INDIAN RIVER COUNTY

BOARD OF COUNTY COMMISSIONERS

Solid Waste Disposal District

IRC Household Hazardous Waste & Recycling Facility

Indian River County Bid No: 2022011

INDIAN RIVER COUNTY Bid 2022011

IRC Household Hazardous Waste & Recycling Facility

INDEX

ADVERTISEMENT FOR BIDS
INDIAN RIVER COUNTY

Sealed bids will be received by Indian River County until **2:00 P.M.** on **WEDNESDAY, DECEMBER 1, 2021**. Each bid shall be submitted in a sealed envelope and shall bear the name and address of the bidder and the words "**Bid 2022011 IRC Household Hazardous Waste & Recycling Facility"** on the outside. Bids should be addressed to Purchasing Division, 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 P.M., on the day specified above, will not be accepted, opened or considered.

All material and equipment furnished and all work performed shall be in strict accordance with the plans, specifications, and contract documents pertaining thereto. Copies of the documents are available at: www.demandstar.com or by selecting "Current Solicitations" at http://www.ircgov.com/Departments/Budget/Purchasing. All other communications concerning this bid shall be directed to IRC Purchasing Division at purchasing@ircgov.com.

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 ***NON-MANDATORY*** Pre-Bid Conference will be held on **FRIDAY, OCTOBER 22, 2021 at 1:00 P.M.**, on site at 1325 74th Ave SW, Vero Beach, Florida, 32968. ***ATTENDANCE AT THIS CONFERENCE IS HIGHLY ENCOURAGED.*** Additional site visits may not be accommodated.

INDIAN RIVER COUNTY

By: Jennifer Hyde
Purchasing Manager

For Publication in the Indian River Press Journal (Bids and Proposals Section)
Date: Friday, October 8, 2021

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 00100
INSTRUCTIONS TO BIDDERS
(Based Upon EJCDC No. C-700, 2002 Edition)

1.01 DEFINED TERMS

Terms used in these Instructions to Bidders, that are defined in the Standard General Conditions of the Construction Contract (No.C-700, 2002 edition), as may be amended by the Supplementary Conditions, have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a bid directly to Owner, as distinct from a sub-bidder, who submits a bid to a Bidder. The term "Successful Bidder" means the lowest, responsible, and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Advertisement for Bids, Instructions to Bidders, Bid Form, Sworn Statement Under the Florida Trench Safety Act, Statement Under Section 105.08 and Certification Regarding Scrutinized Companies, General Information Required of Bidders, and the proposed Agreement.

1.02 COPIES OF BIDDING DOCUMENTS

A. Copies of the Bid Documents and specifications containing the necessary contract documents are available at: www.demandstar.com or by selecting “current solicitations” at http://www.ircgov.com/Departments/Budget/Purchasing.

B. Complete sets of Bid 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 Bid Documents.

C. Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids on the work and do not confer a license or grant for any other use of the Bidding Documents.

1.03 QUALIFICATIONS OF BIDDERS

To demonstrate qualifications to perform the work, each Bidder must be prepared to submit, within 5 days of Owner's request, written evidence, such as financial data, previous experience, present commitments, and other such data as may be necessary to prove to the satisfaction of the Owner that the Bidder is qualified by experience to do the work and is prepared to complete the work within the stated time period.

A. Bidder must have and demonstrate at least ten (10) 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 in the past 10 years that are similar in scope and size 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.
F. 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 responsible for obtaining proof of E-Verify

registration for all subcontractors. This requirement applies to any provider of services or goods.

1.04 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. It is the responsibility of each Bidder, before submitting a bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the work, (c) consider federal, state, and local laws and regulations that may affect costs, progress, performance, or furnishing of the work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors, or discrepancies in the Contract Documents.

B. Any information or data reflected in the Contract Documents with respect to underground facilities at or contiguous to the site is based upon information or data furnished to Owner and Engineer by owners of such underground facilities or others, Owner does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

C. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any examinations, investigations, explorations, tests, and studies, and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the work and which Bidder deems necessary to determine its Bid for performing and furnishing the work in accordance with the time, price and other terms and conditions of the Contract Documents.

D. On request in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up, and restore the site to its former condition upon completion of such explorations.

E. The lands upon which the work is to be performed, right-of-way and easements for access thereto and other lands designed for use by the Contractor in performing the work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by and paid for by the Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the Owner unless otherwise provided in the Contract Documents.

F. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of the Instructions to Bidders, that without exception the Bid is premised upon performing and furnishing the work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the work.

1.05 PRE-BID CONFERENCE

The date, time, and location for a Pre-Bid conference, if any, is specified in the Advertisement for Bids. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are strongly encouraged to attend and participate in the conference and site visit. OWNER 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.

1.06 INTERPRETATIONS AND ADDENDA

A. **All questions about the meanings or intent of the Contract Documents are to be directed in writing to the Purchasing Department** by email to purchasing@ircgov.com. Interpretation or clarifications considered necessary by Owner in response to such questions will be issued by Addenda. Questions received less than **ten (10) days** prior to the date for the opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will not be binding and will be without legal effect.

B. Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer. Only the interpretation or correction issued by Owner or Engineer by Addendum shall be binding. Prospective Bidders are advised that no other source is authorized to give information concerning the documents or to explain or interpret the documents.

C. All Bidders will acknowledge in the space provided for in Section 00310 BID FORM, the receipt of all Addenda and will confirm that the Addenda have been considered in the preparations of their proposal.

1.07 BID SECURITY

A. Each Bid must be accompanied by Bid Security made payable to Owner in an amount of not less than five percent of the Bidder's total bid price and in the form of a certified check; cashier’s check drawn on any bank authorized to do business in the state of Florida; or an AIA Document A310 Bid Bond issued by a surety meeting the requirements of Paragraph 5.01B of the General Conditions as may be supplemented in the Supplementary Conditions.

B. The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Public Construction Bond, and Insurance Certificates whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required Public Construction Bond and required insurance certificates within fifteen calendar 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 County.

C. The Bid Security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by the Owner until the earlier of the seventh (7^{th}) day after the effective date of the Agreement or the ninety-first (91^{st}) day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with bids which are not competitive may be returned before the end of the ninety-day (90) period.

1.08 CONTRACT TIME

The number of days within which, or dates by which, the work is to be substantially completed and also complete and ready for final payment (the Contract Time) are set forth in the Agreement (Section 00530).

1.09 LIQUIDATED DAMAGES

Provisions for liquidated damages, if any, are set forth in the Agreement (Section 00530).

1.10 SUBSTITUTE OR "OR EQUAL" ITEMS

The Agreement, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by Bidder 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 Bidder and consideration by Engineer is set forth in Paragraph 6.05 of the General Conditions as may be supplemented in the Supplementary Conditions.

1.11 BID FORM

A. The Bid Form is included with the Bidding Documents. Only the bid form provided by OWNER is acceptable.

B. All blanks on the Bid Form must be completed in ink or by typewriter. 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.

C. Bids by corporations must be physically executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature. All names must be typed or printed below the signature.

D. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

E. Bids by partnership must be executed in the partnership name and signed by a partner, whose title must appear under the signature, and official address of the partnership must be shown below the signature.

F. All names must be typed or printed below the signature.

G. The address and telephone number for communications regarding the Bid must be shown.

H. 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.

I. Additional forms to be submitted with Bid Form include: Section 00410 – "AIA Document A310 Bid Bond"; Section 00452 – "Disclosure of Relationships"; Section 00456 – "General Information Required of Bidders"; Section 00454 - "Trench Safety Act Compliance Statement"; Section 00431 - Schedule of Subcontractors; and Section 00432- "Certification Regarding Prohibition against Contracting with Scrutinized Companies."

1.12 SUBMISSION OF BIDS

A. All Bids shall be submitted at the time and place indicated in the Advertisement for Bids and shall be enclosed in an opaque sealed envelope, clearly marked on the outside with the following information: Project Name/Title; Bid Number; and the name and address of the Bidder. If the Bid is sent through the mail, overnight delivery system, or courier, the sealed envelope, marked as set forth above, shall be enclosed in a separate outer envelope with the notation "BID ENCLOSED" on the outside.

B. The Bidder shall submit the Bid in duplicate (one original and one copy) on the Bid Forms furnished herewith. The blank spaces on the Bid Form shall be filled in correctly for each Bid Item for which a Bid is submitted. Bid form shall not be recreated by Bidders. Any recreation or modification to the Bid Form will result in disqualification. All Bids shall be accompanied by the Bid Security and other required documents.

1.13 MODIFICATION AND WITHDRAWAL OF BIDS

A. Bids 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 at any time prior to the opening of Bids.

B. If within 24 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.

1.14 OPENING OF BIDS

Bids will be opened and (unless obviously non-responsive) read aloud publicly. An abstract of the amounts of base Bids and major alternates (if any) will be made available after the opening of Bids.

1.15 BIDS TO REMAIN SUBJECT OF ACCEPTANCE

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.

1.16 AWARD OF CONTRACT

A. Owner reserves the right: to reject any and all Bids in whole or in part with or without cause; to waive any and all technicalities and informalities not involving price, time, or changes in the work; to negotiate contract terms with the Successful Bidder; to disregard all non-conforming, non-responsive, unbalanced, or conditional Bids; and to accept the bid that, in its judgment, will serve the best interest of Indian River County. Discrepancies in 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. Owner reserves the right to cancel the award of any Agreement at any time before the execution of such Agreement 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. The County will not reimburse any Bidder for bid preparation costs.

B. In evaluating Bids, Owner will consider the qualifications of the Bidder, 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 prior to the Notice of Award.

C. Owner may consider the qualifications and experience of subcontractors listed on the Schedule of Subcontractors (Section 00431), together with the qualifications and experience of other subcontractors, suppliers, and other persons and organizations proposed for the work that are required to be identified as provided in the Supplementary Conditions. Owner may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the work when such data is required to be submitted prior to the Notice of Award.

D. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and establish the responsibility, qualifications, and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

E. If the Agreement is to be awarded, it will be awarded to the lowest, responsive, responsible Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Owner.

F. If the Agreement is to be awarded, Owner will give the Successful Bidder a Notice of Award within ninety days after the day of the Bid opening.

G. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. Reasonable grounds for believing that one Bidder is financially interested in more than one bid for the same work will cause the rejection of all Bids in which such Bidders are believed to be interested. Any or all Bids will be rejected if there is reason to believe that collusion exists among the Bidders, and no participants in such collusion will be considered in future Bids for the same work.

H. Within fifteen (15) calendar days of the date of the Notice of Award of the Contract, the Bidder to whom the Contract is awarded shall execute and deliver two (2) original

Contracts to the Owner and all required insurance certificates and public construction bond, before the Contract will be executed by the Owner.

I. Failure upon the part of the Bidder to whom the Contract has been awarded to execute and deliver the required Public Construction Bond and insurance in the manner and within the time provided shall be just cause for cancellation of the award. It is understood and agreed by said Bidder, that if the award is cancelled for the above persons, the certified check, cashier's check or Bid Bond shall become the property of the Owner, not as a penalty, but as liquidated damages.

1.17 PUBLIC CONSTRUCTION BONDS

The successful Bidder as Contractor shall furnish the County a Public Construction Bond in an amount equal to 100-percent of the contract price. The Surety shall be authorized to issue surety bonds in Florida and be included in the most recent United States Department of Treasury List of Acceptable Sureties. The successful Bidder shall require the attorney-in-fact, who executed the Public Construction 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 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.

1.18 PUBLIC DISCLOSURE STATEMENT

Any entity entering into a contract with Indian River County as Owner shall disclose any relationship that may exist between the contracting entity and an Indian River County Commissioner or Indian River County employee. The relationship with either 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, 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.

1.19 FLORIDA PRODUCED LUMBER

The selected Bidder as Contractor agrees to comply with the provisions of Section 255.20, Florida Statutes, as such statute may be amended from time to time, wherein Indian River County as Owner must specify lumber, timber and other forest products produced and manufactured in Florida whenever such products are available and their price, fitness and quality are equal.

1.20 TRENCH SAFETY

Florida Statutes Section 553.60 through 553.64, known as the "Trench Safety Act" requires all contractors engaged by Indian River County, Florida to comply with Occupational Safety and Health Administration's excavation safety standard, found in 29 C.F.R. s. 1926.650 Subpart P. All prospective subcontractors are required to sign a Trench Safety Act Compliance Statement and provide compliance cost information where indicated. The costs for complying with the Trench Safety Act must be incorporated into the Bid.

1.21 PUBLIC ENTITY CRIME STATEMENT

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.

1.22 CERTIFICATION REGARDING SCRUTINIZED COMPANIES

Contractor certifies that it and those related entities of respondent as defined above by Florida law above 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 those related entities of respondent 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.

County may terminate this Contract if Company 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.

County may terminate this Contract if Company, 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 will result in the response being deemed non-responsive and eliminated from consideration.

1.23 PERMITS, IMPACT, AND INSPECTION FEES.

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 AS SET FORTH IN THE CONTRACT. The Bidder shall not include ANY PERMIT, IMPACT, OR INSPECTION FEES payable to Indian River County in their bid. No other permitting agencies are anticipated to be involved in this project.

1.24 NON-DISCRIMINATION

Indian River County will not knowingly do business with vendors or contractors who discriminate on the basis of race, color or national origin, sex, sexual orientation, gender identity, age and/or disability. Through the course of providing services to the County, Contractors shall affirmatively comply with all applicable provisions of Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987 and the Florida Civil Rights Act of 1992, as well as all other applicable regulations, guidelines and standards. Any person who believes their rights have been violated should report such discrimination to the County's Title VI/Nondiscrimination Coordinator through the office of the County Attorney.

1.25 LOCAL PREFERENCE

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.

1.26 PROTEST PROCEDURE

Any actual or prospective bidder who is aggrieved in connection with a competitive selection process may protest to the Purchasing Manager. The protest shall be submitted to the Purchasing Manager in writing within seven (7) calendar days after the bidder knows or should have known of the facts giving rise to the protest. If the protest is not resolved by mutual agreement, the Purchasing Manager shall promptly issue a decision in writing, after consulting the applicable Department and the Office of the County Attorney.

1.27 CONE OF SILENCE

Potential bidders/respondents and their agents must not communicate in any way with the Board of County Commissioners, County Administrator, Engineer(s) or any County staff other than Purchasing personnel in reference or relation to this solicitation. This restriction is effective from the time of bid advertisement until the Board of County Commissioners meets to authorize award. Such communication may result in disqualification.

END OF SECTION

SECTION 00310
BID FORM
IRC Household Hazardous Waste &
Recycling Facility
Bid 2022011

THIS BID IS SUBMITTED TO: **Indian River County Purchasing Division**
1800 27th Street
Vero Beach, FL 32960

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in the Contract Documents and in accordance with the other terms and conditions of the Contract Documents.

2. Bidder accepts all of the terms and conditions of the Advertisement for Bids and Instructions to Bidders. This Bid will remain subject to acceptance for **ninety (90) days** after the day of Bid opening. Bidder will sign and submit the Agreement with the insurance and other documents required by the Owner within fifteen (15) days after the date of Owner's Notice of Award.

3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

   (a) Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged):

Date	Number

   (b) Bidder has familiarized itself with the nature and extent of the Contract Documents, the work, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or finishing of the work.

   (a) Bidder acknowledges and agrees that it is bidding on construction of improvements at the Indian River County Landfill. Please refer to the specifications and construction drawings labeled: IRC Household Hazardous Waste & Recycling Facility.

   (b) Bidders are notified that the estimates of the quantities of the various items of Work and materials as set forth in the Bid Proposal (Schedule of Bid Items) are approximate only and are given solely to be used as a uniform basis for the comparison of Bids. The quantities actually required to complete the Project 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.

   (c) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation 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 person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

4. Bidder will complete and include with the bid the Bid Proposal (Schedule of Bid Items) attached to this Bid Form. The quantities shown on the Bid Proposal Schedule of Bid Items) are approximate quantities. The actual quantities may vary.

5. The following documents are attached to and made a part of this Bid:

   (a) Bid Form (Section 00310);
   (b) Schedule of Subcontractors (Section 00431);
   (c) Certification Regarding Prohibition Against Contracting with Scrutinized Companies (Section 00432)
   (d) Disclosure of Relationships (Section 00452);
   (e) Sworn Statement Under the Florida Trench Safety Act (Section 00454);
   (f) General Information Required of Bidders (Section 00456);
   (g) A current certificate of insurance evidencing coverages and limits in the amounts required by the Contract Documents.

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SCHEDULE A

SCHEDULE OF BID ITEMS

BID NUMBER 2022011

PROJECT IDENTIFICATION: IRC Household Hazardous Waste & Recycling Facility

THIS BID IS SUBMITTED TO: **INDIAN RIVER COUNTY PURCHASING DIVISION**

1800 27th STREET

VERO BEACH, FLORIDA 32960

BY: _____

Company Name

Bid Item No.	Item of Work	Unit of Measure	Unit Price	Quantity	Bid Item Total
SITE WORK					
1	REGULAR EXCAVATION	CY	$	1200	$
2	CLEARING AND GRUBBING	AC	$	9	$
3	UTILITY PIPE, REMOVE & DISPOSE, 8-19.9"	LF	$	750	$
4	UTILITY PIPE- HIGH DENSITY POLYETHYLENE, FURNISH & INSTALL, WATER/SEWER, 2"	LF	$	150	$
5	UTILITY PIPE- DUCTILE IRON/CAST IRON, FURNISH & INSTALL, WATER/SEWER, 6"	LF	$	85	$
6	UTILITY FIXTURE, VALVE/METER BOX, FURNISH & INSTALL, 2"	Each	$	2	$
7	UTILITY FIXTURE- BACKFLOW ASSEMBLY, FURNISH & INSTALL, 2" (R.P.Z.)	Each	$	1	$
8	UTILITY FIXTURE- BACKFLOW ASSEMBLY, FURNISH & INSTALL, 6" (D.D.C.V.)	Each	$	1	$
9	UTILITY FIXTURE, VALVE ASSEMBLY, FURNISH AND INSTALL, 6"	Each	$	2	$
10	UTILITY FIXTURE, PLUG VALVE, FURNISH AND INSTALL 6"	Each	$	1	$

Bid Item No.	Item of Work	Unit of Measure	Unit Price	Quantity	Bid Item Total
11	UTILITY PIPE- DUCTILE IRON/CAST IRON, FURNISH & INSTALL, WATER/SEWER, 6"	LF	$	130	$
12	INLETS, DT BOT, TYPE C, <10'	Each	$	8	$
13	INLETS, CURB, TYPE 9, <10'	Each	$	2	$
14	PIPE CULVERT, OPTIONAL MATERIAL, ROUND, 18" SD	LF	$	800	$
15	UTILITY FIXTURE- TAPPING SADDLE/SLEEVE, FURNISH & INSTALL, 2"	Each	$	2	$
16	TYPE B STABILIZATION	SY	$	8100	$
17	6” LIMEROCK BASE	SY	$	1600	$
18	10” LIMEROCK BASE	SY	$	6500	$
19	SUPERPAVE ASPHALTIC CONC, TRAFFIC C	TN	$	1026	$
20	CONCRETE SIDEWALK AND DRIVEWAYS, 4" THICK	SY	$	290	$
21	CONCRETE SIDEWALK AND DRIVEWAYS, 6" THICK	SY	$	425	$
22	CONCRETE CURB, TYPE D	SY	$	73	
23	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	Each	$	15	$
24	PROFILED THERMOPLASTIC, STANDARD- CONCRETE SURFACES, WHITE, SOLID,6"	GM	$	0.15	$
25	PROFILED THERMOPLASTIC, STANDARD- ASPHALT SURFACES, YELLOW, SOLID, 6"	GM	$	0.5	$
26	THERMOPLASTIC, STANDARD, WHITE, SOLID, 12" FOR CROSSWALK AND ROUNDABOUT	LF	$	215	$
27	THERMOPLASTIC, STANDARD, WHITE, SOLID, 18" FOR DIAGONALS AND CHEVRONS	LF	$	200	$
28	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF	$	150	$
29	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE	LF	$	200	$
30	THERMOPLASTIC, STANDARD, WHITE, ARROW	Each	$	5	$
31	THERMOPLASTIC, STANDARD, WHITE, MESSAGE OR SYMBOL	Each	$	6	$

Bid Item No.	Item of Work	Unit of Measure	Unit Price	Quantity	Bid Item Total
32	RELOCATE TREES AND PALMS, PALM, >=14' OF CLEAR TRUNK	Each	$	7	$
33	RELOCATE TREES AND PALMS, PALM, <14' OF CLEAR TRUNK	Each	$	9	$
34	PERFORMANCE TURF, SOD	SY	$	7750	$
35	INSTALL NEW PLANTINGS	LS	$	1	$
36	LANDSCAPE IRRIGATION SYSTEM	LS	$	1	$
37	FURNISH & INSTALL RAINWATER CISTERN	LS	$	1	$
BUILDING					
38	EXCAVATION AND BACKFILL	LS	$	1	$
39	STRUCTURAL CONCRETE, IN PLACE, SPREAD FOOTING, INCLUDES FORMS, REBAR, CONCRETE, PLACING AND FINISHING	LS	$	1	$
40	STRUCTURAL CONCRETE, IN PLACE, RETAINING WALL INCLUDES FORMS, REBAR, CONCRETE, PLACING AND FINISHING	LS	$	1	$
41	STRUCTURAL CONCRETE, IN PLACE, SLAB ON GRADE, 8" THICK, INCLUDES CONCRETE, PLACING AND BROOM FINISH, NOT INCLUDING FORMS AND REINFORCING	SF	$	35000	$
42	REINFORCING STEEL, IN PLACE, SLAB ON GRADE, #3 TO #7, A615, GRADE 60, INCL LABOR ACCESSORIES, EXCL MATERIAL FOR ACCESSORIES	TON	$	50	$
43	C.I.P. CONCRETE FORMS, SLAB ON GRADE, DEPRESSED, EDGE, WOOD, UP TO 12" HIGH, 4 USE, INCLUDES ERECTING, BRACING, STRIPPING AND CLEANING - CONCRETE FORMING	LF	$	1000	$
44	MISC. CONCRETE (ONLY AS NOT INCLUDED ABOVE)	LS	$	1	$
45	MASONRY	LS	$	1	$
46	PRE-ENGINEERED METAL BUILDING (PEMB)	LS	$	1	$
47	STEEL (OTHER THAN PEMB)	LS	$	1	$

Bid Item No.	Item of Work	Unit of Measure	Unit Price	Quantity	Bid Item Total
48	OVERHEAD DOORS	LS	$	1	$
49	METAL STUDS AND DRY WALL	LS	$	1	$
50	CARPENTRY	LS	$	1	$
51	MILLWORK	LS	$	1	$
52	PAINTING AND INTERIOR FINISHES	LS	$	1	$
53	PLUMBING	LS	$	1	$
54	ELECTRICAL	LS	$	1	$
55	MECHANICAL	LS	$	1	$
56	FIRE PROTECTION	LS	$	1	$
57	FURNISH & INSTALL OVERHEAD FANS	EA	$	7	$
MISCELLANEOUS					
58	BONDS AND INSURANCE	LS	$	1	$
59	MOBILIZATION	LS	$	1	$
60	GENERAL CONDITIONS	LS	$	1	$
61	MAINTENANCE OF TRAFFIC	LS	$	1	$
				Subtotal (Base Bid):	$
				10% Contingency Allowance (10% of Base Bid):	$
				Total Base Bid with Contingency (Base Bid + Contingency):	$
Total Base Bid Amount in Words:					
Additive Alternate Bid Items					
ALT-1	INSTALL OWNER-PROVIDED VERTICAL BALER	LS	$	1	$
ALT-2	INSTALL OWNER-PROVIDED HORIZONTAL BALER	LS	$	1	$
ALT-3	INSTALL OWNER-PROVIDED HARD MOUNTED GENERATOR	LS	$	1	$
ALT-4	INSTALL OWNER-PROVIDED PALLETIZER	LS	$	1	$
ALT-5	INSTALL OWNER-PROVIDED STYROFOAM MACHINE	LS	$	1	$
				Subtotal (Add/Alt):	$
				Grand Total (Base Bid + Contingency + Add/Alt):	$

The undersigned hereby certifies that they have read and understand the contents of this solicitation and agrees to furnish at the prices shown any or all of the items above, subject to all instructions, conditions, specifications and attachments hereto. Failure to have read all the provisions of this solicitation shall not be cause to: 1) alter any resulting contract; or 2) request additional compensation.

SUBMITTED on _____, 20____.

_____	_____
Name of Firm	Address
_____	_____
Authorized Signature	City, State, Zip Code
_____	(_____)_____-_____
Title	Phone
_____	
Date Signed	(Corporate Seal)

E-mail: _____

Business Tax Receipt No. _____

FEIN Number: _____

State Contractor License No. _____

All bid prices are inclusive of excavation, disposal, bedding material, backfill, trench restoration, temporary and/or permanent asphalt, temporary markings, testing, surveying, material, labor, overhead, and profit unless otherwise noted. Drainage Structures include frame and grate and removal of existing structures and associated pipes. Pay items which have alternative construction details for use at the engineer's discretion shall be paid solely based upon the actual quantities required and the contractor shall be responsible to furnish reasonable proof such as receipts, disposal tickets, manifests, etc. as backup for pay applications. Tree planting includes bracing and/or guying (refer to plans for tree size). Any work on the Construction Plans not listed as a pay item above shall be considered incidental to the project work and the cost of such included in the appropriate pay items. Payment for this project will be based upon completion of the entire project as a unit price contract, in accordance with the Project Manual.

SECTION 00410

AIA DOCUMENT A310 BID BOND

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

END OF SECTION

SECTION 00431

SCHEDULE OF SUBCONTRACTORS
(This form MUST be submitted with each bid)

PLEASE LIST ALL SUBCONTRACTORS ANTICIPATED TO RECEIVE $10,000 (TEN THOUSAND DOLLARS) OR MORE OF WORK UNDER THIS PROJECT, INCLUDING NAME; ADDRESS; SPECIALTY; AND LICENSE TYPE AND NUMBER. The following are the subcontractors to be used if the undersigned is awarded the contract for this project.

NAME & ADDRESS	TYPE OF WORK	LICENSE #

Total dollar amount that will be awarded to Sub-contractors AND INCLUDED IN THE TOTAL AMOUNT OF THE BID $_____

NOTE: The above Schedule of Subcontractors must be submitted with the Bid Form and will become a part of the Contract Documents.

END OF SECTION

SECTION 00432

CERTIFICATION REGARDING PROHIBITION AGAINST CONTRACTING WITH SCRUTINIZED COMPANIES

This form must be submitted with each bid.

