
- B. Products of other manufacturers may be considered for acceptance providing they equal or exceed the material and fabrication requirements of the specified product. Requests for Architects approval and complete technical data for evaluation must be received at least 10 days prior to bid due date. Additional approved manufacturers will be issued by Addendum.

2.2 INTERIOR SIGNAGE

- A. Manufacturing:
1. Materials used shall be 1/8" thick, acrylic plastic substrate exterior quality.
 2. Letters, pictograms and Grade 2 Braille shall be raised at least 1/32" and fabricated by chemical weld process using 3M 464XL adhesive. Grade 2 Braille shall be precision-formed Sznott Dotz system.
 3. Raised Letters and Numbers shall have a width to height ratio between 1:5 and 1:10. Letters and numbers shall be upper case sans serif or simple sans serif type and accompanied by Grade 2 Braille. Raised text shall be 5/8" high minimum and 2" maximum. Refer to Drawings for sizes and layouts as needed. Raised pictograms shall be accompanied by the associated verbal description placed directly below the pictogram.
 4. Characters and background shall be eggshell, matte or other non-glare finish.
 5. Sign plates shall have 5/16" radius corners, beveled edges and 3/8" border.
 6. Signs shall be mounted in accordance with approved shop drawings, A.D.A. requirements, in conformance with Manufacturer's instructions using only approved materials and methods.
- B. Signage Types:
1. Capacity signs for all rooms with capacity of 49 persons or more. Signs shall be 6" X 6" nominal.
 2. Toilet Room Signs shall be at all toilets and Handicap facilities shall have the International Symbol of Accessibility on the sign as well as the appropriate gender pictogram. Signs shall be 6" X 6" nominal.

3. Interior Room Name and Number Signs shall designate each room entrance from all logical directions. Signs shall be 6" X 6" nom.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install interior and exterior signage in accordance with approved shop drawings, A.D.A. requirements, and at locations indicated on the Architects Drawings and in conformance with Manufacture's instructions using only approved materials and methods.

1. A.D.A. Requirements: Signs for Accessibility, Room Identification, and Life Safety shall be mounted on the wall at 60" on-center AFF on the latch side of the door.

3.2 CLEANING:

A. After installation, all exposed surfaces shall be thoroughly cleaned and all damaged material shall be restored to its original condition or replaced with new material.

3.3 WARRANTY:

A. This Contractor shall fully guarantee all materials and labor under this section for a period of one (1) year from date of final acceptance of the building against all defects in both workmanship and materials and he shall promptly correct and/or replace such faulty work if so notified.

END OF SECTION 10440

SECTION 10520 - FIRE-PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Portable fire extinguishers.
 - 2. Fire-protection cabinets for the following:
 - a. Portable fire extinguishers.
 - 3. Mounting brackets for fire extinguishers.
- B. Related Sections include the following:
 - 1. Division 7 Section "Through-Penetration Firestop Systems" for firestopping sealants at fire-rated cabinets.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection cabinets.
 - 1. Fire Extinguishers: Include rating and classification.
 - 2. Fire-Protection Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.
- B. Samples for Initial Selection: For fire-protection cabinets with factory-applied color finishes.
- C. Samples for Verification: For each type of exposed factory-applied color finish required for fire-protection cabinets, prepared on Samples of size indicated below.
 - 1. Size: **6 by 6 inches (150 by 150 mm)** square.
- D. Maintenance Data: For fire extinguishers and fire-protection cabinets to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain fire extinguishers and fire-protection cabinets through one source from a single manufacturer.
- B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. Provide fire extinguishers approved, listed, and labeled by FMG.
- D. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements of ASTM E 814 for fire-resistance rating of walls where they are installed.

1.5 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of portable fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
 - 2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 PORTABLE FIRE EXTINGUISHERS

A. Available Manufacturers:

1. Ansul Incorporated.
2. Fire End & Croker Corporation.
3. JL Industries, Inc.
4. Kidde Fyrnetics.
5. Larsen's Manufacturing Company.

B. General: Provide fire extinguishers of type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.

1. Handles and Levers: Manufacturer's standard.
2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance, and recharging.

C. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 2-A:10-B:C, **5-lb (2.3-kg)** nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

2.3 FIRE-PROTECTION CABINET

A. Manufacturers:

1. JL Industries, Inc.
2. Kidde Fyrnetics.
3. Larsen's Manufacturing Company.

B. Cabinet Type: Suitable for fire extinguisher.

C. Cabinet Construction: Nonrated and 1-hour fire rated.

D. Cabinet Material: Enameled-steel sheet.

E. Semirecessed Cabinet: Cabinet box partially recessed in walls of shallow depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).

1. Rolled-Edge Trim: **2-1/2-inch (64-mm)** backbend depth.

F. Cabinet Trim and Door Material: Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:

1. Aluminum sheet: **ASTM B 209 (ASTM B 209M)**.

G. Door Style: Full bubble with frame.

H. Door Glazing: Molded acrylic bubble.

1. Acrylic Bubble Color: Clear, transparent, one piece.

I. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.

1. Provide projecting door pull and friction latch.
2. Provide manufacturer's standard hinge permitting door to open 180 degrees.

J. Accessories:

1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire-protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
2. Lettered Door Handle: One-piece, cast-iron door handle with the word "FIRE" embossed into face.
3. Door Lock: Cam lock that allows door to be opened during emergency by pulling sharply on door handle.
4. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
 - a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER."
 - 1) Location: Applied to cabinet door.
 - 2) Application Process: Pressure-sensitive vinyl letters.
 - 3) Lettering Color: Red.
 - 4) Orientation: Vertical.

K. Finishes:

1. Manufacturer's standard baked-enamel paint for the following:
 - a. Exterior of cabinet, door, and trim, except for those surfaces indicated to receive another finish.
 - b. Interior of cabinet and door.
2. Aluminum: Clear anodic.

2.4 MOUNTING BRACKETS

A. Available Manufacturers:

1. Buckeye Fire Equipment Company.
2. JL Industries, Inc.
3. Larsen's Manufacturing Company.

B. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.

1. Color: Red.

- C. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
 - 1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
 - a. Orientation: Horizontal.

2.5 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
 - 1. Weld joints and grind smooth.
 - 2. Construct fire-rated cabinets with double walls fabricated from **0.0428-inch- (1.1-mm-)** thick, cold-rolled steel sheet lined with minimum **5/8-inch- (16-mm-)** thick, fire-barrier material.
 - a. Provide factory-drilled mounting holes.
- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles selected.
 - 1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum **1/2 inch (13 mm)** thick.
 - 2. Miter and weld perimeter door frames.
- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.6 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire-protection cabinets after assembly.

Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

- B. Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.

2.8 STEEL FINISHES

- A. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond using manufacturer's standard methods.
- B. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of **2 mils (0.05 mm)**.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where **[semirecessed]** cabinets will be installed.
- B. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged units.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare recesses for semi recessed fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. General: Install fire-protection specialties in locations and at mounting heights indicated or, if not indicated, at heights indicated below:
 - 1. Fire-Protection Cabinets: **54 inches (1372 mm)** above finished floor to top of cabinet.
 - 2. Mounting Brackets: **54 inches (1372 mm)** above finished floor to top of fire extinguisher.
- B. Fire-Protection Cabinets: Fasten fire-protection cabinets to structure, square and plumb.
 - 1. Unless otherwise indicated, provide recessed fire-protection cabinets. If wall thickness is not adequate for recessed cabinets, provide semirecessed fire-protection cabinets.
 - 2. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.
- C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

- D. Identification: Apply vinyl lettering at locations indicated.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection specialties are installed, unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet manufacturer.
- E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 10520

10530 - PROTECTIVE COVERS - **Basis of Design**

PART 1 GENERAL

1.1 SECTION INCLUDES

Pre-engineered, pre-finished extruded aluminum Canopy covers flat and curved.

1.2 REFERENCES

American Architectural Manufacturers Association (AAMA):

1. AAMA 607.1 - Voluntary Guide Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
2. AAMA 608.1 - Voluntary Guide Specification and Inspection Methods for Electrolytically Deposited Color Anodic Finishes for Architectural Aluminum.

1.3 DESIGN REQUIREMENTS

Beams, Struts, Gutter Beams, Deck, and Trim: Aluminum extrusions.

Structural Framing: Interlocking deck sections roll locked and secured by screws.

1. Mechanically fastened bents using internally concealed bolted connections.

Canopy: Self-draining from deck to discharge point at ground level or as otherwise shown.

Suspended Canopy: Self-draining from deck into perimeter gutter frame through scuppers to discharge point at ground level or as otherwise shown.

Covers shall be all extruded aluminum system complete with internal drainage in flat canopy configurations with roll lock roof deck components as indicated on the drawings. Roll form, wedge locked or crimped deck is not permitted.

Building Code: FBC 2020

Design Loads:

1. Comply with Building Code for site location.
2. Collateral Loads: Additional loads imposed by other materials or systems identified in contract documents.

Structural Design:

Prepare complete structural design calculations for canopy members. All protective covers, including deck, and attachments to the concrete masonry walls, shall be specifically designed by an independent Florida Registered Structural Engineer.

All such design and submittals shall provide for all loads as indicated on the drawings, shall be signed and sealed by an independent Florida registered structural engineer, and shall conform to the requirements as set forth by the State of Florida department of Professional Regulation Board of Professional Engineers relating to "Specialty Engineers" Complete canopy system shall withstand wind loading and uplift requirements as required by Metropolitan Dade County Building Code and must be approved by Dade County. See structural drawings for Design Wind Loads.

Thermal Movement: Completed canopy systems capable of withstanding expansion and contraction of components caused by temperature range from -10 degree to +150 degree F without buckling, excess stress on framing structure or adjacent structures anchors and fasteners.

Maximum allowable deflection of frame: U240

Anchors: Capable of transmitting design loads and thermal expansion loads assigned to single anchor: with safety factor of 2.5.

1.4 SUBMITTALS

Submit under provisions of Section 01330.

Product Data: Manufacturer's catalog data, detail sheets, and specifications.

Shop Drawings: Layout and erection drawings showing roof framing, deck panels, cross sections, and trim details, clearly indicating proper assembly.

Samples: Color selection samples consisting of actual coating material or anodizing process on aluminum extrusions.

Quality Assurance/Control Submittals:

1. Qualifications: Letter certifying manufacturer's required qualifications.
2. Structural Design Calculations.
3. Manufacturer's Installation Instructions.

1.5 QUALITY ASSURANCE

Overall Standard: Structural engineering design documents stamped by a structural engineer registered to practice in the state of Florida.

Manufacturer Qualifications: Minimum 10 years in business under the same company name producing covers/canopies with welded bents and of the type specified.

Installer Qualifications: Minimum 5 years experience in erecting covers/canopies of the type specified.

1.6 WARRANTY

Contractor guarantees and warrants Work of this section to be in compliance with Contract Documents and free from faults and defects in materials and workmanship for prior of two years from Date of Substantial Completion. Warranty includes prompt repair at no additional cost to Owner. Use warranty form provided in Division One of this Project Manual.

1.7 DELIVERY, STORAGE, AND HANDLING

Follow manufacturer's instructions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

Acceptable Manufacturer: **Basis of Design**, Perfection Architectural Systems, LLC., An Avadek Company 2310 Mercator Drive Orlando, FL 32807; ASD. Tel: (800) 238-7207, Fax: (407) 671-8252.

Provide all protective covers from Perfection Architectural Systems.

2.2 MATERIALS

Aluminum Extrusions: 6063 alloy, T-6 temper.

2.3 COMPONENTS

Beams: Open top aluminum tubular extrusions.

1. Size: As shown on drawings.
2. Size: As required by structural engineering design.

Deck: Rigid-Roll-Lock extruded aluminum, self-flashing, interlocking sections.

1. Size and Profile: Soffit deck as shown on drawings
2. Size: As required by structural engineering design.
3. Provide welded endplate water dams where sections terminate at other than drainage channels. Sealed or caulked in place dams are not acceptable.

Fascia: Fascia as shown on drawings and as required to complete the installation resulting in a neat finished appearance.

Flashing: Aluminum sheet, thickness as recommended by manufacturer for specific condition.

Struts:

1. Aluminum tubular extrusion of size shown on shop drawings.

Gutter Beam:

1. Size: As shown on shop drawings.

2.4 ACCESSORIES

Fasteners:

1. Deck Screws: No. 14 by 1 inch (25 mm), self-tapping, Type 18-8 stainless steel with neoprene washers.
2. Trim Screws: No. 10 by 1/2 inch (13 mm), self-tapping, Type 18-8 stainless steel.
3. Trim Rivets: Aluminum, size recommended by manufacturer for specific condition.
4. Other Fasteners: Type 18-8 stainless steel, type recommended by manufacturer for specific condition.

2.5 FABRICATION

Shop Assembly: Fabricate cross beams for field assembled and concealed bolted connections.

2.6 FINISHES

1. Fluoropolymer Coating: 70 percent PVDF resin based fluoropolymer, AA-C-12C-42R-1, color as selected by architect from manufacturers standard colors, nonmetallic, comply with AAMA 605.
 - a. Two coat application.

PART 3 EXECUTION

3.1 EXAMINATION

Examine building surfaces to which canopy will connect.

Coordinate with responsible trade to perform corrective work on unsatisfactory surfaces.

Commencement of work by installer is acceptance of existing conditions.

3.2 ERECTION

Erect protective covers in accordance with manufacturer's installation instructions.

Set bents plumb, straight, and true to line, adequately braced to maintain position until grout has cured.

Keep aluminum surfaces from direct contact with ferrous metal or other incompatible materials by applying one coat of clear acrylic coating.

3.3 CLEANING

Cleaning: Clean surfaces soiled by work as recommended by manufacturer. Maintain canopy assembly in reasonable clean condition during construction period. Immediately remove stains or materials having adverse effect on materials and finish. Remove excess glazing and sealant compounds.

Final Cleaning: Just prior to Date of Substantial Completion clean entire canopy assembly using pretested detergent and water. Flush with clean water. Repair or replace work which cannot be cleaned or which has been damaged during construction operations.

Remove surplus materials and debris from the site.

3.4 PROTECTION

Protect components from contact with dissimilar materials by separating with concealed neoprene gaskets or bituminous coating. Protect finishes from damage or scratching during installation.

Protect finished aluminum surfaces from damage due to subsequent construction operations.

END OF SECTION 10530

SECTION 10801 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Restroom accessories.
 - 2. Shower room accessories.
 - 3. Underlavatory guards.
 - 4. Custodial accessories.
 - 5. Warm-air dryers.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Features that will be included for Project.
 - 5. Manufacturer's warranty.
- B. Maintenance Data: For toilet and bath accessories to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same articles in Part 2, provide products of same manufacturer unless otherwise approved by Architect.

1.5 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.6 WARRANTY

- A. Special Mirror Warranty: Manufacturer's standard form in which manufacturer agrees to replace mirrors that develop visible silver spoilage defects and that fail in materials or workmanship within specified warranty period.
1. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, 0.0312-inch (0.8-mm) minimum nominal thickness, unless otherwise indicated.
- B. Brass: ASTM B 19 flat products; ASTM B 16 (ASTM B 16M), rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
- C. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.0359-inch (0.9-mm) minimum nominal thickness.
- D. Galvanized Steel Sheet: ASTM A 653/A 653M, with G60 (Z180) hot-dip zinc coating.
- E. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.
- G. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: ASTM C 1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.
- I. ABS Plastic: Acrylonitrile-butadiene-styrene resin formulation.

2.2 RESTROOM ACCESSORIES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. A & J Washroom Accessories, Inc.
 2. American Specialties, Inc.
 3. Bobrick Washroom Equipment, Inc.
 4. Bradley Corporation.
- B. Toilet Tissue (Roll) Holder: Where this designation is indicated, provide 4 toilet tissue dispensers complying with the following:
1. Description: Lahara Toilet Tissue Holder – Model: 73850.
 2. Mounting: . Surface mounted with concealed anchorage.
 3. Operation: Non control delivery with standard spindle.
 4. Material and Finish: Satin-finish aluminum bracket with plastic spindle.

- C. Liquid-Soap Dispenser: Where this designation is indicated, provide **5** Liquid-Soap Dispenser dispensers complying with the following:
1. Description: Designed for dispensing soap in liquid or lotion form.
 2. Mounting: Horizontally oriented, surface mounted.
 3. Capacity: 40- **oz.**
 4. Materials: Stainless steel, No. 4 finish (satin).
 5. Lockset: Tumbler type.
- D. Sanitary-Napkin Disposal Unit: Where this designation is indicated, provide a total of **2** Sanitary-Napkin Disposal Unit complying with the following:
1. Mounting: Partition mounted, dual access and Surface mounted.
 2. Door or Cover: Self-closing disposal-opening cover and hinged face panel with tumbler lockset.
 3. Receptacle: Removable.
 4. Material and Finish: Stainless steel, No. 4 finish (satin).
- E. Grab Bar: Where this designation is indicated, provide **2** set of stainless-steel grab bars complying with the following:
1. Mounting: Flanges with concealed fasteners.
 2. Material: Stainless steel, **0.05 inch (1.3 mm)** thick.
 - a. Finish: Smooth, No. 4, satin finish on ends and slip-resistant texture in grip area.
 3. Outside Diameter: **1-1/2 inches (38 mm)**.
 4. Configuration and Length: 36" long and 42" long per handicapped restroom- **2 sets**.
 5. Configuration and Length: 36" long and 12" long per handicapped shower – **2 sets**.
- F. Mirror Unit with shelf: Where this designation is indicated, provide **5** Mirror Units with shelf dispensers complying with the following:
1. Frame: Glass
 2. Corners: Manufacturer's standard.
 3. Hangers: Produce rigid, tamper- and theft-resistant installation, using method indicated below.
 - a. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
 - b. Wall bracket of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
 4. Size: 18" x 30".
 5. Length: **24 inches (610 mm)**.
 6. Material and Finish: Stainless steel, No. 4 finish (satin).

2.3 PUBLIC-USE SHOWER ROOM ACCESSORIES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. A & J Washroom Accessories, Inc.
 2. Bobrick Washroom Equipment, Inc.
 3. Bradley Corporation.
- B. Folding Shower Seat: Where this designation is indicated, provide **2** Folding Shower seats complying with the following:
1. Configuration: L-shaped seat, designed for wheelchair access.
 2. Seat: Phenolic or polymeric composite of slat-type or one-piece construction in color as selected by Architect.
 3. Mounting Mechanism: Stainless steel, No. 4 finish (satin).

- C. Soap Dish: Where this designation is indicated, provide 2 Soap Dishes complying with the following:
1. Description: Without washcloth bar.
 2. Mounting: Recessed.
 3. Material and Finish: Stainless steel, No. 4 finish (satin).

2.4 WARM-AIR DRYERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Excel Dryer Corporation, Model 76W.
- B. Warm-Air Dryer: Designation - Where this designation is indicated, provide 5 Warm-Air Dryer complying with the following:
1. Mounting: Surface mounted.
 2. Operation: Electronic-sensor activated with timed power cut-off switch.
 - a. Operation Time: 30 to 40 seconds.
 3. Cover Material and Finish: Steel, with white enamel finish.
 4. Electrical Requirements: 115 V, 20 A, 2300 W.

2.5 UNDERLAVATORY GUARDS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Plumberex Specialty Products, Inc.
 2. TCI Products.
 3. Truebro, Inc.
- B. Underlavatory Guard: Where this designation is indicated, provide in 4 Underlavatory Guard complying with the following
1. Description: Insulating pipe covering for supply and drain piping assemblies, that prevent direct contact with and burns from piping, and allow service access without removing coverings.
 2. Material and Finish: Antimicrobial, molded-plastic, white.

2.6 CUSTODIAL ACCESSORIES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. A & J Washroom Accessories, Inc.
 2. Bobrick Washroom Equipment, Inc.
 3. Bradley Corporation.

B. Mop and Broom Holder:

1. Description: Unit with shelf, hooks, holders, and rod suspended beneath shelf.
2. Length: **36 inches** (914 mm).
3. Hooks: Three.
4. Mop/Broom Holders: Four, spring-loaded, rubber hat, cam type.
5. Material and Finish: Stainless steel, No. 4 finish (satin).
 - a. Shelf: Not less than nominal **0.05-inch-** (1.3-mm-) thick stainless steel.
 - b. Rod: Approximately **1/4-inch-** (6-mm-) diameter stainless steel.
6. Location and quantity: **1 Total**

2.7 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least **250 lbf** (1112 N), when tested according to method in ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION 10801

SECTION 12355 - INSTITUTIONAL CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Plastic-laminate-faced wood cabinets of stock design.
 - 2. Plastic-laminate countertops.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood blocking for anchoring institutional casework.
 - 2. Division 9 Section "Gypsum Plaster" for reinforcements in metal-framed plaster partitions for anchoring institutional casework.
 - 3. Division 9 Section "Gypsum Board Assemblies" for reinforcements in gypsum board partitions for anchoring institutional casework.

1.3 DEFINITIONS

- A. Exposed Portions of Cabinets: Surfaces visible when doors and drawers are closed, including bottoms of cabinets more than **48 inches (1220 mm)** above floor, and surfaces visible in open cabinets.
- B. Semiexposed Portions of Cabinets: Surfaces behind opaque doors, such as interiors of cabinets, shelves, dividers, interiors and sides of drawers, and interior faces of doors. Tops of cases **78 inches (1980 mm)** or more above floor are defined as semiexposed.
- C. Concealed Portions of Cabinets: Surfaces not usually visible after installation, including sleepers, web frames, dust panels, and ends and backs that are placed directly against walls or other cabinets.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for institutional casework. Include plans, elevations, sections, details, and attachments to other Work.
- C. Samples for Initial Selection: For cabinet finishes and for each type of top material indicated.

- D. Samples for Verification: 6-inch- (150-mm-) square Samples for each type of finish, including top material and the following:
1. Section of countertop showing top, front edge, and backsplash construction.
 2. One full-size finished base cabinet complete with hardware, doors, and drawers, but without countertop.
 3. One full-size finished wall cabinet complete with hardware, doors, and adjustable shelves.
 4. Maintain full-size Samples at Project site during construction in an undisturbed condition as a standard for judging the completed Work. Unless otherwise indicated, approved sample units may become part of the completed Work if in undisturbed condition at time of Substantial Completion. Notify Architect of their exact locations.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative of institutional casework manufacturer for installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain institutional casework through one source from a single manufacturer.
- C. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards," Section 1600.
1. Provide AWI Quality Certification Program labels indicating that institutional casework complies with requirements.
- D. Product Designations: Drawings indicate sizes, configurations, and finish material of institutional casework by referencing designated manufacturer's catalog numbers. Other manufacturers' casework of similar sizes and door and drawer configurations, of same finish material, and complying with the Specifications may be considered. Refer to Division 1 Section "Product Requirements."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver institutional casework only after painting, utility roughing-in, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas where environmental conditions meet requirements specified in "Project Conditions" Article.
- B. Keep finished surfaces covered with polyethylene film or other protective covering during handling and installation.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install institutional casework until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where institutional casework is indicated to fit to other construction, verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION

- A. Coordinate layout and installation of metal framing and reinforcements in gypsum board assemblies for support of institutional casework.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of institutional casework that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
1. Delamination of components or other failures of glue bond.
 2. Warping of components.
 3. Failure of operating hardware.
 4. Deterioration of finishes.
- B. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Plastic-Laminate-Faced Institutional Casework:
 - a. Architectural Cabinet Systems; Division of Windham Millwork, Inc.
 - b. LSI Corporation of America, Inc.
 - c. TMI Systems Design Corp.
 - d. Stevens Industries Inc.
 2. Plastic-Laminate Material:
 - a. Formica Corporation.
 - b. Nevamar Company, LLC; Decorative Products Div.
 - c. Wilsonart International; Div. of Premark International, Inc.