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 Bidder:_____

By:_____
(Authorized Signature)

Title:_____

Date:_____

SECTION 00452

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 No. 2022011

for IRC Household Hazardous Waste & Recycling Facility

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 Bid No. 2022011 for
   IRC Household Hazardous Waste & Recycling 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 Statue(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

GENERAL INFORMATION REQUIRED OF BIDDERS

The undersigned Bidder guarantees the truth and accuracy of all statements and answers herein contained. Failure to comply with these requirements may be considered sufficient justification to disqualify a Bidder. Additional sheets shall be attached as required.

Documentation Submitted with Indian River County Bid No: 2022011 for the IRC Household Hazardous Waste & Recycling Facility

1. How many years has your organization been in business as a General Contractor?

   _____

2. Describe and give the date and owner of the last project that you have completed similar in type, size, and nature as the one proposed?

   _____

   _____

   _____

3. Have you ever failed to complete work awarded to you? If so, where and why?

   _____

4. Provide the name, title, and contact information, including email address and phone numbers, of three individuals or corporations for which you have performed similar work that Indian River County may contact for a reference:

   _____

   _____

   _____

5. Name of person who inspected site or proposed work for your firm:

   Name: _____ Date of Inspections: _____

   Describe any anticipated problems with the site and your proposed solutions:

   _____

   _____

   _____

6. Will you Subcontract any part of this Work? If so, describe which portions:

_____

_____

7. What equipment do you own that is available for the work?

_____

_____

_____

8. What equipment will you purchase for the work?

_____

_____

9. What equipment will you rent for the work?

_____

_____

10. Florida General Contractor's License No: _____

11. The following is given as a summary of the Financial Statement of the undersigned: (List Assets and Liabilities and use insert sheet if necessary.)

_____

_____

_____

12. List the names and titles of **ALL** officers of Contractor's firm:

_____ _____

_____ _____

_____ _____

_____ _____

13. State the true and exact, correct, and complete name under which you do business. BIDDER is:

_____

14. State your total bonding capacity:

_____

15. State your bonding capacity per job.

_____

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

_____

17. List all ligation cases during the past three (3) years in which the Contractor has been a named party. Use additional sheets, as necessary.

Year filed	Case number	Venue	Description

18. List at least three references from projects similar in size and scope or larger from the past 10 years.

Owner	Project Name	Contact name, phone and email	Description

END OF SECTION

SECTION 00530 – EJCDC STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR ON THE BASIS OF A STIPULATED PRICE
IRC Household Hazardous Waste & Recycling Facility

THIS AGREEMENT ("Agreement" or "Contract"), dated the _____day of _____in the year 2021 by and between Indian River County, a political subdivision 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

CONTRACTOR as an independent contractor and not as an employee shall furnish and complete all of the necessary labor, material, and equipment to perform the work as specified or indicated in the Contract Documents and per Indian River County standards. The work is generally described as follows:

Furnish all labor and materials necessary to construct the improvements to the existing Indian River County Landfill in Indian River County, Florida, including the following but not limited to the work listed herein: Erection of a new Household Hazardous Waste & Recycling Facility building, site preparation, demolition, drainage improvements, paving, grading, water line installation, sewer line installation, landscaping; and all accessory items to provide a complete operating system as depicted in these documents. Additive alternates may or may not be included in whole or individually and is at the Owner's full discretion.

ARTICLE 2 ENGINEER

The IRC Household Hazardous Waste & Recycling Facility project has been designed by Kimley-Horn and Associates, Inc. hereinafter called ENGINEER, and who is to act as OWNER'S representative, assume duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the work in accordance with the Contract Documents.

ARTICLE 3 CONTRACT TIME

3.1 The CONTRACTOR shall be substantially completed with the following timeframe

(a) Within 60 calendar days from effective date of Notice to Proceed, Contractor shall complete the following tasks:

1. Obtain all necessary permits.
2. Submit shop drawings for all materials and equipment to be utilized on the job.
3. Perform all photographic recording and documentation of conditions prior to construction.
4. Locate all existing utilities in the area of work.
5. Secure approval of shop drawings.
6. Mobilize all labor, equipment, and materials and prepare the site.
7. Notify all utilities and other affected parties prior to initiating construction.

(b) From 61 calendar days to 300 calendar days from the effective date of Notice to

Proceed, the CONTRACTOR shall complete the following tasks:

1. Furnish/Install/Construct all civil, mechanical, structural, plumbing, electrical equipment, instrumentation, and appurtenant items.
2. Successfully complete all equipment start-ups and field testing in accordance with the technical specifications.
3. Successfully complete all water quality sampling and testing in accordance with the technical specifications.
4. Coordinate with ENGINEER to obtain required regulatory clearances to place new equipment into operation.
3. Restore all disturbed areas to their pre-construction condition.
4. Correct all deficiencies noted by Engineer.

Completion of all tasks outlined above (i.e., Subparagraphs a) and b) constitutes Substantial Completion. CONTRACTOR is herein notified that Substantial Completion requires beneficial use of all improvements including new and rehabilitated equipment.

(c) From 300 calendar days to 365 calendar days from the effective date of Notice to Proceed, the CONTRACTOR shall complete the following tasks:

1. Clean up project area.
2. Remove all equipment and material from project site.
3. Perform contract closeout procedures.
4. Demobilize.

3.2 Completion of all tasks outlined above (i.e., Subparagraphs a, b, and c) constitute Final Completion.

3.3 Liquidated Damages. OWNER and CONTRACTOR 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 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They 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 seven-hundred and fifty dollars ($750.00) for each day that expires after the time specified in Paragraph 3.1 for 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 seven-hundred and fifty dollars ($750.00) for each day that expires after the time specified in Paragraphs 3.1 and 3.2 for completion and readiness for final payment.

3.3.1 The CONTRACTOR and OWNER agree that OWNER is authorized to deduct all or any portion of the above-stated liquidated damages due to the Owner from payments due to the Contractor; or, in the alternative, all or any portion of the above-stated liquidated damages may be collected from the Contractor or its Surety or Sureties. These provisions for liquidated damages shall not prevent the OWNER, in case of the CONTRACTOR's default, from terminating the Contractor's right to proceed as provided in this AGREEMENT.

3.3.2 In addition to the above-stated liquidated damages, the CONTRACTOR shall be responsible for reimbursing OWNER all expenses related to third party

consultants in administering the Project beyond the Final Completion date specified in this Agreement, or beyond an approved extension of time granted to CONTRACTOR, whichever date is later.

ARTICLE 4 CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for completion of the work in accordance with the Contract Documents in current funds in the amount of $_____.

ARTICLE 5 PAYMENT PROCEDURES

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.

5.1 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 amount due to CONTRACTOR until final completion and acceptance of all work to be performed by CONTRACTOR under the Contract Documents.

5.2 Each request for a progress 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.

5.3 Paragraphs 5.1 and 5.2 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.

5.4 ACCEPTANCE AND FINAL PAYMENT: Upon receipt of written notice that the work is ready for final inspection and acceptance, the ENGINEER will promptly make such inspection and when the ENGINEER finds the work acceptable under the terms of the Contract and the Contract fully performed, the ENGINEER will promptly issue a final completion certificate stating that the work provided for in this Contract has been completed, and acceptance by the OWNER under the terms and the conditions thereof is recommended and the entire balance found to be due the CONTRACTOR, will be paid to the CONTRACTOR by the OWNER following County Commission approval of the final Contract payment.

5.5 Acceptance of Final Payment as Release. 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 Payment and Performance Bonds.

ARTICLE 6 INTEREST

Not Applicable.

ARTICLE 7 CONTRACTOR'S REPRESENTATIONS

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

7.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the work.

7.2 CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions, and accepts the determination set forth in Paragraph SC-4.02 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to rely.

7.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in Paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the work as CONTRACTOR considers necessary for the performance of furnishing of the work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.02 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.

7.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities are or will be required by CONTRACTOR in order to perform and furnish the work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.04 of the General Conditions.

7.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

7.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

7.7 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 proof of E-Verify registration and utilization for all subcontractors.

ARTICLE 8 CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the work consist of the following:

8.1 This Agreement (Section 00530)
8.2 General Conditions (Section 00700).
8.3 Supplementary Conditions (Section 00800).
8.4 Notice to Proceed (Sample Provided in Section 00800)
8.5 Public Construction Bond (Section 00600)
8.6 Certificate(s) of Liability Insurance (Section 00620)
8.7 Contractor's Application for Payment (Sample Provided in Section 00800)
8.8 Certificate of Substantial Completion (Sample Provided in Section 00800)
8.9 Final Release of Lien (Sample Provided in Section 00800)
8.10 Drawings and Specifications Titled "Indian River County Household Hazardous Waste and Recycling Facility" (Permit Set)
8.11 Drawings Titled "IRC HHW & Recycling Facility Phasing Plan" (Sheets A-1 and A-2)
8.12 Drawings Titled "Map of Survey Performed for Indian River County Landfill" (Sheets 1-3 of 3)
8.13 Report titled "Subsurface Soil Exploration and Geotechnical Engineering Evaluation (AACE File No. 21-109)"
8.14 Addenda numbers_____ to _____, inclusive.
8.15 CONTRACTOR'S Bid (Section 00310).
8.16 Bid Bond (Section 00410)
8.17 Schedule of Subcontractors (Section 00431).
8.18 Certification Regarding Prohibition Against Contracting with Scrutinized Companies (Section 00432).
8.19 Disclosure of Relationships (Section 00452).
8.20 Sworn Statement under the Florida Trench Safety Act (Section 00454).
8.21 General Information Required of Bidders (Section 00456).
8.22 The following, which may be delivered or issued after the effective date of the Agreement and are not attached hereto: All written amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to Paragraphs 3.04 of the General Conditions (Samples provided in Section 00800).

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Paragraphs 3.04 of the General Conditions.

ARTICLE 9 MISCELLANEOUS

9.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions, as supplemented by the Supplementary Conditions, will have the meanings indicated in the General Conditions.

9.2 It is agreed that the CONTRACTOR shall not assign, transfer, convey, or otherwise dispose of the contract or its right, title, or interest in or to the same or any part thereof, or allow legal action to be brought in its name for the benefit of others, without previous consent of the OWNER and concurred to by the sureties. Any attempted assignment shall be void and may, at the option of the OWNER be deemed an event of default hereunder. Nothing herein shall be construed as

creating any personal liability on the part of any officer or agent of the OWNER who may be a party hereto.

9.3 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 of all covenants, agreements and obligations contained in the Contract Documents.

9.4 The CONTRACTOR shall be properly licensed to practice its trade or trades which are involved in the completion of this Agreement and the work thereunder.

9.5 This Agreement 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 agreement shall be in Indian River County, Florida, or, in the event of federal jurisdiction, in the United States District Court for the Southern District of Florida.

9.6 The CONTRACTOR shall indemnify and hold harmless the County, and its officers and employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the CONTRACTOR and persons employed or utilized by the CONTRACTOR in the performance of the construction contract.

9.7 Pledge of Credit. The CONTRACTOR shall not pledge the OWNER'S credit or make it a guarantor of payment or surety for any Agreement, debt, obligation, judgment, lien or any form of indebtedness. The CONTRACTOR further warrants and represents that it has no obligation of indebtedness that would impair its ability to fulfill the terms of this Agreement.

9.8. Counterparts. This Agreement may be executed in one or more counterparts, but all such counterparts, when duly executed, shall constitute one and the same Agreement.

9.9. Public Records. 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:

A. Keep and maintain public records required by the County to perform the service.
B. 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.
C. 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.
D. 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.

E. **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

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

This Agreement will be effective on _____, 2021 (the date the Contract is approved by the Indian River County Board of County Commissioners, which is the Effective Date of the Agreement).

OWNER:

INDIAN RIVER COUNTY

By: _____
TBD, Chairman

By: _____
Jason E. Brown, County Administrator

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

By: _____
Dylan Reingold, County Attorney

Jeffrey R. Smith, Clerk of Court and Comptroller

Attest: _____
Clerk of Court and Comptroller
(SEAL)

Designated Representative:
Name: Himanshu Mehta
Title: Managing Director
Contact Info: (772) 226-3211
hmehta@ircgov.com

CONTRACTOR:

_____

By: _____
(Contractor)

(CORPORATE SEAL)

Attest _____

Address for giving notices:
_____
_____
_____

License No. _____
(Where applicable)

Agent for service of process: _____

Designated Representative:
Name: _____
Title: _____
Address:
_____
_____
Phone: _____
Facsimile: _____
(If CONTRACTOR is a corporation or a partnership, attach evidence of authority to sign.)

SECTION 00600

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 00620 - 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 ☐ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS MADE - ☐OCCUR ☐ ☐ ☐ ☐				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 ☐ ANY AUTO ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS ☐ HIRED AUTOS ☐ NON-OWNED AUTOS ☐ ☐				COMBINED SINGLE LIMIT (Ea. Occurrence)	$ 1,000,000
					BODILY INJURY (Per Person)	$
					BODILY INJURY (Per Accident)	$
					PROPERTY DAMAGE	$
	GARAGE LIABILITY ☐ ☐				AUTO ONLY – EA ACCIDENT	$
					OTHER THAN EA ACC	$
					AUTO ONLY AGG	$
A	EXCESS LIABILITY ☐ ☐ CLAIMS MADE ☐ DEDUCTIBLE ☐ RETENTION $				EACH OCCURRENCE	
					AGGREGATE	$
						$
						$
A	WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY THE PROPRIETOR/PARTNERS/ EXECUTIVE OFFICERS ARE: ☐ INCL ☐ EXCL				☐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 27TH 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

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

ACEC
American Council of Engineering Companies

National Society of Professional Engineers
Professional Engineers in Private Practice

ASCE American Society of Civil Engineers

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

_____

AMERICAN COUNCIL OF ENGINEERING COMPANIES

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AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Knowledge for Creating and Sustaining the Built Environment

Construction Specifications Institute

National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed 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. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

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*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions 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 Milestones, if any, (ii) achieve Substantial Completion; and (iii) 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. *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.

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

22. *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.

23. *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.

24. *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.

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

26. *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.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *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.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *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.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *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.

35. *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.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

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. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *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.

42. *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.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

44. *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.

45. *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.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

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

48. *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.

49. *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.

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

51. *Work*--The entire 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.

52. *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.

1.02 *Terminology*

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, 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 exercise of professional judgment, action or determination will be solely to evaluate, in general, the 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 is not intended to and 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 9.09 or any other provision of the Contract Documents.

C. *Day*

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

D. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or

approval referred to in the Contract Documents, or

c. 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).

E. *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.

F. 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 and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *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.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. 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 sixtieth 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. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for 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 Submittals; 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.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, 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.A, procedures for handling Shop Drawings and other

submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 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.A. Contractor shall have an additional 10 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 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 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 required by one is as binding as if required 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. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, 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. *Contractor's Review of Contract Documents Before Starting Work*: 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.

2. *Contractor's Review of Contract Documents During Performance of Work*: 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 promptly report it to Engineer in writing. 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.

3. 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. 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 by either a Change Order or 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:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. 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 all of the Work under a direct or indirect contract with Contractor, shall not:

1. 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 consultants, including electronic media editions; or

2. 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.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL 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 or a part thereof, 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 or Engineer, or any of their Related Entities 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 9.07 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 with respect to 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 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 and Engineer, and any of their Related Entities 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 or Engineer, or any of their Related Entities 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.A); 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, and Engineer, and the officers, directors, partners, employees, agents, 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 4.06G 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 and Engineer, and the officers, directors, partners, employees, agents, 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.H 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 do not 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 of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, 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 the 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 promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide 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.

B. 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:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. 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 required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclu-

sion regarding professional liability) Owner and Engineer, 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, 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 6.11 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 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 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.

a. 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, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, 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 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 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, (other than caused by flood) 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, and Engineer, and

any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, 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 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. 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, and Engineer, 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, 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, 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, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, 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, and Engineer, and the officers, directors, partners, employees, agents, 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 perils 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, or Engineer, and the officers, directors, partners, employees, agents, 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.

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 2.01.B. 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. 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.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent 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 and lay out the Work and perform construction 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. Contractor will not permit the performance of Work on a 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 Contract Documents, 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 special warranties and guarantees required 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.

C. 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. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

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:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially 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 requirements 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 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:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) 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 other work on the Project) to adapt the design to the proposed substitute item; and

c) 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;

3) will identify:

a) all variations of the proposed substitute item from that specified , and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall 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,

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is 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 requirements for review by Engineer will be similar to those provided in Paragraph 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 may require Contractor to furnish additional data about the proposed substitute item. 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 Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each 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 . 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:

1. 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

2. shall anything in the Contract Documents 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, and Engineer,, 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, 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.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, 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 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. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall 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 shall 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.

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 and Engineer, and the officers, directors, partners, employees, agents, 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 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 the Work 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, 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.

C. 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 , 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).

D. 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 and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. 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.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, 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.

C. Submittal Procedures

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

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

b. the suitability of 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 Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. 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 certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of 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 shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.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. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. 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 that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. 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.

C. 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 review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

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

7. 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 and Engineer, and the officers, directors, partners, employees, agents, 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 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 but only to the extent caused 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 .

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 officers, directors, partners, employees, agents, consultants and subcontractors 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.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via 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, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, 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. 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.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

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 When Due*

A. Owner shall make payments to Contractor 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 9.09. 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 authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. 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 *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 or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties 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.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to 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.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

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

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

9.07 *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.

9.08 *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. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, 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.

9.09 *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 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract 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 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 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*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim 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. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, 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). 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).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; 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, except those excluded in Paragraph 11.01.B, 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 temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

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, expresses, and similar petty cash items in connection with the Work.

i. 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, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or 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 *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 and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances

1. Contractor agrees that:

a. the cash 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

b. Contractor's costs for unloading and handling on the Site, labor, installation , overhead, profit, and other expenses contemplated for the cash 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.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. 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.

B. 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 9.07.

C. 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.

D. 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. 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. 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 may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times 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. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times 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.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times , or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them 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.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for 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.

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, their consultants and 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.C; 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.

C. If it is found that the uncovered 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.

D. If, the uncovered 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 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. Promptly after receipt of notice, 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).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

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 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:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. 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.

B. If Contractor does not promptly comply with the terms of Owner's written 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. 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.

C. 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.

D. 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.

E. 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 or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or 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 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 in the Agreement 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 9.07, 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:

a. 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

b. 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:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. 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 stated 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 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 will 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.

B. Promptly after Contractor's notification, , 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 therefor.

C. If Engineer considers the Work substantially complete, Engineer will 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.

D. 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.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy 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, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when 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.

2. 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.

3. 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.

4. No use or 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:

a. all documentation called for in the Contract Documents, including but not limited to the

evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. 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. Engineer's 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, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , 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 (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, 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 accordance with the requirements herein and expressly acknowledged by Owner in writing as 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 granted 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 surety) seven days written notice of its intent to terminate the services of Contractor:

1. 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),

2. 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

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. 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.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. 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.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

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, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. 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. 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. 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. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment

within 30 days after it is submitted, or (iii) 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.

B. 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. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

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:

1. 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

2. 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. 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 Contract or termination of the services of Contractor.

17.05 *Controlling Law*

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

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 00800

SUPPLEMENTARY CONDITIONS
BID NO. 2022011

IRC Household Hazardous Waste & Recycling Facility

INDIAN RIVER COUNTY SOLID WASTE DISPOSAL DISTRICT
1325 74th Avenue, Vero Beach, Florida 32968

SUPPLEMENTARY CONDITIONS TO THE GENERAL CONDITIONS

PART I - AMENDMENTS TO GENERAL CONDITIONS

PART II – FORMS TO BE USED DURING PROJECT CONSTRUCTION

NOTICE OF AWARD – (Sample)
NOTICE TO PROCEED (Sample)
FIELD ORDER
WORK CHANGE DIRECTIVE
CHANGE ORDER
APPLICATION FOR PAYMENT
CERTIFICATE OF SUBSTANTIAL COMPLETION
FINAL RELEASE OF LIEN
DUTIES RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF RESIDENT PROJECT REPRESENTATIVE

SUPPLEMENTARY CONDITIONS

PART I - AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC Document No. C-700, 2002 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.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC 1.01 A.53 Defined Terms

A Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

53. Modification--A change, revision or deviation in the Work as originally planned or designed as a result of unknown or unexpected field conditions, laws or rules revisions, or discovery of a more efficient or logical method or completion of the Work after Notice to Proceed.

ARTICLE 2 - PRELIMINARY MATTERS

SC-2.01. Delete paragraphs 2.01A and B of the General Conditions in its entirety.

SC 2.03A. Delete paragraph 2.03A of the General Conditions in its entirety, and replace with the following:

The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 90 days after the Effective Date of the Agreement.

SC 2.05A1. Add the following immediately at the end of subparagraph 2.05A1: using the Critical Path Method (CPM).

SC 2.05A.4 Add new subparagraph 4 after the existing text of 2.05 of the General Conditions:

4. If this Project is an addition to an existing working plant, then the Contractor shall coordinate with the Owner on tie-ins. The Owner shall have final say on plant shut down times and duration to make tie-ins.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01D. Add new paragraph D immediately after Paragraph 3.01C of the General Conditions:

D. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein.

SC3.03A.3. Delete existing subparagraph3.03A.3 of the General Conditions in its entirety and replace with the following:

Contractor shall not be liable to Owner or Engineer for failure to report any such conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or, in the exercise of ordinary care, reasonably should have recognized such conflict, error, ambiguity, or discrepancy and failed to report it in writing to the Owner and the Engineer.

SC 3.03B. Delete existing paragraph3.03B of the General Conditions in its entirety and replace with the following

B. Resolving Discrepancies. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall be read together as a whole not in isolation so as to give meaning to each provision; however, to the extent there is a conflict or inconsistency between or among provisions, the strictest or most stringent standard shall apply.

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

SC 4.01A. Delete existing paragraph 4.01A of the General Conditions in its entirety and replace it with the following:

A. Owner shall furnish the Site.

SC 4.01B. Delete existing paragraph 4.01B of the General Conditions in its entirety.

SC 4.01D. Add the following after paragraph 4.01C of the General Conditions:

D. Contractor shall provide to the Owner written evidence of authorization to use any private land for staging or storage of material and equipment on the private land. Such written evidence of authorization must be provided to the Owner prior to use of the private land.

SC 4.02A. Delete paragraph 4.02 A. of the General Conditions in its entirety and replace it with the following:

Contractor shall have full responsibility for physical conditions, and Underground Facilities owned by Owner or others, shown or indicated in the Contract Documents.

SC-4.02B. Delete paragraph 4.02B in its entirety and replace with the following:

The information and data shown or indicated in the Contract Documents with respect to Underground Facilities owned by others or contiguous to the Site is based on information and data furnished to Owner or the Engineer by the owners of such Underground Facilities or by others. The Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data, and the Contractor shall have full responsibility for reviewing and checking all such information and data.

SC 4.02C, D, and E. Add new paragraphs C, D, and E immediately after Paragraph 4.02B of the General Conditions to read as follows:

C. Field Measurements: Before undertaking each part of the construction, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon

and all applicable field measurements. Contractor shall promptly report in writing to the Owner any conflict, error or discrepancy which Contractor or any of his Subcontractors or Suppliers may discover and shall obtain a written interpretation or clarification from Owner before proceeding with any aspect of the work affected thereby; provided, however, Contractor shall not be liable to the Owner for failure to report any conflict, error or discrepancy unless Contractor or any of his Subcontractors or Suppliers had actual knowledge thereof or should reasonably have known thereof.

D. Scheduling: Unless it prejudices Work already excavated and uncovered, Contractor shall schedule layout, excavating and uncovering of Work or Underground Facilities a sufficient time in advance to allow the Engineer's review, and the possible amending or supplementing of the Contract Documents via a Work Change Directive, Change Order, or Modification.

E. Utility Coordination.

1.Contractor's Responsibility: The Contractor shall be responsible for making all necessary arrangements with governmental departments, public utilities, public carriers, service companies and corporations owning or controlling roadways, railways, water, sewer, gas, electrical, cable television, telephone, and telegraph facilities such as pavements, tracks, piping, wires, cables, conduits, poles, guys, etc., including incidental structures connected therewith, that are encountered in the Work in order that such items may be properly shored, supported and protected, or the Contractor shall be solely responsible for coordinating their relocation. The Contractor shall give proper notices, shall comply with requirements of such parties in the performance of the Work, shall permit entrance of such parties on the Work controlled by the Contractor, and shall pay all charges and fees made by such parties for its Work. The Contractor's attention is called to the fact that there may be delays on the Project due to Work to be done by governmental departments, public utilities, and others in repairing poles, conduits, etc. The Contractor shall cooperate with the above parties, in every way possible, so that the construction can be completed in the least possible time.

2. Connection: At all points where the Work constructed by the Contractor connects to existing utilities and services, the actual Work of making the necessary connection to the existing service or utility shall be arranged for by Contractor at no additional expense to Owner (unless specifically indicated otherwise). Services and utilities included within (but not limited to) this responsibility are roads, ditches, electrical, sewer, mechanical, utilities, water, fencing, etc. Connections shall be made at a time that will result in the least possible interference with existing services.

SC 4.03A. Delete 4.03 A of the General Conditions in its entirety and replace with the following:

A. Notice. The Contractor shall promptly, and before conditions of an unusual nature or differing materially from those indicated in the Contract are disturbed, and in no event later than 10 days after first observance of the conditions, notify the Owner and Engineer in writing of: (1) subsurface or latent physical conditions at the Site differing materially from those indicated in this Contract Documents, or (2) unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents. The Owner will promptly investigate the conditions, and if it finds that such conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under the Contract Documents, unless the Contract is terminated a Change Order shall be issued accordingly based on the Schedule of Values and executed by the Owner and the Contractor. Contractor's failure to provide notice upon discovery of the unusual or differing site condition shall waive any entitlement to such an adjustment in the Contract Price or Contract Time. Further, no Claim of the Contractor under this paragraph 4.03A shall be allowed unless the Contractor has given the notice as required in this paragraph 4.03A.

SC 4.03B. Delete paragraph 4.03B of the General Conditions in its entirety.

SC 4.03C.1. Delete subparagraphs 4.03C1b. of the General Conditions in its entirety and replace with the following.

4.03.C. Possible Price and Times Adjustments

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, such condition must meet any one or more of the categories described in Paragraph 4.03.A.

SC 4.03C3. Delete paragraph 4.03C3. of the General Conditions in its entirety.