2.2 MATERIALS

- A. Low-Emitting Materials: Fabricate manufactured wood casework, including countertops, with adhesives and composite wood products containing no urea formaldehyde.
- B. General:
1. Adhesives: Do not use adhesives that contain urea formaldehyde.
 2. Maximum Moisture Content for Lumber: 7 percent for hardwood and 12 percent for softwood.
 3. Hardwood Plywood: HPVA HP-1, either veneer core or particle core, unless otherwise indicated, made without urea formaldehyde.
 4. Softwood Plywood: DOC PS 1.
 5. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 6. Medium-Density Fiberboard: ANSI A208.2, Grade MD-Exterior Glue.
 7. Plastic Laminate: High-pressure decorative laminate complying with NEMA LD 3.
 8. Edgebanding for Plastic Laminate: Rigid PVC T-molding, through color with satin finish.
- C. Exposed Cabinet Materials:
1. Solid Wood: Clear hardwood lumber, selected for compatible grain and color.
 2. Plywood: Hardwood plywood, selected for compatible color and grain. Grade AA exposed faces at least **1/50 inch (0.5 mm)** thick, and Grade J crossbands. Provide both faces of same species.
 3. Plastic Laminate: Type VGS.
 - a. Unless otherwise indicated, provide plastic laminate for exposed surfaces.

- D. Semiexposed Cabinet Materials:
1. Plywood: Hardwood plywood of any species similar in color and grain to exposed plywood. Semiexposed backs of plywood with exposed faces shall be same species as faces. Grade B faces and Grade J crossbands.
 2. Plastic Laminate: Type VGS.
 - a. Provide plastic laminate for semiexposed surfaces, unless otherwise indicated,.
 - b. Provide plastic laminate for interior faces of doors and drawer fronts and where indicated.
- E. Concealed Cabinet Materials:
1. Solid Wood: Any hardwood or softwood species, with no defects affecting strength or utility.
 2. Plywood: Hardwood plywood. Concealed backs of plywood with exposed or semiexposed faces shall be same species as faces.
 3. Plastic Laminate: Type BKL.

2.3 DESIGN, COLOR, AND FINISH

- A. Design: Provide institutional casework of the following design:
1. Reveal overlay with wire pulls.
- B. Wood Colors and Finishes: As selected by Architect from casework manufacturer's full range.
- C. Plastic-Laminate Colors and Finishes: As indicated by manufacturer's designations.
- D. Plastic-Laminate Colors, Patterns, and Finishes: As selected by Architect from plastic-laminate manufacturer's full range.

2.4 CABINET FABRICATION

- A. Plastic-Laminate-Faced Cabinet Construction:
1. Bottoms and Ends of Cabinets, Shelves, and Tops of Wall Cabinets and Tall Cabinets: **3/4-inch (19-mm)** particleboard, plastic-laminate faced on exposed surfaces, melamine faced on semiexposed surfaces.
 2. Backs of Cabinets: **1/2-inch (12.7-mm)** particleboard, plastic-laminate faced on exposed surfaces, melamine faced on semiexposed surfaces.
 3. Drawer Fronts: **3/4-inch (19-mm)** particleboard, plastic-laminate faced on both sides.
 4. Drawer Sides and Backs: **1/2-inch (12.7-mm)** solid wood or plywood, with glued dovetail or multiple-dowel joints.
 5. Drawer Bottoms: **1/4-inch (6.4-mm)** plywood glued and dadoed into front, back, and sides of drawers. Use **1/2-inch (12.7-mm)** material for drawers more than **24 inches (600 mm)** wide.
 6. Doors: **3/4-inch (19-mm)** particleboard or medium-density fiberboard with wood stiles and rails, plastic-laminate faced on both sides.
- B. Leg Shoes: Vinyl or rubber, black, open-bottom type.
- C. Base Molding: ASTM F 1861, Type TS (rubber, vulcanized thermoset), black, **4 inches (100 mm)** high. Provide on fronts and exposed sides of floor-mounted casework.
1. Style: A, straight with no toe.
- D. Filler Strips: Provide as needed to close spaces between cabinets and walls, ceilings, and indicated equipment. Fabricate from same material and with same finish as cabinets.

2.5 CASEWORK HARDWARE

- A. Hardware, General: Provide manufacturer's standard satin-finish, commercial-quality, heavy-duty hardware complying with requirements indicated.
 - 1. Use threaded metal or plastic inserts with machine screws for fastening to particleboard except where hardware is through-bolted from back side.
- B. Butt Hinges: Chrome-plated, semiconcealed, 5-knuckle hinges complying with BHMA A156.9, Grade 1, with antifriction bearings and rounded tips. Provide 2 hinges for doors less than 48 inches (1220 mm) high and 3 hinges for doors more than 48 inches (1220 mm) high.
- C. Pulls: Solid or chrome-plated brass wire pulls, fastened from back with two screws. For sliding doors, provide recessed chrome-plated flush-pulls. Provide 2 pulls for drawers more than 24 inches (600 mm) wide.
- D. Pulls: Semirecessed plastic pulls. For sliding doors, provide recessed plastic flush-pulls. Provide 2 pulls for drawers more than 24 inches (600 mm) wide.
- E. Door Catches: Zinc-plated, nylon-roller spring catch or dual, self-aligning, permanent magnet catch. Provide 2 catches on doors more than 48 inches (1220 mm) high.
- F. Drawer Slides: Zinc-plated, metal-channel, self-closing drawer slides, designed to prevent rebound when drawers are closed, with nylon-tired, ball-bearing rollers, and complying with BHMA A156.9, Type B05091, and rated for the following loads:
 - 1. Box Drawer Slides: 100 lbf (440 N).
 - 2. File Drawer Slides: 150 lbf (670 N).
- G. Sliding-Door Hardware Sets: Manufacturer's standard, to suit type and size of sliding-door units.
- H. Adjustable Shelf Supports: 2-pin locking plastic shelf rests complying with BHMA A156.9, Type B04013.

2.6 COUNTERTOPS

- A. Countertops, General: Provide smooth, clean exposed tops and edges in uniform plane free of defects. Provide front and end overhang of 1 inch (25 mm) over base cabinets.
- B. Plastic-Laminate Tops: Plastic-laminate sheet, shop bonded with waterproof glue to both sides of 3/4-inch (19-mm) plywood or particleboard. Sand surfaces to which plastic laminate is to be bonded.
 - 1. Plastic-Laminate Type for Flat Tops: HGS.
 - 2. Plastic-Laminate Type for Backing: BKL.
 - 3. Provide plastic-laminate edgings of the same material as top 3-mm PVC edging on front edge of top, on top edges of backsplashes and end splashes, and on ends of tops and splashes.
 - 4. Use exterior plywood or phenolic-resin-bonded particleboard for countertops containing sinks.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of reinforcements, and other conditions affecting performance of institutional casework.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 CASEWORK INSTALLATION

- A. Install plumb, level, and true; shim as required, using concealed shims. Where institutional casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.
- B. Base Cabinets: Set cabinets straight, level, and plumb. Adjust subtops within **1/16 inch (1.5 mm)** of a single plane. Fasten cabinets to partition framing, wood blocking, or reinforcements in partitions with fasteners spaced **24 inches (600 mm)** o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform. Align similar adjoining doors and drawers to a tolerance of **1/16 inch (1.5 mm)**.
 - 1. Where base cabinets are not installed adjacent to walls, fasten to floor at toe space with fasteners spaced **24 inches (600 mm)** o.c. Secure sides of cabinets to floor, where they do not adjoin other cabinets, with not less than two fasteners.
- C. Wall Cabinets: Hang cabinets straight, level, and plumb. Adjust fronts and bottoms within **1/16 inch (1.5 mm)** of a single plane. Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Align similar adjoining doors to a tolerance of **1/16 inch (1.5 mm)**.
- D. Install hardware uniformly and precisely. Set hinges snug and flat in mortises, unless otherwise indicated. Adjust and align hardware so moving parts operate freely and contact points meet accurately. Allow for final adjustment after installation.
- E. Adjust casework and hardware so doors and drawers operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.

3.3 INSTALLATION OF TOPS

- A. Field Jointing: Where possible make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.
 - 1. Secure field joints in plastic-laminate countertops with concealed clamping devices located within **6 inches (150 mm)** of front and back edges and at intervals not exceeding **24 inches (600 mm)**. Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.
- B. Secure tops to cabinets with Z-type fasteners or equivalent, using two or more fasteners at each front, end, and back.
- C. Abut top and edge surfaces in one true plane, with internal supports placed to prevent deflection.
- D. Secure backsplashes to tops with concealed metal brackets at **16 inches (400 mm)** o.c. and walls with adhesive.
- E. Seal junctures of top, splash, and walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

3.4 CLEANING AND PROTECTING

- A. Repair or remove and replace defective work as directed on completion of installation.
- B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.
- C. Protection: Provide 6-mil (0.15-mm) plastic or other suitable water-resistant covering over countertop surfaces. Tape to underside of countertop at a minimum of 48 inches (1220 mm) o.c. Remove protection at Substantial Completion.

END OF SECTION 12355

SECTION 13125 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes metal building systems for a covered parking structures that consist of integrated sets of mutually dependent components including structural framing and accessories.
- B. Related Sections include the following:
 - 1. Division 7 Section "Roof Accessories" for roof hatches.
 - 2. Division 8 Section "Steel Doors and Frames."
 - 3. Division 9 painting Sections for finish painting of shop-primed structural framing.

1.3 DEFINITIONS

- A. Bay: Dimension between main frames measured normal to frame (at centerline of frame) for interior bays, and dimension from centerline of first interior main frame measured normal to end wall (outside face of end-wall girt) for end bays.
- B. Building Length: Dimension of the building measured perpendicular to main framing from end wall to end wall (outside face of girt to outside face of girt).
- C. Building Width: Dimension of the building measured parallel to main framing from sidewall to sidewall (outside face of girt to outside face of girt).
- D. Clear Span: Distance between supports of beams, girders, or trusses (measured from lowest level of connecting area of a column and a rafter frame or knee).
- E. Eave Height: Vertical dimension from finished floor to eave (the line along the sidewall formed by intersection of the planes of the roof and wall).
- F. Clear Height under Structure: Vertical dimension from finished floor to lowest point of any part of primary or secondary structure, not including crane supports, located within clear span.
- G. Terminology Standard: Refer to MBMA's "Metal Building Systems Manual" for definitions of terms for metal building system construction not otherwise defined in this Section or in referenced standards.

1.4 SYSTEM DESCRIPTION

- A. General: Provide a complete, integrated set of metal building system manufacturer's standard mutually dependent components and assemblies that form a metal building system capable of withstanding structural and other loads, thermally induced movement, and exposure to weather without failure or infiltration of water into building interior. Include primary and secondary framing, and accessories complying with requirements indicated.
 - 1. Provide metal building system of size and with spacings, slopes, and spans indicated.
- B. Primary Frame Type:
 - 1. Rigid Clear Span: Solid-member, structural-framing system without interior columns.
- C. End-Wall Framing: Manufacturer's standard, for buildings not required to be expandable, consisting of load-bearing end-wall and corner columns, and rafters.
- D. Eave Height: See Sheets A3.11 and A3.12
- E. Bay Spacing: See Sheets A2.11.
- F. Roof Slope: See Sheets A3.11 and A3.12

1.5 SYSTEM PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal building systems capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Engineer metal building systems according to procedures in MBMA's "Metal Building Systems Manual."
 - 2. Design Loads: As indicated on Structural Drawings and As required by ASCE 7, "Minimum Design Loads for Buildings and Other Structures."
 - 3. Live Loads: Include vertical loads induced by the building occupancy indicated on Drawings. Include loads induced by maintenance workers, materials, and equipment for roof live loads.
 - a. Building Occupancy: As indicated on Drawings.
 - 4. Wind Loads: Include horizontal loads induced by a basic wind speed corresponding to a 10-year, mean-recurrence interval at Project site.
 - 5. Collateral Loads: Include additional dead loads other than the weight of metal building system for permanent items such as sprinklers, mechanical systems, electrical systems, and ceilings.
 - 6. Load Combinations: Design metal building systems to withstand the most critical effects of load factors and load combinations as required by ASCE 7, "Minimum Design Loads for Buildings and Other Structures."
 - 7. Deflection Limits: Engineer assemblies to withstand design loads with deflections no greater than the following:
 - a. Purlins and Rafters: Vertical deflection of 1/240 of the span.
 - 8. Design secondary framing system to accommodate deflection of primary building structure and construction tolerances, and to maintain clearances at openings.

1.6 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of the following metal building system components:
1. Structural-framing system.
 2. Accessories.
- B. Shop Drawings: For the following metal building system components. Include plans, elevations, sections, details, and attachments to other work.
1. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
 2. Anchor-Bolt Plans: Submit anchor-bolt plans before foundation work begins. Include location, diameter, and projection of anchor bolts required to attach metal building to foundation. Indicate column reactions at each location.
 3. Structural-Framing Drawings: Show complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
 4. Accessory Drawings: Include details of the following items, at a scale of not less than 1-1/2 inches per 12 inches (1:8):
 - a. Gutters.
 - b. Downspouts.
- C. Samples for Initial Selection: For each type of building component with factory-applied color finish.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of sizes indicated below.
1. Metal Roof Panels: Nominal 12 inches (300 mm) long by actual panel width. Include fasteners, closures, and other exposed panel accessories.
 2. Flashing and Trim: Nominal 12 inches (300 mm) long. Include fasteners and other exposed accessories.
 3. Accessories: Nominal 12-inch- (300-mm-) long Samples for each type of accessory.
- E. Product Certificates: For each type of metal building system, signed by product manufacturer .
1. Letter of Design Certification: Signed and sealed by a qualified professional engineer, licensed in the State of Florid. Include the following:
 - a. Name and location of Project.
 - b. Order number.
 - c. Name of manufacturer.
 - d. Name of Contractor.
 - e. Building dimensions including width, length, height, and roof slope.
 - f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
 - g. Indicate compliance with governing building code and year of edition.
 - h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, and seismic design category or effective peak velocity-related acceleration/peak acceleration.
 - i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
 - j. Building-Use Category: Indicate category of building use and its effect on load importance factors.

- k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.
- F. Welding certificates.
- G. Erector Certificate: Signed by manufacturer certifying that erector complies with requirements, as noted in Quality Assurance article.
- H. Manufacturer Certificate: Signed by manufacturer certifying that products comply with requirements.
- I. Erector Certificate: Signed by manufacturer certifying that erector complies with requirements.
- J. Manufacturer Certificate: Signed by manufacturer certifying that products comply with requirements.
- K. Material Test Reports: Signed by manufacturers certifying that the following products comply with requirements:
 - 1. Structural steel including chemical and physical properties.
 - 2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
 - 3. Tension-control, high-strength, bolt-nut-washer assemblies.
 - 4. Shop primers.
 - 5. Nonshrink grout.

1.7 QUALITY ASSURANCE

- A. Erector Qualifications: An experienced erector who has specialized in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.
- B. Manufacturer Qualifications: A qualified manufacturer and member of MBMA.
 - 1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
 - 2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
- C. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing surveying services of the kind indicated.
- D. Source Limitations: Obtain primary metal building system components, including structural framing and metal panel assemblies, through one source from a single manufacturer.
- E. Product Options: Drawings indicate size, profiles, and dimensional requirements of metal building system and are based on the specific system indicated. Refer to Division I Section "Product Requirements."
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- F. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code--Steel," and AWS D1.3, "Structural Welding Code--Sheet Steel."

- G. Structural Steel: Comply with AISC's "Specification for Structural Steel Buildings--Allowable Stress Design, Plastic Design," or AISC's "Load and Resistance Factor Design Specification for Structural Steel Buildings," for design requirements and allowable stresses.
- H. Cold-Formed Steel: Comply with AISI's "Specification for the Design of Cold-Formed Steel Structural Members," or AISI's "Load and Resistance Factor Design Specification for Steel Structural Members," for design requirements and allowable stresses.
- I. Pre-Erection Framing Conference: Conduct conference at Project site to comply with requirements in Division 00 Section "Supplementary General Conditions." Review methods and procedures related to metal building systems including, but not limited to, the following:
 - 1. Inspect and discuss condition of foundations and other preparatory work performed by other trades.
 - 2. Review structural load limitations.
 - 3. Review and finalize construction schedule and verify availability of materials, Erector's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review required testing, inspecting, and certifying procedures.
 - 5. Review weather and forecasted weather conditions and procedures for unfavorable conditions.
- J. Preinstallation Roof Assembly Conference: Conduct conference at Project site to comply with requirements in Division 00 Section "Supplementary General Conditions." Review methods and procedures related to metal roof panel assemblies including, but not limited to, the following:
 - 1. Examine purlin and rafter conditions for compliance with requirements, including flatness and attachment to structural members.
 - 2. Review structural limitations of purlins and rafters during and after roofing.
 - 3. Review flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.
 - 4. Review temporary protection requirements for metal roof panel assembly during and after installation.
 - 5. Review roof observation and repair procedures after metal roof panel installation.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when weather conditions permit metal panels to be installed according to manufacturers' written instructions and warranty requirements.
- B. Field Measurements:

1.10 COORDINATION

- A. Coordinate size and location of concrete foundations and casting of anchor-bolt inserts into foundation walls and footings. Concrete, reinforcement, and formwork requirements are specified in Division 3 Section "Cast-in-Place Concrete."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. American Buildings Company.
 2. Butler Manufacturing Company.
 3. Ceco Building Systems; Division of Robertson-Ceco Corporation.
 4. Gulf States Manufacturers, Inc.
 5. VP Buildings, Inc.; a United Dominion Company.

2.2 STRUCTURAL-FRAMING MATERIALS

- A. W-Shapes: ASTM A 992/A 992M; ASTM A 572/A 572M, Grade 50 or 55 (345 or 380); or ASTM A 529/A 529M, Grade 50 or 55 (345 or 380).
- B. Channels, Angles, M-Shapes, and S-Shapes: ASTM A 36/A 36M; ASTM A 572/A 572M, Grade 50 or 55 (345 or 380); or ASTM A 529/A 529M, Grade 50 or 55 (345 or 380).
- C. Plate and Bar: ASTM A 36/A 36M; ASTM A 572/A 572M, Grade 50 or 55 (345 or 380); or ASTM A 529/A 529M, Grade 50 or 55 (345 or 380).
- D. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B or C, structural tubing.
- E. Structural-Steel Sheet: Hot-rolled, ASTM A 1011/A 1011M, Structural Steel (SS), Grades 30 through 55 (205 through 380), or High-Strength Low Alloy Steel (HSLAS), Grades 45 through 70 (310 through 480); or cold-rolled, ASTM A 1008/A 1008M, Structural Steel (SS), Grades 25 through 80 (170 through 550), or High-Strength Low Alloy Steel (HSLAS), Grades 45 through 70 (310 through 480).
- F. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grades 33 through 80 (230 through 550) or High-Strength Low Alloy Steel (HSLAS), Grades 50 through 80 (340 through 550); with G60 (Z180) coating designation; mill phosphatized.
- G. Metallic-Coated Steel Sheet Prepainted with Coil Coating: Steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grades 33 through 80 (230 through 550) or High-Strength Low Alloy Steel (HSLAS), Grades 50 through 80 (340 through 550); with G90 (Z275) coating designation.
 2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Structural Steel (SS), Grade 50 or 80 (340 or 550); with Class AZ50 (AZM150) coating.
- H. Non-High-Strength Bolts, Nuts, and Washers: ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6), carbon-steel, hex-head bolts; ASTM A 563 (ASTM A 563M) carbon-steel hex nuts; and ASTM F 844 plain (flat) steel washers.
1. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50.

- I. High-Strength Bolts, Nuts, and Washers: **ASTM A 325 (ASTM A 325M)**, Type 1, heavy hex steel structural bolts; **ASTM A 563 (ASTM A 563M)** heavy hex carbon-steel nuts; and **ASTM F 436 (ASTM F 436M)** hardened carbon-steel washers.
 - 1. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50.
 - 2. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, heavy-hex-head steel structural bolts with splined ends.
 - a. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50, baked epoxy coated.
- J. High-Strength Bolts, Nuts, and Washers: **ASTM A 490 (ASTM A 490M)**, Type 1, heavy hex steel structural bolts or tension-control, bolt-nut-washer assemblies with splined ends; **ASTM A 563 (ASTM A 563M)** heavy hex carbon-steel nuts; and **ASTM F 436 (ASTM F 436M)** hardened carbon-steel washers, plain.
- K. Unheaded Anchor Rods: ASTM A 572/A 572M, Grade **50 (345)**.
 - 1. Configuration: Straight.
 - 2. Nuts: **ASTM A 563 (ASTM A 563M)** heavy hex carbon steel.
 - 3. Plate Washers: ASTM A 36/A 36M carbon steel.
 - 4. Washers: **ASTM F 436 (ASTM F 436M)** hardened carbon steel.
 - 5. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50.
- L. Headed Anchor Rods: **ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6)**, straight.
 - 1. Nuts: **ASTM A 563 (ASTM A 563M)** heavy hex carbon steel.
 - 2. Plate Washers: ASTM A 36/A 36M carbon steel.
 - 3. Washers: **ASTM F 436 (ASTM F 436M)** hardened carbon steel.
 - 4. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50.
- M. Threaded Rods: ASTM A 572/A 572M, Grade **50 (345)**.
 - 1. Nuts: **ASTM A 563 (ASTM A 563M)** heavy hex carbon steel.
 - 2. Washers: **ASTM F 436 (ASTM F 436M)** hardened carbon steel.
 - 3. Finish: Mechanically deposited zinc coating, ASTM B 695, Class 50.
- N. Primer: SSPC-Paint 15, Type I, red oxide.

2.3 MISCELLANEOUS MATERIALS

- A. Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide fasteners with heads matching color of materials being fastened by means of plastic caps or factory-applied coating.
 - 1. Fasteners for Metal Panels: Self-drilling Type 410 stainless-steel or self-tapping Type 304 stainless-steel or zinc-alloy-steel hex washer head, with EPDM or PVC washer under heads of fasteners bearing on weather side of metal panels.
 - 2. Blind Fasteners: High-strength aluminum or stainless-steel rivets.
- B. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for **15-mil (0.4-mm)** dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

- C. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.4 FABRICATION, GENERAL

- A. General: Design components and field connections required for erection to permit easy assembly.
 - 1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
 - 2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.
- B. Tolerances: Comply with MBMA's "Metal Building Systems Manual": Chapter IV, Section 9, "Fabrication and Erection Tolerances."