SC-4.05B. Add the following new paragraph immediately after paragraph 4.05A of the General Conditions to read as follows:

The Contractor shall furnish all stakes, templates and other materials necessary for establishing and maintaining the lines and grades necessary for control and construction of the Work. Engineer may check the lines, elevations, reference marks, batter boards, etc., set by Contractor, and Contractor shall correct any errors disclosed by such check. Such a check shall not be considered as approval of Contractor's work and shall not relieve Contractor of the responsibility for accurate construction of the entire Work. Contractor shall furnish personnel to assist Engineer in checking lines and grades.

SC 4.06D. Delete the last sentence of paragraph 4.06D of the General Conditions in its entirety

SC 4.06G. Delete paragraph 4.06G of the General Conditions in its entirety.

SC 4.07. Add new paragraph 4.07 of the General Conditions to read as follows:

4.07. Archaeological or Historical Resources at Site. If Archaeological or Historical Resources are revealed, uncovered, or discovered at the Site, Contractor shall cease work immediately and promptly, and before such conditions are disturbed, and in no event later than 5 days after first observance of the conditions, notify the Owner and Engineer in writing of such conditions. Owner shall obtain the services of an Archaeologist registered with the State of Florida Register of Professional Archaeologists. Based on Archaeologist's determination, if Owner finds that such conditions cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, unless Contract is terminated a Change Order shall be entered accordingly. Contractor's failure to provide notice upon discovery of the Archaeological or Historical Resources shall waive any entitlement to Contractor for such an adjustment in the Contract Price or Contract Time.

ARTICLE 5 - BONDS AND INSURANCE

SC 5.01A. Delete existing paragraph 5.01A of the General Conditions in its entirety and replace with the following:

5.01A. Contractor shall furnish Public Construction Bond, in an amount equal to the Contract Price as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. The Bond shall remain in effect at least until one year after the date when final payment is made, except as provided otherwise by Laws and Regulations or by the Contract Documents. Pursuant to Florida Statutes section 255.05(1)(c), any claimant (as such term is defined

in Florida Statutes section 713.01) may apply to Indian River County as Owner for copies of the Agreement and the recorded payment and performance bonds and shall thereupon be furnished with certified copies of such documents.

SC 5.02A. Delete the words “Owner or” in line two.

SC 5.03B. Delete existing paragraph 5.03B of the General Conditions in its entirety.

SC 5.04B. Delete existing paragraph 5.04B of the General Conditions in its entirety and replace with the following:

B. The Contractor shall not commence Work under the Agreement until it has obtained all insurance required under the Contract Documents and the Indian River County Risk Manager has approved such insurance. The Contractor shall procure and maintain, as set forth herein, the minimum insurance coverage as set forth in the Contract Documents. The cost of such insurance shall be included in the Contract Price.

SC 5.04. Add Sections C, D, E, F and G

C. The insurance required by paragraph 5.04A of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers’ Compensation: To meet statutory limits in compliance with the Workers’ Compensation Law of Florida. This policy must include employers’ liability with a limit $500,000 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 on account of injury sustained by an employee(s) of the Contractor.
2. Commercial General Liability: A per occurrence form policy, including Premise Operations, Independent Contractors, Products and Completed Operations including X, C, U (Explosion, Collapse, Underground) Broad Form Property Damage, Broad Form Property Damage Endorsement, with a combined single limit of not less than $1,000,000 general aggregate to include products/completed operations, personal injury/advertising liability, fire damage /legal liability, and medical payments. Limits can be layered with an Excess Liability Policy (Umbrella).
3. Business Auto Liability: Business Auto Liability: Coverage shall include Owned vehicles and Hired/Non-Owned vehicles, for a combined single limit (bodily injury and property damage) of not less than $1,000,000/combined single limit (Bodily Injury/Property Damage); personal injury protection -- statutory limits; $300,000 uninsured/underinsured motorist; $300,000/hired/non-owned auto liability. Limits can be layered with Excess Liability Policy (Umbrella).
4. Contractor’s Builders’ Risk “All Risk” Insurance: – All risk coverage with limits equal to one hundred percent (100%) of the completed value of the Work. There shall be a waiver of occupancy endorsement to enable the Owner to occupy the facility under construction during such activity. The policy must be endorsed to provide machinery/equipment endorsement during transit and installation, and Owner direct purchase materials, if any. The maximum deductible under this coverage is $10,000 per claim, except Wind Storm coverage which will have a maximum deductible equal to 2 percent of the completed value of the work.

D. Insurance Requirements – All insurance requirements shall be at Contractor’s sole cost and expense, including any deductible or self-insured retention, without contribution from Indian River County or its insurance carriers. Fifteen (15) days prior to the commencement of any Work under the

Contract Documents, a certificate of insurance shall be provided to the Indian River County Risk Manager for review and approval. The certificate shall provide that: (a) Indian River County as Owner and Kimley-Horn and Associates, Inc. as Engineer be named as an additional insured on the commercial general liability, auto liability, and Contractor's Builders' Risk "All Risk" insurance policies; (b) the Contractor's insurance coverage shall be primary; and (c) Indian River County as Owner and will be given thirty (30) days' notice prior to cancellation or modification of any required insurance and such notice shall be in writing by registered mail, return receipt requested and addressed to the Indian River County Risk Manager. The Contractor shall be responsible to ensure that all subcontractors comply with all insurance requirements of the Contract Documents.

E. All coverage shall be maintained without interruption from the date of commencement of the Work and 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. In addition, with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, such insurance shall remain in effect for at least two years after final payment. Contractor shall furnish Owner and Engineer with evidence satisfactory to Owner of the continuation of such insurance at final payment and again one year thereafter, so that Owner is assured of such continuing coverage.

F. All insurers must be authorized to do business in Florida and have a Best Key Rating of A- VII.

G. The insurance companies selected shall send written verification to the Indian River County Risk Manager that they will provide 30 days prior written notice to the Indian River County Risk Manager of its intent to cancel or modify any required policies of insurance.

SC 5.05. Delete existing paragraph 5.05 of the General Conditions in its entirety.

SC-5.06. Delete existing paragraph 5.06 of the General Conditions in its entirety.

SC-5.07. Delete existing paragraph 5.07 of the General Conditions in its entirety and replace with the following.

5.07. All insurance policies provided by the Contractor shall contain provisions to the effect that the insurer waives all rights of subrogation against any of the insured, additional insured, (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) Owner and the Engineer.

SC-5.08. Delete existing paragraph 5.08 of the General Conditions in its entirety.

SC-5.09. Delete existing paragraph 5.09 of the General Conditions in its entirety.

SC-5.10. Delete existing paragraph 5.10 of the General Conditions in its entirety.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

SC 6.01B. Delete paragraph 6.01B of the General Conditions in its entirety, and replace with the following:

6.01B. Contractor shall employ a competent superintendent and necessary assistants who shall be assigned to, and in attendance at, the Project Site during performance of the Work. So long as the superintendent remains employed by the Contractor or any related entity, the superintendent shall not be replaced without the Owner's prior written consent, except under extraordinary circumstances.

The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

SC-6.02C and D. Add the following new paragraphs immediately after paragraph 6.02B. of the General Conditions which are to read as follows:

C. Regular working hours are defined as 8 hours per day, Monday through Friday, excluding holidays, between the hours of 7:00 AM and 6:00 PM. Requests to work other than regular working hours shall be submitted to Engineer not less than 48 hours prior to any proposed weekend work or scheduled extended work weeks. Occasional unscheduled overtime on weekdays may be permitted provided two hours notice is given to Engineer.

D. Contractor shall reimburse the Owner for additional engineering and/or inspection costs incurred as a result of overtime work in excess of the regular working hours stipulated in SC-6.02C. At Owner's option, overtime costs may either be deducted from the Contractor's monthly payment request or deducted from the retainage prior to release of final payment. Overtime costs for the Owner's personnel shall be based on the individual's current overtime wage rate. Overtime costs for personnel employed by the Engineer or Owner's independent testing laboratory shall be calculated in accordance with the terms of their respective contracts with the Owner.

SC 6.04A.1 Add the following sentence immediately after the existing text in paragraph 6.04 A.1 of the General Conditions:

Additionally, any and all changes to the Project’s critical path must be reflected in each Project schedule.

SC-6.04.A.3 Add the following paragraph immediately after paragraph GC-6.04.A.2 of the General Conditions:

6.04.A.3. Contractor shall give Owner full information in advance as to its plans for performing each part of the Work. If at any time during the progress of Work, Contractor's actual progress is inadequate to meet the requirements of the Contract Documents, Owner may, but is not obligated to, so notify Contractor. In such event, Contractor acknowledges and agrees that Contractor shall implement some or all of the following remedial actions at the sole cost and expense of Contractor: (a) Increase manpower in such quantities and crafts as necessary to eliminate the backlog of Work; (b) Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of Work; or (c) Reschedule the Work in conformance with the specifications. Neither such notice by Owner nor Owner's failure to issue such notice shall relieve Contractor of its obligation to achieve the quality of Work and rate of progress required by the Contract Documents. Failure of Contractor to implement some or all of the remedial actions may be grounds for determination by Owner that Contractor is not prosecuting its Work with such diligence as will assure completion within times specified. Upon such determination, Owner may terminate Contractor's right to proceed with the performance of the Contract Documents, or any separable part thereof, in accordance with the applicable provisions of this Contract Documents.

SC-6.06A. Delete Paragraph 6.06A of the General Conditions in its entirety and replace with the following:

A. Contractor shall not employ any Subcontractor, Supplier or other person or organization, (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom Owner may have reasonable objection. Acceptance of any Subcontractor,

Supplier or other person or organization by Owner shall not constitute a waiver of any right of Owner to reject defective Work. Contractor shall not be required to employ any Subcontractor, Supplier or other person or organization against whom Contractor has reasonable objection.

SC-6.06B. Delete Paragraph 6.06B of the General Conditions in its entirety.

SC-6.08. Delete Paragraph 6.08 of the General Conditions in its entirety and replace with the following:

ALL PERMIT, IMPACT, OR INSPECTION FEES APPLICABLE AT THE TIME OF OPENING OF BIDS THAT ARE PAYABLE TO INDIAN RIVER COUNTY IN CONNECTION WITH THE WORK ON THIS COUNTY PROJECT WILL BE PAID BY INDIAN RIVER COUNTY. Contractor acknowledges that the foregoing items are governed by the provisions of Florida Statutes section 218.80, Public Bid Disclosure Act. Further, Contractor shall pay the applicable business tax and obtain a business tax receipt from the Indian River County Tax Collector. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all applicable construction permits. Owner shall reimburse Contractor for the cost of such permits on the basis of actual cost. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Any permits issued after issuance of bid documents will be provided as an Addendum. Contractor acknowledges that the foregoing items are governed by the provisions of Florida Statutes section 218.80, Public Bid Disclosure Act.

SC 6.11 A.3. Delete the words: “arbitration or” in line 9 of paragraph 6.11 A.3 of the General Conditions.

SC-6.20A. Delete paragraph 6.20A of the General Conditions in its entirety and replace with the following:

To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the commissioners, officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all liability claims, costs, losses, and damages including but not limited to, reasonable attorney’s fees, to the context caused by the negligence, recklessness, or intentional wrongful misconduct of the Contractor and persons employed or utilized by the Contractor in the performance of the construction contract.

SC-6.21E. Delete paragraph 6.21E of the General Conditions in its entirety and replace with the following:

E. Contractor shall not be responsible for the adequacy of the performance criteria or design criteria required by or contained in the Contract Documents.

ARTICLE 7 OTHER WORK AT THE SITE

SC-7.01A. Delete paragraph 7.01A of the General Conditions in its entirety and replace with the following:

7.01A. Related Work at Site. Owner may perform other work related to the Project at the Site with Owner’s employees, or pursuant to direct contracts with others. If such other work is not noted in the Contract Documents, then written notice thereof will be given by Owner to Contractor prior to Owner starting any such other work; and Contractor shall perform in accordance with Article 7 of the General Conditions.

ARTICLE 8 OWNER'S RESPONSIBILITIES

SC-8.02. Delete paragraph 8.02 of the General Conditions in its entirety and replace with the following:

A. If Owner terminates the employment of Engineer, Owner may appoint another engineer whose status under the Contract Documents shall be that of the former Engineer.

SC-8.04. Delete paragraph 8.04 of the General Conditions in its entirety and replace with the following:

A. Payments under this contract are governed by the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC-8.06. Delete paragraph 8.06 of the General Conditions in its entirety.

SC-8.11. Delete paragraph 8.11 of the General Conditions in its entirety.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

SC 9.02. Delete the first sentence of paragraph 9.02A of the General Conditions in its entirety and replace with the following:

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 Engineer the progress that has been made and the quality of the various aspects of Contractor's executed Work.

SC-9.03B. Add the following new paragraph immediately after paragraph 9.03A of the General Conditions which is to read as follows:

B. Engineer will furnish a part-time Resident Project Representative. Contractor is responsible to give 24-hour notice on all required inspections so that the Resident Project Representative may be present.

SC 9.04 A. Delete the third sentence of paragraph 9.04A of the General Conditions in its entirety and replace with the following:

However, if Contractor claims entitlement to additional time or money as a result of the Field Order, such entitlement is conditioned upon obtaining a Change Order authorized and executed by Owner after timely making a Claim as provided in the Contract Documents.

SC 9.08 A. Delete the second sentence of 9.08A of the General Conditions in its entirety and replace with the following:

Except for: (a) Claims for differing subsurface or physical conditions governed by paragraph 4.03; and (b) claims for time extensions governed by paragraph 12.03, all matters in question and other matters between Owner and Contractor arising prior to the date final payment is due, relating to the acceptability of the Work and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 15 days after occurrence of the event giving rise to such Claim or within 15 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later; provided, however, the Owner shall make all final determinations of such matters.

SC 9.08 C. Delete paragraph 9.08C of the General Conditions in its entirety

SC 9.08 D. Delete paragraph 9.08D of the General Conditions in its entirety

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

SC 10.03.A.1 Add “and” at the end of this paragraph.

SC 10.03.A.2 Delete “and” at the end of this paragraph.

SC 10.03 A.3. Delete subparagraph 10.03.A.3 of the General Conditions in its entirety

SC 10.05.A. Delete paragraph 10.05.A of the General Conditions in its entirety and replace with the following:

A. All Claims shall initially be referred to the Engineer for decision.

SC 10.05.B. Delete paragraph 10.05.B of the General Conditions in its entirety and replace with the following:

Notice: Except for: (a) Claims for differing subsurface or physical conditions governed by paragraph 4.03; and (b) claims for time extensions governed by paragraph 12.03, Claims by either party shall be initiated within 15 days after occurrence of the event giving rise to such Claim or within 15 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later, by written notice of the amount or extent of the Claim, dispute, or other matter with supporting data to the Engineer and the other party by written notice stating the general nature of each Claim, dispute, or other matter delivered by the claimant to Engineer and the other party to the Contract. 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. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under the Contract Documents.

SC 10.05 C, D, and E. Delete paragraphs 10.05C, D, and E of the General Conditions in its entirety.

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

SC 11.01A. Delete paragraph 11.01.A of the General Conditions in its entirety.

SC 11.01B. Delete paragraph 11.01B of the General Conditions in its entirety.

SC 11.02A. Delete paragraph 11.02.A of the General Conditions in its entirety and replace with the following:

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.

SC 11.02 B, C, and D. Delete paragraphs 11.02B, C, and D of the General Conditions in their entirety.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

SC 12.01A. Delete paragraph 12.01A of the General Conditions in its entirety and replace with the following:

The Contract Price may only be changed by a Change Order or by a Work Change Directive. Any Claim for an adjustment in the Contract Price shall be based on written notice in accordance with the provisions of paragraph 10.05.

SC 12.01B2. Delete paragraph 12.01B2 of the General Conditions in its entirety and replace with the following:

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum.

SC 12.01B3. Delete paragraph 12.01B3 of the General Conditions in its entirety.

SC12.01C. Delete paragraph 12.01C of the General Conditions in its entirety.

SC 12.03A and B. Delete paragraphs 12.03.A and 12.03B of the General Conditions in their entirety and replace with the following:

A. Where Contractor is delayed or prevented from completing any part of the Work within the Contract Times 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 (1) a Claim is made therefore as provided in paragraph 12.02.A and (2) Contractor provides evidence that the delay impacted the critical path of the Project. 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, abnormal weather conditions or acts of God. The Contractor must request the extension of time in writing and must provide the following information within the time periods stated hereafter. Failure to submit such information and in compliance with the time requirements given in Section 00530 of the Contract Documents, shall constitute a waiver by the Contractor and a denial of the claim for extension of time:

1. Nature of the delay or change in the Work;
2. Dates of commencement and cessation of the delay or change in the Work;
3. Activities on the current progress schedule affected by the delay or change in the Work;
4. Identification and demonstration that the delay or change in Work affects the critical path;
5. Identification of the source of delay or change in the Work;
6. Anticipated extent of the delay or change in the Work; and
7. Recommended action to minimize the delay.

B. Contractor hereby affirms that the extension of time granted herein is the Contractor's sole and exclusive remedy. Apart from extension of time, no payment or claim for damages shall be made to the Contractor as compensation for damages for any delays or hindrances from any cause whatsoever in the progress of the Work whether such delay is avoidable or unavoidable.

SC 12.03C. Delete paragraph 12.03.C of the General Conditions in its entirety.

SC 12.03D. Delete paragraph 12.03D of the General Conditions in its entirety and replace with the following:

In no event shall Owner, Engineer, or the Related Entities of either of them be liable to Contractor, any Subcontractor, any Supplier, any other person or organization, or any surety for or employee or agent of any of them, for any claim, cost, loss, or damages of any nature whatsoever arising out of or resulting from delays.

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

SC 13.04C. Delete paragraph 13.04.C of the General Conditions in its entirety and replace with the following:

If it is found that the uncovered 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 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.

SC 13.04D. Delete paragraph 13.04.D of the General Conditions in its entirety and replace with the following:

If, the uncovered 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 both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

SC 13.06A. Delete the words: “arbitration or” in line 9 of paragraph 13.06.A of the General Conditions.

SC13.07A. Add the following sentence at the beginning of paragraph 13.07A of the General Conditions:

Owner and Contractor agree that a warranty inspection shall be scheduled no later than eleven (11) months after final payment under the Contract Documents so that Owner and Contractor may inspect and otherwise examine the Work prior to the expiration of the Performance Bond.

SC 13.07E. Delete paragraph 13.07E of the General Conditions in its entirety and replace with the following:

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 any way to limit the Contractor’s continued liability for defective Work, including but limited to latent defects.

SC 13.08A. TWO changes:

1. Delete the words: “arbitration or” in line 8 of paragraph 13.08.A of the General Conditions.
2. Delete the phrase “(such costs to be approved by Engineer as to reasonableness)” in lines 10 and 11 of paragraph 13.08.A of the General Conditions.

13.09C. Delete the words: “arbitration or” in line 4 of paragraph 13.09.C of the General Conditions.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC 14.02A1. Delete the first sentence of paragraph 14.02.A.1 of the General Conditions in its entirety and replace with the following:

On or before the tenth (10th) day of each month, and not more often than once a month, the Contractor shall submit completed partial progress payment requests to the Engineer, as set forth herein. 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 for Payment and accompanied by such supporting documentation as is required by the Contract Documents. Such supporting documents shall include but not be limited to, the required Contractor's certification; retainage as set forth in the Contract Documents; and a monthly dated CPM schedule for the Project. The Contractor shall make the following certification (Affidavit) on each Application for Payment: "I hereby certify that the labor and materials listed on this Application for Payment have been used in the construction of this Work and payment received from the last request for payment has been used to make payments to all subcontractors, laborers, material, men and suppliers except as listed below: All payments by Indian River County as Owner shall be made in accordance with the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02A4. Add a new paragraph immediately after paragraph 14.02A.3 of the General Conditions, which is to read as follows:

4. Contractor shall furnish satisfactory proof to Owner and Engineer that payment received from Owner for materials and equipment not incorporated into the Work and suitably stored, has in fact been paid to the respective supplier(s) within ten (10) days of Contractor's receipt of payment from Owner. Failure to provide such evidence of payment shall result in the withdrawal of previous approval(s) and removal of the cost of related materials and equipment from the next submitted Application for Payment, and shall be deemed a default under the Contract.

SC 14.02C1. Delete paragraph 14.02.C1 of the General Conditions in its entirety and replace with the following: All payments by Indian River County as Owner shall be made in accordance with the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02D1d. Delete paragraph 14.02D1d of the General Conditions in its entirety and replace with the following:
d. Owner has actual knowledge of the occurrence or probable 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.

SC 14.02D2. Delete paragraph 14.02D2 of the General Conditions in its entirety and replace with the following:

If Owner refuses to make payment of the full amount recommended by Engineer, Owner shall provide notice to Contractor in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. and pay Contractor any amount remaining after deduction of the amount so withheld in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. Owner shall pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02D3. Delete paragraph 14.02D3 of the General Conditions in its entirety

SC 14.03A. Add the following sentences to the end of the existing paragraph 14.03A of the General Conditions as follows:

No materials or supplies for the Work shall be purchased by Contractor or his Subcontractors subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. Contractor warrants that Contractor has good title to all materials and supplies used by Contractor in the Work, free from all liens, claims or encumbrances.

SC 14.04C. Delete paragraph 14.04C of the General Conditions 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 218.735(7)(a), 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 the Contract Documents (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 the Contract Documents; 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 the Contract Documents; and 3) any and all items that require correction under the Contract Documents 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 14.04D. Delete paragraph 14.04D of the General Conditions in its entirety and replace with the following:

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, HVAC, utilities, insurance, and warranties and guarantees.

SC14.07A.3. Delete paragraph 14.07A.3 of the General Conditions in its entirety.

SC14.07B.1. Delete paragraph 14.07B.1 of the General Conditions in its entirety and replace with the following:

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, all 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 indicate, within twenty days after receipt of the final Application for Payment, in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. Thereupon Engineer will give written notice to Owner and Contractor that the Work is acceptable. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the

reasons for refusing to recommend payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

SC-14.07.C.1. Delete paragraph GC-14.07.C.1 in its entirety and replace with the following:

Payment shall be made by Owner to Contractor according to the Local Government Prompt Payment Act, Florida Statutes section 218.70. et.seq.

SC 14.08. Delete paragraph 14.08 of the General Conditions in its entirety.

SC 14.09. Delete paragraph 14.09 of the General Conditions in its entirety.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

SC-15.02.A.1. Delete subparagraph 15.02.A1 of the General Conditions in its entirety, and replace with the following:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents;

SC-15.02.A.4. Delete subparagraph 15.02.A 4 of the General Conditions in its entirety, and replace with the following:

4. Contractor's violation of any material provisions of the Contract Documents.

SC 15.02.A.5 and 6: Add the following new subparagraphs at the end of paragraph GC-15.02.A

5. Failure of Contractor to make proper payments to Subcontractors or others for labor, services, materials or equipment in connection with the Work;

6. If Contractor abandons the Work.

SC 15.02.C. Delete the words: "arbitration or" in line 7 of paragraph 15.02.C of the General Conditions.

SC 15.02.G. Add the following new paragraph immediately following paragraph 15.02.F of the General Conditions:

G. If, after termination of the Contract by the Owner for cause as set forth in paragraph 15.02, it is determined that the Contractor had not failed to fulfill its contractual obligations, the termination under paragraph 15.02 shall be deemed to have been for the convenience of the Owner. In such event, adjustment of the Contract Price shall be made as provided in paragraph 15.03

SC15.03.A.3 and 15.03 A 4. Delete subparagraphs 15.03.A3 and 15.03 A 4 of the General Conditions in its entirety.

ARTICLE 16 - DISPUTE RESOLUTION

SC16.01A. Delete paragraph 16.01A of the General Conditions in its entirety and replace with the following:

A. Prior to the filing of any suit or other legal proceedings, the parties shall endeavor to resolve claim disputes or other matters in question by mediation. Mediation shall be initiated by any party by serving a written request for same on the other party. The parties shall, by mutual agreement, select a circuit court mediator as certified by the Supreme Court of Florida within 15 days of the date of the request for mediation. If the parties cannot agree on the selection of a circuit court mediator as certified by the Supreme Court of Florida, then the Owner shall select the mediator, who shall be a circuit court mediator as certified by the Supreme Court of Florida. The mediator's fee shall be paid in equal shares by Owner and Contractor.

SC 16.01C. Delete paragraph 16.01 C of the General Conditions in its entirety and replace with the following:

C. Contractor shall carry on the Work and maintain the Progress Schedule during the dispute resolution proceedings, unless otherwise agreed by Contractor and Owner in writing.

ARTICLE 17 - MISCELLANEOUS

SC 17.01A. Delete paragraph 17.01A of the General Conditions in its entirety and replace with the following

Notices: Any notice, request, demand, consent, approval, or other communication required or permitted by the Contract Documents shall be given or made in writing and shall be served, as elected by the party giving such notice, by any of the following methods: (a) Hand delivery to the other party; (b) Delivery by commercial overnight courier service; or (c) Mailed by registered or certified mail (postage prepaid), return receipt requested at the addresses of the parties shown in the Contract Documents. Notices shall be effective when received at the address as specified above. The original of the notice must additionally be mailed. Either party may change its address, for the purposes of this paragraph, by written notice to the other party given in accordance with the provisions of this paragraph.

SC 17.02 through and including 17.03. Replace Sections 17.02 and 17.03:

17.02. Utilities. The Contractor shall, at its expense, arrange for, develop and maintain all utilities in Work areas to meet the requirements of the Contract Documents. Such utilities shall be furnished by Contractor at no additional cost to the Owner, and shall include, but not be limited to the following: public telephone service for the Contractor's use; construction power as required at each point of construction; and water as required throughout the construction. Prior to final acceptance of the Work the Contractor shall, at its expense, satisfactorily remove and dispose of all temporary utilities developed to meet the requirements of the Contract.

17.03. Drainage. The Contractor shall so conduct its operations and maintain the Work in such condition that adequate drainage will be in effect at all times. Existing functioning storm sewers, gutters, ditches, and other run-off shall not be obstructed.

SC 17.07 through SC 17.12 Add the following paragraphs following SC 17.06.

17.07. Fire Hydrants. Fire hydrants on or adjacent to the highway shall be kept accessible to fire apparatus at all times and no material or obstruction shall be placed within fifteen feet (15') of any such hydrant.

17.08. Protection of Structures. Heavy equipment shall not be operated close enough to pipe headwalls or other structures to cause their displacement.

17.09. Fencing. On all Work which includes fencing and where the Engineer determines it to be necessary for maintaining the security of livestock or adjacent property, or for protection of pedestrians who are likely to gain access to the Site or Work area from adjacent property, the Contractor shall erect an appropriate temporary security fence as a first order of business. Temporary fencing shall be installed at temporary construction easement areas on all commercial and residential properties appropriate to secure the Work area and protect persons and domestic animals. At all times, the Contractor shall conduct the Work under secure temporary fencing. Permanent fencing shall be addressed as required by the Plans and Specifications.

17.10. Record Drawings. The Contractor shall keep one record copy of all Specifications, Drawings, Addenda, Modifications, and Shop Drawings at the site in good order and annotated to show all changes made during the construction process. These items shall be available to the Engineer and shall be delivered to the Engineer for the Owner. Record Drawings shall be submitted with each pay request. Record Drawings shall be submitted with each pay request. Final acceptance of the Work will be withheld until the approval of such documents are made by the Owner.

17.11. Progress Videotapes. Contractor shall deliver to the Owner both prior to commencing the Project and before receipt of Final Payment, a DVD Type color videotape of the Project showing the Site before and after Work has been completed. Contractor shall audibly identify on the videotape the station numbers as those areas of the Project are taped. The cost of the videotaping is included in the bid submitted by the Contractor.

17.12. Commercial Activities. Contractor shall not establish any commercial activity or issue concessions or permits of any kind to third parties for establishing commercial activities on land owned or controlled by Owner. Contractor shall not allow its employees to engage in any commercial activities on the Project site.

PART II – FORMS TO BE USED DURING PROJECT CONSTRUCTION (Pages 20 through 32)

NOTICE OF AWARD – (Sample)
NOTICE TO PROCEED
FIELD ORDER
WORK CHANGE DIRECTIVE
CHANGE ORDER
APPLICATION FOR PAYMENT
CERTIFICATE OF SUBSTANTIAL COMPLETION
FINAL RELEASE OF LIEN
DUTIES RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF RESIDENT PROJECT REPRESENTATIVE

BOARD OF COUNTY COMMISSIONERS

Date via Email

Company
Attn:
Address
Address
Email address

NOTICE OF AWARD

Reference: Indian River County Bid No. 2022011
IRC Household Hazardous Waste & Recycling 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: Solid Waste Disposal District

NOTICE TO PROCEED

_____, 2021

CONTRACT FOR: **IRC Household Waste & Recycling Facility**
CONTRACTOR:

Attn:

Gentlemen:

You are hereby notified to commence work on the subject contract on or before _____, 2021 and are to fully complete the work within _____ calendar days. In accordance with the contract documents, the Substantial Completion date is _____, 2021, (____days) with the Final Completion date being _____, 2021 (_____days). Extension in time will be by written change order only.

The contract provides for assessment of liquidated damages for each consecutive calendar day that the work remains incomplete after the above established substantial completion date the sum of $750.00. and for each consecutive calendar day that the work remains incomplete after the above established final completion date the sum of $ 750.00.

Indian River County
(OWNER)

By: _____
(Authorized Signature)

Himanshu Mehta, Managing Director
(Printed Name & Title of Above Signer)

NOTE: Attach this notice to your contract making it a part thereof.

FIELD ORDER

PROJECT: IRC Household Hazardous Waste & Recycling Facility

FIELD ORDER NO.: _____

DATE: _____

CONTRACT: _____

OWNER: Indian River County

OWNER'S PROJECT NO.: _____

TO: _____

CONTRACT DATE: _____

_____

_____

This Field Order is issued to interpret/clarify the Contract Documents, order minor changes in the work and/or memorialize trade-off agreements. Both parties hereby agree that the work described by this Field Order is to be accomplished without change in Contract Sum, Contract Time, and/or claims for other costs.

DESCRIPTION: (Here insert a written description of the interpretation, change or agreement.)

FIELD ENGINEER: _____

BY: _____

DATES: _____

CONTRACTOR: _____

BY: _____

DATE: _____

WORK CHANGE DIRECTIVE

No._____

PROJECT: IRC Household Hazardous Waste & Recycling Facility
DATE OF ISSUANCE:
OWNER: Indian River County 1325 74th Avenue SW, Vero Beach 32968
(Name, Address)

CONTRACTOR:

CONTRACT FOR:

OWNER's Project No.:
ENGINEER: Kimley-Horn and Associates, Inc.
ENGINEER's Project No.: 143228000

You are directed to proceed with the following change(s):

Description: _____

Purpose of Work Directive Change: _____

Attachment(s) (list documents supporting change):

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:

[ ] Time and Materials

[ ] Unit Prices

[ ] Cost plus fixed fee

Estimated increase (decrease) in Contract Price $_____. If the change involves an increase, the estimated amount is not to be exceeded without further authorization.

Method of determining change in Contract Time:

[ ] Contractor's records

[ ] Engineer's records

[ ] Other _____

Estimated increase (decrease) in Contract Time _____ days. If the change involves an increase, the estimated time is not to be exceed without further authorization.

Once the Work covered by the directive is completed or final cost and time determined, Contractor should submit documentation for inclusion in a change Order.

THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIME. A CHANGE ORDER, IF ANY, SHOULD BE CONSIDERED PROMPTLY.

RECOMMENDED:	APPROVED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____

CHANGE ORDER

No._____

PROJECT: IRC Household Hazardous Waste & Recycling Facility

DATE OF ISSUANCE _____ EFFECTIVE DATE _____

OWNER Indian River County

OWNER's Contract No. Project No. _____

CONTRACTOR _____ ENGINEER Kimley-Horn

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	CHANGE IN CONTRACT TIME
Original Contract Price $_____	Original Contract Times Substantial Completion: _____ Ready for final payment: _____ Days or dates
Net changes from previous Change Orders No.___ to No._____ $_____	Net change from previous Change Orders No.___to No._____ _____days
Contract Price prior to this Change Order $_____	Contract Time prior to this Change Order Substantial Completion: _____ Ready for final payment: _____ Days or dates
Net Increase (decrease) in this Change Order $_____	Net Increase in this Change Order _____ days
Contract Price with all approved Change Orders $_____	Contract Time with all approved Change Orders Substantial Completion: _____ Ready for final payment: _____ Days or dates

RECOMMENDED:	APPROVED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____

EJCDC No. C-700 (2002 Edition)
Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

APPLICATION FOR PAYMENT NO._____

To: Indian River County (OWNER)
From: _____ (CONTRACTOR)
Contract: _____
PROJECT: IRC Household Hazardous Waste & Recycling Facility
OWNER's Contract No. ENGINEER's Project No. 143228000
For Work accomplished through the date of: _____.

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):	
	_____% 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):**	$_____

Accompanying Documentation:

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) title to 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; (2) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (3) the labor and materials listed on this Application for Payment have been used in the construction of this Work and payment received from the last progress payment has been used to make payments to all subcontractors, laborers, materialmen and suppliers except as listed below:_____ "

Dated _____ _____
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.

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____ Kimley-Horn _____

ENGINEER

By: _____

EJCDC No. C-700-E (2002 Edition)
Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America and the Construction Specification Institute.

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT: IRC Household Hazardous Waste & Recycling Facility

DATE OF ISSUANCE

OWNER Indian River County Board of County Commissioners

OWNER's Contract No. _____ **ENGINEER's Project No.** 143228000

CONTRACTOR _____ **ENGINEER** Kimley-Horn

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

To: Indian River County

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 _____ Days of the above date of Substantial Completion.

EJCDC No. C-700 (2002 Edition)
Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

From the 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:

RESPONSIBILITIES:

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 _____

Kimley-Horn
ENGINEER

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____, 20___

_____
CONTRACTOR

By: _____

OWNER accepts this Certificate of Substantial Completion on _____, 20___

Indian River County
OWNER

By: _____
(Authorized Signature)

FINAL RELEASE OF LIEN

KNOW ALL MEN BY THESE PRESENTS, that

_____
(Company Name)

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.

For all in consideration of
_____dollars ($_____)
(Total Amount of Contract)

paid to _____ by receipt of which is hereby acknowledged,
(Contractor)
do _____ hereby release and quit claim to the OWNER, its successors
(I/We)
or assigns, all liens, lien rights, claims or demands of any kind whatsoever

which _____ now have or might have against the property, building, and/ or
(I/We)
for any incidental expense for the construction of

_____
(Project Number)

IRC Household Hazardous Waste Facility
(Project Name)

IN WITNESS WHEREOF I have hereunto set my hand and seal this _____ day of _____, 20___.

_____ (SEAL)

By _____

WITNESS:

_____

Title _____

DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY
OF RESIDENT PROJECT REPRESENTATIVE

A. GENERAL

Resident Project Representative is ENGINEER'S Agent, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding his actions. Resident Project Representative's dealings in matters pertaining to the on-site Work shall in general be only with ENGINEER and CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of CONTRACTOR. Written communication with OWNER will be only through or as directed by ENGINEER.

B. DUTIES AND RESPONSIBILITIES

Resident Project Representative will:

1. Schedules: Review the progress schedule, schedule of Shop Drawing submissions and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning their acceptability.
2. Conferences: Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with ENGINEER and notify those expected to attend in advance. Attend meetings, and maintain and circulate copies of minutes thereof.
3. Liaison:
4. Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR'S superintendent and assist him in understanding the intent of the Contract Documents. Assist ENGINEER in serving as OWNER'S liaison with CONTRACTOR when CONTRACTOR'S operations affect OWNER'S on-site operations.
5. As requested by ENGINEER, assist in obtaining from OWNER additional details or information, when required at the job site for proper execution of the Work.
6. Shop Drawings and Samples:
    a. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of their availability for examination.
    b. Advise ENGINEER and CONTRACTOR or his superintendent immediately of the commencement of any Work requiring a Shop Drawing or sample submission if the submission has not been approved by the ENGINEER.
7. Review of Work, Rejection of Defective Work, Inspections and Tests:
    a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is proceeding in accordance with the Contract Documents and that completed Work will conform to the Contract Documents.
    b. Report to ENGINEER whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspections, tests or approval required to be made or has been damaged prior to final payment; and advise ENGINEER when he believes Work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

c. Verify that tests, equipment and systems startups and operating and maintenance instructions are conducted as required by the Contract Documents and in presence of the required personnel, and that CONTRACTOR maintains adequate records thereof; observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.

d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the outcome of these inspections and report to ENGINEER.

8. Interpretation of Contract Documents: Transmit to CONTRACTOR engineer's clarifications and interpretations of the Contract Documents.

9. Modifications: Consider and evaluate CONTRACTOR'S suggestions for modifications in Drawings or Specifications and report them with recommendations to ENGINEER.

10. Records:
    a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples submissions, reproductions of original Contract Documents including all Addenda, change orders, field orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER'S clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
    b. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list of visiting officials and representatives of manufacturers, fabricators, suppliers and distributors, daily activities, decisions, observations in general and specific observations in more detail as the case of observing test procedures. Send copies to ENGINEER.
    c. Record names, addresses and telephone numbers of all contractors, Subcontractors and major suppliers of materials and equipment.

11. Reports:
    a. Furnish ENGINEER periodic reports as required of progress of the Work and CONTRACTOR'S compliance with the approved progress schedule and schedule of Shop Drawing submissions.
    b. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.
    c. Report immediately to ENGINEER upon the occurrence of any accident.

12. Payment Requisitions: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to ENGINEER, noting particularly their relation to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.

13. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed; and deliver this material to ENGINEER for his review and forwarding to OWNER prior to final acceptance of the Work.

14. Completion:
    a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
    b. Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
    c. Verify that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. LIMITATIONS OF AUTHORITY

Except upon written instructions of ENGINEER, Resident Project Representative:

15. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
16. Shall not exceed limitations on ENGINEER'S authority as set forth in the Contract Documents.
17. Shall not undertake any of the responsibilities of CONTRACTOR, Subcontractors or CONTRACTOR'S superintendent, or expedite the Work.
18. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents.
19. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.
20. Shall not authorize OWNER to occupy the Project in whole or in part.
21. Shall not participate in specialized field or laboratory tests.

END OF SECTION

INDIAN RIVER COUNTY
HOUSEHOLD HAZARDOUS WASTE
AND RECYCLING FACILITY
Indian River County, FL

PROJECT INFORMATION

SUMMARY OF WORK:
1. CONSTRUCT NEW HOUSEHOLD HAZARDOUS WASTE AND SINGLE-STREAM RECYCLING FACILITY.
2. CONSTRUCT SITE IMPROVEMENTS INCLUDING PAVING, DRAINAGE, UTILITIES AND LANDSCAPING.

CODES IN EFFECT:
WORK SHALL BE DESIGNED IN FULL COMPLIANCE WITH THE LATEST EDITION OF THE APPLICABLE SECTIONS OF THE FOLLOWING CODES, STANDARDS AND GUIDELINES. IN CASE OF A CONFLICT BETWEEN CODES, THE MOST STRINGENT CONDITION SHALL APPLY. ADDITIONAL CODE REFERENCES MAY BE FOUND IN EACH OF THE ENGINEERING DISCIPLINES.
- FLORIDA BUILDING CODE, SEVENTH EDITION (2020)
- FLORIDA MECHANICAL CODE, SEVENTH EDITION (2020)
- FLORIDA ELECTRICAL CODE, SEVENTH EDITION (2020)
- FLORIDA PLUMBING CODE, SEVENTH EDITION (2020)
- FLORIDA FIRE PREVENTION CODE, SEVENTH EDITION (2020)
- NFPA 70 - NATIONAL ELECTRIC CODE 2017

FLORIDA PRODUCT APPROVALS

THE FOLLOWING PRODUCTS ARE TO BE CONSIDERED THE BASIS OF DESIGN AND SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AS SPECIFIED IN THE APPLICABLE FLORIDA APPROVAL CODE DOCUMENTATION. ANY PROPOSED CHANGE OF PRODUCTS SHALL BE SUBMITTED FOR CONSIDERATION WITH FLORIDA APPROVAL CODE INFORMATION.

STOREFRONT (FIXED) WINDOWS
- KAWNEER IR501, FLORIDA APPROVAL NO.: 8787.2.

EXTERIOR SWINGING METAL DOORS
- TELL MANUFACTURING OUT-SWINGING STEEL DOOR SYSTEM; FLORIDA APPROVAL NO.: FL 22211.2

EXTERIOR COILING DOORS
- BEST ROLLING DOOR, INC.
  MIAMI-DADE N.O.A. NO.: 17-1031.07
  FLORIDA APPROVAL NO.: 10706-R3

METAL ROOFING AND SIDING PANELS
- 26 GA. PBR ROOF PANELS, FLORIDA APPROVAL NO.: FL 6617.2
- 26 GA. PBR WALL PANELS, FLORIDA APPROVAL NO.: 7548.1

TRANSLUCENT PANELS
- TRANSLUCENT ROOF PANELS BY GLASTEEL, FLORIDA APPROVAL NO.: FL15531-R4
- TRANSLUCENT WALL PANELS BY GLASTEEL, FLORIDA APPROVAL NO.: FL5614-R6

METAL LOUVERS
- GREENHECK EVH-501D STATIONARY LOUVER
- MIAMI-DADE N.O.A. NO.: 15-0415.05.
- APPROVAL NO.: FL 19277.1

VICINITY MAP

CONTACT INFORMATION

CIVIL ENGINEER OF RECORD

LANDSCAPE ARCHITECT

STRUCTURAL ENGINEER OF RECORD:
KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400
CORAL GABLES, FL 33134
PHONE: (305) 673-2025

ARCHITECT OF RECORD:
MARCOS IBARGUEN, RA
CMK DESIGN STUDIO, INC.
6822 22ND AVE. N. #148
ST. PETERSBURG, FL 36710
PHONE: (813) 362-6381

M/E/P/FP ENGINEER OF RECORD:
TODD WILSON & JOE GIRGENTI
WILSON & GIRGENTI, LLC
PO BOX 1377
SAFETY HARBOR, FL 34695
PHONE: (813) 855-3330

BUILDING AND FIRE CODE INFORMATION

Based on the Florida Building Code (FBC), 2020 (Seventh) Edition and the Florida Fire Prevention Code (FFPC), 2020 (Seventh) Edition, and NFPA 101, Life Safety Code, 2018 Edition.

OCCUPANCY
GROUP S-1, STORAGE, MODERATE HAZARD PER FBC 311.2
MIXED SPECIAL PURPOSE INDUSTRIAL AND OFFICE PER FFPC

CONSTRUCTION TYPE
VB, NON-COMBUSTIBLE, PER FBC SECTION 602.2; FULLY SPRINKLED

ALLOWABLE AREA (SECTION 506.2)
UNLIMITED

PROPOSED AREA
28,750 SF COMPLIES

ALLOWABLE HEIGHT (TABLE 503)
UNLIMITED

PROPOSED HEIGHT
HEIGHT PROPOSED: 35 FEET AT RIDGE. COMPLIES

REQUIRED SEPARATION OF OCCUPANCIES (TABLE 508.4)
GROUP B TO GROUP S-1 - NO SEPARATION REQUIRED

PROPOSED SEPARATION OF OCCUPANCIES
AT H-2 STORAGE ROOM, VOLUNTARY 2-HOUR SEPARATION WALL; 90-MINUTE "B" LABEL DOORS

OCCUPANT LOAD (TABLE 1004.5)
SEE LIFE SAFETY PLAN LS101. MAX. COMBINED OCCUPANT LOAD = 100

REQUIRED EXITS
REQUIRED NUMBER AND PLACEMENT OF EXITS PER SECTION 1006.2: TWO EXITS FROM ALL OCCUPANCIES PLACED A DISTANCE APART NOT LESS THAN ONE-HALF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED.

REQUIRED EGRESS WIDTH PER OCCUPANT (SECT. 1005), SPRINKLED:
DOORS: 0.2 INCHES
0.2 X 100 = 20 INCHES

PROPOSED EXITS
FIRST FLOOR: 4 EXITS, 136 INCHES, COMPLIES
PROPOSED PLACEMENT OF EXITS COMPLIES - SEE LIFE SAFETY PLANS

MAXIMUM ALLOWABLE TRAVEL DISTANCE TO EXITS (TABLE 1016.1)
GROUP S-1, SPRINKLED: 400 FEET

PROPOSED MAXIMUM TRAVEL DISTANCE TO EXITS
GROUP S-1, SPRINKLED: 114 FEET COMPLIES; SEE LIFE SAFETY PLANS

PLUMBING FIXTURES REQUIRED PER F.P.C. 403.1:
PER FPC TABLE 403.1: 1 WC (WOMEN), 1 LAV (WOMEN), 1 WC (MEN), 1 LAV (MEN), 1 DF, 1 SERVICE SINK
FIXTURES PROVIDED: 1 WC (WOMEN), 1 LAV (WOMEN), 1 WC 1 (MEN), 1 LAV (MEN), 2 DF, 2 SERVICE SINKS

ADDITIONAL FFPC CODE ANALYSIS

Previous Use:
- Vacant.

Proposed Use:
- Collection and transfer of household hazardous waste and single-stream recycling.

Hazard Classification per FFPC 101:6.2.2.3
- Ordinary Hazard, all areas

Fire Alarm requirement
- Per FFPC 101:40.3.4.1, a fire alarm system is required.
- See Electrical drawings for fire alarm system proposed.

Fire Sprinkler System requirement
- Per NFPA, facility must be fully sprinklered. See Fire Protection drawings for compliance.

SHEET INDEX

PRE-ENGINEERED METAL BUILDING DRAWINGS SUBMITTED SEPARATELY

PERMIT SET

CMK Design Studio

CMK Design Studio, Inc.
Planning & Design of the Built Environment

6822 22nd Ave. N. #148
St. Petersburg, Florida 33710
Ph: 813.362.6381

FL. LIC. NO.: AA26002603

marcos@cmkdesignstudio.com

STATE OF FLORIDA
MARCOS F. IBARGUEN
AR0013117
REGISTERED ARCHITECT

MARCOS IBARGUEN
AR 13117

Drawing Not Valid Unless Signed, Sealed & Dated By Registered Professional

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY MARCOS IBARGUEN,ARCHITECT, ON THE DATE AND/OR TIME SHOWN USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE
AND RECYCLING FACILITY
Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO.
2016

ISSUE DATE:
7/2/2021

DRAWN BY:
MI

SHEET TITLE
COVER SHEET

SHEET NO.
G000

IRC HHW AND RECYCLING FACILITY

1327 74TH AVENUE SW, VERO BEACH, FL 32968
INDIAN RIVER COUNTY
TAX PARCEL ID: 33-28-25-00001-0090-00001.0
JULY 2021

BUILDING DEPARTMENT SUBMITTAL

LIST OF CONTACTS:

SURVEYOR
DAVID TAYLOR P.S.M.
MASTELLER, MOLER & TAYLOR, INC.
1655 27TH STREET, SUITE. 2
VERO BEACH, FL 32960
PHONE; 772-564-8050

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MATT WISNIEWSKI
KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRC #1400
CORAL GABLES, FL 33134
PHONE: 305-535-7775

CIVIL ENGINEER
BARTON FYE, P.E.
KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRC #1400
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GEOTECHNICAL ENGINEER
DAVID ANDRE, P.E.
ANDERSEN ANDRE CONSULTING ENGINEERS, INC.
834 SW SWAN AVENUE
PORT ST. LUCIE, FL 34983
PHONE: 772-807-9191

ARCHITECT
MARCOS IBARGUEN
CMK DESIGN STUDIO, INC.
6822 22ND AVENUE, #148
ST.PETERSBURG, FL 33710
PHONE: 813-362-6381

LIST OF CONTACTS:

STORMWATER
ST. JOHN RIVER
WATER MANAGEMENT DISTRICT
525 COMMUNITY COLLEGE PARKWAY
PALM BAY, FL 329009
321-676-6602
CONTACT: MARK CROSBY

WATER AND SEWER
INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
1801 27TH STREET
VERO BEACH,FL 32960
772-226-1824
CONTACT: KEVIN OSTHUS

FIRE PREVENTION
INDIAN RIVER COUNTY FIRE DEPARTMENT
1800 27TH STREET
VERO BEACH, FL 32960
772-567-3160 X109
CONTACT: LT. SANDRA SEELEY, FIRE CHIEF

ENGINEERING
CITY OF MIAMI PUBLIC WORKS DEPARTMENT
444 SW 2ND AVENUE
MIAMI, FL 33130
305-416-1200
CONTACT: LEN HELMARS

NATURAL GAS PROVIDER
CITY GAS COMPANY FLORIDA
4180 S. U.S. HWY 1
ROCKLEDGE, FLORIDA 32955
321-638-3419
CONTACT: HOLLY COOMBS

PLANNING AND ZONING
INDIAN RIVER COUNTY
PLANNING DEPARTMENT
1801 27TH STREET
VERO BEACH, FL 32960
772-226-1235
CONTACT: JOHN MCCOY

BUILDING DIVISION
INDIAN RIVER COUNTY
BUILDING DEPARTMENT
1801 27TH STREET
VERO BEACH, FL 32960
772-226-1268
CONTACT: SCOTT MCADAMS

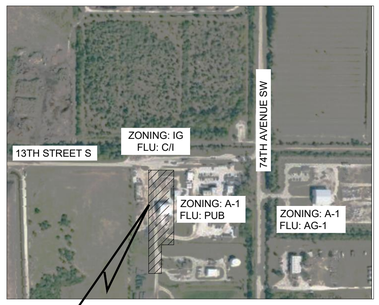
TELEPHONE PROVIDER
AT&T DISTRIBUTION
600 NW 79th AVE
ROOM 336
MIAMI, FL 33126
305-260-8243
CONTACT: DINNO FARRUGGIO

ELECTRIC PROVIDER
FLORIDA POWER AND LIGHT
425 N WILLIAMSON BLVD.
DAYTONA BEACH, FL 32114
386-586-6403
CONTACT: JOEL BRAY

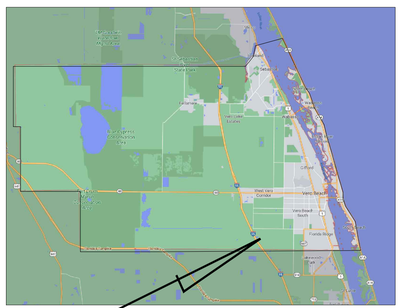
FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT FOUR
3400 WEST COMMERCIAL BLVD
FT. LAUDERDALE, FL 33309
954-777-4377
CONTACT: CHRISTINE NABONG BACOMO

OWNER:

INDIAN RIVER COUNTY
1325 75TH AVENUE SW
VERO BEACH, FLORIDA 32968
772-226-3211



VICINITY MAP
GRAPHIC SCALE IN FEET
0 250 500 1000



LOCATION MAP
N.T.S.

NORTH

Kimley»Horn

355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

Sheet List Table	
Sheet Number	Sheet Title
C-100	COVER SHEET
C-110	GENERAL NOTES
C-200	DEMOLITION NOTES
C-210	DEMOLITION PLAN I
C-211	DEMOLITION PLAN II
C-300	EROSION CONTROL NOTES
C-310	EROSION CONTROL PLAN I
C-311	EROSION CONTROL PLAN II
C-320	EROSION CONTROL DETAILS
C-400	OVERALL SITE PLAN
C-410	SITE PLAN I
C-411	SITE PLAN II
C-412	SITE PLAN DETAILS
C-420	MANEUVERABILITY
C-450	FIRE ACCESS PLAN
C-510	PAVING, GRADING AND DRAINAGE PLAN
C-511	PAVING, GRADING AND DRAINAGE PLAN II
--	C-512 PAVING GRADING AND DRAINAGE DETAILS
C-513	PAVING, GRADING AND DRAINAGE DETAILS II
C-514	PAVING, GRADING AND DRAINAGE DETAILS III
C-515	PAVING, GRADING AND DRAINAGE DETAILS IV
C-520	RETENTION AREAS CROSS SECTION
C-521	RETENTION AREAS CROSS SECTION
C-710	WATER AND SEWER PLANS I
C-711	WATER AND SEWER PLANS II
C-712	INDIAN RIVER COUNTY WATER DETAILS
C-713	INDIAN RIVER COUNTY SEWER DETAILS
C-714	INDIAN RIVER COUNTY SEWER DETAILS
C-715	INDIAN RIVER COUNTY SEWER DETAILS

BARTON J. FYE
LICENSE
No 73898
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Barton J. Fye, P.E. on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Date: 07/21/2021

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn

355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL
DATE:

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF

COVER SHEET

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-100

I. GENERAL NOTES AND SPECIFICATIONS

1. ALL MATERIALS AND CONSTRUCTION UNDER THIS PROJECT SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE INDIAN RIVER COUNTY PUBLIC WORKS MANUAL, THE FLORIDA BUILDING CODE, FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) DESIGN STANDARDS AND SPECIFICATIONS AND ALL OTHER LOCAL, STATE AND FEDERAL REQUIREMENTS.