2.5 STRUCTURAL FRAMING

- A. General:
 - 1. Primary Framing: Shop fabricate framing components to indicated size and section with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.
 - a. Make shop connections by welding or by using high-strength bolts.
 - b. Join flanges to webs of built-up members by a continuous submerged arc-welding process.
 - c. Brace compression flange of primary framing with steel angles or cold-formed structural tubing between frame web and purlin or girt web, so flange compressive strength is within allowable limits for any combination of loadings.
 - d. Weld clips to frames for attaching secondary framing members.
 - e. Shop Priming: Prepare surfaces for shop priming according to SSPC-SP 2. Shop prime primary structural members with specified primer after fabrication.
 - 2. Secondary Framing: Shop fabricate framing components to indicated size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.
 - a. Make shop connections by welding or by using non-high-strength bolts.
 - b. Shop Priming: Prepare uncoated surfaces for shop priming according to SSPC-SP 2. Shop prime uncoated secondary structural members with specified primer after fabrication.
- B. Primary Framing: Manufacturer's standard structural primary framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.
 - 1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.
 - 2. Rigid Clear-Span Frames: I-shaped frame sections fabricated from shop-welded, built-up steel plates or structural-steel shapes. Interior columns are not permitted.
 - 3. Frame Configuration: Single gable.
 - 4. Exterior Column Type: Tapered.
 - 5. Rafter Type: Tapered.

- C. Secondary Framing: Manufacturer's standard secondary framing members, including purlins, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Fabricate framing from cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet prepainted with coil coating, unless otherwise indicated, to comply with the following:
1. Purlins: C- or Z-shaped sections; fabricated from minimum **0.0598-inch- (1.5-mm-)** thick steel sheet, built-up steel plates, or structural-steel shapes; minimum **2-1/2-inch- (64-mm-)** wide flanges.
 - a. Depth: As required to comply with system performance requirements.
 2. Eave Struts: Unequal-flange, C-shaped sections; fabricated from **0.0598-inch- (1.5-mm-)** thick steel sheet, built-up steel plates, or structural-steel shapes; to provide adequate backup for metal panels.
 3. Flange Bracing: Minimum **2-by-2-by-1/8-inch (51-by-51-by-3-mm)** structural-steel angles or **1-inch (25-mm)** diameter, cold-formed structural tubing to stiffen primary frame flanges.
 4. Sag Bracing: Minimum **1-by-1-by-1/8-inch (25-by-25-by-3-mm)** structural-steel angles.
 5. Base or Sill Angles: Minimum **3-by-2-by-0.0598-inch (76-by-51-by-1.5-mm)** zinc-coated (galvanized) steel sheet.
 6. Purlin and Girt Clips: Minimum **0.0598-inch- (1.5-mm-)** thick, steel sheet. Provide galvanized clips where clips are connected to galvanized framing members.
 7. Secondary End-Wall Framing: Manufacturer's standard sections fabricated from minimum **0.0598-inch- (1.5-mm-)** thick, zinc-coated (galvanized) steel sheet.
 8. Framing for Openings: Channel shapes; fabricated from minimum **0.0598-inch- (1.5-mm-)** thick, cold-formed, structural-steel sheet or structural-steel shapes. Frame head and jamb of door openings, and head, jamb, and sill of other openings.
 9. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet; built-up steel plates; or zinc-coated (galvanized) steel sheet; designed to withstand required loads.
- D. Bracing: Provide adjustable wind bracing as follows:
1. Cable: ASTM A 475, **1/4-inch- (6-mm-)** diameter, extra-high-strength grade, Class B zinc-coated, 7-strand steel; with threaded end anchors.
 2. Rigid Portal Frames: Fabricate from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
 3. Bracing: Provide wind bracing using any method specified above, at manufacturer's option.
- E. Bolts: Provide plain finish bolts for structural-framing components that are primed or finish painted. Provide zinc-plated or hot-dipped galvanized bolts for structural-framing components that are galvanized.
- F. Factory-Primed Finish: Apply specified primer immediately after cleaning and pretreating.
1. Prime primary, secondary, and end-wall structural-framing members to a minimum dry film thickness of **1 mil (0.025 mm)**.
 - a. Prime secondary steel framing formed from uncoated steel sheet to a minimum dry film thickness of **0.5 mil (0.013 mm)** on each side.
 2. Prime galvanized members with specified primer, after phosphoric acid pretreatment.
- G. Factory -Finish: All exposed Primary and Secondary framing members to have a galvanized finish coating for exterior exposure.

2.6 METAL ROOF PANELS

- A. Trapezoidal-Rib, Standing-Seam Metal Roof Panels (A5-1 and A5-2): Formed with raised trapezoidal ribs at panel edges and flat pan between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.
1. Available Manufacturers:
 - a. Nucor; CFR Roof System.
 - b. Carlisle Corp.
 - c. Or approved equal.
 2. Material: Aluminum-zinc alloy-coated steel sheet, 26 gauge, design base metal thickness.
 - a. Exterior Finish: Siliconized polyester.
 - b. Color: As selected by Architect from manufacturer's base standard range.
 3. Clips: Manufacturer's standard, floating type to accommodate thermal movement; fabricated from zinc-coated (galvanized) steel sheet with moving stainless-steel wings for attachment to metal roof panel. Low clip permitted when used with Simple Saver System, or approved equal.
 4. Joint Type: Mechanically field seamed, double folded.
 5. Panel Coverage: 24 inches (610 mm).
 6. Panel Height: Minimum 2-3/4 inches (70 mm).
 7. Uplift Rating: FM 1-90.

2.7 ACCESSORIES

- A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.
1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- B. Gutters: Formed from minimum **0.0159-inch- (0.40-mm-)** thick, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum **96-inch- (2438-mm-)** long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."
1. Finish: Siliconized Polyester Finish.
 2. Gutter Supports: Fabricated from same material and finish as gutters; spaced **36 inches (900 mm)** o.c.
 3. Strainers: Bronze, copper, or aluminum wire ball type at outlets.
- C. Downspouts: Formed from **0.063-inch- (1.6-mm-)** thick, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished and color as selected by Architect from manufacturer's full range. Fabricate in minimum **10-foot- (3-m-)** long sections, complete with formed elbows and offsets.
1. Finish: Siliconized Polyester Finish.
 2. Mounting Straps: Fabricated from same material and finish as gutters; spaced **10 feet (3 m)** o.c.

2.8 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform the following tests and inspections and to submit reports.
- D. Tests and Inspections:
 - 1. Bolted Connections: Shop-bolted connections shall be **tested and** inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 - 2. Welded Connections: In addition to visual inspection, shop-welded connections shall be tested and inspected according to AWS D1.1 and the following inspection procedures, at inspector's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.
- E. Correct deficiencies in Work that test reports and inspections indicate do not comply with the Contract Documents.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Erector present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
 - 1. For the record, prepare written report, endorsed by Erector, listing conditions detrimental to performance of work.
- B. Before erection proceeds, survey elevations and locations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments to receive structural framing, with Erector present, for compliance with requirements and metal building system manufacturer's tolerances.
 - 1. Engage land surveyor to perform surveying.
- C. Proceed with erection only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition.

- B. Provide temporary shores, guys, braces, and other supports during erection to keep structural framing secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural framing, connections, and bracing are in place, unless otherwise indicated.

3.3 ERECTION OF STRUCTURAL FRAMING

- A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.
- B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.
- C. Set structural framing accurately in locations and to elevations indicated and according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.
- D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - 3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.
- F. Primary Framing and End Walls: Erect framing true to line, level, plumb, rigid, and secure. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist cure grout for not less than seven days after placement.
 - 1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
 - a. Joint Type: Snug tightened or pretensioned.
- G. Secondary Framing: Erect framing true to line, level, plumb, rigid, and secure. Fasten secondary framing to primary framing using clips with field connections using non-high-strength bolts.
 - 1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
- H. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.
 - 1. Tighten rod and cable bracing to avoid sag.
 - 2. Locate interior end-bay bracing only where indicated.

- I. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.
- J. Erection Tolerances: Maintain erection tolerances of structural framing within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.4 METAL ROOF PANEL INSTALLATION

- A. General: Provide metal roof panels of full length from eave to ridge, unless otherwise indicated or restricted by shipping limitations.
 - 1. Install ridge caps as metal roof panel work proceeds.
 - 2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.
- B. Field-Assembled, Trapezoidal-Rib Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.
 - 1. Install clips to supports with self-tapping fasteners.
 - 2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
 - 3. Seamed Joint: Crimp standing seams with manufacturer-approved motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
 - 4. Rigidly fasten eave end of metal roof panels and allow ridge end free movement due to thermal expansion and contraction. Pre-drill panels for fasteners.
 - 5. Provide metal closures at peaks, rake edges, rake walls and each side of ridge caps.

3.5 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
 - 2. Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 - 1. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.

2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of **10 feet (3 m)** with no joints allowed within **24 inches (600 mm)** of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than **1 inch (25 mm)** deep, filled with mastic sealant (concealed within joints).
- C. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than **4 feet (1.2 m)** o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- D. Downspouts: Join sections with **1-1/2-inch (38-mm)** telescoping joints. Provide fasteners designed to hold downspouts securely **1 inch (25 mm)** away from walls; locate fasteners at top and bottom and at approximately **60 inches (1500 mm)** o.c. in between.
 1. Tie downspouts to downspout boots as indicated.

3.6 FIELD QUALITY CONTROL

- A. Special Inspector: Contractor to engage a qualified special inspector to perform the following tests and inspections and to submit reports if required by authorities having jurisdiction.
- B. Tests and Inspections:
 1. High-Strength, Field-Bolted Connections: Connections shall be tested and inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
 2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1 and the following inspection procedures, at inspector's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
- C. Correct deficiencies in Work that test reports and inspections indicate do not comply with the Contract Documents.

3.7 CLEANING AND PROTECTION

- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
- B. Touchup Painting: After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing[, **bearing plates,**] and accessories.
 1. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or SSPC-SP 3, "Power Tool Cleaning."
 2. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
- C. Touchup Painting: Cleaning and touchup painting are specified in Division 9 painting Sections.

END OF SECTION 13125

APPENDIX A

PERMITS

St. Johns River Water Management District
Permit No. 86744-8

Indian River Farms Water Control District
Permit No. 21-45

Indian River County Land Clearing
Permit No. 92030035/91278

Indian River County Tree Removal
Permit No. 92030035/91279

Indian River County Right-of Way
Permit No. 2022021170

Indian River County Stormwater
Permit No. SP-MI-22-02/91279

Indian River County Utilities
Permit No. UCP 3615



St. Johns River

Water Management District

Michael A. Register, P.E., Executive Director

4049 Reid Street • P.O. Box 1429 • Palatka, FL 32178-1429 • 386-329-4500 • www.sjrwmd.com

April 01, 2022

Richard Szpyrka – Sent via email: rszpyrka@ircgov.com

Indian River County Public Works Dept.

1801 27th St

Vero Beach, FL 32960-3388

SUBJECT: Permit Number: 86744-8
Project Name: Indian River County Traffic Operations

Dear Mr. Szpyrka:

Enclosed is your individual permit issued by the St. Johns River Water Management District on April 01, 2022. This permit is a legal document and should be kept with your other important documents. Permit issuance does not relieve you from the responsibility of obtaining any necessary permits from any federal, state, or local agencies for your project.

Technical Staff Report:

If you wish to review a copy of the Technical Staff Report (TSR) that provides the District's staff analysis of your permit application, you may view the TSR by going to the Permitting section of the District's website at www.sjrwmd.com/permitting. Using the "search applications and permits" feature, you can use your permit number or project name to find information about the permit. When you see the results of your search, click on the permit number and then on the TSR folder.

Noticing Your Permit:

For noticing instructions, please refer to the noticing materials in this package regarding closing the point of entry for someone to challenge the issuance of your permit. Please note that if a timely petition for administrative hearing is filed, your permit will become non-final and any activities that you choose to undertake pursuant to your permit will be at your own risk. Please refer to the attached Notice of Rights to determine any legal rights you may have concerning the District's agency action.

Compliance with Permit Conditions:

To submit your required permit compliance information, go to the District's website at www.sjrwmd.com/permitting. Under the "Apply for a permit or submit compliance data" section, click to sign-in to your existing account or to create a new account. Select the "Compliance Submittal" tab, enter your permit number, and select "No Specific Date" for the Compliance Due Date Range. You will then be able to view all the compliance submittal requirements for your project. Select the compliance item that you are ready to submit and then attach the appropriate information or form. The forms to comply with your permit conditions are available at www.sjrwmd.com/permitting under the section "Handbooks, forms, fees, final orders". Click on forms to view all permit compliance forms, then scroll to the ERP application forms section and select the applicable compliance forms. Alternatively, if you have difficulty finding forms or need

GOVERNING BOARD

Rob Bradley, CHAIR
FLEMING ISLAND

Ryan Atwood
MOUNT DORA

Maryam H. Ghyabi-White, VICE CHAIR
ORMOND BEACH

Doug Bourmique
VERO BEACH

J. Chris Peterson, SECRETARY
WINTER PARK

Douglas Burnett
ST. AUGUSTINE

Cole Oliver
MERRITT ISLAND

Ron Howse, TREASURER
COCOA

Janet Price
FERNANDINA BEACH

copies of the appropriate forms, please contact the Bureau of Regulatory Support at (386) 329-4570.

Transferring Your Permit:

Your permit requires you to notify the District within 30 days of any change in ownership or control of the project or activity covered by the permit, or within 30 days of any change in ownership or control of the real property on which the permitted project or activity is located or occurs. You will need to provide the District with the information specified in rule 62-330.340, Florida Administrative Code (F.A.C.). Generally, this will require you to complete and submit Form 62-330.340(1), "Request to Transfer Permit," available at <http://www.sjrwmd.com/permitting/permitforms.html>.

Please note that a permittee is liable for compliance with the permit before the permit is transferred. The District, therefore, recommends that you request a permit transfer in advance in accordance with the applicable rules. You are encouraged to contact District staff for assistance with this process.

Thank you and please let us know if you have additional questions. For general questions contact e-permit@sjrwmd.com or (386) 329-4570.

Sincerely,



Michelle Reiber, Bureau Chief
Division of Regulatory Services
St. Johns River Water Management District
525 Community College Parkway, S.E.
Palm Bay, FL 32909
(321) 409-2129

Enclosures: Permit
Notice of Rights
List of Newspapers for Publication

cc: District Permit File
Consultant: Aaron Stanton – *Sent via email:* aarons@mbveng.com
MBV Engineering, Inc

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Post Office Box 1429
Palatka, Florida 32178-1429

PERMIT NO: 86744-8

DATE ISSUED: April 01, 2022

PROJECT NAME: Indian River County Traffic Operations

A PERMIT AUTHORIZING:

Minor Modification of Permit No. 40-061-86744-6 for Indian River County Traffic Operations to include the construction and operation of a 3.25-acre project as per plans received by the District on March 3, 2022, as amended by Sheets C6 and C7 received by the District on March 31, 2022.

LOCATION:

Section(s): 28 Township(s): 32S Range(s): 39E
Indian River County

Receiving Water Body:

Name	Class
Indian River Lagoon	III Fresh

ISSUED TO:

Indian River County Public Works Dept.
1801 27th St
Vero Beach, FL 32960-3388

The permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to the permittee any property rights nor any rights or privileges other than those specified herein, nor relieve the permittee from complying with any law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit may be revoked, modified, or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes.

PERMIT IS CONDITIONED UPON:

See conditions on attached "Exhibit A", dated April 01, 2022

AUTHORIZED BY: St. Johns River Water Management District
Division of Regulatory Services

By: 

Marjorie Cook
Supervising Professional Engineer

"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 86744-8
Indian River County Traffic Operations
DATED: April 01, 2022

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.
2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the District staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.
3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), which are both incorporated by reference in subparagraph 62-330.050(9)(b)5, F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.
4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the District a fully executed Form 62-330.350(1), "Construction Commencement Notice," (October 1, 2013) (<http://www.flrules.org/Gateway/reference.asp?No=Ref-02505>), incorporated by reference herein, indicating the expected start and completion dates. A copy of this form may be obtained from the District, as described in subsection 62-330.010(5), F.A.C., and shall be submitted electronically or by mail to the Agency. However, for activities involving more than one acre of construction that also require a NPDES stormwater construction general permit, submittal of the Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), shall also serve as notice of commencement of construction under this chapter and, in such a case, submittal of Form 62-330.350(1) is not required.
5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.
6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
 - a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex — "Construction Completion and Inspection Certification for Activities Associated with a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or
 - b. For all other activities — "As-Built Certification and Request for Conversion to

Operation Phase” [Form 62-330.310(1)].

c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:

a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as-built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.4 of Volume I) as filed with the Florida Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.

b. Within 30 days of submittal of the as- built certification, the permittee shall submit “Request for Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity” [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the District in writing of changes required by any other regulatory District that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:

a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;

b. Convey to the permittee or create in the permittee any interest in real property;

c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or

d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the District in writing:

a. Immediately if any previously submitted information is discovered to be inaccurate; and

b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, District staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.
14. If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, stone tools, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section (DHR), at (850) 245-6333, as well as the appropriate permitting agency office. Project activities shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, F.S. For project activities subject to prior consultation with the DHR and as an alternative to the above requirements, the permittee may follow procedures for unanticipated discoveries as set forth within a cultural resources assessment survey determined complete and sufficient by DHR and included as a specific permit condition herein.
15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.
16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.
17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the District will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.
18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.
19. This permit for construction will expire five years from the date of issuance.
20. At a minimum, all retention and detention storage areas must be excavated to rough grade prior to building construction or placement of impervious surface within the area to be served by those facilities. To prevent reduction in storage volume and percolation rates, all accumulated sediment must be removed from the storage area prior to final grading and stabilization.

21. All wetland areas or water bodies that are outside the specific limits of construction authorized by this permit must be protected from erosion, siltation, scouring or excess turbidity, and dewatering.
22. The operation and maintenance entity shall inspect the stormwater or surface water management system once within two years after the completion of construction and every two years thereafter to determine if the system is functioning as designed and permitted. The operation and maintenance entity must maintain a record of each required inspection, including the date of the inspection, the name and contact information of the inspector, and whether the system was functioning as designed and permitted, and make such record available for inspection upon request by the District during normal business hours. If at any time the system is not functioning as designed and permitted, then within 30 days the entity shall submit a report electronically or in writing to the District using Form 62-330.311(1), "Operation and Maintenance Inspection Certification," describing the remedial actions taken to resolve the failure or deviation.
23. This permit does not authorize the permittee to cause any adverse impact to or "take" of state listed species and other regulated species of fish and wildlife. Compliance with state laws regulating the take of fish and wildlife is the responsibility of the owner or applicant associated with this project. Please refer to Chapter 68A-27 of the Florida Administrative Code for definitions of "take" and a list of fish and wildlife species. If listed species are observed onsite, FWC staff are available to provide decision support information or assist in obtaining the appropriate FWC permits. Most marine endangered and threatened species are statutorily protected and a "take" permit cannot be issued. Requests for further information or review can be sent to FWCConservationPlanningServices@MyFWC.com.
24. The proposed project must be constructed and operated as per plans and calculations received by the District on March 3, 2022, as amended by Sheets C-6, and Sheet C-7 received by the District on March 31, 2022.
25. This permit does not authorize any impacts to wetlands or other surface waters.

Notice of Rights

1. A person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the St. Johns River Water Management District (District). Pursuant to Chapter 28-106 and Rule 40C-1.1007, Florida Administrative Code, the petition must be filed (received) either by delivery at the office of the District Clerk at District Headquarters, P. O. Box 1429, Palatka Florida 32178-1429 (4049 Reid St., Palatka, FL 32177) or by e-mail with the District Clerk at Clerk@sjrwmd.com, within twenty-six (26) days of the District depositing the notice of District decision in the mail (for those persons to whom the District mails actual notice), within twenty-one (21) days of the District emailing the notice of District decision (for those persons to whom the District emails actual notice), or within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail or email actual notice). A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes, and Chapter 28-106, Florida Administrative Code. The District will not accept a petition sent by facsimile (fax), as explained in paragraph no. 4 below.
2. Please be advised that if you wish to dispute this District decision, mediation may be available and that choosing mediation does not affect your right to an administrative hearing. If you wish to request mediation, you must do so in a timely-filed petition. If all parties, including the District, agree to the details of the mediation procedure, in writing, within 10 days after the time period stated in the announcement for election of an administrative remedy under Sections 120.569 and 120.57, Florida Statutes, the time limitations imposed by Sections 120.569 and 120.57, Florida Statutes, shall be tolled to allow mediation of the disputed District decision. The mediation must be concluded within 60 days of the date of the parties' written agreement, or such other timeframe agreed to by the parties in writing. Any mediation agreement must include provisions for selecting a mediator, a statement that each party shall be responsible for paying its pro-rata share of the costs and fees associated with mediation, and the mediating parties' understanding regarding the confidentiality of discussions and documents introduced during mediation. If mediation results in settlement of the administrative dispute, the District will enter a final order consistent with the settlement agreement. If mediation terminates without settlement of the dispute, the District will notify all the parties in writing that the administrative hearing process under Sections 120.569 and 120.57, Florida Statutes, is resumed. Even if a party chooses not to engage in formal mediation, or if formal mediation does not result in a settlement agreement, the District will remain willing to engage in informal settlement discussions.
3. A person whose substantial interests are or may be affected has the right to an informal administrative hearing pursuant to Sections 120.569 and 120.57(2), Florida Statutes, where no material facts are in dispute. A petition for an informal hearing must also comply with the requirements set forth in Rule 28-106.301, Florida Administrative Code.

Notice of Rights

4. A petition for an administrative hearing is deemed filed upon receipt of the complete petition by the District Clerk at the District Headquarters in Palatka, Florida during the District's regular business hours. The District's regular business hours are 8:00 a.m. – 5:00 p.m., excluding weekends and District holidays. Petitions received by the District Clerk after the District's regular business hours shall be deemed filed as of 8:00 a.m. on the District's next regular business day. The District's acceptance of petitions filed by e-mail is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation (issued pursuant to Rule 28-101.001, Florida Administrative Code), which is available for viewing at sjrwmd.com. These conditions include, but are not limited to, the petition being in the form of a PDF or TIFF file and being capable of being stored and printed by the District. Further, pursuant to the District's Statement of Agency Organization and Operation, attempting to file a petition by facsimile is prohibited and shall not constitute filing.
5. Failure to file a petition for an administrative hearing within the requisite timeframe shall constitute a waiver of the right to an administrative hearing. (Rule 28-106.111, Florida Administrative Code).
6. The right to an administrative hearing and the relevant procedures to be followed are governed by Chapter 120, Florida Statutes, Chapter 28-106, Florida Administrative Code, and Rule 40C-1.1007, Florida Administrative Code. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means the District's final action may be different from the position taken by it in this notice. A person whose substantial interests are or may be affected by the District's final action has the right to become a party to the proceeding, in accordance with the requirements set forth above.
7. Pursuant to Section 120.68, Florida Statutes, a party to the proceeding before the District who is adversely affected by final District action may seek review of the action in the District Court of Appeal by filing a notice of appeal pursuant to Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, within 30 days of the rendering of the final District action.
8. A District action is considered rendered, as referred to in paragraph no. 7 above, after it is signed on behalf of the District and filed by the District Clerk.
9. Failure to observe the relevant timeframes for filing a petition for judicial review as described in paragraph no. 7 above will result in waiver of that right to review.