2. LOCATIONS, SIZE AND MATERIAL OF EXISTING UTILITIES HAVE BEEN DETERMINED FROM AVAILABLE RECORDS. NEITHER THE DEVELOPER, CLIENT, OWNER NOR THE ENGINEER OF RECORD GUARANTEES THE ACCURACY OF THIS DATA. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HORIZONTALLY AND VERTICALLY LOCATE AND PROTECT ALL EXISTING UTILITIES AND STRUCTURES ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL PHYSICALLY FIELD VERIFY BOTH THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UNDERGROUND AND ABOVE GROUND UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL BEAR ALL COSTS FOR THIS WORK.

3. ALL EXISTING UNDERGROUND OR ABOVEGROUND UTILITY PIPES, CABLES, DUCTS, EQUIPMENT, DEVICES, ETC. WITHIN OR OUTSIDE THE PROJECT CONSTRUCTION LIMITS WHICH ARE DAMAGED OR DISRUPTED AS A RESULT OF THE CONTRACTOR'S OPERATION, SHALL BE IMMEDIATELY REPAIRED AT THE CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE UTILITY OWNER. REGARDLESS OF WHETHER THEY WERE SHOWN OR NOT SHOWN ON THE PLANS OR LOCATED OR NOT BY THE OWNER'S REPRESENTATIVE, THE UTILITY COMPANY, SUNSHINE STATE ONE-CALL OF FLORIDA, ETC.

4. ANY DISCREPANCIES BETWEEN THE PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD PRIOR TO COMMENCING ANY CONSTRUCTION WORK.

5. NO FIELD CHANGES OR DEVIATIONS FROM THE DESIGN ARE TO BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER OF RECORD.

6. ALL DEFECTIVE WORK NOT ACCEPTED BY THE ENGINEER OF RECORD, BY THE OWNER'S REPRESENTATIVE, OR BY ANY GOVERNMENTAL PERMITTING REGULATORY AGENCY SHALL BE IMMEDIATELY REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

7. ALL STAGING AREAS SHALL BE PROPERLY FENCED AND SECURED BY THE CONTRACTOR.

8. ALL AREAS WHICH ARE BEING EXCAVATED SHALL BE PROPERTY PROTECTED AND BARRICADED BY THE CONTRACTOR. ALL TRENCH WORK SHALL COMPLY WITH THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 C.F.R.S. 1926.650 SUBPART P AND THE FLORIDA TRENCH SAFETY ACT.

9. ALL EXISTING CONCRETE AND/OR ASPHALT PAVEMENT, CURB AND GUTTERS, CURBS AND WALKS, SOD, LANDSCAPING, FENCE, ETC. DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ITS ORIGINAL CONDITIONS, AT NO ADDITIONAL COST TO THE OWNER OR CLIENT.

10. TEMPORARY ASPHALT PAVEMENT SHALL BE APPLIED TO ALL TRENCHES, WITHIN AN EXISTING PAVED RIGHT 0F WAY, AT THE END OF EACH WORKDAY. PLATING MAY BE USED WITH THE RIGHT-OF-WAY OWNER'S PRIOR CONSENT.

11. PROVIDE FILL TO ENSURE THAT THE FINISH GRADE (INCLUDING SOD) IN LANDSCAPE AREAS ARE AT LEVEL OF CURBS AND/OR EDGE OF SIDEWALKS.

12. WHERE NEW GRADES BLEND INTO EXISTING GRADES IN LANDSCAPE AREAS PROVIDE A UNIFORM TRANSITION. PROTECT ALL EXISTING PAVEMENT AND LANDSCAPE AREAS THAT ARE TO REMAIN.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING UNINTERRUPTED WATER AND SEWER SERVICE DURING THE CONSTRUCTION OF THE TIE-IN CONNECTION OF ALL PROPOSED WATER OR SANITARY SEWER SYSTEMS, TO ANY EXISTING WATER OR SANITARY MAINS AND SERVICE LINES. ABANDONMENT SHALL NOT OCCUR UNTIL THE PROPOSED WORK HAS BEEN APPROVED AND ACCEPTED FOR OPERATION BY THE ENGINEER OF RECORD AND INDIAN RIVER COUNTY PUBLIC WORKS DEPARTMENT. ALL EXISTING FIRE HYDRANTS SHALL BE RECONNECTED TO THE PROPOSED WATER MAIN. INDIAN RIVER COUNTY PUBLIC WORKS DEPARTMENT FIELD OPERATIONS SECTION WILL COORDINATE IN THE FIELD WITH THE WATER DISTRIBUTION DIVISION TO DETERMINE IF AN EXISTING FIRE HYDRANT SHALL BE REPLACED AS NEEDED OR REQUIRED.

14. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE PUBLIC HEALTH AND ENSURE JOB SAFETY. THE CONTRACTOR SHALL CONFORM TO ALL APPLICABLE OCCUPATIONAL SAFETY & HEALTH AGENCY (OSHA) STANDARDS AND FEDERAL, STATE AND LOCAL GOVERNMENT SAFETY REQUIREMENTS.

15. THE CONTRACTOR SHALL ENSURE THAT OVERFLOWS OR RAW SEWAGE SPILLS DO NOT OCCUR DURING CONSTRUCTION OF PROPOSED SANITARY SEWER TIE-IN CONNECTIONS.

16. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT STORM WATER POLLUTION PREVENTION AND EROSION CONTROL MEASURES AND PRACTICES DURING CONSTRUCTION IN ACCORDANCE WITH THE EROSION CONTROL PLAN/DETAILS AND THE CURRENT FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (N.P.D.E.S.) PERMIT FOR CONSTRUCTION ACTIVITIES REQUIREMENTS.

17. CONTRACTOR SHALL ENSURE THAT ALL STORM WATER RUN-OFF WITHIN THE CONSTRUCTION AREA IS CONTAINED ON-SITE.

18. WHEN POWER POLES ARE ADJACENT TO ANY PROPOSED UTILITY, THE CONTRACTOR SHALL PROVIDE PROPER SHORING OR OTHER SUITABLE SUPPORT DURING CONSTRUCTION. THE SHORING AND SUPPORT METHODS SHALL BE APPROVED BY THE UTILITY COMPANY'S ENGINEERING DEPARTMENT.

19. DUE TO FEDERAL REGULATIONS, THE CONTRACTOR MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES AND MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE WITHIN THE PROJECT AREA.

20. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER EXISTING SITE IMPROVEMENTS, FEATURES AND CONDITIONS SHOWN ON THE DRAWINGS WERE OBTAINED FROM THE FOLLOWING TOPOGRAPHIC BOUNDARY SURVEY SPECIFICALLY PREPARED FOR THIS PROJECT:

TITLE: "MAP OF SURVEY"
DATE: 8/21/20
MASTELLER, MOLER & TAYLOR, INC.
1655 27TH STREET, SUITE 2
VERO BEACH, FL 32960
(772) 564-8050 PHONE
(772) 794-0647 FAX

21. ALL ELEVATIONS SHOWN ARE BASED ON THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88). ELEVATION CONVERSION FACTOR FOR THE SITE: NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) = NAVD88 + 1.55'

22. ALL UTILITY CONNECTIONS TO THE BLDG. SHALL BE CONSTRUCTED AND CAPPED OR PLUGGED FIVE FEET FROM THE PROPOSED BUILDING. CONTRACTOR SHALL PERFORM TIE-INS TO THE BUILDING. THE COST ASSOCIATED WITH THE TAPPING/PLUGGING OF THE UTILITIES SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE.

23. CONTRACTOR SHALL COORDINATE WORK WITH OTHER UTILITY AND BUILDING TRADES WORKING ON THIS OR ADJACENT PROJECTS.

24. THE CONTRACTOR SHALL TAKE SPECIAL NOTE OF THE EXISTING SOIL CONDITIONS THROUGHOUT THIS PROJECT. ANY SPECIAL SHORING, SHEETING AND/OR OTHER PROCEDURES NECESSARY TO PROTECT ADJACENT PROPERTY , EITHER PUBLIC OR PRIVATE, DURING CONSTRUCTION ACTIVITIES. ALL COST ASSOCIATED WITH SUCH WORK SHALL BE AT THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

25. AFTER LOCATING AND VERIFYING EXISTING UTILITY TIE IN POINTS, CONTRACTOR IS TO VERIFY THAT DESIGN COMPONENTS SUCH AS, BUT NOT LIMITED TO, PERCENT SLOPE, INVERT, TAP LOCATIONS, PIPE RUNS, INFRASTRUCTURE DEPTH, ETC. WILL STILL BE IN ACCORDANCE WITH THE ENGINEERING PLANS.

26. IF IT SHOULD BECOME NECESSARY TO STOP WORK FOR INDEFINITE PERIODS, THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PREVENT DAMAGE OR DETERIORATION OF THE WORK ALREADY PERFORMED.

II. PRE-CONSTRUCTION RESPONSIBILITIES

1. THE INFORMATION PROVIDED IN THESE PLANS IS TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT ANY INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AND UPON WHICH THEIR BIDS WILL BE BASED.

2. CONTRACTOR MUST CONTACT THE ARCHITECT/ENGINEER OF RECORD TO ARRANGE FOR A PRE-CONSTRUCTION MEETING, A MINIMUM 2 BUSINESS DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

3. THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE-CALL OF FLORIDA (1-800-432-4770) AND ALL KNOWN EXISTING UTILITY OWNERS AT LEAST 2 BUSINESS DAYS BEFORE DIGGING TO ALLOW FOR FIELD LOCATION OF UNDERGROUND UTILITIES. CONTRACTOR SHALL ASSIST THE UTILITY COMPANIES IN THEIR EFFORTS TO FIELD VERIFY UNDERGROUND UTILITIES. THE CONTRACTOR SHALL BEAR ALL COSTS FOR THIS WORK.

4. THE CONTRACTOR SHALL APPLY FOR AND PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, TAXES, ROYALTIES & FEES, AND GIVE ALL NOTICES NECESSARY TO COMPLETE THIS PROJECT.

5. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO ARRANGE FOR ANY REMOVAL, RELOCATION AND TEMPORARY SUPPORT OF UTILITY FEATURES, ETC. AS NECESSARY TO COMPLETE THE WORK, IF APPLICABLE.

III. OBSERVATIONS AND TESTING

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AT LEAST 2 BUSINESS DAYS IN ADVANCE OF PERFORMING ALL CIVIL RELATED TESTS. UNLESS AUTHORIZED BY THE ENGINEER OF RECORD, THE CONTRACTOR SHALL NOT PROCEED WITH TESTING UNLESS THE ENGINEER OR A DESIGNATED REPRESENTATIVE IS PRESENT TO WITNESS THE TESTS.

2. THE ENGINEER OF RECORD WILL REQUIRE THAT THE FOLLOWING TESTS BE PERFORMED WITH ACCEPTABLE RESULTS:
   - A. SANITARY SEWAGE COLLECTION SYSTEM:
     - I. LAMPING TEST FROM MANHOLE TO MANHOLE, INCLUDING CONNECTING MANHOLE
     - II. INFILTRATION/EXFILTRATION TEST UP TO THE CONNECTING MANHOLE
     - III. PRESSURE TEST AS REQUIRED BY DRER
   - B. STORM DRAINAGE-(EXFILTRATION TRENCH DEPTH)
     - I. EXFILTRATION TRENCH DEPTH
     - II. LAMPING TEST FROM MANHOLE TO MANHOLE, INCLUDING CONNECTING MANHOLE (IF APPLICABLE)
   - C. DRAINAGE WELL SPECIFIC CAPACITY TEST.
   - D. WATER SYSTEM-(PRESSURE TEST AND BACTERIOLOGICAL TEST)
   - E. SUBGRADE - SUBMIT AND HAVE APPROVED DENSITIES PRIOR TO PLACEMENT OF ROCK.
   - F. LIME ROCK BASE - SUBMIT AND HAVE APPROVED DENSITIES AND AS-BUILTS PRIOR TO THE PLACEMENT OF ANY ASPHALT. (FLAT BOARDING ALSO REQUIRED.)
   - G. ASPHALT PAVEMENT
   - H. FINAL WALK-THROUGH INSPECTION - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL APPLICABLE REGULATORY AGENCIES FOR INSPECTION REQUIREMENTS.
   - I. CONCRETE FORMWORK AND ADA SLOPE VERIFICATIONS.

3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AT LEAST 2 BUSINESS DAYS IN ADVANCE OF THE FOLLOWING EVENTS:
   - A. PRIOR TO PLACING BALLAST ROCK WITHIN EXFILTRATION TRENCH AND PIPE RUNS TO MEASURE DEPTH AND WIDTH, AS WELL AS DIRECTIONS RESPECTIVELY.
   - B. PRIOR TO BACKFILLING WATER MAINS AND SERVICES
   - C. PRIOR TO BACKFILLING SANITARY SEWER MAINS AND SERVICES
   - D. AFTER COMPACTION OF LIMEROCK BASE AND PRIOR TO PLACEMENT OF FIRST LIFT OF ASPHALT
   - E. AFTER 2ND LIFT AND CONCRETE PLACEMENT OF PEDESTRIAN PATHWAYS
   - F. INSTALLING CONNECTIONS TO EXISTING WATER AND SEWER MAINS/SERVICES AFTER SECOND LIFT AND CONCRETE PLACEMENT OF PEDESTRIAN PATHWAYS.
   - G. AT SUBSTANTIAL COMPLETION
   - H. FINAL INSPECTION

UNLESS AUTHORIZED BY THE ENGINEER OF RECORD, THE CONTRACTOR SHALL NOT PROCEED WITH THESE ACTIVITIES, UNLESS THE ENGINEER OR A DESIGNATED REPRESENTATIVE IS PRESENT TO PERFORM AN INSPECTION.

4. SHOULD THE CONTRACTOR FAIL TO GIVE THE ENGINEER OF RECORD ADVANCE NOTICE OF TESTING AND INSPECTIONS AS SPECIFIED ABOVE, THE ENGINEER SHALL RESERVE THE RIGHT TO REFUSE ISSUANCE OF ANY CERTIFICATIONS OF COMPLETION AND FINAL INSPECTIONS, AND RESERVES THE RIGHT TO RECOMMEND THAT ANY CONTRACT AMOUNTS STILL HELD IN RETAINAGE NOT BE RELEASED. CITY INSPECTOR REPORTS SHALL NOT BE ACCEPTED AS A SUBSTITUTE FOR THE ENGINEER'S PRESENCE AT THE TESTING AND INSPECTION INTERVALS SPECIFIED ABOVE.

IV. SHOP DRAWINGS

1. PRIOR TO CONSTRUCTION OR INSTALLATION, SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER OF RECORD FOR THE FOLLOWING ITEMS:

   A. DRAINAGE STRUCTURES, INCLUDING CATCH BASINS, WELL BOXES, PUMPS, MANHOLES/INLET FRAMES/GRATES, BAFFLES, ETC.
   B. ALL DRAINAGE PIPES.
   C. TRENCH DRAINS.
   D. EXFILTRATION FILTER FABRIC
   E. ALL WATER AND SEWER SYSTEM COMPONENTS
   F. ASPHALT PAVEMENT MIX DESIGN
   G. LIMEROCK MATERIAL
   H. CONCRETE MIX FOR PAVEMENT
   I. MATERIAL SUBSTITUTION REQUESTS
   J. EROSION CONTROL MATERIALS
   K. FILL MATERIAL

2. ALL PRECAST STRUCTURAL DRAWINGS MUST BE SIGNED AND SEALED BY A STATE OF FLORIDA LICENSED ENGINEER OF RECORD STATING THAT THE STRUCTURE(S) MEETS THE H20 LOAD RATING REQUIREMENTS. STRUCTURAL SHOP DRAWINGS WILL BE REJECTED AND NOT REVIEWED IF NOT SEALED BY A FLORIDA LICENSED ENGINEER.

IN ADDITION, SOME CITIES, COUNTIES, STATE AND/OR NATIONAL REGULATORY AGENCIES REQUIRE THEIR OWN INDIVIDUAL REVIEW AND APPROVAL. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL OTHER AGENCY SHOP DRAWING APPROVALS AS REQUIRED.

V. TEMPORARY FACILITIES

1. TEMPORARY FACILITIES

A. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES, AND ELECTRICITY, DURING CONSTRUCTION.

B. THE CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES AND DITCHES DURING ALL PHASES OF CONSTRUCTION, IF APPLICABLE.

C. CONTRACTOR SHALL OBTAIN THE ENGINEERING DESIGN AND PERMIT FOR SUCH FACILITIES AT THE CONTRACTOR'S SOLE COST.

2. TRAFFIC REGULATION

A. THE CONTRACTOR SHALL PROVIDE ALL MAINTENANCE OF TRAFFIC DURING CONSTRUCTION. TO INCLUDE BUT IS NOT LIMITED TO WARNING SIGNALS, SIGNS, LIGHTS AND FLAG PERSONS AS NECESSARY WITHIN PUBLIC RIGHT-OF-WAYS IN ACCORDANCE WITH M.U.T.C.D. AND INDIAN RIVER COUNTY WORKS DEPARTMENT.

B. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE PROPERLY MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC AT ALL TIMES. SPECIAL PRECAUTION IS TO BE TAKEN IN PATHS OF EGRESS.

C. NO TRENCHES OR HOLES NEAR WALKWAYS, IN ROADWAYS OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE INDIAN RIVER COUNTY PUBLIC WORKS DEPARTMENT.

VI. PROJECT CLOSE OUT

1. CLEANING UP

A. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER AND THE PAVED AREAS SHALL BE SWEPT BROOM CLEAN. UPON FINAL CLEANUP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH, AND THE PAVED AREAS SHALL BE BROOMED AND PRESSURE CLEANED.

B. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED, ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY HIS/HER WORK, EQUIPMENT AND/OR EMPLOYEES TO A CONDITION AT LEAST EQUAL TO THAT EXISTING IMMEDIATELY PRIOR TO THE COMMENCEMENT OF OPERATIONS AND TO THE OWNER'S SATISFACTION.

C. THE CONTRACTOR SHALL REPLACE ALL PAVING, STABILIZED EARTH, CURBS, DRIVEWAYS, SIDEWALKS, FENCES, MAILBOXES, SIGNS AND ANY OTHER IMPROVEMENTS REMOVED DURING CONSTRUCTION WITH THE SAME TYPE OF MATERIAL AND TO THE CONDITION WHICH EXISTED PRIOR TO THE COMMENCEMENT OF OPERATIONS AND TO THE OWNER'S SATISFACTION.

D. WHERE MATERIAL OR DEBRIS HAVE WASHED OR FLOWED INTO, OR HAVE BEEN PLACED IN WATER COURSES, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF DURING THE PROGRESS OF THE WORK, AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION. ANY ADVERSE EFFECTS OR BUILDUP IN PUBLIC INFRASTRUCTURE WILL BE CLEANED AND REDUCED BY THE CONTRACTOR AT CONTRACTOR'S EXPENSE.

E. ALL DISPOSAL OF EXCESS AND UNSUITABLE EXCAVATED MATERIAL, DEMOLITION, VEGETATION, RUBBISH AND DEBRIS SHALL BE MADE OUTSIDE THE LIMITS OF CONSTRUCTION AT A LEGAL DISPOSAL SITE PROVIDED BY THE CONTRACTOR AT HIS/HER OWN EXPENSE, WITH THE PRIOR APPROVAL OF THE ENGINEER OF RECORD. MATERIAL CLEARED FROM THE SITE SHALL NOT BE DEPOSITED ON ADJACENT AND/OR NEARBY PROPERTY.

2. ALL PROPERTY MONUMENTS OR PERMANENT SURVEY REFERENCES, REMOVED OR DESTROYED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED BY A STATE OF FLORIDA REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.

3. PROJECT RECORD DOCUMENTS

A. DURING THE DAILY PROGRESS OF THE JOB, THE CONTRACTOR SHALL RECORD ON HIS SET OF CONSTRUCTION DRAWINGS THE EXACT LOCATION, LENGTH AND ELEVATION OF ANY FACILITY NOT BUILT EXACTLY ACCORDING TO PLANS. PRIOR APPROVAL FROM THE ENGINEER OF RCORD IS REQUIRED FOR SAID FACILITIES.

B. AT THE COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL SUBMIT THREE (3) SIGNED & SEALED AS-BUILT DRAWINGS, SIGNED & SEALED BY A REGISTERED LAND SURVEYOR LICENSED IN THE STATE OF FLORIDA. ADDITIONAL AS-BUILT DRAWINGS REQUIRED BY THE CITY, COUNTY, STATE AND/OR FEDERAL REGULATORY AGENCIES SHALL ALSO BE SUBMITTED ONCE REQUIRED. THE AS-BUILT DRAWINGS SHALL INDICATE LOCATION, SIZE, ELEVATION, MATERIAL, ETC., OF ALL WORK COMPLETED UNDER THIS CONTRACT AND OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION.

VII. STORM DRAINAGE

1. WHEN EXISTING MANHOLE RINGS, CATCH BASIN GRATE AND FRAMES, VALVE BOXES, PULL BOXES OR OTHER UTILITY CASTINGS ARE ENCOUNTERED WITHIN THE PROPOSED LIMITS OF WORK THE CONTRACTOR SHALL FIELD ADJUST THE EXISTING RING AND FRAME, GRATE AND FRAME, VALVE BOXES OR PULL BOXES TO MATCH THE PROPOSED ELEVATION. SUCH WORK SHALL BE INCLUDED IN THE BID PRICE.

2. ALL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS OTHERWISE INDICATED.

3. UNLESS OTHERWISE SPECIFIED ON THE PLANS, ALL DRAINAGE PIPE SHALL BE HDPE DOUBLE WALLED SMOOTH INTERIOR PIPE AND SHALL MEET THE REQUIREMENTS OF AASHTO M294 TYPE S, MPT AND ASTM D2321, D3212, F1417, F477, F667 OR AS NOTED ON THE CONSTRUCTION DRAWINGS.

4. CONTRACTOR SHALL VACUUM CLEAN AND REMOVE ALL SILT, SEDIMENT AND DEBRIS FROM ALL OF THE EXISTING AND PROPOSED DRAINAGE STRUCTURES AND PIPE NETWORK WITHIN THE PROJECT LIMITS PRIOR TO FINAL ACCEPTANCE OF DRAINAGE SYSTEM. ALL COST OF SUCH WORK SHALL BE INCLUDED IN THE BID PRICE.

5. ALL DRAINAGE WORK SHALL CONFORM TO THE GOVERNING JURISDICTIONAL AGENCY REGULATIONS AND STANDARDS

6. UNLESS OTHERWISE SPECIFIED ON THE PLANS, MINIMUM COVER OVER ALL STORM DRAINAGE PIPE SHALL BE 36-INCHES. CONTRACTOR SHALL AVOID ALL UNNECESSARY CROSSINGS BY HEAVY CONSTRUCTION EQUIPMENT DURING CONSTRUCTION.

7. UNLESS OTHERWISE SPECIFIED ON THE PLANS, ALL CATCH BASINS, MANHOLES, FRAMES AND GRATES, RINGS AND COVERS, WITHIN PRIVATE PROPERTY, SHALL BE DESIGNED TO WITHSTAND AN AASHTO AND FDOT H20 LOAD RATING AND SHALL BE OBTAINED FROM PLAN SPECIFIED MANUFACTURERS OR APPROVED EQUIVALENT MANUFACTURER.

VIII. EARTHWORK AND PAVING

1. ALL UNDERGROUND UTILITY WORK SHALL BE COMPLETED PRIOR TO CONSTRUCTION OF SUB BASE. ANY SUBGRADE RE-WORK DUE TO UNDERGROUND INFRASTRUCTURE INCONSISTENCIES WILL BE DONE AT THE CONTRACTOR'S EXPENSE.

2. PROPOSED ASPHALT PAVEMENT SHALL BE CONNECTED TO EXISTING AS INDIAN RIVER COUNTY PUBLIC WORKS STANDARD DETAILS. CONTRACTOR SHALL MATCH EXISTING ELEVATIONS ON NEW SIDEWALK OR NEW PAVEMENT.

3. SAW CUT EXISTING CONCRETE WALKS, CURB AND GUTTERS, AND ASPHALT OR CONCRETE PAVEMENT CAREFULLY AND IN A STRAIGHT LINE WHERE UNDERGROUND WORK IS REQUIRED. WHERE PROPOSED ASPHALT OR CONCRETE PAVEMENT, CURB, SIDEWALK, ETC. WILL MEET AN EXISTING LOCATION CUT CONCRETE WALKS, CONCRETE PAVEMENT, CURB AND GUTTERS AT NEAREST EXISTING JOINT.

BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Barton J. Fye, P.E. on the date adjacent to the seal.

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Date: 07/21/2021

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LICENSED PROFESSIONAL

KHA PROJECT	143228000
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRC
DRAWN BY	RMR
CHECKED BY	BF
DATE:	

GENERAL NOTES

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-110

DEMOLITION NOTES AND SPECIFICATIONS:

SHOULD ANY SECTION OF THESE DEMOLITION NOTES BE IN DIRECT CONFLICT WITH THE PROVISIONS OR TECHNICAL SPECIFICATIONS CONTAINED IN THE CONTRACT DOCUMENTS FOR THIS PROJECT, THE MORE STRINGENT OF THE TWO SHALL GOVERN.

I. GENERAL

1. FOR THIS PROJECT, "OWNER" SHALL MEAN INDIAN RIVER COUNTY. "SURVEY" SHALL MEAN THE BOUNDARY SURVEY PREPARED BY MASTELLER, MOLER & TAYLOR,INC. AND "ENGINEER" SHALL MEAN THE ENGINEER OF RECORD.

2. EXISTING CONDITIONS, UTILITIES, STRUCTURES AND OTHER IMPROVEMENTS, AS SHOWN ON THE DEMOLITION DRAWINGS, WERE TAKEN FROM THE SURVEY (PREPARED BY MASTELLER, MOLER & TAYLOR,INC. LAST AMENDED ON 8/21/20), AND FROM INFORMATION PROVIDED BY UTILITY COMPANIES. AN ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING STRUCTURES, UTILITIES, DRIVES, WALKS, ETC., IN THEIR APPROXIMATE LOCATION. OTHERS MAY EXIST AND MAY BE FOUND UPON VISITING THE SITE. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ACCURATELY LOCATE ALL FACILITIES AND TO DETERMINE THEIR EXTENT. IF SUCH FACILITIES OBSTRUCT THE PROGRESS OF THE WORK AND ARE NOT INDICATED TO BE REMOVED OR RELOCATED, THEY SHALL BE REMOVED OR RELOCATED ONLY AS DIRECTED BY THE OWNER, ARCHITECT, OR ENGINEER OF RECORD, AT NO ADDITIONAL COST TO THE OWNER.

3. ORGANIZE AND PERFORM DEMOLITION WORK TO AVOID DAMAGE TO CONSTRUCTION INTENDED TO REMAIN. ANY COMPONENTS INTENDED TO REMAIN BUT DAMAGED DURING DEMOLITION WILL BE REPLACED, NEW, BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE

4. DEMOLITION AND REMOVAL OPERATIONS SHALL BE CONDUCTED IN AN EXPEDIENT MANNER, WITH PRECAUTIONS TAKEN TO PREVENT THE DEMOLITION SITE FROM BEING A NUISANCE.

5. PERFORM REMOVAL AND DEMOLITION IN ACCORDANCE WITH DEMOLITION SCHEDULE (REFER TO SECTION IV.) AND TAKE NECESSARY PRECAUTIONS TO PROTECT EXISTING ADJACENT BUILDINGS, FURNISHINGS, AND EQUIPMENT. NOTIFY THE ENGINEER OF ANY CONDITIONS THAT MAY AFFECT THE SAFETY OF OCCUPANTS OF ADJACENT BUILDINGS, THE NORMAL USE OF THESE FACILITIES, OR THE PHYSICAL CONDITION OF THE STRUCTURES.

6. ALL EXISTING UTILITIES OUTSIDE THE PROPERTY BOUNDARIES ARE TO REMAIN, UNLESS OTHERWISE NOTED. ALL DEMOLITION WORK SHALL BE VERIFIED AGAINST PROPOSED WORK.

7. PRIOR TO DEMOLITION ACTIVITIES, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL AFFECTED UTILITY COMPANIES IN ORDER TO COORDINATE THE DEACTIVATION OF ALL EXISTING UTILITY LINES WITHIN THE PROPERTY. ONCE ALL ONSITE UTILITIES HAVE BEEN DEACTIVATED, ALL LINES SHALL BE CUT AND CAPPED INSIDE THE PROPERTY LINE, AND REMOVED (UNLESS OTHERWISE INDICATED).

8. THE CONTRACTOR SHALL USE EXTREME CAUTION IN REMOVING ANY STRUCTURES AND UTILITIES ABOVE AND BELOW GRADE TO PREVENT DAMAGE TO EXISTING UTILITIES WHICH ARE TO REMAIN IN SERVICE. ANY DAMAGE TO EXISTING PIPELINES, UTILITIES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED, AT THE CONTRACTOR'S EXPENSE, IN A MANNER ACCEPTABLE TO THE PARTY IN OWNERSHIP OF THE DAMAGED PROPERTY. THE CONTRACTOR SHALL REPORT ANY EXISTING DAMAGE PRIOR TO BEGINNING WORK. IN THE EVENT OF ACCIDENTAL DISRUPTION OF UTILITIES OR THE DISCOVERY OF PREVIOUSLY UNKNOWN UTILITIES, CONTRACTOR MUST NOTIFY THE AFFECTED UTILITY COMPANY AND THE ENGINEER. THE UTILITY COMPANY, ENGINEER, AND CONTRACTOR MUST FIRST AGREE ON A PLAN TO CORRECT THE SITUATION OR IDENTIFY THE UTILITY SERVICE LINE. ALL ASSOCIATED COSTS SHALL BE INCURRED AT THE CONTRACTOR'S EXPENSE.

9. NO LIGHTING MAY BE REMOVED FROM PUBLIC STREETS UNTIL PROPOSED LIGHTING IS FULLY IN PLACE, OTHERWISE CONTRACTOR SHALL INSTALL A TEMPORARY LIGHTING SYSTEM, SO THAT NO AREA USED BY THE PUBLIC WILL HAVE LESS LIGHTING THAN CURRENTLY EXISTS.

10. EXISTING WORK NOT SPECIFIED FOR REMOVAL WHICH IS TEMPORARILY REMOVED, DAMAGED, EXPOSED, OR IN ANY WAY DISTURBED OR ALTERED BY REMOVAL WORK SHALL BE REPAIRED, PATCHED OR REPLACED, AT THE CONTRACTOR'S EXPENSE, TO THE ENGINEER'S SATISFACTION.

11. TITLE AND RESPONSIBILITY OF MATERIALS AND EQUIPMENT TO BE REMOVED, EXCEPT SALVAGEABLE EQUIPMENT TO BE RETAINED BY THE OWNER, IS VESTED TO THE CONTRACTOR UPON RECEIPT OF NOTICE TO PROCEED. THE OWNER WILL NOT BE RESPONSIBLE FOR THE CONDITION, LOSS OR DAMAGE TO SUCH MATERIALS AND EQUIPMENT AFTER NOTICE TO PROCEED.

12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO:

   A. PROTECT ALL EXISTING STRUCTURAL ELEMENTS TO REMAIN DURING DEMOLITION
   B. IF APPLICABLE, PROVIDE A TEMPORARY PATCH AND REPAIR TO ALL SURFACES AFFECTED BY DEMOLITION WHICH ARE TO BE RECONSTRUCTED AS PART OF THIS PROJECT.
   C. EXIST. CONC. OR ASPHALT PAVEMENT TO BE REMOVED SHALL BE SAW-CUT IN NEAT, STRAIGHT LINES.
   D. EXIST. IRRIGATION LINES WITHIN THE LIMITS OF DEMOLITION TO BE REMOVED.
   E. ALL EXISTING WIRE, IRON, CHAIN LINK, WOOD FENCES ARE TO REMAIN UNLESS OTHERWISE SPECIFIED.
   F. NO ELECTRIC POLE, STREET LIGHT, WATER METER/VALVE, FIRE HYDRANT ETC. WILL BE REMOVED WITHIN THE ROADWAY RIGHT OF WAY LINES.
   G. REFER TO LANDSCAPE PLANS FOR ALL EXIST. TREES.
   H. EXIST. MONITORING WELLS TO REMAIN AND BE PROTECTED AT ALL TIMES.
   I. ALL EXISTING SURVEY REFERENCES AND MARKERS SHALL REMAIN IN PLACE OR BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.

II. DESCRIPTION

1. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, ETC., NECESSARY AND INCIDENTAL TO THE COMPLETION OF ALL SITE DEMOLITION AND CLEARING WORK AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING THE LEGAL TRANSPORT AND OFF-SITE DISPOSAL OF DEMOLITION DEBRIS.

2. ALL ONSITE WORK INCLUDED CONSISTS OF, BUT IS NOT LIMITED TO, THE FOLLOWING:

   A. FULL-DEPTH REMOVAL OF EXISTING SIDEWALKS, DRIVES, CURBS, PAVEMENT, ETC.
   B. CLEARING SITE OF DEMOLITION DEBRIS.
   C. REMOVAL FROM SITE AND DISPOSAL OF ALL EXCESS AND UNUSABLE MATERIAL.
   D. COORDINATION WITH ALL UTILITY COMPANIES/OWNERS PRIOR TO DEACTIVATION.

III. APPLICABLE CODES

1. DEMOLITION AND TRANSPORTATION OF DEBRIS SHALL COMPLY WITH APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND REGULATIONS GOVERNING THESE OPERATIONS. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ANY PERMITS, BONDS, LICENSES, ETC., REQUIRED FOR DEMOLITION AND CLEARING WORK.

2. ANY WORK WITHIN PUBLIC RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE INDIAN RIVER COUNTY PUBLIC WORKS DEPARTMENT, FLORIDA DEPARTMENT OF TRANSPORTATION, AND OTHER GOVERNMENTAL AGENCIES HAVING JURISDICTION, AND SHALL NOT BEGIN UNTIL THE CONTRACTOR HAS NOTIFIED, AND ALL REQUIRED PERMITS HAVE BEEN OBTAINED FROM, THESE GOVERNING AUTHORITIES.

IV. SEQUENCING AND SCHEDULING

1. AREAS ADJACENT TO DEMOLITION AND REMOVAL WORK MAY BE OCCUPIED BUT THE ACTIVITIES IN THOSE AREAS CANNOT BE INTERRUPTED OR DISTURBED DURING NORMAL WORKING HOURS. DEMOLITION SCHEDULE SHALL BE COORDINATED WITH ALL ADJACENT PROPERTY OWNERS AND ANY OTHER PARTIES WHOSE DAILY ACTIVITIES WOULD BE AFFECTED BY THE DEMOLITION WORK.

2. COORDINATE WITH APPLICABLE UTILITY COMPANIES FOR UTILITY LINE REMOVAL, CAPPING AND UTILITY SHUTDOWNS NECESSITATED BY REMOVAL WORK.

V. ENVIRONMENTAL PROTECTION

1. CONTROL AMOUNT OF DUST RESULTING FROM CONSTRUCTION OR DEMOLITION TO PREVENT SPREAD OF DUST TO OTHER BUILDINGS AND TO AVOID CREATION OF A NUISANCE IN SURROUNDING AREAS. USE OF WATER TO CONTROL DUST WILL NOT BE PERMITTED WHEN IT WILL RESULT IN, OR CREATE, HAZARDOUS OR OBJECTIONABLE CONDITIONS SUCH AS FLOODING.

2. NOISE PRODUCING ACTIVITIES SHALL BE HELD TO A MINIMUM. INTERNAL COMBUSTION ENGINES AND COMPRESSORS, ETC., SHALL BE EQUIPPED WITH MUFFLERS TO REDUCE NOISE TO A MINIMUM. COMPLY WITH ALL NOISE ABATEMENT ORDINANCES.

3. THE USE OF EXPLOSIVES WILL NOT BE PERMITTED.

4. DISPOSITION OF DEMOLISHED MATERIALS BY BURNING IS NOT PERMITTED.

5. ALL CLEARING SHALL BE PERFORMED IN A MANNER SUCH AS TO PREVENT ANY WASH-OFF OF SOILS AND DEBRIS FROM THE SITE INTO PUBLIC RIGHT-OF-WAY STREAMS, AND/OR STORM DRAINAGE SYSTEMS. APPROPRIATE SEDIMENTATION PONDS, DIKES, COLLARS, AND FILTER MEDIA SHALL BE EMPLOYED IN ACORDANCE WITH THE EROSION CONTROL PLANS TO INSURE COMPLIANCE WITH THESE REQUIREMENTS. WHERE A SPECIFIC STATUTE GOVERNS THESE PROCEDURES, SUCH STATUTE SHALL BE COMPLIED WITH IN ITS ENTIRETY.

6. DURING THE ENTIRE COURSE OF OPERATIONS, ALL EXISTING DRAINAGE WAYS, BOTH INTO AND FROM THE PROJECT AREA SHALL BE MAINTAINED IN A FUNCTIONAL CONDITION, AND BE CLEANED AS NECESSARY.

7. AT ALL TIMES DURING THE CLEARING OPERATION, THE EXPOSED AREAS OF SUBGRADE SHALL BE MAINTAINED IN A CONDITION COMPATIBLE WITH POSITIVE DRAINAGE OF THE WORK AREA. NO WATER WILL BE PERMITTED TO STAND IN OPEN EXCAVATIONS. ALL STORMWATER RUNOFF SHALL BE CONTAINED WITHIN THE SITE. FAILURE TO MAINTAIN SUCH DRAINAGE SHALL BE CONSIDERED ADEQUATE CAUSE FOR THE ENGINEER, OWNER, OR INSPECTOR TO ORDER TEMPORARY SUSPENSION OF THE WORK. ALL ASSOCIATED COSTS SHALL BE INCURRED AT THE CONTRACTOR'S EXPENSE.

8. PROVIDE SUITABLE AND FUNCTIONAL DRAINAGE BY OPENING DITCHES, FILTER DRAINS, TEMPORARY CUT-OFF LINES, ETC., AND ERECT TEMPORARY PROTECTIVE STRUCTURES WHERE NECESSARY. ALL EMBANKMENTS SHALL BE BACK-BLADED AND SUITABLY SEALED TO PROTECT AGAINST ADVERSE WEATHER CONDITIONS.

9. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS WHEN REMOVING ABANDONED AND DE-ENERGIZED MATERIALS. IF ASBESTOS PIPES ARE ENCOUNTERED, THE CONTRACTOR WILL TAKE ALL NECESSARY ABATEMENT STEPS AS REQUIRED BY GOVERNING REGULATIONS TO SAFELY REMOVE AND DISPOSE OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON DISCOVERY OF SAID MATERIALS.

VI. TRAFFIC MAINTENANCE

1. CONTRACTOR SHALL FOLLOW THE MORE STRINGENT AND APPLICABLE PROCEDURE OUT OF THE FLORIDA DEPARTMENT OF TRANSPORTATION AND/OR INDIAN RIVER COUNTY PUBLIC WORKS MAINTENANCE OF TRAFFIC PROCEDURES DURING DEMOLITION IN PUBLIC RIGHT-OF-WAYS AND PRIVATE DRIVEWAYS, PEDESTRIANS PATHS, AND ROADWAYS (FDOT INDEX 600 SERIES).

2. THE CONTRACTOR SHALL PROVIDE ADEQUATE BRACING, SHORING, TEMPORARY CROSSOVER FOR PEDESTRIAN AND VEHICULAR TRAFFIC INCLUDING PLATING, GUARDRAILS, LAMPS, WARNING SIGNS, FLAGS, ETC. AS REQUIRED BY AGENCIES HAVING JURISDICTION, AND SHALL NOT REMOVE THESE UNTIL THE NEED FOR PROTECTION CEASES.

3. THE CONTRACTOR MAY NOT CLOSE ANY SIDEWALKS WITHOUT PROVIDING ALTERNATE ROUTES IN ACCORDANCE WITH FDOT INDEX 660 AND AUTHORIZATION FROM AGENCIES HAVING JURISDICTION.

4. CONDUCT REMOVAL OPERATIONS SO THAT TRAFFIC IS MAINTAINED ALONG EXISTING STREETS AND WALKS. KEEP PAVED STREETS AND WALKWAYS CLEAN AND FREE OF DEBRIS. REMOVE MATERIAL AND OTHER MATTER TRACKED OR FALLEN ONTO TRAFFIC SURFACES.

VII. CLEAN UP

1. REMOVE DEMOLISHED CONSTRUCTION MATERIALS AND RELATED DEBRIS FROM THE SITE ON A REGULAR BASIS. ACCUMULATION OF DEBRIS ON THE SITE WILL NOT BE PERMITTED. SELLING OF SALVAGEABLE MATERIALS IS NOT PERMITTED AT THE SITE. LEED RELATED SALVAGEABLE MATERIALS MUST BE DOCUMENTED BY THE CONTRACTOR.

2. REMOVE MATERIALS, INCLUDING DEBRIS AND DUST, AND DISPOSE OF LEGALLY OFF SITE. NO DEBRIS SHALL BE BURNED OR BURIED ON THE SITE AS A MEANS OF DISPOSAL. USE METHODS APPROVED BY THE REGULATORY AGENCIES PRIOR TO BEGINNING CLEANUP OPERATIONS. USE OF BLOWERS TO DISTRIBUTE DUST WILL NOT BE PERMITTED.

3. MATERIAL DESIGNATED FOR REMOVAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

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Date: 07/21/2021

No.	REVISIONS	DATE	BY

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PHONE: 305-673-2025
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LICENSED PROFESSIONAL

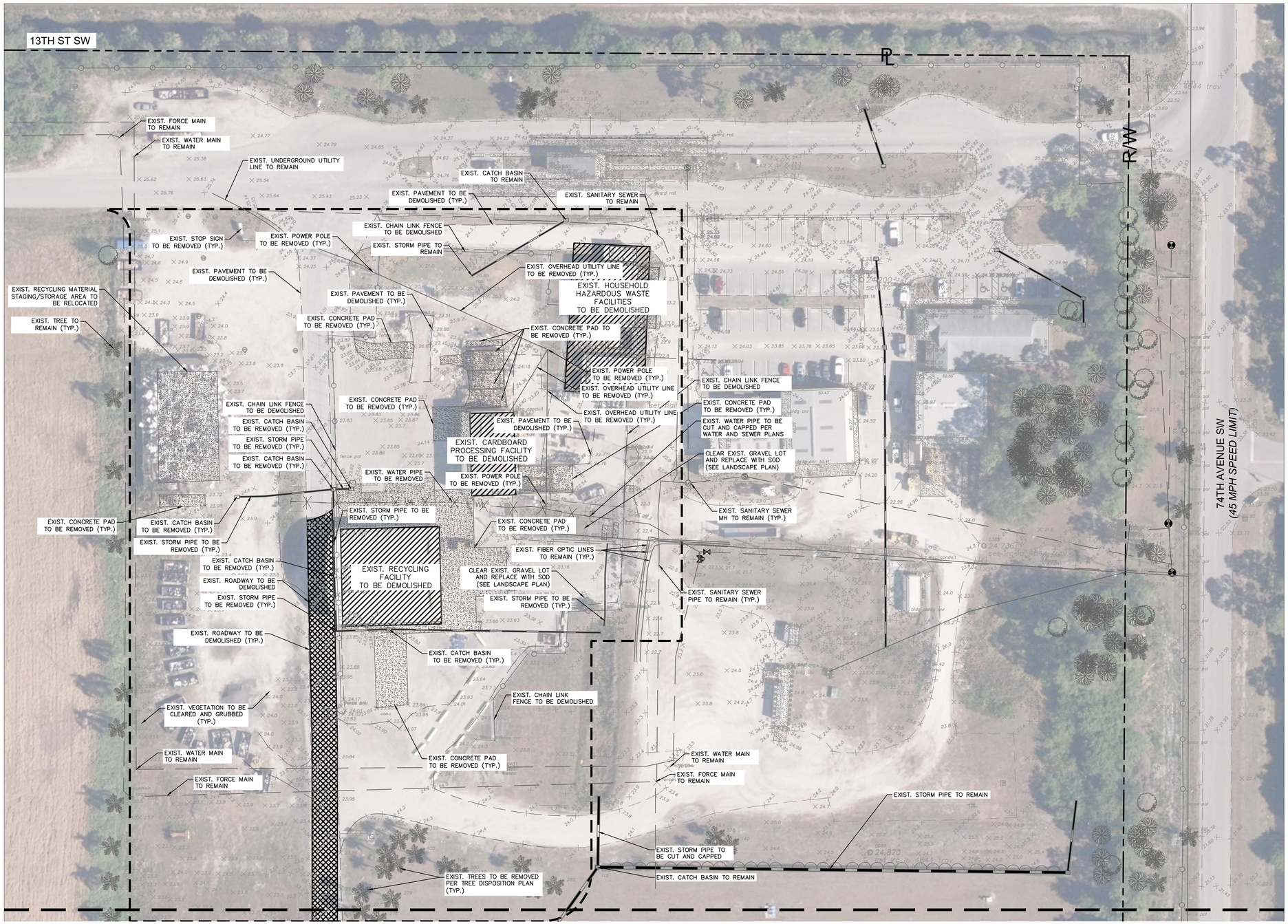
DATE:

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF

DEMOLITION NOTES

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-200



SEE SHEET C-211 FOR CONTINUATION

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RIGHT-OF-WAY LINE / PROPERTY LINE
- LIMITS OF DEMOLITION AREA
- EXISTING FIRE HYDRANT ASSEMBLY
- EXISTING LIGHT POLES
- EXISTING SAN. SEWER MANHOLE
- EXISTING STORM MANHOLE
- EXISTING WATER GATE VALVE

NOTES

1. THE INTENT OF THE DEMOLITION PLAN IS TO DEPICT ALL EXISTING FEATURES THAT ENCUMBER THE PROPOSED CONSTRUCTION AREA AND ARE SCHEDULED FOR REMOVAL. SOME INCIDENTAL ITEMS MAY HAVE BEEN INADVERTENTLY OMITTED FROM THE PLAN. THE CONTRACTOR IS ENCOURAGED TO THOROUGHLY INSPECT THE SITE AS WELL AS REVIEW THE PLANS AND SPECIFICATIONS PRIOR TO SUBMITTING PRICING. CONTRACTOR WILL NOT RECEIVE ADDITIONAL COMPENSATION FOR INCIDENTAL ITEMS NOT SHOWN ON THIS DEMOLITION PLAN.
2. SEE SHEET C-510 FOR LIMITS AND GRADING OF RESURFACED DRIVEWAYS AND ENTRANCES. ADDITIONAL DEMOLITION MAY BE REQUIRED.
3. SEE SHEET C-310 FOR INLET PROTECTION AND EROSION PREVENTION MEASURES TO BE IN PLACE PRIOR TO DEMOLITION ACTIVITIES.
4. CONTRACTOR TO CONFIRM EXISTING DEMO LIMITS AND SITE GRADING PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO SAWCUT WHEN REMOVING EXIST. PAVEMENT THAT IS ADJACENT TO EXIST. PAVEMENT THAT IS TO REMAIN. CONTRACTOR IS RESPONSIBLE FOR REPAIRS TO EXISTING CONCRETE OR ASPHALT TO REMAIN IF DAMAGED DURING CONSTRUCTION.
6. EXISTING TREES TO BE REMOVED SEE LANDSCAPE PLANS FOR TREE DISPOSITION (TYP.)
7. EVERYTHING WITHIN THE DEMOLITION AREA IS TO BE REMOVED INCLUDING UNDERGROUND UTILITIES UNLESS NOTED OTHERWISE.
9. ALL DEMOLITION IN THE PUBLIC RIGHT-OF-WAY WILL REQUIRE A SEPARATE RIGHT-OF-WAY CONSTRUCTION PERMIT.

BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

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LICENSED PROFESSIONAL

KHA PROJECT	143228000
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRG
DRAWN BY	RMR
CHECKED BY	BF
DATE:	

DEMOLITION PLAN I

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-210

SEE SHEET C-210 FOR CONTINUATION

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

R/W – PL	RIGHT-OF-WAY LINE / PROPERTY LINE
- - -	LIMITS OF DEMOLITION AREA
	EXISTING FIRE HYDRANT ASSEMBLY
	EXISTING LIGHT POLES
	EXISTING SAN. SEWER MANHOLE
	EXISTING STORM MANHOLE
	EXISTING WATER GATE VALVE

NOTES

1. THE INTENT OF THE DEMOLITION PLAN IS TO DEPICT ALL EXISTING FEATURES THAT ENCUMBER THE PROPOSED CONSTRUCTION AREA AND ARE SCHEDULED FOR REMOVAL. SOME INCIDENTAL ITEMS MAY HAVE BEEN INADVERTENTLY OMITTED FROM THE PLAN. THE CONTRACTOR IS ENCOURAGED TO THOROUGHLY INSPECT THE SITE AS WELL AS REVIEW THE PLANS AND SPECIFICATIONS PRIOR TO SUBMITTING PRICING. CONTRACTOR WILL NOT RECEIVE ADDITIONAL COMPENSATION FOR INCIDENTAL ITEMS NOT SHOWN ON THIS DEMOLITION PLAN.
2. SEE SHEET C-510 FOR LIMITS AND GRADING OF RESURFACED DRIVEWAYS AND ENTRANCES. ADDITIONAL DEMOLITION MAY BE REQUIRED.
3. SEE SHEET C-310 FOR INLET PROTECTION AND EROSION PREVENTION MEASURES TO BE IN PLACE PRIOR TO DEMOLITION ACTIVITIES.
4. CONTRACTOR TO CONFIRM EXISTING DEMO LIMITS AND SITE GRADING PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO SAWCUT WHEN REMOVING EXIST. PAVEMENT THAT IS ADJACENT TO EXIST. PAVEMENT THAT IS TO REMAIN. CONTRACTOR IS RESPONSIBLE FOR REPAIRS TO EXISTING CONCRETE OR ASPHALT TO REMAIN IF DAMAGED DURING CONSTRUCTION.
6. EXISTING TREES TO BE REMOVED SEE LANDSCAPE PLANS FOR TREE DISPOSITION (TYP.)
7. EVERYTHING WITHIN THE DEMOLITION AREA IS TO BE REMOVED INCLUDING UNDERGROUND UTILITIES UNLESS NOTED OTHERWISE.
9. ALL DEMOLITION IN THE PUBLIC RIGHT-OF-WAY WILL REQUIRE A SEPARATE RIGHT-OF-WAY CONSTRUCTION PERMIT.

BARTON J. FYE
LICENSE
No 73898
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Barton J. Fye, P.E. on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Date: 07/21/2021

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No.	REVISIONS	DATE	BY

Kimley»Horn

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LICENSED PROFESSIONAL

KHA PROJECT	143228000
DATE	JULY 2021
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DEMOLITION PLAN II

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY FL
INDIAN RIVER COUNTY

SHEET NUMBER
C-211

BEST MANAGEMENT PRACTICES (BMPS):

THIS PLAN HAS BEEN PREPARED TO ENSURE COMPLIANCE WITH APPROPRIATE CONDITIONS OF THE INDIAN RIVER COUNTY LAND DEVELOPMENT REGULATIONS, THE RULES OF THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP), CHAPTER 17–25, F.A.C., ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (SJRWMD), CHAPTER 40D–4, F.A.C. AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) DOCUMENT NO. EPA 832/R–92–005 (SEPTEMBER 1992). THE PLAN ADDRESSES THE FOLLOWING:

A. PREVENT LOSS OF SOIL DURING CONSTRUCTION BY STORMWATER RUNOFF AND/OR WIND EROSION, INCLUDING PROTECTING TOPSOIL BY STOCKPILING FOR REUSE.

B. SEDIMENTION PROTECTION OF STORM SEWER OR RECEIVING STREAM.

C. PREVENT POLLUTING THE AIR WITH DUST AND PARTICULATE MATTER. THE VARIOUS TECHNIQUES OR ACTIONS IDENTIFIED UNDER EACH SECTION INDICATE THE APPROPRIATE SITUATION WHEN THE TECHNIQUES SHOULD BE EMPLOYED. ALSO IDENTIFIED IS A CROSS–REFERENCE TO A DIAGRAM OR FIGURE REPRESENTING THE TECHNIQUE. IT SHOULD BE NOTED THAT THE MEASURES IDENTIFIED ON THIS PLAN ARE ONLY SUGGESTED BMP(S). THE CONTRACTOR SHALL PROVIDE POLLUTION PREVENTION AND EROSION CONTROL MEASURES AS SPECIFIED IN ACCORDANCE WITH THE CURRENT FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS. CONTRACTOR SHALL PREPARE REQUIRED NPDES DOCUMENTATION AND OBTAIN PERMIT PRIOR TO COMMENCEMENT OF CONSTRUCTION. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE THE REQUIRED NPDES DOCUMENT AND OBTAIN THE NPDES PERMIT. ALL COST ASSOCIATED WITH SUCH WORK SHALL BE DEEMED INCIDENTAL TO THE PROJECT LUMP SUM COST.