NOTICING INFORMATION

Please be advised that the St. Johns River Water Management District will not publish a notice in the newspaper advising the public that it has issued a permit for this project.

Newspaper publication, using the District's notice form, notifies members of the public of their right to challenge the issuance of the permit. If proper notice is given by newspaper publication, then there is a 21-day time limit for someone to file a petition for an administrative hearing to challenge the issuance of the permit.

To close the point of entry for filing a petition, you may publish (at your own expense) a one-time notice of the District's decision in a newspaper of general circulation within the affected area as defined in Section 50.011 of the Florida Statutes. If you do not publish a newspaper notice to close the point of entry, the time to challenge the issuance of your permit will not expire and someone could file a petition even after your project is constructed.

A copy of the notice form and a partial list of newspapers of general circulation are attached for your convenience. However, you are not limited to those listed newspapers. If you choose to close the point of entry and the notice is published, the newspaper will return to you an affidavit of publication. In that event, it is important that you either submit a scanned copy of the affidavit by emailing it to compliancesupport@sjrwm.com (preferred method) or send a copy of the original affidavit to:

Office of Business and Administrative Services
4049 Reid Street
Palatka, FL 32177

If you have any questions, please contact the Office of Business and Administrative Services at (386) 329-4570.

NOTICE OF AGENCY ACTION TAKEN BY THE
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

Notice is given that the following permit was issued on _____:

(Name and address of applicant) _____
permit# _____. The project is located in _____ County, Section
_____, Township _____ South, Range _____ East. The permit authorizes a surface
water management system on _____ acres for
_____ known as
_____. The receiving water body is _____.

A person whose substantial interests are or may be affected has the right to request an administrative hearing by filing a written petition with the St. Johns River Water Management District (District). Pursuant to Chapter 28-106 and Rule 40C-1.1007, Florida Administrative Code (F.A.C.), the petition must be filed (received) either by delivery at the office of the District Clerk at District Headquarters, P.O. Box 1429, Palatka FL 32178-1429 (4049 Reid St, Palatka, FL 32177) or by e-mail with the District Clerk at Clerk@sjrwm.com, within twenty-one (21) days of newspaper publication of the notice of District decision (for those persons to whom the District does not mail or email actual notice). A petition must comply with Sections 120.54(5)(b)4. and 120.569(2)(c), Florida Statutes (F.S.), and Chapter 28-106, F.A.C. The District will not accept a petition sent by facsimile (fax). Mediation pursuant to Section 120.573, F.S., may be available and choosing mediation does not affect your right to an administrative hearing.

A petition for an administrative hearing is deemed filed upon receipt of the complete petition by the District Clerk at the District Headquarters in Palatka, Florida during the District's regular business hours. The District's regular business hours are 8 a.m. – 5 p.m., excluding weekends and District holidays. Petitions received by the District Clerk after the District's regular business hours shall be deemed filed as of 8 a.m. on the District's next regular business day. The District's acceptance of petitions filed by e-mail is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation (issued pursuant to Rule 28-101.001, Florida Administrative Code), which is available for viewing at www.sjrwm.com. These conditions include, but are not limited to, the petition being in the form of a PDF or TIFF file and being capable of being stored and printed by the District. Further, pursuant to the District's Statement of Agency Organization and Operation, attempting to file a petition by facsimile (fax) is prohibited and shall not constitute filing.

The right to an administrative hearing and the relevant procedures to be followed are governed by Chapter 120, Florida Statutes, Chapter 28-106, Florida Administrative Code, and Rule 40C-1.1007, Florida Administrative Code. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means the District's final action may be different from the position taken by it in this notice. **Failure to file a petition for an administrative hearing within the requisite time frame shall constitute a waiver of the right to an administrative hearing. (Rule 28-106.111, F.A.C.)**

If you wish to do so, please visit http://www.sjrwm.com/nor_dec/ to read the complete Notice of Rights to determine any legal rights you may have concerning the District's decision(s) on the permit application(s) described above. You can also request the Notice of Rights by contacting the Director of Business and Administrative Services, 4049 Reid St., Palatka, FL 32177-2529, tele. no. (386)329-4570.

NEWSPAPER ADVERTISING

ALACHUA

The Alachua County Record, Legal Advertising
P. O. Box 806
Gainesville, FL 32602
352-377-2444/ fax 352-338-1986

BRAFORD

Bradford County Telegraph, Legal Advertising
P. O. Drawer A
Starke, FL 32901
904-964-6305/ fax 904-964-8628

CLAY

Clay Today, Legal Advertising
1560 Kinsley Ave., Suite 1
Orange Park, FL 32073
904-264-3200/ fax 904-264-3285

FLAGLER

Flagler Tribune, c/o News Journal
P. O. Box 2831
Daytona Beach, FL 32120-2831
386-681-2322

LAKE

Daily Commercial, Legal Advertising
P. O. Drawer 490007
Leesburg, FL 34749
352-365-8235/fax 352-365-1951

NASSAU

News-Leader, Legal Advertising
P. O. Box 766
Fernandina Beach, FL 32035
904-261-3696/fax 904-261-3698

ORANGE

Sentinel Communications, Legal Advertising
633 N. Orange Avenue
Orlando, FL 32801
407-420-5160/ fax 407-420-5011

PUTNAM

Palatka Daily News, Legal Advertising
P. O. Box 777
Palatka, FL 32178
386-312-5200/ fax 386-312-5209

SEMINOLE

Sanford Herald, Legal Advertising
300 North French Avenue
Sanford, FL 32771
407-323-9408

BAKER

Baker County Press, Legal Advertising
P. O. Box 598
MacLenny, FL 32063
904-259-2400/ fax 904-259-6502

BREVARD

Florida Today, Legal Advertising
P. O. Box 419000
Melbourne, FL 32941-9000
321-242-3832/ fax 321-242-6618

DUVAL

Daily Record, Legal Advertising
P. O. Box 1769
Jacksonville, FL 32201
904-356-2466 / fax 904-353-2628

INDIAN RIVER

Treasure Coast News
760 NW Enterprise Dr.
Port St. Lucie, FL 34986
772-283-5252

MARION

Ocala Star Banner, Legal Advertising
2121 SW 19th Avenue Road
Ocala, FL 34474
352-867-4010/fax 352-867-4126

OKEECHOBEE

Okeechobee News, Legal Advertising
P. O. Box 639
Okeechobee, FL 34973-0639
863-763-3134/fax 863-763-5901

OSCEOLA

Little Sentinel, Legal Advertising
633 N. Orange Avenue
Orlando, FL 32801
407-420-5160/ fax 407-420-5011

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St. Augustine Record, Legal Advertising
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(386) 681-2322

INDIAN RIVER FARMS WATER CONTROL DISTRICT

7305 4th Street
VERO BEACH, FLORIDA 32968
Phone: (772) 562-2141
Fax: (772) 562-2532

DAVID E. GUNTER
Secretary-Treasurer

Board of Supervisors
WILLIAM H. BARKER
BOBBY LINDSEY
MARK TRIPSON

July 10, 2023
Robert Skok
Indian River County
1801 27th Street
Vero Beach, Fl 32960

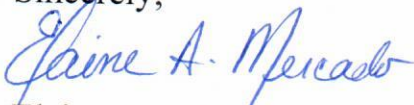
Re: Permit #21-45
IRC New Traffic Operations Bldg.

Dear Robert:

Please accept this letter as an approval for an extension of the above-named permit until July 10, 2024. Please attach this letter to the original permit.

If you have any questions or need any additional information, please do not hesitate to contact our office.

Sincerely,



Elaine A. Mercado
Administrative Assistant

**INDIAN RIVER FARMS WATER CONTROL DISTRICT
(IRFWCD)
7305 4th Street
Vero Beach, Florida 32968
(772) 562-2141**

APPLICATION FOR CONNECTION TO OR USE OF DISTRICT FACILITIES

(Pipe material requirements for culverting sub lateral ditches under public roadways and private lands and for driveways crossing IRFWCD sublaterals)

Date: _____

No. 21-45

A. Applicant Information:

Utility Owner: Indian River County Public Works Dept.

Address: 1801 27th Street

Vero Beach, FL 32960

Authorized Agent and Title: MBV Engineering, Inc. - Mr. Todd Howder, Vice President

Telephone Number: 772-569-0035

B. Proposed Connection or Use: (check appropriate box or boxes):

NON-REFUNDABLE

<input type="checkbox"/> Culvert connection to District canal for irrigation or drainage	\$100.00
<input type="checkbox"/> Pump connection to District canal for irrigation or drainage	\$300.00
<input type="checkbox"/> Culvert and/or control stricture in District canal for crossing and/or water storage	\$200.00
<input checked="" type="checkbox"/> Other (specify): <u>Modification to existing permit</u>	\$100.00

C. Location: Tract _____, Section 28, Township 32, Range 39, Canal No. A-6

Other appropriate description: IRC New Traffic Operations Building

Property ID/Parcel No.: 32-39-28-00001-0080-00001.0

Attach drawing to show details (include acreage to be served).

D. Details of proposed Construction: (Give diameter and length of culvert; diameter and rated capacity of pump; height and width of riser or other details on water control structure.)

Project does not propose any new connection to District canal. Project will continue to utilize the existing outfall and only proposes a modification to the existing permit.

E. Special Conditions: (for District use only)

SEE ATTACHED LIST OF SPECIAL CONDITIONS.

F. **Estimated Date of Construction Commencement:** May 2022
Estimated Date of Construction Completion: May 2023

G. **As the Applicant for permit, I do understand and agree that:**

1. The use of, or construction within, the right-of-way of the Indian River Farms Water Control District will be in accordance with the details of the approved sketch and/or permit conditions shown hereon, supporting this application; and if any changes are required, same will be cleared with the District.
2. If a permit is granted, successive owners and holders of title to property as described herein shall be on notice of Permitter's obligations to the Water Control District to protect and preserve the property described herein and the uses allowed by the Water Control District to its property in or abutting areas and property as described within.

Signed: Richard B. Szyrka, P. E.
Date _____
Applicant & Permittee

Richard B. Szyrka, P. E.
Digitally signed by Richard B. Szyrka, P. E.
Date: 2021.11.09 11:28:01 -0500

(For District Use Only)

Application approved by: David E. Gunt
for the Indian River Farms Water Control District

Application approved by: David E. Gunt
for Carter Associates, Inc., Engineer for District

Date of approval: 11-22-21
Expiration Date of this approved application: 5-22-23

PERMISSION, WHEN GRANTED, WILL BE SUBJECT TO THE
STANDARD PROVISOS SET FORTH HEREAFTER.

G. (continued)

3. (a) I accept full responsibility for any erosion to, or shoaling in, the District's canal or levee due to my work and I shall remove or repair same promptly and at no expense to the District; and I will prevent the discharge of any hyacinths or other aquatic growth into the District's canal through my connection.

(b) Due to corrosion and metal loss with the exposure to moisture of metal covered pipe failures in Water Control District canals can cause significant impacts to downstream service and must be removed immediately. Therefore, in the case of a property under the management of a homeowners' association:
4. I will neither plant trees nor shrubs or erect any structure that will impede or limit the existing access of District equipment or vehicles without securing proper authorization therefor.
5. It is further understood and agreed that any other requirements of the District are binding upon me, the Applicant, and I do hereby indicate acceptance of notice thereof.
6. It is further understood and agreed that the lands to be benefited by this request are, or may be, subject to flooding during periods of high water due to heavy rains or other acts of God, and that the permit will be accepted subject to this possibility which is recognized by Applicant not to be within the control of the District.

STANDARD PROVISOS

1. Permittee assumes full responsibility for any construction, operation or maintenance of or in District property or right-of-way subject to this Permit and shall save and hold harmless District from any expense, loss, damage or claim in regard thereto, and the District will not assume and shall have no liability in connection therewith.
2. This Permit is subject always to the paramount right of the District to keep and maintain its drainage district functions and operations and is subject to revocation and cancellation upon thirty days' notice from District to Permittee.
3. (a) If Applicant's property is managed by a homeowners' association, or any other entity, an unexpected and unbudgeted amount for the removal and replacement of a failed pipe is highly possible and the managing entity must join in the signing of this Application and be subject jointly with the Applicant and will provide a signed copy of a resolution authorizing an individual to act for the entity if need arises, which resolution shall be delivered with the signed copy of this application form so that delay in emergency of a failure can be dealt with immediately, Such resolution must be in the hand of the Water Control District before work is taken on removal or replacement of a failed pipe so as to avoid delays and dealing with such an accident.

(b) In no event shall the District be liable for any damages done or caused by the District to the Public, to Permittee or any other person using the right-of-way or property subject to this Permit, and Permittee shall save the District, its officers, agents, supervisors and employees harmless from any costs, charge or expense of claim or demand of any person or entity against the District arising from or pertaining to any use made of the property or right-of-way subject to this permit. Permittee shall, upon submission of this application, provide to District evidence, satisfactory to District, of liability insurance coverage, in amounts and with companies as may be required by District, protecting the interests of District and naming District as an additional insured.

(c) Because pipe or culvert failures may occur unexpectedly, but require immediate removal or replacement or both, Permittee agrees that the District may estimate the work to be done which shall be an amount to be paid to District in advance to be held and used for payment of costs for

work on an emergency basis.

(d) All replacements of pipe or culvert, regardless of how the structure has failed, shall be replaced only with reinforced concrete pipe of the dimension and size determined by the District and its engineer.

4. The District may, on thirty days' written notice to Permittee, require removal or alteration of any installation or construction on District right-of-way.
5. Any construction on District right-of-way or property and clean-up of same shall be completed promptly by Permittee and in a workmanlike manner with minimum disturbance to existing berm, channel slopes and grade together with proper restoration and planting of any disturbed areas to prevent erosion, all within ten days after completion of construction or installation.
6. Permittee shall advise District's office prior to commencement and upon completion of all construction. (772-562-2141)
7. Permittee shall not discharge any pollutants, contaminants or deleterious materials into water or structures owned or maintained by, or subject to the jurisdiction of District, nor permit anything to obstruct the flow of water, and shall save and hold District harmless from any expense, loss or damage to District or others by any such discharge or obstruction, remedying or removing the same immediately upon request of District.
8. Permittee, as a condition to the continuance of this Permit, shall reimburse District immediately upon demand, for any testing or other costs or expenses to District associated with or arising from Permittee's application or use of District facilities.
9. Applicant is cautioned that electrical, water and sewer, or other installations or utilities may be located within the construction area, and applicant shall use diligent efforts to first detect and locate all such installations and shall coordinate construction with all other lawful users of said right-of-way. Applicant shall be liable for all damages proximately resulting from the use, interference with or interruption of services provided by other lawful right-of-way users.
10. This permit shall be considered to be a license only, for the limited purpose of installation, placement and maintenance of the improvements specified on the face hereof, and does not convey any other right, title or interest of the District in the subject right-of-way property.
11. An as-built/location certification of all culvert/structure installations within the District's canals/rights-of-way shall be performed by a Florida Registered Professional Surveyor and Mapper on form provided by the District, and submitted to the District within thirty (30) days following completion of installation. If as-built certification is not received within thirty days of installation, the District will either have certification completed at owner/applicant's expense or order removal of the installation.

By initialing and dating this page I am agreeing to all standard and special provisos:

Initial: _____ Date: _____

SPECIAL CONDITIONS FOR PERMIT NO. 21-45
FOR
PROPOSED NEW TRAFFIC OPERATIONS FACILITY FOR
INDIAN RIVER COUNTY LOCATED IN
TRACT 8, SECTION 28-32-39

- (1) This permit is issued based on plans prepared by MBV Engineering, Inc., signed and sealed by Aaron G. Stanton, P.E. and dated November 12, 2021.
- (2) Project shall provide the required 2¹/₂ 24 hour discharge limitation for a 25 year-24 hour storm event.



INDIAN RIVER COUNTY
Environmental Planning & Code Enforcement Section
1801 27th Street, Vero Beach FL 32960
772-226-1249 / 772-978-1806 fax
www.ircgov.com

5/16/2022

APPLICANT:

RICHARD SZPYRKA P.E.
C/O TODD HOWDER
MBV ENGINEERING INC.
1835 20TH ST
VERO BEACH, FL 32960

INDIAN RIVER COUNTY LAND CLEARING PERMIT

PROJECT NO./PERMIT NO. **92030035 / 91278**
PROJECT NAME: **IRC PUBLIC WORKS TRAFFIC OPERATIONS**
PROJECT DESCRIPTION: **LAND CLEARING PERMIT**
PROPERTY OWNER'S NAME: **RICHARD SZPYRKA, P.E.**
LOCATION OF ACTIVITY: **4548 41ST ST**
PARCEL NUMBER: **32-39-28-00001-0080-00001.0**

THIS LAND CLEARING PERMIT is issued in accordance with Chapter 927 of the Indian River County Land Development Code. The above named applicant is hereby authorized to perform the herein described activity in accordance with the specifications stated herein and provided for in Chapter 927. *This permit does not absolve the applicant and/or property owner from the responsibility to satisfy state or federal regulations that may apply to the activity.*

1. LAND CLEARING IS NOT ALLOWED TO COMMENCE UNTIL APPROVAL (OR EXEMPTION VERIFICATION) IS OBTAINED FROM THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (SJRWMD) OR THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), AS APPLICABLE. If you are not sure as to the status of SJRWMD or FDEP approval or exemption, contact the Palm Bay office of the SJRWMD at phone number (321) 984-4940 or the Southeast District office of the FDEP at (561) 681-6600.

2. LAND CLEARING ASSOCIATED WITH SITE PLAN DEVELOPMENT (per County Code Chapter 914) OR SUBDIVISION PLATTING (per County Code Chapter 913) IS NOT ALLOWED TO COMMENCE UNTIL THE SITE PLAN OR PRELIMINARY PLAT IS FORMALLY APPROVED AND, IF A LAND DEVELOPMENT PERMIT IS REQUIRED, UNTIL A LAND DEVELOPMENT PERMIT IS ISSUED BY THE COUNTY ENGINEERING DIVISION, UNLESS OTHERWISE AUTHORIZED HEREIN.

3. A copy of the permit shall be kept on-site during the land clearing activity.

4. The applicant shall notify county environmental planning staff upon completion of the activity, who shall inspect the property to confirm compliance with applicable county regulations.

5. Debris resulting from the land clearing activity shall be disposed of at an approved disposal facility within 60 days of clearing completion, or burned with an air curtain incinerator burn permit from the County Fire Division (or Florida Forest Service, as applicable), in accordance with County Code Chapter 925. Mulched land clearing material may be integrated with clean fill to augment berms and stormwater retention areas. Mulched material is not acceptable under roadways and at building site locations. Any mulched material deposited or buried must have at least 5 foot vertical separation from the natural groundwater table. If the applicant proposes to integrate mulched material with clean fill on-site, the applicant is advised to contact the County Environmental Health Department at (772) 794-7440 to ensure compliance with state and local requirements.

6. This land clearing permit requires that the subject property's pre-development stormwater run-off discharge rate not be exceeded after the clearing operation is completed. This may require construction of temporary detention ponds or berms, and installation of erosion control devices, such as silt screens, in order to maintain pre-development drainage flow characteristics and to protect against sedimentation and turbidity in discharge waters. All drainage and erosion control measures required on the approved project site plan, as applicable, are in effect for this permit. For Best Management Practices (BMPs), refer to the Florida Stormwater Erosion and Sediment Control Manual.

7. The person or company conducting the land clearing must be a licensed contractor registered in Indian River County to perform such work. The applicant is advised to contact the County Building Division at (772) 226-1260 to ensure that the land clearer has required licensing.

8. This permit does not authorize the demolition of structures, as applicable. Demolition of structure(s) requires a separate demolition permit through the County Building Division. For more information, contact the County Building Division at (772) 226-1260.

OTHER INFORMATION:

1. This permit authorizes land clearing for construction of the Indian River County Public Works Traffic Operations project at 4548 41st Street, in accordance with conditions and specifications of the approved site plan (SP-MI-22-02-08 / 92030035-91277).
2. In accordance with Section 125.022, Florida Statutes, issuance of this permit does not in any way create any rights on the part of the applicant to obtain a permit from a state or federal agency and does not create any liability on the part of the county for issuance of the permit if the applicant fails to obtain requisite approvals or fulfill the obligations imposed by a state or federal agency or undertakes actions that result in a violation of state or federal law.
3. All other applicable state or federal permits must be obtained before commencement of land clearing activities.
4. All work is to be conducted in accordance with County Code Sections 927.07 and 929.08 and the area to be cleared shall be the minimum necessary for proposed scope of work.
5. Prior to conducting any land clearing activities a preconstruction meeting shall be held with County Public Works Department staff. Please contact Public Works Department at 772-226-1283.
6. Best management practices must be used to eliminate or reduce soil erosion. This includes, but is not limited to, the use of silt screens, berms, and soil tracking prevention devices. These devices need to be properly installed prior to commencement of construction activities on the property, need to be maintained, and shall remain in place until the soil surface has stabilized. Refer to the Florida Stormwater Erosion and Sediment Control Manual for additional information on BMPs.
7. This permit does not authorize any land clearing activities within wetlands, surface waters, or drainage systems unless authorized by appropriate federal, state or county permits. This permit does not authorize any soil erosion or turbidity to wetlands, surface waters, or drainage systems, either on-site or off-site.
8. This permit does not authorize any earth moving, excavation or filling. Such activities may not commence until a County stormwater management permit has been issued. Failure to properly obtain the appropriate County permits prior to development/construction activities on the project site can result in enforcement action being taken.
9. No clearing activities are authorized within any conservation tracts or easements, except where specifically authorized on plans approved county staff.
10. The following nuisance exotic vegetation shall be removed from development project site property, as applicable: (a) Australian pine (*Casuarina spp.*); (b) Brazilian pepper (*Schinus terebinthifolius*); (c) Melaleuca (*Melaleuca quinquenervia*); (d) Ear-pod tree (*Enterolobium cyclocarpum*); (e) Chinaberry (*Melia azedarach*).

DATE OF PERMIT ISSUANCE: 5/16/2022

DATE OF PERMIT EXPIRATION: Expiration concurrent with approved site plan/L.D.P., as applicable

SIGNATURE OF AUTHORIZATION:



Steven S. Hitt, M.S.
Principal Environmental Planner
Indian River County

cc: County Engineer
Current Development Staff
(site plan/plat related permits only)

Project No./Permit No.: 92030035/91278
lclr.letter



INDIAN RIVER COUNTY
Environmental Planning & Code Enforcement Section
1801 27th Street, Vero Beach FL 32960
772-226-1249 / 772-978-1806 fax
www.ircgov.com

5/16/2022

APPLICANT:

RICHARD SZPYRKA P.E.
C/O TODD HOWDER
MBV ENGINEERING, INC.
1835 20TH ST
VERO BEACH, FL 32960

INDIAN RIVER COUNTY TREE REMOVAL PERMIT

PROJECT/ APPLIC. NO.: **92030035 / 91279**
PROJECT NAME: **IRC PUBLIC WORKS TRAFFIC OPERATIONS**
PROJECT DESCRIPTION: **TREE REMOVAL PERMIT APPLICATION**
PROPERTY OWNER'S NAME: **RICHARD SZPYRKA P.E.**
LOCATION OF ACTIVITY: **4548 41ST ST**
PARCEL NUMBER: **32-39-28-00001-0080-00001.0**

THIS TREE REMOVAL PERMIT is issued in accordance with Chapter 927 of the Indian River County Land Development Code. The above named applicant is hereby authorized to perform the herein described activity in accordance with the specifications stated herein and provided for in Chapter 927. This permit does not absolve the applicant and/or property owner from the responsibility to satisfy state or federal regulations that may apply to the activity.

GENERAL SPECIFICATIONS:

1. The applicant shall conduct the activity in strict accordance with the criteria set forth in Section 927.07 of the Indian River County Land Development Code; a copy of the permit shall be kept on-site while the activity is taking place.
2. The applicant shall notify county environmental planning staff upon completion of the activity, who shall inspect the property to confirm compliance with applicable county regulations.

OTHER INFORMATION:

1. This permit authorizes the removal of protected trees (diameter at breast height (DBH) of 4 inches or greater) and/or specimen trees (DBH of 12 inches or greater) for construction of the Indian River County Public Works Traffic Operations project at 4548 41st Street, in accordance with the conditions and specifications of the approved site plan and tree protection plan (SP-MI-22-02-08 / 92030035-91277).
2. This permit does not authorize the removal of any protected or specimen tree within any wetland, surface water, or drainage system unless authorized by appropriate federal, state, and/or county permits.
3. Within the limits of development, tree protection barriers shall be installed around trees to be preserved prior to initiation of land clearing and tree removal activities.

DATE OF PERMIT ISSUANCE: **5/16/2022**
DATE OF PERMIT EXPIRATION: **Expiration concurrent with the approved site plan/L.D.P., as applicable.**

SIGNATURE OF AUTHORIZATION:

A handwritten signature in blue ink that reads "Steven S. Hitt".

Steven S. Hitt, M.S.
Senior Environmental Planner
Indian River County

INDIAN RIVER COUNTY ENGINEERING DIVISION

1801 27TH STREET
VERO BEACH, FL 32960-3365
772-226-1384

PERMIT

Confirm. #: 678

ROWCOM ROW COMMERCIAL

PERMIT #: **2022021170** PERMIT TYPE: ROWCOMISSUED DATE: 06/02/2022 BY: PWCS
JOB DESCRIPTION: SWMS 91895, CONSTRUCT OF NEW SW FROM TRAFFIC OPS SITE TO EXISTING SW AT ENTRY
JOB ADDRESS 4548 41ST ST

BLOCK 0080 LOT: 00001.0 SUBDIVISION #: -
ADDR NBR: 29126 FOLIO NBR: 32-39-28-00001-0080-00001.0 WWP (2X fee): N
OWNER NAME: INDIAN RIVER COUNTY JURISDICTION: IRC
PROJECT 92030035
APPLICANT: IRC PUBLIC WORKS DEPT TYPE: OWNER JOB PHONE:
DBA: CERT NBR JOB FAX:
FLOOD ZONE X FLOOD ELEV: U FLOOD MAP 155E
OPEN CUT: LANES: BOND AMOUNT:

ADDITIONAL INFO:
PERMIT EXPIRES ON 5/13/2024

72 HOUR NOTIFICATION REQUIRED PRIOR TO BEGINNING WORK IN INDIAN RIVER COUNTY RIGHT-OF-WAY
PLEASE EMAIL IRCPWROWUTL@IRCGOV.COM OR CALL 772-226-1283.
MAINTENANCE OF TRAFFIC PER ATTACHED PLAN. SPECIAL CONDITIONS AND ADDITIONAL ITEMS ATTACHED.

Contractor must contact ttcplans@ircgov.com at least 14 days prior to work commencing to submit TTC Plans (fka MOT) for approval.

INSPECTION	CODE	DATE	INITIALS	APPR	DISAPPR	COMMENTS
(As Applicable)						
STAKE & GRADE	801	__/__/__	_____	_____	_____	_____
PRE-POUR DRIVE/SIDE	802	__/__/__	_____	_____	_____	_____
OTHER	803	__/__/__	_____	_____	_____	_____
ROW FINAL	899	__/__/__	_____	_____	_____	_____

DISPLAY ON JOB SITE

This permit is subject to attached conditions. For information regarding this permit, contact the Indian River County Engineering Division at (772) 226-1283.

Schedule Inspections Online at:

www.ircgov.com and select the Building Division Online Services link

This permit is based upon information supplied on the application. Insufficient or erroneous information does not relieve the applicant of any future requirements that may be imposed to comply with Indian River County Ordinances. Engineering reserves the right to modify the original permitted conditions as needed at any time prior to final acceptance in order to comply with Indian River County Ordinances.

INDIAN RIVER COUNTY BUILDING DEPARTMENT

1801 27TH STREET
VERO BEACH, FL 32960

INSPECTION CARD

PERMIT #: PERMIT TYPE: ISSUED DATE: BY:

JOB DESCRIPTION:

PROJECT
JOB ADDRESS

JURISDICTION:

BLOCK LOT: SUBDIVISION #: -
FOLIO NBR: OWNER NAME:

APPLICANT: TYPE: CONTACT PHONE
DBA: CERT NBR:

THIS CARD, ALL APPROVED PERMIT DOCUMENTS AND PLANS MUST BE POSTED IN A CONSPICUOUS PLACE ON SITE. THEY MUST BE PROTECTED AND AVAILABLE DURING INSPECTIONS UNTIL THE PERMIT HAS BEEN FINALED. THIS BUILDING CANNOT BE OCCUPIED UNTIL A "CERTIFICATE OF OCCUPANCY" HAS BEEN OBTAINED FROM THE BUILDING OFFICIAL.

Schedule Inspections Online at:
www.irccgov.com and select the **Building Division Online Services** link
or call 772-226-1260.

A permit expires if work has not commenced within six(6) months of being issued or if there is no "Passed" inspection activity for a period of six(6) months per Florida Building Code requirements.
Exception: ALL DEMOLITION PERMITS WILL EXPIRE 60 DAYS FROM ISSUE DATE.

REQ DESCRIPTION

REQ DESCRIPTION

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

INDIAN RIVER COUNTY RIGHT-OF-WAY PERMIT APPLICATION

1801 27TH ST Bldg. A VERO BEACH, FL 32960 (772)226-1283

THIS PERMIT IS ISSUED SUBJECT TO ALL CONDITIONS ON PAGE 3 & 4 OF THIS APPLICATION. PRINT CLEARLY OR TYPE APPLICATION

Applicant / Landowner Franchise Owner (Circle all that apply):		Permit # <u>2022021170</u>
Company Name: <u>Indian River County Public Works Dept.</u>		Contact: <u>Mr. Richard Szpyrka, P.E. - Director</u>
License #: _____	Address: <u>1801 27th Street</u>	Apt. / Suite #: _____
City: <u>Vero Beach</u>	State: <u>Florida</u>	Zip Code: <u>32960</u>
Phone Number: () <u>772-226-1234</u>		EMAIL: <u>rszpyrka@ircgov.com</u>
Contractor / Applicant Information (If other than Landowner, Circle one or both):		
Company Name: <u>TBD</u>		Contact: _____
License #: _____	Address: _____	Apt. / Suite #: _____
City: _____	State: _____	Zip Code: _____
Phone Number: () _____		EMAIL: _____
Project Information:		
Site Address: <u>4548 41st Street</u>		
LOT: _____	BLOCK: _____	SUBDIVISION _____ UNIT: _____
Description of work to be done:		
<u>Construction of a new sidewalk from the Traffic Operations site to connect to existing sidewalk at entry drive adjacent to 41st Avenue.</u>		

SCHEDULE OF FEES REQUIRED AT THE TIME OF SUBMITTAL

Make checks payable to: Indian River County Board of County Commissioners (IRC BOCC)

TYPE OF PERMIT	FEE
Utility Installation in IRC ROW Permit	\$ 800.00
LDP Right-of-Way Permit	\$ 800.00
Commercial R/W Permit (includes turn lanes, culverts & sidewalks, road cores 6 or more)	\$ 800.00 ✓
Commercial R/W Permit (no culvert, turn lanes or sidewalks, road cores under 5)	\$ 300.00

ADDITIONAL FEES

3RD RE-INSPECTION FEE \$400.00 AND EVERYONE AFTER REVIEW AFTER 3RD RESUBMITTAL \$400.00

TYPE OF REVIEW / PERMIT: (CIRCLE ONE)

COMMERCIAL
 SITE PLAN
 LAND DEVELOPMENT
 UTILITY
 BLOCK/PARADE (MOT) NOT ASSOCIATED WITH ANY OTHER PERMIT

CONSTRUCTION TYPE: (CIRCLE ALL THAT APPLY)

DRIVEWAY
 ROADWAY CONSTRUCTION
 SIDEWALKS / CURBS
 ROW WATER & SEWER
 CABLETV
 ELECTRICITY
 COMMUNICATIONS
 TELEPHONE
 DRAINAGE
 OTHER _____

INDIAN RIVER COUNTY RIGHT OF WAY CONSTRUCTION PERMIT CONDITIONS

1. Construction prior to issuance of a valid Indian River County (IRC) Right of Way (ROW) permit and an approved Maintenance of Traffic (MOT) by the IRC Engineering Department of Public Works will cause the project to be shut down, Code Enforcement activities commenced and the application to be expired. All application fees forfeited.
2. All construction shall be in accordance with the latest FDOT Standards, Specifications and Procedures except when deviations are requested and approved or as included in these conditions or Public Works Standards.
3. Indian River County (IRC) Engineering Inspections shall be contacted 48 hours before commencement of work to establish a timeline when field review(s) of the work are required. Construction shall be done Monday through Friday. Weekend work shall be approved by IRC Inspections by Wednesday at 4 pm. The approved permit and stamped plans shall be at the work site. When work is complete and the engineer's certification of completion has been submitted and approved by IRC Engineering, the permittee shall schedule a final inspection.
4. The permittee understands and agrees that the rights and privileges herein set out are granted only to the extent of the County's right, title and interest in the land to be entered upon and used by the permittee. THE PERMITTEE WILL AT ALL TIMES ASSUME ALL RISK AND FURTHER WILL INDEMNIFY, DEFEND, AND SAVE HARMLESS INDIAN RIVER COUNTY FROM AND AGAINST ALL LOSS, DAMAGE, COST OR EXPENSE ARISING IN ANY MANNER (INCLUDING ALL LITIGATION COSTS AND ATTORNEY FEES), ON ACCOUNT OF THE EXERCISE OR ATTEMPTED EXERCISE BY SAID PERMITTEE OF THE AFORESAID RIGHTS AND PRIVILEGES REGARDLESS OF THE APPORTIONMENT OF NEGLIGENCE OF THE PARTIES INVOLVED. THE PERMIT HOLDER, THEREFORE, AGREES TO INDEMNIFY THE COUNTY FOR THE COUNTY'S OWN NEGLIGENCE. It is specifically understood that the limits of this indemnification are the COUNTY'S statutory liability limits under Section 768.28, Florida Statute, or any successor legislation in effect at the issuance of said permit. The existing statutory limits under 768.28, Florida Statute are hereby recognized as the Statute ("Construction Contracts") should that statute be deemed to apply.
5. This permit is considered a license only, for the limited purpose of installation, placement, and maintenance of improvements specified on the face hereof, and does not convey any other right, title, or interest of the County in the subject ROW. In the event of widening, repair, or reconstruction of the subject road(s), the Permittee, any successors, legal heirs or assigns, shall upon request and within 30 days after notice by the County Engineer's Office, remove or relocate the item(s) permitted within the ROW of the subject road(s) at no expense to Indian River County.
6. Permittee assumes full responsibility to maintain all areas under construction safe for the public and to properly route and direct traffic through the construction area. All Traffic control operations shall be done in accordance with the current Manual on Uniform Traffic Control Devices (MUTCD). Supplements to this manual are the FDOT Road and Bridges Standard Plans (Index 102-100 through 102-600) and Standard Specifications to Road and Bridge Construction (latest edition). No obstruction to the travel lanes between 7:00 a.m. to 9:00 a.m. and 3:00 p.m. to 7:00 p.m. Monday through Friday, unless approved by the IRC Traffic Division. Working hours are subject to change due to proximity to schools, traffic signals, special events or the type of MOT required.
7. Florida Statute 336.048 – Temporary closing traveling lane of road: Whenever any road on the county road or city street system is repaired, reconstructed, or otherwise altered in a manner that necessitates the closing of one or more traveling lanes of the road for a period of time exceeding 2 hours, the party performing such work shall give notice to the appropriate local law enforcement agency within whose jurisdiction such road is located prior to commencing work on the project. However, when the closing of one or more lanes is required because of emergency conditions, such notices shall be waived.
8. The permittee/developer shall provide and install pavement markings (thermoplastic, unless approved otherwise by the IRC Traffic Engineer), and reflective pavement markers in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). Roadways or entrances with pavers shall use epoxy paint or waffle tape for pavement marking.
9. Any requested changes to the Maintenance of Traffic (MOT) shall be submitted and approved by IRC Traffic Division prior to implementation of construction.
10. Permittee hereby acknowledges the COUNTY'S right to inspect the ROW at any time prior to final acceptance by the COUNTY to assure compliance with all plans and specifications. All reviews, however, shall be performed at the COUNTY'S discretion and are strictly to assure compliance with project plans and specifications. PERMITTEE HEREBY ACKNOWLEDGES THAT THE COUNTY VIA SAID REVIEWS IS NOT THE EMPLOYER, SUPERVISOR, PRINCIPAL OR AGENT OF PERMITTEE. Permittee is at all times classified an independent contractor with full responsibility for all obligations and responsibilities imposed under this permit and imposed by law.
11. If any portion of a County maintained road is open cut or damaged, a full-lane width restoration (25 feet on each side of the cut), shall be provided. Flowable fill shall be used for trenches less than 10 feet wide.
12. All areas in the ROW shall be left in a condition equal to or better than that which existed prior to construction. Shoulders disturbed within 5 feet of the edge of pavement shall be stabilized a minimum 50 PSI Florida Bearing Value, 6 inches in depth. Existing drainage shall not be impeded. Sidewalk areas disturbed during construction shall be maintained until repaved. Prior to or concurrent with final review, the permittee shall submit to the IRC Engineering Inspections Division copies of density reports done by an independent testing laboratory. If the construction should fail within one year from the date of final review by IRC, the permittee is responsible for restoration.

13. If traffic signalization equipment is in the area of construction, notify IRC Traffic Operations at (772) 226-1318 48 hours prior to digging. Do not disturb any material within six feet of a traffic signal pole or a guy wire and anchor. If damage to the equipment occurs during construction, it shall be repaired by Traffic Operations at the permittee's expense.
14. If previously approved construction is underway in the same location as indicated on this permit, the permittee shall obtain permission to work from the contractor doing the underway construction. If not granted, the construction under this permit shall not be done until the underway construction is accepted by IRC.
15. All utilities shall refer to the FDOT Utilities Accommodations Manual ensuring the correct color for the utility is to be installed. No green or blue pipe or conduit shall be used except for sewer and potable water respectively.
16. All utility poles shall be a minimum of 6 feet from the Edge of Pavement (up to 14 feet may be required based on speed limit and road type). No guy wires shall be placed in or above the sidewalk area or in the clear zone. Utilities shall be a minimum of 18 feet above all roads, driveways, or alleys. All poles being replaced shall be removed as a part of this permit approval.
17. All utility structures installed below grade, in the IRC ROW are required to have traffic bearing tops. This includes all valve boxes, meter boxes, hand holes, splice boxes, storm grates, manhole tops, traffic boxes etc. Grassed areas shall be Tier 15, (15K design load/ 22.5K test load) traffic bearing in locations that are subject to occasional traffic. Pavement areas including shoulders shall have a minimum of AASHTO H 20 loading. No structures shall be placed in sidewalk areas.
18. All sidewalks shall be a minimum of 6-inch fiber mesh (3000psi compressive strength at 28 days) and meet the ADA and FDOT Design Standards. Replacement shall be at nearest joint or as required to meet applicable codes.
19. No trenches, holes or other ground openings shall be open without workers present.
20. Trenched areas shall be re-sodded within 3 days of the restoration of the trench. Utilities shall provide a minimum cover of 36 inches of cover under the roadways and a minimum of 30 inches in the swale areas. Maintain a minimum clearance of 12 inches over or under drainage facilities. Erosion control is the responsibility of the Permittee.
21. Issuance of this permit does not in any way create any rights on the part of the applicant to obtain a permit from a local, state, or federal agency and does not create any liability on the part of the County for issuance of the permit if the applicant fails to obtain requisite approvals or fulfill the obligations imposed by a state or federal agency or undertakes actions that result in a violation of state or federal law. The validity of this permit is contingent upon the Permittee obtaining necessary permits from any other agencies having jurisdiction. Issuance of this permit does not relieve Permittee of liability for trespass to private property.
22. The Permittee shall provide evidence of insurance to the Engineering Division prior to receiving a construction start date.

The Certificate Holder shall be: **Indian River County Engineering**
Department 1801 27th Street, Building A
Vero Beach, FL 32960

Under: DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES (Acord 101, additional Remarks Schedule): The following must be added as Additional Insured for General Liability insurance:
Indian River County Board of County Commissioners, Its Employees, Agents and Contractors.

23. All pavement construction, additions, or modifications in the travel and turn lanes shall require the following be provided to IRC Engineering Division for review and approval prior to final inspection:
 - a.) Professional Engineer's certification of completion of the project;
 - b.) Signed and Sealed Record-As- Built drawings and specifications; and as required based on the design;
 - c.) Asphalt Tickets, Density Reports, Soil Borings, and/or Pipe Videos (Drainage pipe existing and proposed), etc.
 - d.) Asphalt Gradation reports, or add reports upon request.
24. Permittee is cautioned that electrical, water, and sewer or other installations or utilities may be located within the construction area, and applicant shall use diligent efforts to first detect and locate all such installations, and shall coordinate construction with all lawful users of said ROW. Applicant shall be liable in every manner for all damages proximately resulting from its interference with or interruption of services provided by other lawful ROW users. Contact Sunshine One Call, 811 prior to digging.
25. These permit conditions are not inclusive of all IRC codes and standards. Permit may be subject to additional requirements based on the design and scope.



Board of County Commissioners
Engineering Division

1801 27th Street
Vero Beach, Florida 32960-3388
Telephone: (772) 226-1283
Fax: (772) 778-9391

May 23, 2022

Indian River County Public Works Dept.
1801 27th Street
Vero Beach, Fl. 32960

Permittee: Mr. Richard Szyrka, PE, Public Works Director
Subject: Approval of Type A Stormwater Management System Permit No.91895
for IRC PW Traffic Ops Facility
Reference: SP-MI-22-02/ 92178

This letter shall serve as the Type A Stormwater Management System (SWMS) Permit for the subject project. All activities shall be implemented as set forth in the plans, specifications, and performance criteria as provided by the conditions of this permit or any other permit issued by the County or other agencies. It is the applicant's responsibility to obtain all other required local, state or federal permits prior to commencement of work. In the event of a conflict between these permit conditions and the conditions of any other permit, the most stringent condition shall govern.

This Project is included within the SJRWMD Permit No. 40-061-86744-6. The following criteria apply to development within this Site are incorporated into this Type A Permit. Following is a summary of the original SJRWMD Permit Conditions and the status of the conditions upon issuance of this Type A Stormwater Permit:

- 1) **The total allowable impervious area for the IRC Public Works Site is – 14.90 ac.**
- 2) **The total permitted minimum permeable area for the site is - 4.99 ac.**
- 3) **The total lake area is- 4.29 ac.**
- 4) **The total basin area for this IRC Public Works Site is- 24.18 ac**
- 5) **The total impervious area covered by Type A Permit No. 91895, which includes the IRC Traffic Ops Facility is - 10.36 ac.**
- 6) **The additional impervious area still allowed to be constructed at this site is - 4.54 ac.**

The following drawings signed and sealed 4/27/2022 and digitally signed and sealed 4/27/2022 and Drainage Report digitally signed and sealed 4/27/2022 are approved for the construction of the stormwater management system.

1. Sheet C-1: Cover Sheet
2. Sheet C-5: Site Plan
3. Sheet C-6: Paving, Grading and Drainage Plans
4. Sheet C-10: General Details
5. Sheet C-7: Cross Sections

I. General Conditions:

1. Any proposed changes to the approved plans **must** be approved prior to initiating any change in construction. This includes material changes such as type of drainage pipe, size, etc.
2. This permit approval does not relieve the engineer or contractor of responsibilities or conditions expressed or otherwise intended by any other local, State or Federal Agency. Permittee agrees to hold Indian River County harmless for any construction activities authorized by this permit.
3. By acceptance of this permit, Indian River County is granted the right to enter onto the project site to make inspections, and perform tests or other duties related to the permitted construction activities. Permittee shall employ inspection services necessary for certification of construction conformance with this permit.
4. The permittee is responsible for administering the construction contract in accordance with this permit. If the permittee fails to comply with any part of this permit or any other permit issued for this project by any regulatory authority, Indian River County may at its sole discretion, shut down the project site until said permit condition is complied with. A *Cease and Desist Order* will be issued by the County Administrator or his designee, and served in an appropriate manner to the permittee or the permittee's agent. Under no circumstances shall work proceed when a *Cease and Desist Order* has been issued until said Order has been withdrawn in writing by Indian River County. If a Cease and Desist Order is issued, Indian River County, at its sole discretion, may take other action against the permittee and the permittee's agent(s) for the project.
5. A copy of the approved plans and this permit must be on site during construction.
6. The Contractor shall provide a copy of an active FDEP NOI and Stormwater Pollution Prevention Plan to Todd Tardif, County Stormwater Enforcement (ttardif@ircgov.com) for review and comment a minimum of 48 hours prior to the pre-construction meeting. No preconstruction meeting shall be scheduled without meeting this obligation.