GENERAL EROSION CONTROL NOTES:

A. THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS COMPRISED OF THIS DRAWING, THE STANDARD DETAILS, THE NPDES PERMIT (TO BE OBTAINED BY CONTRACTOR) AND ALL SUBSEQUENT REPORTS AND RELATED DOCUMENTS.

B. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THIS DRAWING AND THE STATE OF FLORIDA NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT (NPDES PERMIT) AND BECOME FAMILIAR WITH THEIR CONTENTS.

C. CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES (BMP) IN ALL CONSTRUCTION ACTIVITIES INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

1. FUEL SPILLS AND LEAKS PREVENTION
2. PREVENT/REDUCE VEHICLE AND EQUIPTMENT WASHING AND STEAM CLEANING
3. VEHICLE AND EQUIPMENT MAINTENANCE AND REPAIR
4. PROPER OUTDOOR LOADING/UNLOADING OF MATERIALS
5. PREVENT/REDUCE OUTDOOR STORAGE OF RAW MATERIALS, PRODUCTS, AND BY–PRODUCTS
6. SOLID WASTE MANAGEMENT
7. HAZARDOUS WASTE MANAGEMENT
8. CONCRETE WASTE MANAGEMENT
9. SANDBLASTING WASTE MANAGEMENT
10. STRUCTURE CONSTRUCTION AND PAINTING
11. SPILL PREVENTION AND CONTROL
12. CONTAMINATED SOIL MANAGEMENT
13. SANITARY/SEPTIC WASTE MANAGEMENT
14. SOIL EROSION CONTROL
15. STORM WATER TURBIDITY MANAGEMENT

ADDITIONAL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED AS DICTATED BY CONDITIONS AT NO ADDITIONAL COST TO THE OWNER THROUGHOUT ALL PHASES OF CONSTRUCTION.

D. BEST MANAGEMENT PRACTICES (BMPS) AND CONTROLS SHALL CONFORM TO FEDERAL, STATE, OR LOCAL REQUIREMENTS OR MANUAL OF PRACTICE, AS APPLICABLE. CONTRACTOR SHALL IMPLEMENT ADDITIONAL CONTROLS AS DIRECTED BY PERMITTING AGENCY OR OWNER.

E. SITE MAP MUST CLEARLY DELINEATE ALL STATE WATERS. CONTRACTOR MUST MAINTAIN ALL PERMITS FOR ANY CONSTRUCTION ACTIVITY IMPACTING STATE WATERS OR REGULATED WETLANDS ON SITE AT ALL TIMES.

F. CONTRACTOR SHALL MINIMIZE CLEARING TO THE MAXIMUM EXTENT PRACTICAL OR AS REQUIRED BY THE GENERAL PERMIT.

G. CONTRACTOR SHALL BEGIN CLEARING AND GRUBBING THOSE PORTIONS OF THE SITE NECESSARY TO IMPLEMENT PERIMETER CONTROL MEASURES. CLEARING AND GRUBBING FOR THE REMAINING PORTIONS OF THE PROPOSED SITE SHALL COMMENCE ONCE PERIMETER CONTROLS ARE IN PLACE. PERIMETER CONTROLS SHALL BE ACTIVELY MAINTAINED UNTIL SAID AREAS HAVE BEEN STABILIZED AND SHALL BE REMOVED ONCE FINAL STABILIZATION IS COMPLETE.

H. GENERAL EROSION CONTROL BMPS SHALL BE EMPLOYED TO MINIMIZE SOIL EROSION AND POTENTIAL LAKE SLOPE CAVE–INS. WHILE THE VARIOUS TECHNIQUES REQUIRED WILL BE SITE AND PLAN SPECIFIC, THEY SHOULD BE EMPLOYED AS SOON AS POSSIBLE DURING CONSTRUCTION.

I. ON–SITE & OFF–SITE SOIL STOCKPILE AND BORROW AREAS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION THROUGH IMPLEMENTATION OF BEST MANAGEMENT PRACTICES. STOCKPILE AND BORROW AREA LOCATIONS SHALL BE NOTED ON THE SITE MAP AND PERMITTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS.

J. TOPSOIL CANNOT BE STOCKPILED INSIDE THE PROPERTY FOR REFUSE.

K. SURFACE WATER QUALITY SHALL BE MAINTAINED BY EMPLOYING THE FOLLOWING BMP'S IN THE CONSTRUCTION PLANNING AND CONSTRUCTION OF ALL IMPROVEMENTS.

STORM WATER EROSION CONTROL PRACTICES:

A. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS IN CONJUNCTION WITH THE STABILIZATION OF THE SITE.

B. SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION DURING THE GRADING PHASE TO REDUCE RUNOFF VELOCITIES AND EROSION.

C. DUE TO THE GRADE CHANGES DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, ETC.) TO PREVENT EROSION.

D. WHERE PRACTICAL, STORMWATER SHALL BE CONVEYED BY SWALES.

E. EROSION CONTROL MEASURES SHALL BE EMPLOYED TO MINIMIZE TURBIDITY OF SURFACE WATERS LOCATED DOWNSTREAM OF ANY CONSTRUCTION ACTIVITY. WHILE THE VARIOUS MEASURES REQUIRED WILL BE SITE SPECIFIC, THEY SHALL BE EMPLOYED AS NEEDED IN ACCORDANCE WITH THE FOLLOWING:

1. IN GENERAL, EROSION SHALL BE CONTROLLED AT THE FURTHEST PRACTICAL UPSTREAM LOCATION.

2. STORMWATER INLETS SHALL BE PROTECTED DURING CONSTRUCTION. PROTECTION MEASURES SHALL BE EMPLOYED AS SOON AS PRACTICAL DURING THE VARIOUS STAGES OF INLET CONSTRUCTION. SILT BARRIERS SHALL REMAIN IN PLACE UNTIL SODDING AROUND INLETS IS COMPLETE.

3. A TEMPORARY SEDIMENT TRAP SHOLD BE CONSTRUCTED TO DETAIN SEDIMENT–LADEN RUNOFF FROM DISTURBED AREAS.

F. SILT BARRIERS, ANY SILT WHICH ACCUMULATES BEHIND THE BARRIERS, AND ANY FILL USED TO ANCHOR THE BARRIERS SHALL BE REMOVED PROMPTLY AFTER THE END OF THE MAINTENANCE PERIOD SPECIFIED FOR THE BARRIERS.

G. SLOPES OF BANKS OF RETENTION/DETENTION PONDS SHALL BE CONSTRUCTED NOT STEEPER THAN 3H:1V FROM TOP OF BANK TO TWO FEET BELOW NORMAL WATER LEVEL, AS APPLICABLE.

H. SOD SHALL BE PLACED FOR A 2–FOOT WIDE STRIP ADJOINING ALL CURBING AND AROUND ALL INLETS. SOD SHALL BE PLACED BEFORE SILT BARRIERS ARE REMOVED.

I. WHERE REQUIRED TO PREVENT EROSION FROM SHEET FLOW ACROSS BARE GROUND FROM ENTERING A LAKE OR SWALE, A TEMPORARY SEDIMENT SUMP SHALL BE CONSTRUCTED.

J. FILTER FABRIC SHOULD BE USED FOR STORM DRAIN INLET PROTECTION BEFORE FINAL STABILIZATION.

WIND EROSION CONTROL PRACTICES:

A. WIND EROSION SHALL BE CONTROLLED BY EMPLOYING THE FOLLOWING METHODS AS NECESSARY AND APPROPRIATE:

1. BARE EARTH AREAS SHALL BE WATERED DURING CONSTRUCTION AS NECESSARY TO MINIMIZE THE TRANSPORT OF FUGITIVE DUST. IT MAY BE NECESSARY TO LIMIT CONSTRUCTION VEHICLE SPEED IF BARE EARTH HAS NOT BEEN EFFECTIVELY WATERED. IN NO CASE SHALL FUGITIVE DUST BE ALLOWED TO LEAVE THE SITE UNDER CONSTRUCTION.

2. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED (SEE PERMANENT STABALIZATION PRACTICES FOR DETAILS). THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE GRADING PLAN AND/OR LANDSCAPE PLAN. CLEARED SITE DEVELOPMENT AREAS NOT CONTINUALLY SCHEDULED FOR CONSTRUCTION ACTIVITIES SHALL BE COVERED WITH HAY OR OVERSEEDED AND PERIODICALLY WATERED SUFFICIENTLY TO STABILIZE THE TEMPORARY GROUNDCOVER (SEE TEMPORARY STABALIZATION PRACTICES FOR DETAILS).

3. AT ANY TIME BOTH DURING AND AFTER SITE CONSTRUCTION THAT WATERING AND/OR VEGETATION ARE NOT EFFECTIVE IN CONTROLLING WIND EROSION AND/OR TRANSPORT OF FUGITIVE DUST, OTHER METHODS AS ARE NECESSARY FOR SUCH CONTROL SHALL BE EMPLOYED. THESE METHODS SHOULD INCLUDE ERECTION OF DUST CONTROL FENCES. A 6–FT GEOTEXTILE FILTER FIBER SHOULD BE HANGING AGAINST THE EXISTING CHAIN LINK FENCE AND GATE.

B. ALL DUST ON THE SITE SHALL BE CONTROLLED. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

STABILIZATION PRACTICES:

A. TEMPORARY STABILIZATION – TOPSOIL STOCK PILES AND DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASE FOR AT LEAST 21 DAYS, SHALL BE STABILIZED WITH TEMPORARY SEED AND MULCH WITHIN 14 DAYS OF THE LAST CONSTRUCTION ACTIVITY IN THAT AREA. THE TEMPORARY SEED REQUIRED CAN BE FOUND IN TABLE 1.65 A OF THE FLORIDA DEVELOPMENT MANUAL. PRIOR TO SEEDING, WHERE SOILS ARE ACIDIC 2 TONS OF PULVERIZED AGRICULTURAL LIMESTONE SHOULD BE ADDED PER ACRE AND 450 POUNDS OF 10–20–20 FERTILIZER SHALL BE APPLIED TO EACH ACRE. AFTER SEEDING, EACH AREA SHALL BE IMMEDIATELY MULCHED WITH STRAW OR EQUIVALENT EQUAL. AREAS OF THE SITE WHICH ARE TO BE PAVED SHALL BE TEMPORARILY STABILIZED BY APPLYING GEOTEXTILE AND STONE SUB–BASE UNTIL BITUMINOUS PAVEMENT CAN BE APPLIED.

B. PERMANENT STABILIZATION – DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASES SHALL BE STABILIZED WITH PERMANENT SEED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY. THE APPROPRIATE PERMANENT SEED MIX CAN BE FOUND IN TABLES 1.66A, 1.66B AND 1.66C OF THE FLORIDA DEVELOPMENT MANUAL. PRIOR TO SEEDING, 2 TONS/ACRE OF FINELY GROUND AGRICULTURAL LIMESTONE AND THE PROPER FERTILIZER BASED ON THE TYPE OF SEEDING SHALL BE APPLIED TO EACH ACRE TO PROVIDE PLANT NUTRIENTS. AFTER SEEDING, EACH AREA SHALL BE MULCHED IMMEDIATELY.

C. STABILIZATION WILL BE INITIATED ON ALL DISTURBED AREAS WITHIN 14 DAYS OF WORK CEASING, UNLESS CONSTRUCTION ACTIVITY WILL RESUME IN THAT AREA WITHIN 21 DAYS AFTER WORK STOPPAGE. THE TEMPORARY SEDIMENT SUMP SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED ON THE GROUND DRAINING TO THE SUMP.

D. CONTRACTOR TO ENSURE THAT EXISTING VEGETATION ON OR ADJACENT TO THE PROPOSED SITE IS PRESERVED AND DISTURBED PORTIONS OF THE SITE ARE STABILIZED. STABILIZATION PRACTICES SHOULD BE INITIATED AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 7 DAYS WHERE CONSTRUCTION HAS TEMPORARILY CEASED.

E. ALL CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY, THIS INCLUDES BACKFILLING OF TRENCHES FOR UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

F. SHALL BE IN ACCORDANCE WITH DEP DOCUMENT NO. 62–621.300(4)(a)

SPILL CONTROL PRACTICES:

IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:

A. SPILL CLEANUP INFORMATION SHALL BE POSTED ON SITE TO INFORM EMPLOYEES ABOUT CLEANUP PROCEDURES AND RESOURCES.

B. THE FOLLOWING CLEAN–UP EQUIPMENT MUST BE KEPT ON–SITE NEAR THE MATERIAL STORAGE AREA: GLOVES, MOPS, RAGS, BROOMS, DUST PANS, SAND, SAWDUST, LIQUID ABSORBER, GOGGLES, AND TRASH CONTAINERS.

C. SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS SHALL BE MAINTAINED ONSITE AND READILY AVAILABLE TO CONTAIN AND CLEAN–UP FUEL OR CHEMICAL SPILLS AND LEAKS.

D. ALL SPILLS SHALL BE CLEANED UP AS SOON AS POSSIBLE.

E. WHEN CLEANING A SPILL, THE AREA SHOULD BE WELL VENTILATED AND THE EMPLOYEE SHALL WEAR PROPER PROTECTIVE COVERING TO PREVENT INJURY.

F. TOXIC SPILLS MUST BE REPORTED TO THE PROPER AUTHORITY REGARDLESS OF THE SIZE OF THE SPILL.

G. AFTER A SPILL, THE PREVENTION PLAN SHALL BE REVIEWED AND CHANGED TO PREVENT FURTHER SIMILAR SPILLS FROM OCCURRING. THE CAUSE OF THE SPILL, MEASURES TO PREVENT IT, AND HOW TO CLEAN THE SPILL UP SHALL BE RECORDED.

H. THE SUPERINTENDENT SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR AND IS RESPONSIBLE FOR THE DAY TO DAY SITE OPERATIONS. THE SUPERINTENDENT ALSO OVERSEES THE SPILL PREVENTION PLAN AND SHALL BE RESPONSIBLE FOR EDUCATING THE EMPLOYEES ABOUT SPILL PREVENTION AND CLEANUP PROCEDURES.

STRUCTURAL PRACTICES:

A. EARTH DIKE – IF REQUIRED, AN EARTH DIKE SHALL BE CONSTRUCTED ALONG THE SITE PERIMETER. A PORTION OF THE DIKE SHALL DIVERT RUN–ON AROUND THE CONSTRUCTION SITE. THE REMAINING PORTION OF THE DIKE SHALL COLLECT RUNOFF FROM THE DISTURBED AREA AND DIRECT THE RUNOFF TO THE SEDIMENT BASIN.

B. SEDIMENT BASIN – A SEDIMENT BASIN SHALL BE CONSTRUCTED IN THE COMMON DRAINAGE AREA FOR THE SITE. ALL SEDIMENT COLLECTED IN THE BASIN MUST BE REMOVED FROM THE BASIN UPON COMPLETION OF CONSTRUCTION. SEDIMENT FROM THE BASIN MAY BE USED AS FILL ON THE SITE IF IT IS SUITABLE SOIL.

C. SHALL BE IN ACCORDANCE WITH DEP DOCUMENT NO. 62–621.300(4)(a)

WASTE DISPOSAL:

A. WASTE MATERIALS – ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN A METAL DUMPSTER WITH A SECURE LID IN ACCORDANCE WITH ALL LOCAL AND STATE LAWS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN THE DUMPSTER. THE SUPERINTENDENT SHALL COORDINATE WITH THE LOCAL UTILITIES TO HAVE THE DUMPSTER EMPTIED AT LEAST TWICE A WEEK AND THE WASTE TAKEN TO AN APPROPRIATE LANDFILL. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE. THE SUPERINTENDENT SHALL ORGANIZE TRAINING FOR THE EMPLOYEES IN THE PROPER PRACTICES WHEN DEALING WITH WASTE MATERIALS. THE SUPERINTENDENT SHALL BE RESPONSIBLE FOR POSTING AND ENFORCING WASTE MATERIAL PROCEDURES.

B. HAZARDOUS WASTE – HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL AND STATE LAWS OR AS DIRECTED BY THE MANUFACTURER. THE SUPERINTENDENT SHALL ORGANIZE THE PROPER TRAINING FOR EMPLOYEES IN THE PROPER PRACTICES WHEN DEALING WITH HAZARDOUS WASTE MATERIALS. THESE PROCEDURES SHALL BE POSTED ON THE SITE. THE PERSON WHO MANAGES THE SITE SHALL BE RESPONSIBLE FOR ENFORCING THE PROCEDURES.

C. SANITARY WASTE – SANITARY WASTE SHALL BE COLLECTED AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL AND STATE LAWS. THE SUPERINTENDENT SHALL COORDINATE WITH THE LOCAL UTILITY FOR COLLECTION OF THE SANITARY WASTE AT LEAST THREE TIMES A WEEK TO PREVENT SPILLAGE ONTO THE SITE.

D. RUBBISH, TRASH, GARBAGE, LITTER, OR OTHER SUCH MATERIALS SHALL BE DEPOSITED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE PREMISES THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE.

E. ANY CONSTRUCTION DEBRIS GENERATED AS A RESULT OF THIS PROJECT WILL BE DISPOSED OF OFF–SITE AN AT APPROPRIATE WASTE FACILITY.

F. CONCRETE WASHOUT LOCATIONS WILL BE PROVIDED IN AREAS WHERE THE DISPOSAL MATERIALS WILL BE CONTAINED TO PREVENT DISCHARGE OUTSIDE OF THE PROJECT LIMITS AND INTO THE WATERWAYS.

OFFSITE TRACKING:

A. STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED TO REDUCE SEDIMENT TRACKING OFFSITE. THE MAJOR ROAD CONNECTED TO THE PROJECT SHALL BE CLEANED ONCE A DAY TO REMOVE ANY EXCESS MUD, DIRT OR ROCK RESULTING FROM CONSTRUCTION TRAFFIC. ALL TRUCKS HAULING MATERIALS OFFSITE SHALL BE COVERED WITH A TARPAULIN.

B. GENERAL CONTRACTOR SHALL DENOTE ON PLAN THE TEMPORARY PARKING AND STORAGE AREA WHICH SHALL ALSO BE USED AS THE EQUIPMENT MAINTENANCE AND CLEANING AREA, EMPLOYEE PARKING AREA, AND AREA FOR LOCATION PORTABLE FACILITIES, OFFICE TRAILERS, AND TOILET FACILITIES. HEAVY CONSTRUCTION EQUIPMENT PARKING AND MAINTENANCE AREAS SHALL BE DESIGNED TO PREVENT OIL, GREASE, AND LUBRICANTS FROM ENTERING SITE DRAINAGE FEATURES INCLUDING STORMWATER COLLECTION AND TREATMENT SYSTEMS. CONTRACTORS SHALL PROVIDE BROAD DIKES, HAY BALES OR SILT SCREENS AROUND, AND SEDIMENT SUMPS WITHIN, SUCH AREAS AS REQUIRED TO CONTAIN SPILLS OF OIL, GREASE OR LUBRICANTS. CONTRACTORS SHALL HAVE AVAILABLE, AND SHALL USE, ABSORBENT FILTER PADS TO CLEAN UP SPILLS AS SOON AS POSSIBLE AFTER OCCURRENCE.

C. ALL WASH WATER FROM CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC. SHALL BE DETAINED ON SITE AND SHALL BE PROPERLY TREATED OR DISPOSED.

D. IF THE ACTION OF VEHICLES TRAVELING OVER THE GRAVEL CONSTRUCTION ENTRANCES IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF DIRT OR MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLES ENTER A PUBLIC ROAD. IF WASHING IS USED, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF THE SITE.

E. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

INSPECTION AND MAINTENANCE:

ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A 0.5" RAINFALL EVENT, AND CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:

A. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.

B. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED, AND RESEEDED AS NEEDED.

C. THE SILT FENCE SHALL BE INSPECTED PERIODICALLY FOR HEIGHT OF SEDIMENT AND CONDITION OF FENCE. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE–THIRD THE HEIGHT OF THE SILT FENCE.

D. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.

E. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.

F. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS SHALL BE MAINTAINED IN OPERATIONAL CONDITIONS AT ALL TIMES. THE SEDIMENT BASINS/DITCHES SHALL BE CHECKED MONTHLY FOR DEPTH OF SEDIMENT. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 10% AND AFTER CONSTRUCTION IS COMPLETE.

G. ALL MAINTENANCE OPERATIONS SHALL BE DONE IN A TIMELY MANNER BUT IN NO CASE LATER THAN SEVEN CALENDAR DAYS FOLLOWING THE INSPECTION.

H. DIVERSION DIKES SHALL BE INSPECTED MONTHLY. ANY BREACHES SHALL BE PROMPTLY REPAIRED.

I. A MAINTENANCE REPORT SHALL BE COMPLETED DAILY AFTER EACH INSPECTION OF THE SEDIMENT AND EROSION CONTROL METHODS. THE REPORTS SHALL BE FILED IN AN ORGANIZED MANNER AND RETAINED ON–SITE DURING CONSTRUCTION. AFTER CONSTRUCTION IS COMPLETED, THE REPORTS SHALL BE SAVED FOR AT LEAST THREE YEARS. THE REPORTS SHALL BE AVAILABLE FOR ANY AGENCY THAT HAS JURISDICTION OVER EROSION CONTROL.

J. ALL REPAIRS MUST BE MADE WITHIN 24 HOURS OF REPORT.

K. THE SUPERINTENDENT SHALL ORGANIZE THE TRAINING FOR INSPECTION PROCEDURES AND PROPER EROSION CONTROL METHODS FOR EMPLOYEES THAT COMPLETE INSPECTIONS AND REPORTS.

SPILL PREVENTION AND CONTROL:

THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF.

A. GOOD HOUSEKEEPING

1. SUPERINTENDENT SHALL INSPECT PROJECT AREA DAILY FOR PROPER STORAGE, USE, AND DISPOSAL OF CONSTRUCTION MATERIALS.
2. STORE ONLY ENOUGH MATERIAL ON SITE FOR PROJECT COMPLETION.
3. ALL SUBSTANCES SHOULD BE USED BEFORE DISPOSAL OF CONTAINER.
4. ALL CONSTRUCTION MATERIALS STORED SHALL BE ORGANIZED AND IN THE PROPER CONTAINER AND IF POSSIBLE, STORED UNDER A ROOF OR PROTECTIVE COVER.
5. PRODUCTS SHALL NOT BE MIXED UNLESS DIRECTED BY THE MANUFACTURER.
6. ALL PRODUCTS SHALL BE USED AND DISPOSED OF ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

B. HAZARDOUS PRODUCTS

1. MATERIALS SHOULD BE KEPT IN ORIGINAL CONTAINER WITH LABELS UNLESS THE ORIGINAL CONTAINERS CANNOT BE RESEALED. IF ORIGINAL CONTAINERS CANNOT BE USED, LABELS AND PRODUCT INFORMATION SHALL BE SAVED.
2. PROPER DISPOSAL PRACTICES SHALL ALWAYS BE FOLLOWED IN ACCORDANCE WITH MANUFACTURER AND LOCAL/STATE REGULATIONS.

C. PRODUCT SPECIFIC PRACTICES

1. PETROLEUM PRODUCTS MUST BE STORED IN PROPER CONTAINERS AND CLEARLY LABELED. VEHICLES CONTAINING PETROLEUM PRODUCTS SHALL BE PERIODICALLY INSPECTED FOR LEAKS. PRECAUTIONS SHALL BE TAKEN TO AVOID LEAKAGE OF PETROLEUM PRODUCTS ON SITE.
2. THE MINIMUM AMOUNT OF FERTILIZER SHALL BE USED AND MIXED INTO THE SOIL IN ORDER TO LIMIT EXPOSURE TO STORM WATER. FERTILIZERS SHALL BE STORED IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
3. PAINT CONTAINERS SHALL BE SEALED AND STORED WHEN NOT IN USE. EXCESS PAINT MUST BE DISPOSED OF IN AN APPROVED MANNER.
4. CONCRETE TRUCKS SHALL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE.

PROJECT DESCRIPTION:

PROJECT LOCATION: 1325 74TH AVENUE SW, VERO BEACH, FL 32968

1. PROJECT LIMITS: TOTAL PROJECT AREA IS APPROXIMATELY 4.4 ACRES. THE TOTAL DISTURBED AREA IS APPROXIMATELY ACRES ONSITE.
2. CONSTRUCTION ACTIVITY: CONSTRUCTION OF RECYCLING FACILITY, PARKING AREA, SIDEWALKS, LANDSCAPING, UTILITIES, AND DRAINAGE SYSTEM.
3. MAJOR SOIL DISTURBING ACTIVITIES: CLEARING AND GRUBBING, INSTALLATION OF DRAINAGE SYSTEM, INSTALLATION OF UTILITIES
4. DEWATERING ACTIVITIES: DEWATERING IS ANTICIPATED FOR THIS SITE.
5. SOIL CHARACTERISTICS: THE SOIL TYPE WITHIN THE PROJECT'S LIMIT OF DISTURBANCE IS CLASSIFIED AS FILL IN.
6. RUNOFF COEFFICIENTS:

EXISTING:	0.65
DURING CONSTRUCTION:	0.65
PROPOSED:	0.85

SEQUENCE OF CONSTRUCTION:

SEQUENCE OF SOIL DISTURBING ACTIVITIES AND IMPLEMENTATION OF CONTROLS:

1. PRIOR TO COMMENCEMENT OF ANY EARTH DISTURBING ACTIVITIES, INCLUDING CLEARING AND GRUBBING, INSTALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE EROSION CONTROL PLAN, STANDARD DETAILS, NPDES REQUIREMENTS, AND INDIAN RIVER COUNTY PUBLIC WORKS ENGINEERING STANDARD FOR DESIGN AND CONSTRUCTION MANUAL.
2. BEGIN CLEARING AND GRUBBING.
3. INSTALL DRAINAGE SYSTEM, INCLUDING: CONCRETE INLETS, DRAINAGE PIPES AND MANHOLES.
4. INSTALL INLET PROTECTION AND ROCK BAGS ON ALL INLETS AND MANHOLES IN THE LOCATIONS SHOWN ON THE PLANS AND PER THE STANDARD DETAILS PROVIDED AND INDIAN RIVER COUNTY PUBLIC WORKS ENGINEERING STANDARD FOR DESIGN AND CONSTRUCTION MANUAL.
5. PREPARE SUBBASE MATERIAL.
6. BEGIN ASPHALT AND CONCRETE INSTALLATION.
7. AFTER COMPLETION OF SITE WORK, BEGIN SITE STABILIZATION AND PERMANENT SEEDING.
8. ONCE SITE STABILIZATION IS COMPLETE, CONTRACTOR TO CLEAN ALL CONSTRUCTION DEBRIS FROM CONSTRUCTION SITE.
9. ONCE A UNIFORM 70% VEGETATIVE COVER OF PERENNIAL VEGETATION IS ACHIEVED ACROSS THE ENTIRE DISTURBED AREA THE REMOVAL OF TEMPORARY EROSION CONTROL MEASURES MAY BEGIN.