.II. Inspections:

1. A pre-construction meeting with Engineering Division staff is **required**. The Engineer of Record (EOR) shall coordinate and contact the Engineering Division at IRCPWLDSC@ircgov.com or (772) 226-1283 to schedule the pre-construction meeting. Failure to conduct such meeting may result in the issuance of a *Cease and Desist Order* by the County. It may be necessary to have other County representatives or agency personnel at the meeting.
2. The respective Indian River County departments shall be notified** in writing, or by telephone, of the commencement and completion of the following items of construction so that an immediate inspection can be performed to ensure construction in conformance with said approved construction plans and specifications and the requirements of Chapter 914. If the County notifies the developer that no County inspector is available to inspect within forty-eight (48) hours of an inspection request, and if a delay in inspection would cause a delay in the project, then this requirement may be met by submission of a certificate from the EOR that all construction was completed, in accordance with this permit along with field inspection reports. Prior to requesting an inspection by County personnel, the EOR shall have inspected and approved the construction of each item. Backfilling of the storm sewer system or covering any unapproved item of inspection is prohibited and may result in requiring the contractor to uncover the item for inspection and approval.
 - A) Stabilized subgrade (Public Works Department);
 - B) Base (Public Works Department);
 - C) Surface course (Public Works Department);
 - D) Storm sewer (Public Works Department);

****The failure to notify the respective departments of the commencement and completion of the construction of such items shall be good cause to refuse to issue a Certificate of Occupancy (CO) or equivalent. The CO may not be issued until further investigation is conducted to verify compliance with the permit and a certification letter is provided by a testing laboratory stating that the improvements have been constructed in accordance with the approved plans and specifications.**

3. To request an inspection, provide 48 hours of notice, email IRCPWLDSC@ircgov.com or call (772) 226-1283, state the location of the inspection, the type and the time requested. Leave contact information for confirmation or any further coordination.
4. The County shall be notified to inspect all storm sewer pipes on site **prior** to installation. Failure to call for such inspection may result in the contractor/permittee unearthing any covered pipe for inspection.
 - A) During the construction operation, the CONTRACTOR/EOR shall maintain records of all deviations from the approved Project Plans and Specifications and shall prepare therefrom "RECORD" drawings showing correctly and accurately all changes and deviations from the work made during construction to reflect the work as it was actually constructed.
 - B) All Record/As-built drawings shall be prepared in digital format and shall utilize the digital design drawings prepared by the Project Engineer as a base for the Record/As-Built drawings. It is the responsibility of the Surveyor to request these files from the Contractor or Project Owner in order to produce the Record /As-Built drawings.
 - C) All improvements proposed to be constructed as shown on the approved construction plans shall be field measured upon completion and shown on the Record/As-built survey. Any improvements that appear in both plan and profile views shall show the Record/As-Built drawings.
5. Prior to requesting final inspection from the County, the EOR shall inspect the project and insure all punch list items have been completed. The following items shall be provided: inspection reports, testing reports, certification letter, Record Drawings (the stormwater management tract(s) shall be cross-sectioned and certified by the Engineer of Record) and other pertinent closeout information. Both the original design and constructed condition must be clearly shown.

III. Erosion Control:

1. Activities approved by this permit shall be conducted in a manner which does not cause pollution as defined below:
 - A) "Pollution" is the presence in the outdoor atmosphere or waters of the state of any substances, contaminants, noise, or manmade or human induced impairment of air or waters or alteration of the chemical, physical, biological, or radiological integrity or air or water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation unless authorized by applicable law. Florida Statutes Ch. 403.031(7). Pollutants to be removed include but are not limited to: excessive dust, sediment and suspended solids, solid and sanitary wastes, phosphorus, nitrogen, pesticides, oil and grease, concrete truck washout, construction chemicals, and construction debris.
 - B) Pollution with Respect to Sediment and Suspended Solids – A water body (including ditches and canals) is defined to be polluted with respect to sediment and suspended solids when at any time, the turbidity of the water immediately downstream of the

permittee's discharge point(s) is at least 29 nephelometric turbidity units (NTU's) higher than the turbidity of the background water upstream of the discharge point(s). [See Fla. Administrative Code 62-302.530] Exception: When the discharge is directly into or through an outfall discharging into "Outstanding Florida Waters," designated by Florida Statute 403.061(27), the turbidity of discharged water cannot exceed the turbidity of the immediate receiving water. Indian River County reserves the right to measure the turbidity of the receiving water prior to construction and to use that value at its sole discretion, as the background turbidity value for the receiving water.

- C) Uncontestable Pollution Event – The discharge from a construction site or work area is defined to be polluted whenever any of the following is present in the discharge water:
- i. Hazardous waste or hazardous materials in any quantity,
 - ii. Any petroleum product or by-product in any quantity,
 - iii. Any chemical in any quantity, or
 - iv. Concentrated pollutants.

Paragraphs (B) and (C) above do not in any way, limit the types of conditions in which pollution may be determined to occur.

2. The permittee is solely responsible for preventing pollution caused by dewatering water and stormwater runoff from the construction site or work area (see attached Permittee's Affidavit Regarding Pollution dated 5/23/2022 [930.08(1)(e)]. In addition to taking its own actions and remedies against the permittee for a permit violation, Indian River County will report each violation to St. Johns River Water Management District, Florida Department of Environmental Protection, Indian River Farms Water Control District (or other Florida Statute Chapter 298 Drainage District, as appropriate), Indian River County Code Enforcement, and other pertinent regulatory or enforcement agencies. No construction work shall begin until the pollution control and treatment system have been constructed in accordance with approved permits and plans.
3. A copy of the Stormwater Pollution Prevention Plan (SWPPP) must be available on site during construction. Any necessary change to the SWPPP shall be agreed upon with the County prior to implementing such change.
4. An 'Illicit Discharge Sign' shall be installed and remain posted continuously during construction activities. The sign may be obtained from the Indian River County Public Works Department or Stormwater Division.

Inspection Fees: In accordance with IRC Resolution No. 2018-121 an inspection fee \$1,555.00 is due at time of requesting final certificate of occupancy.

1.55 acres (limits of new development) * \$1000.00 = \$1,555.00

Inspections requested outside of normal working hours are subject to an "Inspection Services Agreement." The Permittee is responsible for paying additional costs. Contact the Public Works Department 48 hours prior to requesting inspection in order to complete the agreement. Payment is due prior to issuance of Certificate of Occupancy or suspension thereof.

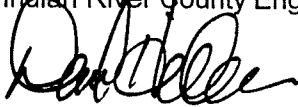
Permit Expiration: The expiration date shall be May 13,2024 at 5:00 p.m. Any permit extension must be requested and approved in writing by the IRC Engineering Division.

Mr. Richard Szpyrka, PE
91895
May 23,2022

5

Please do not hesitate to contact me at (772) 226-1986 or Matt Soyka at (772) 226-1596, if you have any questions.

Sincerely,
Indian River County Engineering



Daniel Hiden, P.E.
County Engineer

DH/ms

cc:

James W. Ennis, P.E., PMP, Assistant Public Works Director
Matt Soyka, P.E., Project Engineer
Chip Boyette, Engineering Inspection Supervisor
Laura Yonkers, P.E., Stormwater Engineer
Ryan Sweeney, MSP, Chief Planner
Brandon C. Creagan, MCRP, Senior Planner
Steven Hitt, Senior Environmental Planner
Maria Bowdren, Planning Staff Assistant III
Todd Tardif, Senior Stormwater Inspector
Aaron Stanton, PE, EOR
Todd Howder, Project Mgr.
Tray Major, Stormwater Inspector

PERMITTEE'S AFFIDAVIT REGARDING POLLUTION

This sworn statement is submitted to Indian River County for the following project (list project name and site address): IRC New Traffic Operations Building
4548 41st Street; Vero Beach, FL 32967

STATE OF Florida
COUNTY OF Indian River County

Personally before me the undersigned authority, appeared

Mr. Richard Szpyrka, P.E., who upon oath duly administered, stated as follows:

1. This sworn statement is submitted by the PERMITTEE,
Indian River County Public Works Department,
whose business address is
1801 27th Street
Vero Beach, FL 32960
and (if applicable) its Federal Identification No.(FEIN) is _____.
2. My name is Richard Szpyrka, P.E. and my relationship to the
entity named above is Director of Public Works
(If signing as Owner's Agent, attach Letter of Authorization to Sign from Owner)
3. Permittee understands and agrees that in addition to complying with the terms and conditions of the Stormwater Management System Permit issued by Indian River County, Permittee is responsible for complying with the terms and conditions of the following as applicable to the site:
 - (a) State of Florida Generic Permit for Stormwater Discharge From Large and Small Construction Activities (for projects one acre or larger),
 - (b) Stormwater Pollution Prevention Plan (regardless of project size),
 - (c) St. Johns River Water Management District permit(s) (regardless of project size),
 - (d) Florida Department of Environmental Protection permit(s) (regardless of project size),
 - (e) All other permits required for this project not specifically listed herein, and
 - (f) All Codes and Ordinances of Indian River County.
4. Permittee understands and agrees that "pollution" as defined by Florida Statutes Chapter 403.031(7) includes: ". . . the presence in the outdoor atmosphere or waters of the state of any substances, contaminants, noise, or manmade or human-induced

impairment of air or waters or alteration of the chemical, physical, biological, or radiological integrity of air or water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation unless authorized by applicable law.”

5. Permittee understands and agrees that in addition to the definition set forth in Item 4 above, “pollution” is also defined by Florida Administrative Code 62-302.530 and as may be further defined in the Indian River County permit(s).
6. Permittee understands that Indian River County requires the design, installation, and maintenance of proper erosion control measures at all times during construction until complete stabilization is achieved at the project site. Permittee understands that this requirement is for this project regardless of the project size.
7. Permittee understands that there are civil and criminal penalties for pollution listed in Florida Statutes Ch. 403.141 and Ch. 403.161 and that there are other penalties listed in Indian River County’s permits, including but not limited to, Indian River County issuing a Cease and Desist Order for the project. Permittee understands that it may be liable for these and other penalties if offsite pollution occurs as a result of activities associated with the Project.
8. Transfer of Ownership or County Issued Permits:
 - (a) Transfer of Interest in Real Property: Within twenty-one (21) days of any transfer of ownership or control of the real property at which the permitted activity, facility, or system is located or authorized, the Permittee shall notify in writing, both the Indian River County Engineering Division and the Indian River County Stormwater Division of the transfer. Permittee shall provide the name, mailing address, and telephone number of the transferee and a copy of the instrument effectuating the transfer. Said notification is in addition to notifying the County Attorney’s Office as required by County Code.
 - (b) Transfer of a County Permit. To transfer a County issued permit, Permittee must provide (1) the information required in Item 8(a); (2) a written statement from the proposed transferee that it will be bound by all terms and conditions of the permit; and (3) a new “Permittee’s Affidavit” form properly executed by the transferee. Upon proper receipt of these items the County shall transfer the permit to the transferee.
 - (c) Permittee is encouraged to request a permit transfer prior to the sale or legal transfer of the real property at which a permitted facility, system, or activity is located or authorized. However, the transfer shall not be effective prior to the sale or legal transfer.
 - (d) An “Illicit Discharge Sign” must be present at the site at the time of transfer. Replacement or additional signs may be obtained from the Indian River County Public Works Department at a cost of \$30.00 per sign.
9. Offsite Discharges: Permittee understands and agrees that Indian River County has specific requirements for discharging water offsite. Permittee agrees to the following Offsite Discharge Requirements:
 - (a) Offsite discharge is limited to stormwater runoff, surface water, groundwater, or any mixture thereof meeting Project discharge water quality requirements.

- (b) All offsite discharge requirements pertain to all discharges, whether pumped or gravity flow.
- (c) Prior to discharging offsite, Permittee shall coordinate the discharge with the County's Senior Stormwater Enforcement Officer and with the Florida Statutes Chapter 298 Drainage District (if any) having jurisdiction over the receiving water body. The date and approximate time of beginning offsite discharge shall be determined and the proposed offsite discharge ending date shall be determined when coordinating with these parties.
- (d) Discharges shall begin and end within the aforementioned dates and times. Discharges occurring before or after the aforementioned times are a violation of the County's offsite discharge requirements and Permittee will be subject to all pertinent penalties for an illicit discharge.
- (e) Commencement of offsite discharge may only be on a non-County holiday, Monday through Thursday, during the following hours - 9:00 AM to 3:30 PM. If offsite discharge is commenced at any other time, it will be deemed an illicit discharge and Permittee will be subject to all pertinent penalties for an illicit discharge.
- (f) Unless specifically approved in writing by County staff, no discharge shall occur during weekends or County holidays, except under emergency conditions (e.g. significant tropical weather events).
- (f) The discharge shall not contain pollutants or create pollution (e.g. stirring up mud and creating turbidity in the receiving water body). Pollution is further defined in Items 4 and 5 above, and as may be defined by the Project's various permits.
- (g) Permittee shall take and analyze samples of background receiving water and discharge water. Minimum sample frequency is: (1) For singular day discharge, take samples at the beginning, estimated midpoint, and end of the discharge event; (2) For multiple-day discharges, take samples at the beginning, midpoint, and end of each day. As a minimum, all samples shall be analyzed onsite by the Permittee for turbidity and pH. Other analysis shall be as required by Project permits. All test results shall be legibly recorded in a notebook that shall be available at any reasonable time for County staff to review.
- (h) If any sample fails to meet the Project's discharge criteria, then all offsite discharge shall immediately be ceased and Permittee shall immediately notify the County's Senior Stormwater Enforcement Officer. No further offsite discharge is permitted until Permittee properly addresses the discharge issue and a written approval to recommence discharge is issued by County staff.
- (i) County staff shall have the right to test offsite discharge water at any time. If staff discovers discharge water does not meet the Project's offsite discharge water quality criteria, all discharge shall immediately stop and no further offsite discharge is permitted until Permittee properly addresses the discharge issue and a written approval to recommence discharge is issued by County staff.

Permittee understands and agrees that violation of any aforementioned Offsite Discharge Requirement will result in immediate revocation of Permittee's right to discharge offsite and the discharge will be classified as an "Illicit discharge," and prosecuted as such under Indian River County Ordinance No. 2018-015, Resolution 2018-057, and all other supporting Indian River County resolutions; together with all other penalties and actions against Permittee that the County deems appropriate.

Under penalty of perjury, Permittee declares that it has read the foregoing affidavit and Permittee declares the facts stated in it are true, and that Permittee fully understands and agrees to all stipulations and requirements set forth in the affidavit.

FURTHER AFFIANT SAYETH NAUGHT

Permittee: Indian River County Public Works Department

Authorized Signature: [Signature]
(If signing as Owner's Agent, attach Letter of Authorization to Sign from Owner)

Printed Name: Mr. Richard Szpyrka, P.E.

Date: 6/2/22

Work Telephone: 772-226-1234

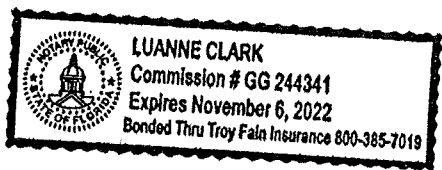
Mobile Telephone: _____

Email Address: rszpyrka@ircgov.com

The foregoing instrument was subscribed and sworn to before me this 2 day of June, 2022 by Richard B. Szpyrka, who is personally known to me or has produced NA as identification and who did take oath.

[Signature]
Notary Public State of Florida at Large

My Commission expires: 11/6/2022



NOTICE OF PERMITTING REQUIREMENTS

ILLICIT DISCHARGE SIGN

INSTALL SIGN AT START OF CONSTRUCTION

An **'Illicit Discharge Sign'** shall be installed in front of the project site in a location clearly visible to the public and remain posted continuously during construction activities, in accordance with Indian River County ordinance.

Upon issuance of the Stormwater Management System Permit, the sign will be made available for pickup in the Public Works – Engineering Division with the permit. For any questions regarding the use, installation, maintenance, purchase or removal of sign, please contact the Stormwater Division at 772-226-1564.

If said sign is damaged or stolen, Permittee shall immediately purchase a replacement sign from the County at cost and install it at the project site. Replacement sign may only be purchased and obtained from the Stormwater Division located in the Public Works – Engineering Division at 1801 27th Street, Building A, Vero Beach, Florida 32960.



**Board of County Commissioners
Engineering Division**

**1801 27th Street
Vero Beach, Florida 32960-3388
Telephone: (772) 226-1283
Fax: (772) 778-9391**

May 23, 2022

Indian River County Public Works Dept.
1801 27th Street
Vero Beach, Fl. 32960

Attention: Mr. Richard Szyrka, PE, Public Works Director
Subject: Acknowledgement of SWMS Permit Conditions for IRC PW Traffic Ops
Reference: SWMS Permit No. 91895

As Permittee for this project, your signature is an acknowledgement that you will ensure construction will be administered in accordance with permit conditions, standards and specifications. Please sign below that you have read and understand the conditions of the above referenced permits dated May 23, 2022. Please remit the signed copy back to the Indian River County Engineering Division for release of the permit.

Indicate handling preference below for the permits and Illicit Discharge Sign.

Permits MBV Engineering, Inc. or Mail out
pick up by (please print)

Illicit Discharge Sign MBV Engineering, Inc. or Pick up at later date
pick up by (with permit)

Signature Richard B. Szyrka, P.E.
Digitally signed by Richard B. Szyrka, P.E. email = rjszyrka@ircgov.com C = US O = Indian River County OS = Public Works Date: 2022.06.03 09:30:04 -0400

Printed Name Mr. Richard Szyrka, P.E., Director Date 6/3/2022

If you have any questions, please call me at 772-226-1283.

Sincerely,
Indian River County Engineering

Matt Soyka, P.E.
Project Engineer



Board of County Commissioners

Engineering Division

1801 27th Street

Vero Beach, Florida 32960-3388

Telephone: (772) 226-1283

Fax: (772) 778-9391

May 23, 2022

MBV Engineering Inc.
1835 20th Street
Vero Beach, Fl. 32960

Attention: Mr. Aaron Stanton, P.E., EOR

Subject: Acknowledgement by Engineer of Record of Stormwater Management Calculations and Plans for IRC PW Traffic Ops

Reference: SWMS Permit No. 91895

As Engineer of Record for this project, your signature is an acknowledgement that the permitted Stormwater Management Calculations and Construction Plans by Indian River County are the same as the St. John's River Water Management District in accordance with County Code 930.08(1)(j).

Please remit the signed copy back to the Indian River County Engineering Division for release of the permit.

Signature _____

A handwritten signature in black ink, appearing to read "Aaron Stanton", written over a horizontal line.

Printed Name _____

Aaron Stanton, P.E.

Date _____

6/3/22

If you have any questions, please call me at 772-226-1283.

Sincerely,
Indian River County Engineering

A handwritten signature in black ink, appearing to read "Matt Soyka", written over a horizontal line.

Matt Soyka, P.E.
Project Engineer

RECEIVED

JUN 10 2022

INDIAN RIVER COUNTY
ENGINEERING DIVISION



INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
 1801 27TH STREET
 VERO BEACH, FLORIDA
 Tel. (772) 567-8000
 Fax (772) 770-5143

Date: January 20, 2021
 UCP # 3615
 Re: New Traffic Ops Facility for IRC

MBV Engineering, Inc.
 1835 20th Street
 Vero Beach, FL 32960
 Phone: 772-569-0035
 Attn: Aaron Stanton, P.E.

WE ARE SENDING YOU:

- | | | | |
|---|--|---|--|
| <input type="checkbox"/> Shop drawings | <input checked="" type="checkbox"/> Attached | <input type="checkbox"/> Specifications | <input type="checkbox"/> Under separate cover the following items via: |
| <input type="checkbox"/> Copy of letter | <input type="checkbox"/> Prints | <input type="checkbox"/> Plans | <input checked="" type="checkbox"/> Utility Construction Permit |
| | <input type="checkbox"/> Change Order | <input type="checkbox"/> Samples | <input type="checkbox"/> Other: _____ |

COPIES	DESCRIPTION
1	Approved Construction Plans
1	IRC Utility Construction Permit # 3615
1	Connection Fee Estimate

THESE ARE TRANSMITTED AS CHECKED BELOW:

- | | | |
|--|---|---|
| <input type="checkbox"/> For approval | <input type="checkbox"/> Approved as submitted | <input type="checkbox"/> Resubmit _____ Copies for approval |
| <input checked="" type="checkbox"/> For your use | <input type="checkbox"/> Approved as noted | <input type="checkbox"/> Submit _____ Copies for distribution |
| <input type="checkbox"/> As requested | <input type="checkbox"/> Returned for corrections | <input type="checkbox"/> Return _____ Corrected prints |
| <input type="checkbox"/> For review & comment | <input type="checkbox"/> For Bids Due _____ | Other: _____ |

REMARKS:

Please schedule a pre-construction meeting and all utility construction activities with Utilities Inspector William "Ed" Gore, 772-532-7478, wgore@ircgov.com

Signed: Jesse R. Roland
 Jesse R. Roland, Plans Reviewer

Cc:
 William "Ed" Gore, Utilities Inspector (via email)
 Utility Project File UCP # 3615

(If enclosures are not as noted, kindly notify us at once)

INDIAN RIVER COUNTY- WATER AND SEWER CONNECTION FEES
 ConnectionCost_4548_41st_Street



Property Owner: INDIAN RIVER COUNTY
Project/Subdivision Name: New Traffic Ops Facility for IRC - UCP# 3615
Requestor: Aaron G. Stanton, P.E. - MBV Engineering, Inc. **Phone #:** 772-569-0035
Location/Street Address: 4548 41st St, Vero Beach, FL 32967 **e-Mail:** aarons@mbveng.com
Parcel ID ('s) #: 32392800001008000001.0 **Property Use Code** 8600

<input checked="" type="checkbox"/> WATER	<input checked="" type="checkbox"/> SEWER	<input type="checkbox"/> FIRE SPRINKLERS	<input type="checkbox"/> Single Family	<input type="checkbox"/> Multi-Family	<input checked="" type="checkbox"/> Commercial
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WATER:

Water Impact Fee:	3	ERU(s)	\$1,300.00 per ERU (Can be financed for 5 years @ 3.25%) ADD TO EXISTING ACCOUNT# 062078	= \$	3,900.00
	<input type="checkbox"/> Financed				
Water Service Connection Fee:			N/A - Taps by Contractor	= \$	-
<input type="checkbox"/> Water Connection					
Water Deposit:	3	ERU(s)	\$50.00 per ERU	= \$	150.00
Inspection Fee				= \$	78.44
Meter Installation	5/8"	# of meters		= \$	-
If Master Planned Line	N/A	LF	\$11.25 per LF	= \$	-

SEWER:

Sewer Impact Fee:	3	ERU(s)	\$2,796.00 per ERU (Can be financed for 5 years @ 3.25%) ADD TO EXISTING ACCOUNT# 062078	= \$	8,388.00
	<input type="checkbox"/> Financed				
Sewer Service Connection Fee:			N/A - Taps by Contractor	=	
<input checked="" type="checkbox"/> Sewer Connection					
Sewer Deposit:	3	ERU(s)	Deposit @ \$50.00 per ERU	= \$	150.00
Inspection Fee				= \$	78.44
If Master Planned Line	N/A	LF	\$15.77 per LF	= \$	-

MISCELLANEOUS:

New Account Charge	= \$	-
Recording Fee	=	-
Doc Stamp	= \$	-

Remarks: This estimate is for the proposed additions to the site: 7,000± sf office area, 3,800± sf warehouse, and 5,300± sf warehouse.

Customer Signature: _____
 Date: _____

---- Official Use by IRCUD Staff Only ----		
<u>Prepared By</u> Jesse Roland	<u>Date Prepared</u> 1/20/2022	<u>Expiration Date</u> 7/19/2022
IRC Service App Provided?		
Total Balance Due *** = \$ 12,744.88		
I hereby acknowledge that I have been informed that a permit is required by the Building Department for the installation of the service line from the meter. IRCUDUS recommends pressure testing your existing plumbing before transitioning from your private well system to the County's water service. Pressure testing will allow you to avoid any potential leaks or breaks that may occur due to the pressure change with your new County water service. IRCUDUS is not responsible for leaks or breaks that may occur due to connection to the County water system.		
***Charges and fees are estimates only. Actual charges are subject to review and confirmation at time of payment. Service Availability Fees will accrue at the time connection fees have been paid.		

INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
1801 27th Street, Vero Beach, Florida 32960



UTILITY CONSTRUCTION PERMIT

Permit Issuance Date: January 20, 2022
UCP #: 3615
IRC Project #: 92030035-91277
Project Name: New Traffic Operations Facility For Indian River County
Project Location: 4548 41st St, Vero Beach, Florida 32967
Owner/Developer: Indian River County
Engineer-of-Record: MBV Engineering, Inc. Aaron Stanton, P.E.
IRCUD Inspector: William "Ed" Gore, 772-532-7478, wgore@ircgov.com
Project Description: Water Dist. / Wastewater Coll. Systems

Services:

- | | | |
|--|--|---|
| <input checked="" type="checkbox"/> County Water | <input checked="" type="checkbox"/> County Gravity Sewer | <input type="checkbox"/> County Force Main |
| <input type="checkbox"/> County Lift Station | <input type="checkbox"/> Private Lift Station | <input type="checkbox"/> Private Force Main |

General:

This Utility construction permit authorizes the above-named Owner/Developer to construct a Water Distribution System and a Wastewater Collection System for the project as shown on the construction plans prepared by **MBV Engineering, Inc.** and signed & sealed on **November 29, 2021.** Permit Issuance is contingent upon construction being performed by personnel currently licensed in the State of Florida to perform such work. All work shall be performed in accordance with Indian River County Utilities Standards, latest edition and applicable regulatory agency. Utility work shall not commence until all necessary easements and/or permits are acquired, including an Indian River County R-o-W Permit if working within its limits. The limits of construction are delineated by these plans. This permit is valid for a period of twelve consecutive months from the date of issuance and is subject to the special provisions and completion of associated checklist items as provided in Attachment A; this permit does not constitute a permit for operation.

Special Conditions: Not Applicable.

If you have any questions, please do not hesitate to contact me at (772) 567-8000, ext. 1636.

Sincerely,



Jesse R. Roland, Plans Reviewer

Enclosure: Attachment A + 1 set of Construction Plans

cc:	Matt Jordan, P.E., Interim Director of Utility Services	(via email)
	Rich Szyrka, P.E., Director of Public Works	(via email)
	Phil Matson, AICP, Director of Community Development	(via email)
	Ed Gore, Utilities Inspector	(w/ Enclosure)
	Utility Project File UCP # 3615	(w/ Enclosure)

ATTACHMENT A

UTILITY CONSTRUCTION PERMIT – SPECIAL PROVISIONS

1. The Owner/Developer or his duly authorized representative, the Engineer-of-Record, property owner and construction contractor shall hold Indian River County harmless in any suits, claims, and/or liabilities arising from subject construction.
2. The Owner/Developer or his duly authorized representative, the Engineer-of-Record and the construction contractor shall have a pre-construction meeting with Indian River County Department of Utility Services (IRCDUS) a minimum of five working days before beginning construction.
3. The contractor shall notify Customer Service, IRCDUS, at (772) 567-8000 a minimum of 48 hours prior to beginning construction or performing any system tests.
4. All water and sewer utility locations are to be coordinated with other utilities such as, but not limited to electric, cable, telephone, irrigation, etc. Minimum setback requirements from water and sewer utilities, as outlined below, must be adhered to prior to acceptance of the water and sewer utilities.

Type of Object	Min. Horizontal Separation between Utility Water/Sanitary Lines and other Utilities & Objects
a) Aboveground permanent objects (i.e. walls, trees, transformer pads, etc.).	Pressure Pipes = Depth of the pipe plus diameter of the pipe Gravity Sewer – ten (10) feet
b) Underground utility lines (i.e., telephone, power, drainage, etc.)	Four (4) feet
c) Surface water body top of bank (i.e. lakes, ponds, canals, etc.).	Two times the depth of the pipe plus the diameter of the pipe

FINAL ACCEPTANCE OF WATER AND SEWER IS CONTINGENT UPON A FINAL INSPECTION BY THE UTILITIES DEPARTMENT AFTER ALL OTHER ON-SITE UTILITIES HAVE BEEN INSTALLED SO THAT MINIMUM SEPARATION REQUIREMENTS, AS OUTLINED ABOVE, CAN BE VERIFIED.

5. This Utility Construction Permit does not eliminate the necessity to obtain a right-of-way permit from Indian River County Public Works Department or other permits that are required by the Florida Department of Environmental Protection (FDEP) or any other county, state, or federal agencies.
6. No construction shall begin until all required easements have been acquired.
7. All applicable permits allowing utilities construction inside any right-of-way shall be submitted prior to commencement of construction. The Land Development Permit must be obtained, if applicable, prior to commencement of any utility construction.

ATTACHMENT A

UTILITY CONSTRUCTION PERMIT – SPECIAL PROVISIONS

8. Capacity Charges must be paid in full prior to commitment of capacity or issuance of building permit whichever comes first. THERE IS NO GUARANTEE THAT CAPACITY WILL BE AVAILABLE AT TIME OF REQUEST.
9. County Inspection Services: The County's hours of operation for this project is limited to between the hours of 8:00 a.m. and 4:00 p.m., Monday through Friday, excluding holidays. The DEVELOPER shall coordinate needed inspection services between these hours of operation. Should the DEVELOPER require County inspection services beyond the designated hours then the DEVELOPER shall pay the inspectors' hourly prevailing rate times an overtime direct multiplier of 1.5 times the hourly rate. The DEVELOPER shall not have the right to declare this Agreement in default because it disagrees with the fees and charges imposed for the extended use of the County Inspectors.
10. All equipment, materials, and workmanship shall meet or exceed current Indian River County Water and Wastewater Utility Standards and shall be subject to the unconditional inspection and approval of the Indian River County Department of Utility Services.
11. Only IRCDUS approved appurtenances shall be used in construction.
12. Shop drawings shall be provided and reviewed by IRCDUS prior to construction.
13. The Engineer-of-Record (EOR) shall have an on-site representative (inspector) whom shall witness and document all materials used, installation procedures, problems encountered and all tests specified by the Utility Construction Permit Checklist. Daily construction reports shall be submitted not less than monthly to IRCDUS. The daily reports shall be signed and sealed by the EOR. The daily construction reports shall be submitted to IRCDUS no later than seven days after completion of that portion of construction requiring clearance. Indian River County has unconditional rights to inspect the construction and materials at any time.
14. All connections to the IRCDUS system and operation of utility system valves and equipment shall be made under the direct observation of personnel from IRCDUS. Where loss of utility service will occur, a minimum of a 48-hour notice to IRCDUS and the public is required. A 48-hour notice is required for access to private property.
15. No testing of potable water or sanitary sewer system shall commence until Record Drawings have been submitted, approved, and accepted by the Department of Utility Services.
16. Upon completion of construction, utility system shall be flushed, disinfected, and tested in accordance with the current IRCDUS Specifications.

ATTACHMENT A

UTILITY CONSTRUCTION PERMIT – SPECIAL PROVISIONS

17. Project Closeout: At the time of final completion, an inspection shall be held by IRCDUS in the presence of the property owner, DEVELOPER, Contractor and Engineer-of-Record. At this time, the DEVELOPER shall provide all necessary documentation as required by the Utility Construction Permit and regulatory agencies, such as the FDEP. At the time of completion of all utility work, a final inspection shall be held. The DEVELOPER shall make arrangements with the Owner, Contractor, Engineer-of-Record and IRCDUS for a joint follow-up inspection and shall send a written notice to said parties to inform them of the date and time of the inspection. After the inspection, IRCDUS, through the Engineer-of-Record, shall inform the DEVELOPER of any corrections required.
18. The one-year maintenance period shall not commence until a final Certification-of-Construction – Completion and Request for Clearance to Place Permitted Components Into Operation (FDEP Form 62-555.900) has been prepared and approved by FDEP, and a Memo of Acceptance has been issued by IRCDUS.
19. Partial Utilization: IRCDUS shall have the right to utilize or place into service any utility equipment pursuant to FDEP Certificate-of-Construction Completion (FDEP Form 62-555.900) or other usable portion of the work prior to completion of the work. In such case, IRCDUS, identifying the specific portion or portions of the work to be so utilized or otherwise placed into service, will notify the DEVELOPER in writing. The DEVELOPER shall understand that until such written notification is issued, all responsibility for ownership, care and maintenance of the work shall be borne by the DEVELOPER. Upon issuance of said written notice of partial utilization, the DEVELOPER accept full responsibility for the protection and maintenance of all such items or portions of the work described in the written notice until final acceptance by IRCDUS. The DEVELOPER shall retain full responsibility for satisfactory completion of the work, regardless of whether a portion thereof has been partially utilized by IRCDUS and the DEVELOPER'S one-year correction period shall commence only after the date of Substantial Completion for the work. DEVELOPER shall be further responsible for submitting a final Certification-of-Construction Completion to FDEP for any outstanding portion of the work.
20. ALL IRCDUS REQUIRED DOCUMENTS / SUBMISSIONS MUST BE PROVIDED BY THE DEVELOPER PRIOR TO IRCDUS'S RELEASE OF THE PROJECT. Upon completion of construction and prior to placing the utility system into service, the requirements of IRCDUS's water and wastewater system Utility Construction Permit Checklist shall be satisfied. This shall include but is not limited to record drawings, easement dedications, bill-of-sales, etc.



**INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
UTILITY CONSTRUCTION PERMIT CHECKLIST**

WATER CHECKLIST

Received	Description
	1. One (1) signed and dated, approved or red-lined set of as-built construction drawings by the project's County Inspector for approval by Utilities Engineering, prior to the submittal of the Final Record Drawings. Submittal of Final Record Drawings should consist of one (1) set of reproducible mylars, one (1) electronic disc and three (3) sets of blue/black line prints signed and sealed by the Engineer-of-Record or Licensed Surveyor. The Engineer-of-Record must be registered to practice in the State of Florida.
	2. Copy of a satisfactory hydrostatic pressure test signed by the Engineer-of-Record.
	3. One complete set of daily field inspection records prepared by the on-site inspector certified by the Engineer-of-Record to be submitted seven (7) days after completion of that portion requiring clearance.
	4. Copy of a satisfactory bacteriological main clearance certified by the Engineer-of-Record.
	5. Copy of a satisfactory trench backfill and compaction density test reports signed by the Engineer-of-Record.
	6. Certification by the Engineer-of-Record that the water line was sanitized in accordance with County specifications.
	7. Certification by the Engineer-of-Record that the construction of the water distribution system is complete and in accordance with County construction and material specifications. Any deviation from the approved construction drawings or County specifications must be specifically identified and justified by the Engineer.
	8. Copy of the Notice of Acceptance of Completion from the Florida Department of Environmental Protection (FDEP) authorizing the water distribution system to be placed into service.
	9. Backflow Preventer Certification(s), which includes domestic and fire lines and proof that the certification has been filed in accordance with the County Cross Connection Control Program's Backflow Management and Inspection Database. See http://www.ircutilities.com/CCCP.htm for further information.
	10. <u>Bill of Sale & Easement</u> - Dedication of the water distribution system and

Received	Description
	<p>accompanying easements. The dedication is to include an itemized list of all materials along with total materials, construction and engineering costs. <i>This should be coordinated through the IRC Attorney's Office.</i></p>
	<p>11. <u>Bill of Sale</u> - Where the water distribution system is located in established easements or road rights-of-way, the attached bill of sale is to be executed along with an itemized list of all materials to include materials and construction costs. <i>This should be coordinated through the IRC Attorney's Office.</i></p>
	<p>12. Complete on-site inspection by a County utility inspector with confirmation that the water distribution system appears acceptable.</p>
	<p>13. Arrangements for payment of all capacity charges and other costs of connections.</p>
	<p>14. Release of lien(s) from each Contractor, Subcontractor and Vendor.</p>
	<p>15. A one-year maintenance bond in an amount equaling 25% of the total cost for construction of the system if construction costs exceed \$10,000. If total construction costs are less than \$10,000, then a one-year warranty letter is required. The warranty letter can be issued by the developer or contractor.</p>



INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
UTILITY CONSTRUCTION PERMIT CHECKLIST
WASTEWATER CHECKLIST

Received	Description
	1. One (1) signed and dated, approved or red-lined set of as-built construction drawings by the project's County Inspector for approval by Utilities Engineering, prior to the submittal of the Final Record Drawings. Final Record Drawings submittal should consist of one (1) set of reproducible mylars, one (1) electronic disc and three (3) sets of blue/black line prints signed and sealed by the Engineer-of-Record or Licensed Surveyor. The Engineer-of-Record must be registered to practice in the State of Florida.
	2. Copy of a satisfactory hydrostatic pressure test or infiltration/exfiltration test signed by the Engineer-of-Record.
	3. One complete set of daily field inspection records prepared by the on-site inspector certified by the Engineer-of-Record to be submitted seven (7) days after completion of construction of that portion requiring clearance.
	4. Copy of a satisfactory television test and a certified report by the Engineer-of-Record.
	5. Copy of a satisfactory trench backfill and compaction density test reports signed by the Engineer-of-Record.
	6. Certification by the Engineer-of-Record that the construction of the wastewater collection/transmission system is complete and in accordance with County construction and material specifications. Any deviation from the approved construction drawings or County specifications must be specifically identified and justified by the Engineer.
	7. Copy of the Notice of Acceptance of Completion from the Florida Department of Environmental Protection (FDEP) authorizing the wastewater collection/transmission system to be placed into service.
	8. <u>Bill of Sale & Easement</u> - Dedication of the wastewater collection/transmission system and accompanying easements. The dedication is to include an itemized list of all materials along with total materials, construction and engineering costs. <i>This should be coordinated through the IRC Attorney's Office.</i>
	9. <u>Bill of Sale</u> - Where the wastewater collection/transmission system is located in established easements or road rights-of-way, the attached bill of sale is to be executed along with an itemized list of all materials to include materials and

Received	Description
	construction costs. <i>This should be coordinated through the IRC Attorney's Office.</i>
	10. Complete on-site inspection by a County utility inspector with confirmation that the wastewater collection/transmission system appears acceptable.
	11. Arrangements for payment of all capacity charges and other costs of connections.
	12. Release of lien(s) from each Contractor, Subcontractor and Vendor.
	13. A one-year maintenance bond in an amount equaling 25% of the total cost for construction of the system if construction costs exceed \$10,000. If total construction costs are less than \$10,000, then a one-year warranty letter is required. The warranty letter can be issued by the developer or contractor.
	14. A set of lift station specifications (if applicable), two sets of operations and maintenance manuals, warranty, and all spare parts as required by IRCDUS standards.
	15. Transfer of lift station's electric account from Developer to County.
	16. If a PRIVATE Lift Station, an acknowledgment letter from Engineer/Owner, and copy of 24/7 lift station maintenance agreement with a qualified service and repair company having lift station maintenance experience.

Indian River County Department of Utility Services
1801 27th Street, Vero Beach, Florida 32960
Phone: 772-567-8000, Fax: 772-770-5143



Pre-Construction Meeting Requirements Engineer's Confirmation

(this form must be presented to the Utilities Inspector at the Pre-Con)

PROJECT NAME:

IRC UCP #:

ENGINEERING FIRM:

ENGINEER-OF-RECORD:

UNDERGROUND UTILITY CONTRACTOR:

DATE OF PRE-CONSTRUCTION MEETING:

By signing below, you confirm that:

1. All associated Water and/or Sewer connection fees have been paid.
2. All required permits for the proposed construction have been obtained.

E.O.R Signature: _____ **Date:** _____

APPENDIX B

INDIAN RIVER COUNTY FERTILIZER ORDINANCES

ORDINANCE NO. 2013 - 012

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, AMENDING THE CODE OF INDIAN RIVER COUNTY TO ESTABLISH A NEW CHAPTER 316, ENTITLED "FERTILIZER AND LANDSCAPE MANAGEMENT;" ADOPTING THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S MODEL ORDINANCE FOR FLORIDA-FRIENDLY USE OF FERTILIZER ON URBAN LANDSCAPES, WITH MODIFICATIONS; MAKING FINDINGS AND PROVIDING FOR SEVERABILITY, CODIFICATION; DIRECTING COUNTY ATTORNEY'S OFFICE TO POST SUMMARY ON COUNTY WEBSITE, AND AN EFFECTIVE DATE.

WHEREAS, as a result of impairment to Indian River County's surface waters caused by excessive nutrients, or, as a result of increasing levels of nitrogen in the surface and/or ground water within the aquifers or canals within the boundaries of Indian River County, the Board of County Commissioners has determined that the use of fertilizers on lands within Indian River County creates a risk of contributing to adverse effects on surface and/or ground water; and

WHEREAS, in order to address this risk, the Board of County Commissioners has determined that it is not only critical to adopt the Florida Department of Environmental Protection's Model Ordinance for Florida-Friendly Use of Fertilizer on Urban Landscapes, but that as part of Indian River County's science-based, and economically and technically feasible, comprehensive program to address nonpoint sources of nutrient pollution, additional and more stringent standards are necessary in order to adequately address urban fertilizer contributions to nonpoint source nutrient loading to the surface and/or ground water of Indian River County; and

WHEREAS, this ordinance regulates the proper use of fertilizers by any applicator; requires proper training of Commercial Fertilizer Applicators and Institutional Fertilizer Applicators; establishes training and licensing requirements; establishes a Prohibited Application Period; and specifies allowable fertilizer application rates and methods, fertilizer-free zones, low maintenance zones, and exemptions. The ordinance requires the use of Best Management Practices which provide specific management guidelines to minimize negative secondary and cumulative environmental effects associated with the misuse of fertilizers. These secondary and cumulative effects have been observed in and on Indian River County's natural and constructed stormwater conveyances, rivers, creeks, canals, lakes, estuaries and other water bodies. Collectively, these water bodies are an asset critical to the environmental, recreational, cultural and economic well-being of Indian River County residents and the health of the public. Overgrowth of algae and vegetation hinder the effectiveness of flood attenuation provided by natural and constructed stormwater conveyances. Regulation of nutrients, including both phosphorus and nitrogen contained in fertilizer, will help improve and maintain water and habitat quality,

ORDINANCE NO. 2013 - 012

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, THAT:

Section 1. Enactment Authority.

Article VIII, §1 of the Florida Constitution and Chapter 125, Florida Statutes vest broad home rule powers in counties to enact ordinances, not inconsistent with general or special law, for the purpose of promoting the public health, safety and welfare of the residents of the county. The Board specifically determines that the enactment of this ordinance is consistent with general or special law, and is necessary and appropriate to promote the health, safety and welfare of the residents of Indian River County.

Section 2. Findings.

The Board finds that the above “Whereas” clauses are true and correct, and hereby incorporates such clauses as findings of the Board.

Section 3. Adoption of Chapter 316 of the Code of Indian River County (the “Code”).

Chapter 316 of the Code is hereby adopted, as follows (new language is indicated by underline):

Section 316.1. Title.

This chapter shall be known as the “Indian River County Fertilizer and Landscape Management Ordinance.”

Section 316.2. Definitions.

For the purposes of this chapter, the following terms shall have the following meanings:

“Administrator” shall mean the County Administrator, or an administrative official of the County designated by the County Administrator to administer and enforce the provisions of this chapter.

“Application” or “apply” shall mean the actual physical deposit of fertilizer to turf or landscape plants.

“Applicator” shall mean any Person who applies fertilizer on turf and/or landscape plants in Indian River County.

“Board” shall mean the Indian River County Board of County Commissioners.

“Best Management Practices” shall mean turf and landscape practices or combination of practices based on research, field-testing, and expert review, determined to be the most effective

ORDINANCE NO. 2013 - _____

and practicable on-location means, including economic and technological considerations, for improving water quality, conserving water supplies and protecting natural resources.

“Chapter 85-427” shall mean The Indian River County Environmental Control Act, Chapter 85-427, Special Acts, Laws of Florida.

“Code Enforcement Officer shall mean any designated employee or agent of Indian River County whose duty it is to enforce codes and ordinances enacted by Indian River County.

“Commercial Fertilizer Applicator,” except as provided in §482.1562(9), Florida Statutes, shall mean any person who applies fertilizer for payment or other consideration to property not owned by the person or firm applying the fertilizer or the employer of the applicator.

“Code” shall mean The Code of Indian River County.

“Environmental Control Officer” shall mean the Indian River County Environmental Control Officer appointed by the Board pursuant to Chapter 85-427, and Chapter 303 (Part I) of this Code, and his or her designees.

“Fertilize,” “fertilizing,” or “fertilization” shall mean the act of applying fertilizer to turf, specialized turf, or landscape plants.

“Fertilizer” shall mean any substance or mixture of substances that contains one or more recognized plant nutrients and promotes plant growth, or controls soil acidity or alkalinity, or provides other soil enrichment, or provides other corrective measures to the soil.

“Heavy rain” shall mean rainfall greater than two inches in a 24 hour period.

“Institutional Fertilizer Applicator” shall mean any person, other than a private, non-commercial applicator or a Commercial Fertilizer Applicator (unless such definitions also apply under the circumstances), that applies fertilizer for the purpose of maintaining turf and/or landscape plants. Institutional Fertilizer Applicators shall include, but shall not be limited to, owners, managers or employees of public lands, schools, parks, religious institutions, utilities, industrial or business sites and any residential properties maintained in condominium and/or common ownership.

“Landscape plant” shall mean any native or exotic tree, shrub, or groundcover (excluding turf).

“Low maintenance zone” shall mean an area a minimum of ten feet wide adjacent to water courses which is planted and managed in order to minimize the need for fertilization, watering, mowing, etc.

“Person” shall mean any natural person, business, corporation, limited liability company, partnership, limited partnership, association, club, organization, and/or any group of people acting as an organized entity.

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"Restricted Season" shall mean June 1 through September 30.

"Saturated soil" shall mean a soil in which the voids are filled with water. Saturation does not require flow. For the purposes of this chapter, soils shall be considered saturated if standing water is present or the pressure of a person standing on the soil causes the release of free water.

"Slow Release Nitrogen" shall mean nitrogen in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant longer than a reference rapid or quick release product.

"Turf," "sod," or "lawn" shall mean a piece of grass-covered soil held together by the roots of the grass.

"Urban landscape" shall mean pervious areas on residential, commercial, industrial, institutional, highway rights-of-way, or other nonagricultural lands that are planted with turf or horticultural plants. For the purposes of this section, agriculture has the same meaning as in §570.02, Florida Statutes.

Section 316.3. Timing of fertilizer application.

No applicator shall apply fertilizers containing nitrogen and/or phosphorus to turf and/or landscape plants during the Restricted Season, to saturated soils, or during a period in which a Flood Watch or Warning, or a Tropical Storm Watch or Warning, or a Hurricane Watch or Warning is in effect for any portion of Indian River County, issued by the National Weather Service, or if heavy rain is likely.

Section 316.4. Fertilizer-free zones.

Fertilizer shall not be applied within ten feet of any pond, stream, watercourse, lake, canal, or wetland as defined by the Florida Department of Environmental Protection (Chapter 62-340, Florida Administrative Code) or from the top of a seawall. If more stringent Indian River County Code regulations apply, this provision does not relieve the requirement to adhere to the more stringent regulations. Newly planted turf and/or landscape plants may be fertilized in this zone only for a 60-day period beginning thirty days after planting if needed to allow the plants to become well established. Caution shall be used to prevent nutrients from being directly deposited into the water.

Section 316.5. Low maintenance zones.

A voluntary ten foot low maintenance zone is strongly recommended, but not mandated, from any pond, stream, water course, lake, wetland or from the top of a seawall. A swale/berm system is recommended for installation at the landward edge of this low maintenance zone to capture and filter runoff. If more stringent Indian River County Code regulations apply, this provision

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does not relieve the requirement to adhere to the more stringent regulations. Notwithstanding the voluntary nature of the above sentences, no mowed or cut vegetative material may be deposited or left remaining in this zone or deposited in the water. Care should be taken to prevent the over-spray of aquatic weed products in this zone.

Section 316.6. Fertilizer content and application rates.

(a) No fertilizer containing phosphorous shall be applied to turf or landscape plants in Indian River County unless a soil or plant tissue deficiency is verified by a University of Florida, Institute of Food and Agriculture Sciences, approved testing methodology. In the case that a deficiency has been verified, the application of a fertilizer containing phosphorous shall be in accordance with the rates and directions for the Central Region of Florida as provided by Rule 5E-1.003(2), Florida Administrative Code. Deficiency verification shall be no more than 2 years old. However, recent application of compost, manure, or top soil shall warrant more recent testing to verify current deficiencies.

(b) The nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label.

(c) Fertilizers applied to an urban lawn or turf within Indian River County shall be applied in accordance with requirements and directions set forth on the label or tag for packaged fertilizer products, or in the printed information accompanying the delivery of bulk fertilizer products, as provided by Rule 5E-1.003(2), Florida Administrative Code, *Labeling Requirements For Urban Turf Fertilizers*. All packaged and bulk fertilizer products sold in Indian River County shall be sold in packages with labels or tags, or, if sold in bulk, be accompanied by printed information, which complies with the requirements of Rule 5E-1.003(2), Florida Administrative Code.

(d) Fertilizer containing nitrogen or phosphorus shall not be applied before seeding or sodding a site, and shall not be applied for the first 30 days after seeding or sodding, except when hydro-seeding for temporary or permanent erosion control in an emergency situation (wildfire, etc.), or in accordance with the Stormwater Pollution Prevention Plan for that site.

Section 316.7. Application practices.

(a) Spreader deflector shields are required when fertilizing via rotary (broadcast) spreaders. Deflectors must be positioned such that fertilizer granules are deflected away from all impervious surfaces, fertilizer-free zones and water bodies, including wetlands.

(b) Fertilizer shall not be applied, spilled, or otherwise deposited on any impervious surfaces.

(c) Any fertilizer applied, spilled, or deposited, either intentionally or accidentally, on any impervious surface shall be immediately and completely removed to the greatest extent practicable.

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(d) Fertilizer released on an impervious surface must be immediately contained and either legally applied to turf or any other legal site, or returned to the original or other appropriate container.

(e) In no case shall fertilizer be washed, swept, or blown off impervious surfaces into stormwater drains, ditches, conveyances, or water bodies.

Section 316.8. Management of grass clippings and vegetative materials.

In no case shall grass clippings, vegetative material, and/or vegetative debris be washed, swept, or blown off into stormwater drains, ditches, conveyances, water bodies, wetlands, or sidewalks or roadways. Any material that is accidentally so deposited shall be immediately removed to the maximum extent practicable.

Section 316.9. Exemptions.

The provisions set forth above in this chapter shall not apply to:

(a) bona fide farm operations as defined in the Florida Right to Farm Act, § 823.14, Florida Statutes;

(b) other properties not subject to or covered under the Florida Right to Farm Act that have pastures used for grazing livestock;

(c) any lands used for bona fide scientific research, including, but not limited to, research on the effects of fertilizer use on urban stormwater, water quality, agronomics, or horticulture.;

(d) golf courses when landscaping is performed within the provisions of the Florida Department of Environmental Protection document, "Best Management Practices for the Enhancement of Environmental Quality on Florida Golf Courses", these provisions shall be followed when applying fertilizer to golf course practice and play areas;

(e) athletic fields at public parks and school facilities that apply the concepts and principles embodied in the Florida Green BMPs, while maintaining the health and function of their specialized turf areas;

(f) vegetable gardens owned by individual property owners or a community, and trees grown for their edible fruit.

Section 316.10. Training.

(a) Within the time period set forth in section 316.12 of this Chapter, all Commercial Fertilizer Applicators and Institutional Fertilizer Applicators within Indian River County shall abide by and successfully complete the six-hour training program in the "Florida-friendly Best

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Management Practices for Protection of Water Resources by the Green Industries” offered by the Florida Department of Environmental Protection through the University of Florida Extension “Florida-Friendly Landscapes” program, or an approved equivalent.

(b) Private, non-commercial applicators are encouraged to follow the recommendations of the University of Florida Institute of Food and Agriculture Sciences Florida Yards and Neighborhoods program when applying fertilizers.

Section 316.11. General education program.

The Public Works Department shall have an employee who shall address issues pertaining to this Chapter. This employee shall implement a program to inform the general public of the requirements of this chapter, which program shall include, among other things, informative postings on the County website, printing and distributing informative brochures and other print materials, and speaking engagements at community associations, civic organizations, etc. The program shall also include, to the extent practicable, use of any materials from the Be Floridian program and coordination and collaboration with University of Florida Institute of Food and Agriculture Sciences educational activities. Any claimed or alleged deficiency in the County’s general education program shall not constitute a defense to any action brought to enforce the provisions of this chapter.

Section 316.12. Licensing of commercial fertilizer applicators.

(a) No later than December 31, 2013, all Commercial Fertilizer Applicators within Indian River County, shall abide by and successfully complete training and continuing education requirements in the “Florida-friendly Best Management Practices for Protection of Water Resources by the Green Industries,” offered by the Florida Department of Environmental Protection through the University of Florida Institute of Food and Agriculture Sciences “Florida-friendly Landscapes” program, or an approved equivalent program, prior to obtaining an Indian River County Local Business Tax Certificate for any category of occupation which may apply any fertilizer to turf and/or landscape plants. Commercial Fertilizer Applicators shall provide proof of completion of the program to the Indian River County Tax Collector’s Office within 180 days of the effective date of this ordinance.

(b) After December 31, 2013, all Commercial Fertilizer Applicators within Indian River County shall have and carry in their possession at all times when applying fertilizer, evidence of certification by the Florida Department of Agriculture and Consumer Services as a Commercial Fertilizer Applicator per Rule 5E-14.117(18), Florida Administrative Code.

(c) All businesses applying fertilizer to turf and/or landscape plants (including but not limited to residential lawns, golf courses, commercial properties, and multi-family and condominium properties) must ensure that at least one employee has a “Florida-friendly Best Management Practices for Protection of Water Resources by the Green Industries” training certificate prior to the business owner obtaining a Local Business Tax Certificate. Owners for any category of

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occupation which may apply any fertilizer to turf and/or landscape plants shall provide proof of completion of the program to the Indian River County Tax Collector's Office.

Section 316.13. Enforcement.

This chapter may be enforced by the Code Enforcement Officer in the Public Works Department who is devoted to issues pertaining to this Chapter, pursuant to Chapter 162, Florida Statutes, and §103.07 of this Code. In addition, this chapter may be enforced by the Environmental Control Officer pursuant to Chapter 85-427, Special Acts, Laws of Florida, and §303.14 of this Code. Penalties and remedies for violations shall be as set forth in §100.05 of this Code, and, to the extent applicable, Chapter 85-427, Special Acts, Laws of Florida. Funds generated by penalties imposed under this section shall be used by Indian River County for the administration and enforcement of §403.9337, Florida Statutes, and the corresponding sections of this chapter, and to further water conservation and nonpoint pollution prevention activities.

Section 316.14. References to state law.

Any references in this chapter to Florida Statutes, rules or regulations shall refer to such statutes, rules or regulations, as amended from time to time.

Section 316.15. Applicability.

This chapter shall be applicable to and shall regulate any and all applicators of fertilizer and areas of application of fertilizer within the area of Indian River County, unless such applicator is specifically exempted; provided, however, that this chapter shall not apply within the limits of any municipality which has adopted an ordinance regulating the same subject matter. This chapter shall be prospective only, and shall not impair any existing contracts.

Section 4. Severability.

If any part of this ordinance is held to be invalid or unconstitutional by a court of competent jurisdiction, the remainder of this ordinance shall not be affected by such holding and shall remain in full force and effect.

Section 5. Codification.

It is the intention of the Board of County Commissioners that the provisions of this ordinance shall become and be made part of the Indian River County Code, and that the sections of this ordinance may be renumbered or re-lettered and the word ordinance may be changed to section, article or such other appropriate word or phrase in order to accomplish such intention.

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Section 6. Directing County Attorney's Office to Post Summary on County Website.

The County Attorney's Office is directed to post a summary of this ordinance on the County's website within 15 days of the filing of this ordinance with the Florida Department of State.

Section 7. Effective Date.

This ordinance shall become effective 45 days after the filing of the ordinance with the Florida Department of State.

This ordinance was advertised in the Vero Beach Press Journal, on the 8th day of July, 2013, for a public hearing to be held on the 18th day of July, 2013, and on the 10th day of August, 2013 for an additional public hearing to be held on the 20th day of August, 2013, at which time it was moved for adoption by Commissioner Solari, seconded by Commissioner O'Bryan, and adopted by the following vote:

Chairman Joseph E. Flescher	<u>AYE</u>
Vice Chairman Wesley S. Davis	<u>AYE</u>
Commissioner Peter D. O'Bryan	<u>AYE</u>
Commissioner Bob Solari	<u>AYE</u>
Commissioner Tim Zorc	<u>AYE</u>

The Chairman thereupon declared the ordinance duly passed and adopted this 20th day of August, 2013.



**BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA**

By: Joseph E. Flescher
Joseph E. Flescher, Chairman

Approved as to form and legal sufficiency:

ATTEST: Jeffrey R. Smith, Clerk of Court
and Comptroller

By: Jeffrey R. Smith
Deputy Clerk

Dylan Reingold
Dylan Reingold, County Attorney

EFFECTIVE DATE: This ordinance was filed with the Florida Department of State on the _____ day of _____, 2013.

ORDINANCE NO. 2013 - 014

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA CONCERNING THE FERTILIZER AND LANDSCAPE MANAGEMENT ORDINANCE, AMENDING SECTION 316.6 (FERTILIZER CONTENT AND APPLICATION RATES) AND SECTION 316.15 (APPLICABILITY) OF CHAPTER 316 (INDIAN RIVER COUNTY FERTILIZER AND LANDSCAPE MANAGEMENT ORDINANCE) OF THE CODE OF INDIAN RIVER COUNTY TO ALLOW FOR THE GRADUAL AMORTIZATION OF THE SUPPLY OF CERTAIN NITROGEN CONTAINING FERTILIZER AND APPLYING CHAPTER 316 TO UNINCORPORATED INDIAN RIVER COUNTY, AND MAKING FINDINGS AND PROVIDING FOR SEVERABILITY, CODIFICATION; AND AN EFFECTIVE DATE.

WHEREAS, the Board of County Commissioners adopted an ordinance regulating the proper use of fertilizers in order to protect the water quality of Indian River County's natural and constructed stormwater conveyances, rivers, creeks, canals, lakes, estuaries and other water bodies; and

WHEREAS, the new fertilizer regulations require that the nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label; and

WHEREAS, the new fertilizer regulations go into effect on October 14, 2013; and

WHEREAS, in order to provide adequate time for the supply of fertilizer containing nitrogen that does not comply with these regulations to be eliminated, it is necessary to provide additional time for retailers to eliminate those supplies that meet at least a minimum threshold of slow release nitrogen,

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF INDIAN RIVER COUNTY, FLORIDA, THAT:

Section 1. Enactment Authority.

Article VIII, §1 of the Florida Constitution and Chapter 125, Florida Statutes vest broad home rule powers in counties to enact ordinances, not inconsistent with general or special law, for the purpose of promoting the public health, safety and welfare of the residents of the county. The Board specifically determines that the enactment of this ordinance is consistent with general or special law, and is necessary and appropriate to promote the health, safety and welfare of the residents of Indian River County.

Section 2. Findings.

The Board finds that the above "Whereas" clauses are true and correct, and hereby incorporates such clauses as findings of the Board.

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Section 3. Amendment of Section 316.6 (Fertilizer content and application rates) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code of Indian River County (the "Code").

Section 316.6 (Fertilizer content and application rates) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code is hereby amended as follows:

Section 316.6. Fertilizer content and application rates.

(b) As of the effective date of this chapter, the The nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least ~~25~~50% slow release nitrogen per guaranteed analysis label. As of June 1, 2014, the nitrogen content of fertilizer applied to turf or landscape plants within Indian River County shall contain at least 50% slow release nitrogen per guaranteed analysis label.

Section 4. Amendment of Section 316.15 (Applicability) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code of Indian River County (the "Code").

Section 316.15 (Applicability) of Chapter 316 (Indian River County Fertilizer and Landscape Management Ordinance) of the Code is hereby amended as follows:

Section 316.15. Applicability.

This chapter shall be applicable to and shall regulate any and all applicators of fertilizer and areas of application of fertilizer within the unincorporated area of Indian River County, unless such applicator is specifically exempted; ~~provided, however, that this chapter shall not apply within the limits of any municipality which has adopted an ordinance regulating the same subject matter.~~ This chapter shall be prospective only, and shall not impair any existing contracts.

Section 5. Severability.

If any part of this ordinance is held to be invalid or unconstitutional by a court of competent jurisdiction, the remainder of this ordinance shall not be affected by such holding and shall remain in full force and effect.

Section 6. Codification.

It is the intention of the Board of County Commissioners that the provisions of this ordinance shall become and be made part of the Indian River County Code, and that the sections of this ordinance may be renumbered or re-lettered and the word ordinance may be changed to section, article or such other appropriate word or phrase in order to accomplish such intention.

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Section 7. Effective Date.

This ordinance shall become effective upon filing with the Florida Department of State.

This ordinance was advertised in the Vero Beach Press Journal, on the 16th day of September, 2013, for a public hearing to be held on the 1st day of October, 2013, at which time it was moved for adoption by Commissioner Solari, seconded by Commissioner O'Bryan, and adopted by the following vote:

Chairman Joseph E. Flescher	<u>Aye</u>
Vice Chairman Wesley S. Davis	<u>Aye</u>
Commissioner Peter D. O'Bryan	<u>Aye</u>
Commissioner Bob Solari	<u>Aye</u>
Commissioner Tim Zorc	<u>Aye</u>

The Chairman thereupon declared the ordinance duly passed and adopted this 1st day of October, 2013.



**BOARD OF COUNTY COMMISSIONERS
INDIAN RIVER COUNTY, FLORIDA**

By: Joseph E. Flescher
Joseph E. Flescher, Chairman

ATTEST: Jeffrey R. Smith, Clerk of Court
and Comptroller

Approved as to form and legal sufficiency:

By: Laura Allen
Deputy Clerk

Dylan Reingold
Dylan Reingold, County Attorney

EFFECTIVE DATE: This ordinance was filed with the Florida Department of State on the ____ day of _____, 2013.

APPENDIX C

INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION

SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION



INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION SPECIAL CONDITIONS FOR RIGHT-OF-WAY CONSTRUCTION

SPECIAL CONDITIONS:

1. All work performed under this permit shall be in accordance with the Florida Department of Transportation Design Standards (<https://www.fdot.gov/design/standardplans/current/default.shtm>), Indices 102-600 and the Manual on Uniform Traffic Control Devices.
2. All special conditions listed are in addition to the attached Indian River County Traffic Engineering Regulations for Maintenance of Traffic.
3. It shall be the contractor's responsibility to contact Sunshine State One Call System (1-800-432-4770) at least 72 hours in advance of commencing construction work to coordinate traffic control and obtain locations of underground traffic signal conduit for the County's Computerized Traffic Signal Coordination System.
4. The contractor shall be responsible for using the applicable Traffic Control Plan for the type of work being performed. All job supervisors shall have a copy of the control plan on site at all times and shall be familiar with the correct set-up of the plan.
5. At least one lane of traffic shall be maintained at all times. One-lane traffic shall be controlled with at least two (2) flagmen. Flagmen shall use STOP/SLOW paddles at all times. Flags shall not be used for one-lane traffic control.
6. **After proper notification to Traffic Engineering**, consideration will be given to the contractor to close roadways to through traffic on a daily basis during daylight hours on narrow roadways where maintaining one-lane traffic would be difficult. The roadway shall be open to traffic at the end of each work day and on weekends. It shall be the contractor's responsibility to provide all necessary construction signs and traffic control devices to close the road and provide a detour route in accordance with Indian River County standards. Signing shall be installed that clearly indicates the time periods the road is closed to traffic.
7. There shall be no construction work after dark.
8. All open excavations shall be back filled before the close of each work day.
9. A compacted roadway shall be provided at the end of each work day. Disrupted roadways shall be clearly marked as a construction area.
10. Refer to the attached Traffic Engineering Regulations for construction work on Indian River County roadways for maintenance of traffic inspection policy and procedure
11. All construction equipment, materials, etc. shall be stored outside of the clear zone. Equipment and construction materials that are stored within the clear zone shall be clearly marked with Type II barricades with flashing yellow lights.
12. All projects and work within Indian River County right-of-way shall have an approved Traffic Control Plan (TCP). All work shall be executed under the established TCP and Indian River County approved procedures. The TCP shall provide the proposed detour route, traffic control devices, and other pertinent information for the proposed project and shall be submitted for review and approval by the Public Works Department.
The TCP shall be prepared by personnel with a minimum of an Intermediate Maintenance of Traffic current certification in the State of Florida. (Denote on the TCP, certification number and name of the certified personnel that prepared the MOT plan.)
For full road closures, a TCP is required to be submitted by the contractor a minimum of two (2) weeks prior to the proposed road closure.

All traffic control devices shall be in accordance with the Florida Department of Transportation (FDOT) Design Standards, Indices 102-600, FY 2019-2020, and the Manual on Uniform Traffic Control Devices, 2009 Edition.
13. For full road closures, Portable Changeable Message Signs are required to pre-advertise the roadway closure, a minimum of seven (7) days in advance of the road closure and during the duration of the road closure. The use of Portable Changeable Message Signs for lane closures on thoroughfare plan roadways will be required. Messages are to be approved by the Public Works Department and shown on the TCP.

TRAFFIC ENGINEERING REGULATIONS

Maintenance and Protection of Traffic:

It shall be the responsibility of the contractor to provide for the maintenance and protection of traffic in accordance with the applicable indices in the most current edition of the Florida Department of Transportation Roadway and Traffic Design Standards and the Federal Highway Administration Manual on Uniform Traffic Control Devices. The indices shall be considered the minimum standards and a

Special Conditions for Right of Way Construction

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more extensive work zone set-up or modifications may be required by the County Public Work Director or his designee for the protection of personnel in the work area as well as the traveling public.

It shall be the responsibility of the contractor to ensure that all subcontractors are in full compliance with all traffic control regulations. It shall be the responsibility of the contractor working on County roadways or within Right-of-Ways to establish maintenance of traffic prior to any work being performed. The contractor shall frequently monitor the work zone set-up to ensure that all signing is properly placed and that warning signs remain at the proper advance posting distance from the work area. Any signs that do not apply to the work zone shall be removed or covered. The contractor shall remove the work zone set-up at the conclusion of the work.

Traffic Engineering shall be notified a minimum of seventy-two (72) hours in advance of any lane closings and ten (10) days in advance of any road closures.

Lane closures are restricted to outside the normal peak hours of traffic, lane closures shall occur during the hours of 9:00 AM to 4:00 PM unless otherwise approved by the Public Works Director or his designee.

Traffic Engineering staff shall inspect the Maintenance of Traffic prior to construction commencement to ensure compliance with the approved Traffic Control Plan.

It is the policy of the Traffic Engineering Division to randomly monitor the contractor's compliance with all regulations while working on County roadways and within right-of-ways. Matters of public safety shall be attended to immediately upon notification by the County Public Work Director or his designee.

If the contractor is found to be negligent in maintaining proper work zone set-up in accordance with the County's Right-of-Way ordinance (Chapter 312), the County Public Work Director or his designee shall impose penalties in the amount of \$250.00 for working without the proper traffic control.

Construction at or Near Signalized Intersections:

The contractor shall have full responsibility for any work performed at or near any traffic signals in Indian River County. The contractor shall request that the County locate buried interconnect conduit and cable, loop sensors, and pull boxes prior to commencing construction. Any damage to the interconnect conduit, loop sensors, and pull boxes or any other traffic signal equipment shall be repaired at the contractor's expense. It shall be the responsibility of the contractor to notify Traffic Engineering Division a minimum of 72 hours prior to any work being performed near a signalized intersection or flashing beacon.

Once the proper notification and locate procedures are satisfied, the contractor working in or near signalized intersections or around traffic signal poles, signal cabinets, or flashing beacons shall be advised of the following regulations:

1. No excavation shall be performed within a 15-foot radius of any traffic signal pole. If excavation is necessary within a 15-foot radius, it will be the contractor's responsibility to provide the following:
 - a. In a manner approved by the County Public Works Director or his designee, the contractor shall provide constant support of the traffic signal pole to prevent movement during excavation and backfill operations.
 - b. Compaction around the excavation site to a 98% density, bringing the backfill up in 1 foot lifts.
 - c. Density reports from a licensed testing company provided to the County Public Works Director.
 - d. Restore the traffic signal and all support equipment to original condition or better.
2. There shall be no pavement cuts made within 500 feet of a signal or flashing beacon without contacting Indian River County Traffic Engineering Division at (772-226-1547), 72 hours prior to construction.
3. Any traffic signal, loop sensors, conduit, interconnect cable, or any support equipment damaged by a contractor shall be repaired/replaced at the contractor's expense.
4. Any contractor that works at or in the vicinity of a signalized intersection shall have full responsibility for any liability incurred by causing damage to signal equipment that results in the failure of the traffic signal functions. If such a failure occurs, the contractor shall notify the police and the Traffic Engineering Division immediately at (772-226-1547).

APPENDIX D

Subsurface Soil Exploration and Geotechnical Engineering Evaluation

**INCLUDED IN ARCHITECTURAL
PROJECT MANUAL, DIVISION 2 – SITE
CONSTRUCTION, Section 02000**