BARTON J. FYE
LICENSE No 73898
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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Date: 07/21/2021

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No.	REVISIONS	DATE	BY

Kimley»Horn
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355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305–673–2025
WWW.KIMLEY–HORN.COM REGISTRY 696

LICENSED PROFESSIONAL

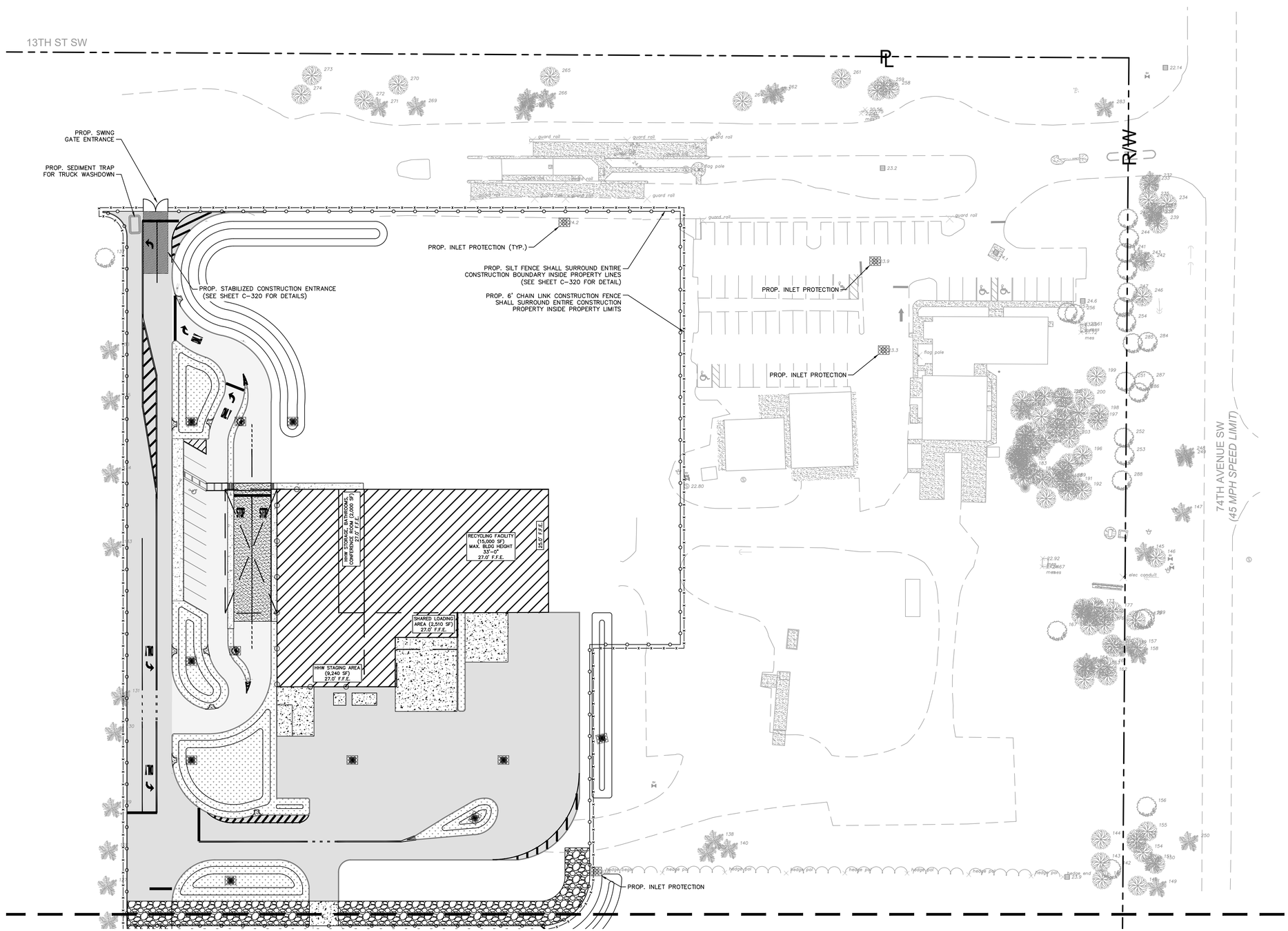
DATE:

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF

EROSION CONTROL NOTES

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-300



SEE SHEET C-311 FOR CONTINUATION

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING
- PROP. HEAVY DUTY ASPHALT
- PROP. STANDARD DUTY ASPHALT
- PROP. LANDSCAPE AREA
- PROP. HEAVY DUTY CONC.
- PROP. CONC. SIDEWALK
- PROP. STANDARD DUTY CONC.
- SEDIMENT BARRIER CONTROL FOR STORM STRUCTURE (SEE SHEET C-320 FOR DETAIL)
- PROP. STABILIZED CONSTRUCTION ENTRANCE
- PROP. GRAVEL ROAD
- PROP. 6' CHAIN LINK CONSTRUCTION FENCE WITH DUST SCREEN
- PROP. 6' CHAIN LINK CONSTRUCTION FENCE WITH DUST SCREEN

No.	REVISIONS	DATE	BY

Kimley»Horn
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355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
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LICENSED PROFESSIONAL

KHA PROJECT	143228000
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRG
DRAWN BY	RMR
CHECKED BY	BF
DATE:	

EROSION CONTROL PLAN I

IRC LANDFILL

PREPARED FOR
INDIAN RIVER COUNTY
FL
INDIAN RIVER COUNTY

SHEET NUMBER
C-310

BARTON J. FYE
LICENSE
No 73898
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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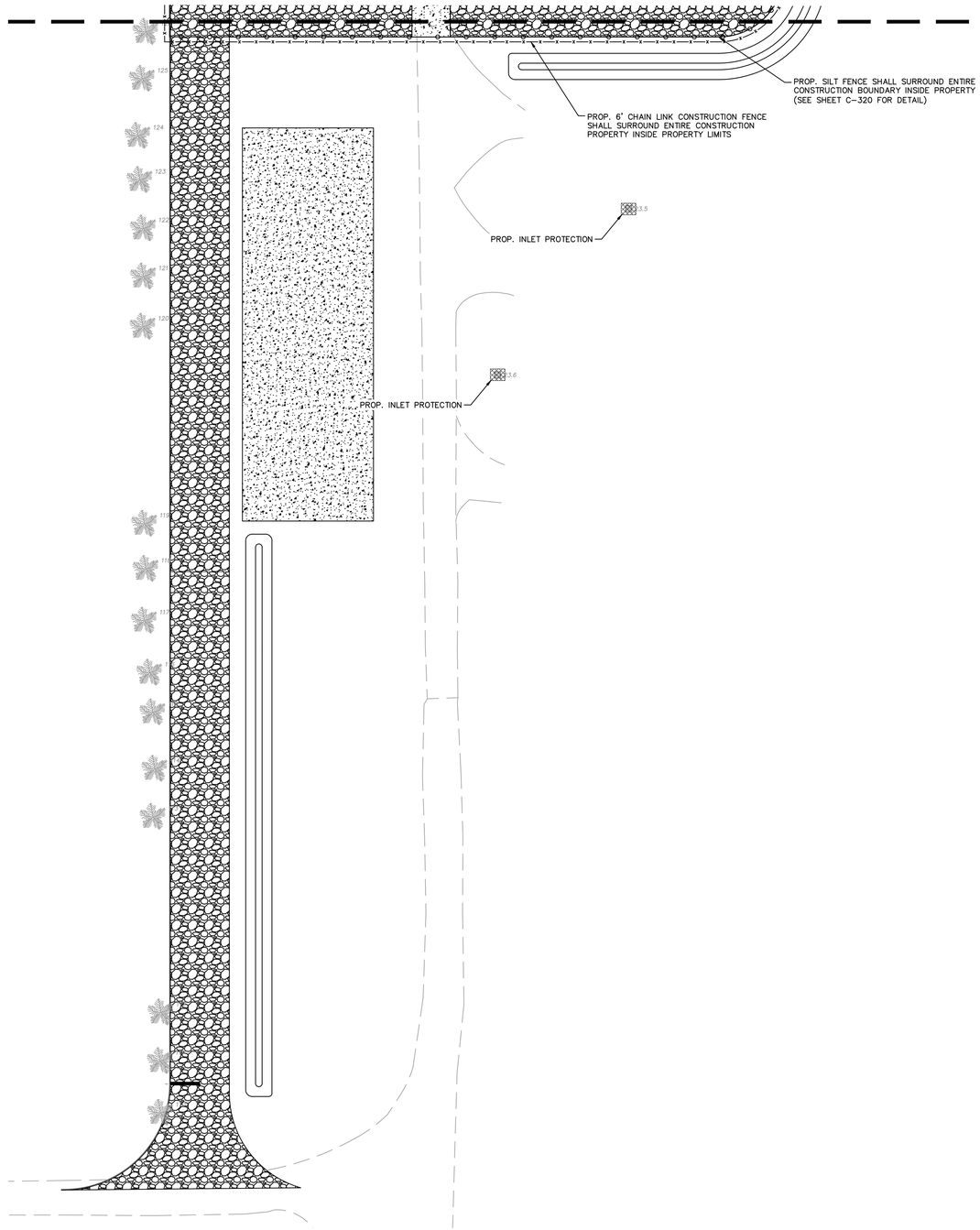
SEE SHEET C-310 FOR CONTINUATION



NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING
- PROP. HEAVY DUTY ASPHALT
- PROP. STANDARD DUTY ASPHALT
- PROP. LANDSCAPE AREA
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BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

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PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

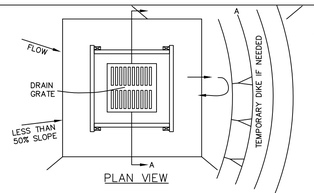
LICENSED PROFESSIONAL
DATE:

KHA PROJECT 143228000			
DATE JULY 2021			
SCALE AS SHOWN			
DESIGNED BY	MRG		
DRAWN BY	RMR		
CHECKED BY	BF		

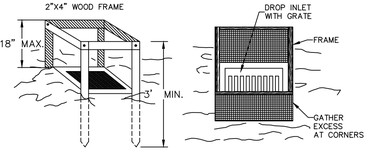
EROSION CONTROL PLAN II

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

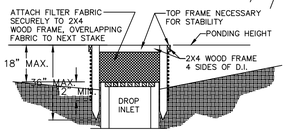
SHEET NUMBER
C-311



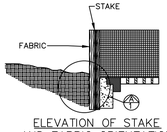
PLAN VIEW



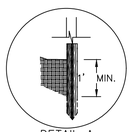
PERSPECTIVE VIEWS



SECTION A–A



ELEVATION OF STAKE AND FABRIC ORIENTATION



DETAIL A

NOTES:

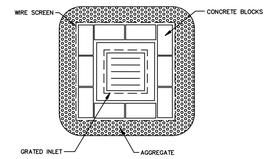
1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS
2. USE 2X4 OR EQUIVALENT METAL STAKES, (3' MIN. LENGTH)
3. INSTALL 2X4 TOP WOOD FRAME TO INSURE STABILITY.
4. THE TOP OF THE FRAME (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BY PASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.

SPECIFIC APPLICATION:

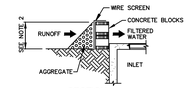
THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS IS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

FILTER FABRIC DROP INLET SEDIMENT BARRIER

N.T.S.



PLAN

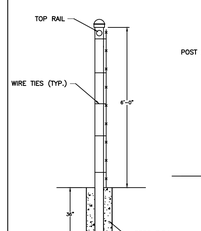


SECTION

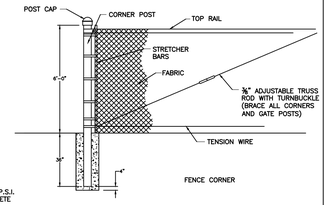
1. PLACE CONCRETE BLOCKS IN A SINGLE ROW AROUND PERIMETER OF INLET ON THEIR SIDES, WITH ENDS OF ADJACENT BLOCKS ABUTTING.
2. HEIGHT OF BARRIER VARIES, USE STACKS OF 4–INCH, 8–INCH, OR 12" BLOCKS. MIN. HEIGHT OF BARRIER 12" AND MAX. HEIGHT OF 24"
3. PLACE HARDWARE CLOTH/WIRE MESH W/ MAX. 1/2" OPENINGS OVER VERTICAL FACE OF CONCRETE BLOCKS.
4. THE AGGREGATE SHALL BE ANY NON–ERODIBLE MATERIAL SUCH AS LOOSE ROCK, BROKEN CONCRETE THAT WILL SLOW THE FLOW OF THE WATER AND ALLOW IT TO FILTER THROUGH AND OVER THE MATERIAL BEFORE ENTERING THE INLET.

BLOCK AND AGGREGATE INLET SEDIMENT DEVICE

N.T.S.

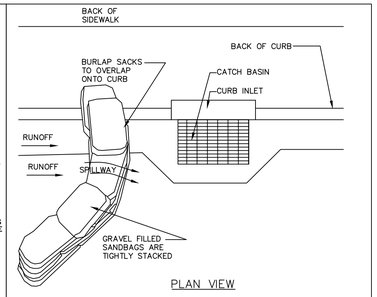


FENCE POST



TEMPORARY 6' CONSTRUCTION PRIVACY FENCE

N.T.S.



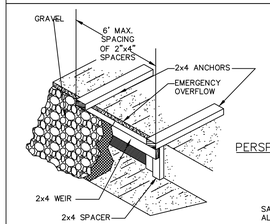
PLAN VIEW

NOTES:

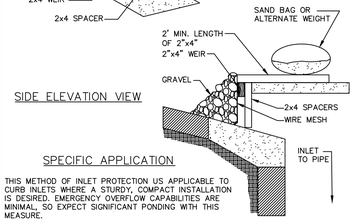
1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN "GEOTEXTILE" FABRIC, ARE FILLED WITH GRAVEL LAYERED AND PACKED TIGHTLY.
3. LEAVE A ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB AND GUTTER SEDIMENT BARRIER

N.T.S.



PERSPECTIVE VIEW



SIDE ELEVATION VIEW

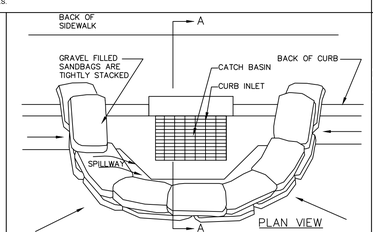
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION US APPLICABLE TO CURB INLETS WHERE A STURDY, COMPACT INSTALLATION IS DESIRED. EMERGENCY OVERFLOW CAPABILITIES ARE MINIMAL, SO EXPECT SIGNIFICANT PONDING WITH THIS MEASURE.

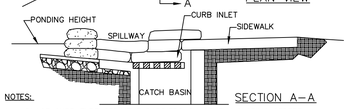
GRAVEL SHALL BE FDOT COARSE AGGREGATE #3, #357 OR #5

GRAVEL CURB INLET SEDIMENT FILTER WITH OVERFLOW METER

N.T.S.



PLAN VIEW



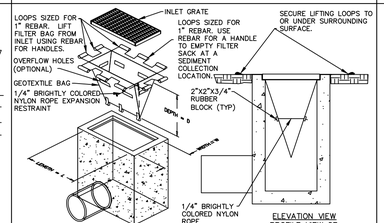
SECTION A–A

NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS, OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
3. LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER

N.T.S.



ISOMETRIC VIEW

ELEVATION VIEW
PROFILE VIEW OF INSTALLED FILTER SACK

1. EMPTY FILTER SACK WHEN BRIGHTLY COLORED EXPANSION RESTRAINT CAN NO LONGER BE SEEN.
2. GEOTEXTILE WILL BE A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS REQUIREMENTS IN THE SPECIFICATIONS TABLE.
3. AN OIL ADSORBENT PAD OR PILLOW CAN BE PURCHASED WHEN OIL SPILLS ARE A CONCERN.
4. INSPECT PER REGULATORY REQUIREMENTS.
5. THE WIDTH, "W", OF THE FILTER SACK WILL MATCH THE INSIDE WIDTH OF THE GRATED INLET BOX.
6. THE DEPTH, "D", OF THE FILTER SACK WILL BE BETWEEN 18 INCHES AND 36 INCHES.
7. THE LENGTH, "L", OF THE FILTER SACK WILL MATCH THE INSIDE LENGTH OF THE GRATED INLET BOX.

LOW TO MODERATE FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	600 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.50 SEC -1

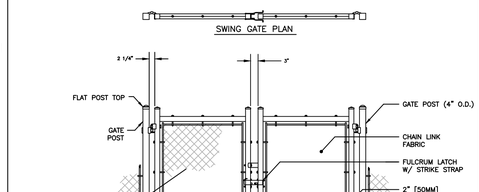
MODERATE TO HIGH FLOW GEOTEXTILE FABRIC SPECIFICATION TABLE

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	250 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	400 PSI
TRAPEZOID TEAR	ASTM D-4533	95 LBS
UV RESISTANCE	ASTM D-4355	70 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

FILTER SACKS (GRATED INLETS)

DO NOT USE ON ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS.

N.T.S.

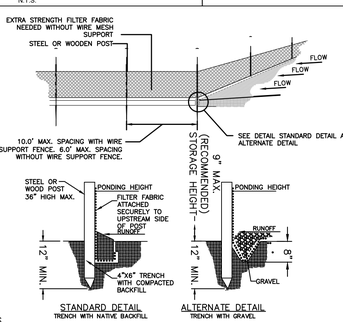


SWING GATE ELEVATION

GATE NOTES:

TEMPORARY 24' WIDE SWING GATES (FIRE DEPARTMENT ACCESSIBLE)

N.T.S.



STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL

ALTERNATE DETAIL
TRENCH WITH GRAVEL

ATTACHING TWO SILT FENCES

POST THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE

DIRECTION OF RUNOFF WATERS

ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL

DRIVE BOTH POSTS 18 INCHES INTO THE GROUND AND BURY FLAP

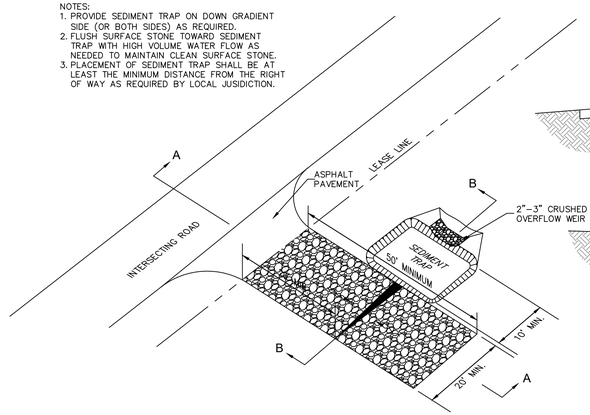
NOTES:

1. CONTRACTOR SHALL PERFORM DAILY INSPECTIONS OF GEO–TEXTILE FABRIC BARRIER AND AS NECESSARY REPLACE OR REPAIR AS REQUIRED. SPECIFICALLY AFTER STORM EVENTS AND LARGE RAINFALL EVENTS.
2. SEDIMENTATION AND DEBRIS THAT ARE REMOVED FROM BARRIERS SHALL BE LEGALLY DISPOSED OF AT AN AUTHORIZED OFF–SITE DISPOSAL FACILITY.

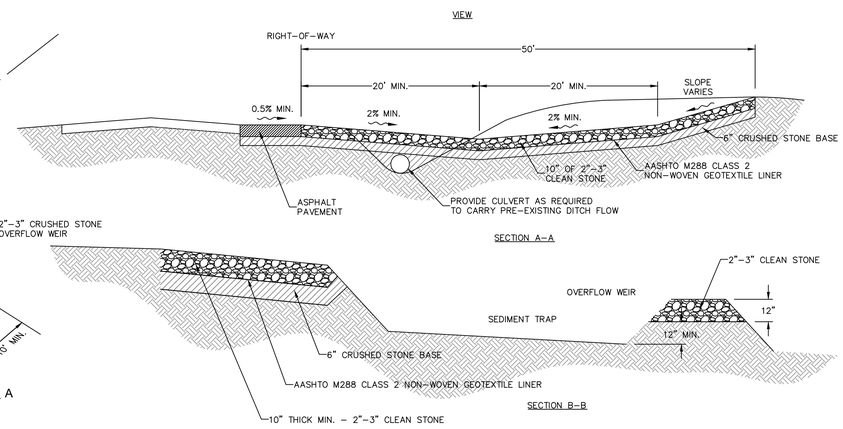
SEDIMENTATION/SILT FENCE

N.T.S.

NOTES:
1. PROVIDE SEDIMENT TRAP ON DOWN GRADIENT SIDE (OR BOTH SIDES) AS REQUIRED.
2. FLUSH SURFACE STONE TOWARD SEDIMENT TRAP WITH HIGH VOLUME WATER FLOW AS NEEDED TO MAINTAIN CLEAN SURFACE STONE.
3. PLACEMENT OF SEDIMENT TRAP SHALL BE AT LEAST THE MINIMUM DISTANCE FROM THE RIGHT OF WAY AS REQUIRED BY LOCAL JUSIDICTION.



VIEW



CONSTRUCTION ENTRANCE

N.T.S

Sunshine811

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No.	REVISIONS	DATE	BY

Kimley»Horn

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PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL

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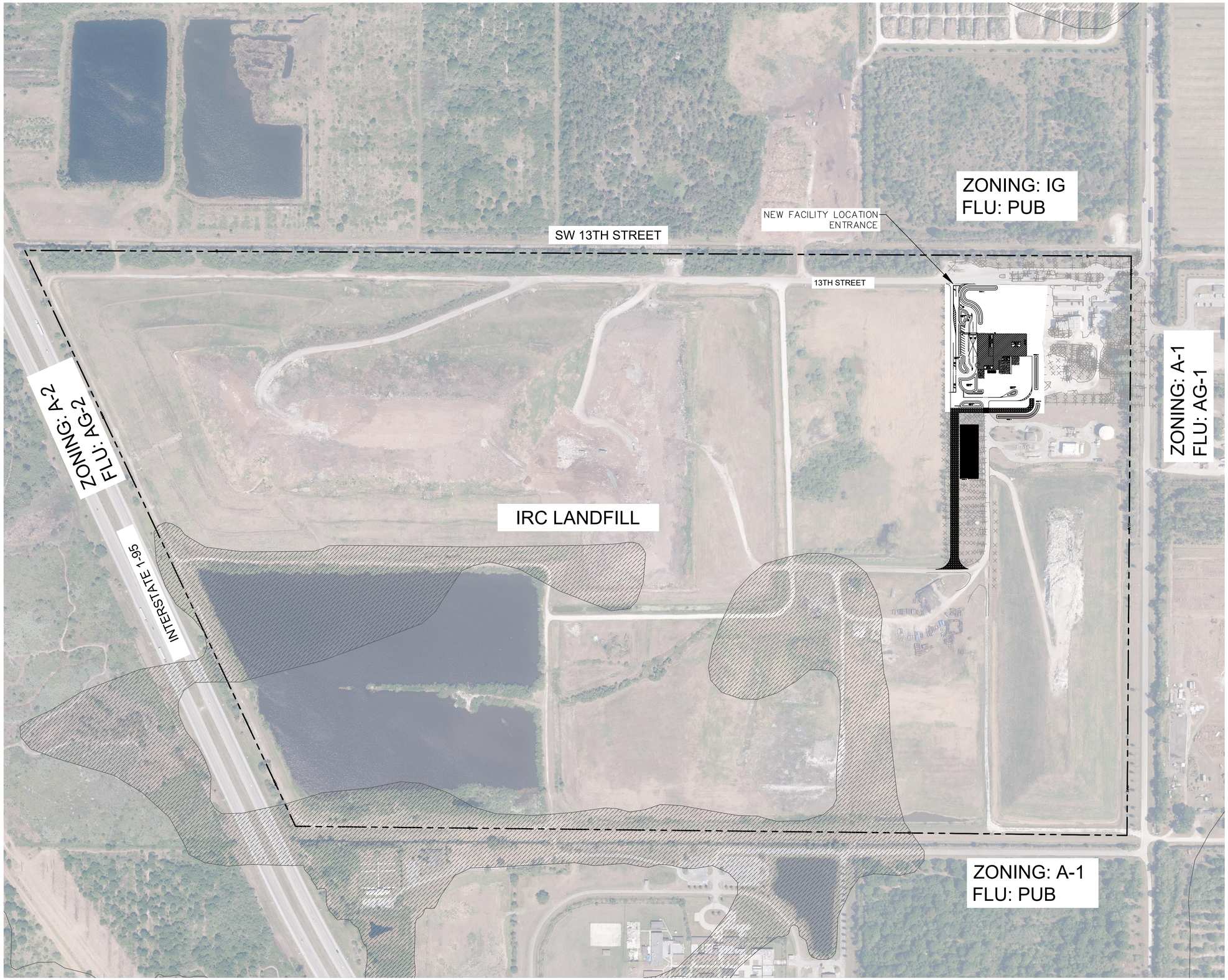
BARTON J. FRYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

KHA PROJECT	143228000
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRG
DRAWN BY	RMR
CHECKED BY	BF
DATE:	

EROSION CONTROL DETAILS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-320



NORTH

GRAPHIC SCALE IN FEET
0 100 200 400

LEGEND

R/W – P/L — RIGHT-OF-WAY LINE / PROPERTY LINE

FEMA HAZARDOUS FLOOD ZONE A

NOTES

74TH AVE SW POSTED SPEED LIMIT = 45MPH

BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

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Date: 07/21/2021

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No.	REVISIONS	DATE	BY

Kimley»Horn

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355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL

DATE:

KHA PROJECT	143228000
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRC
DRAWN BY	RMR
CHECKED BY	BF

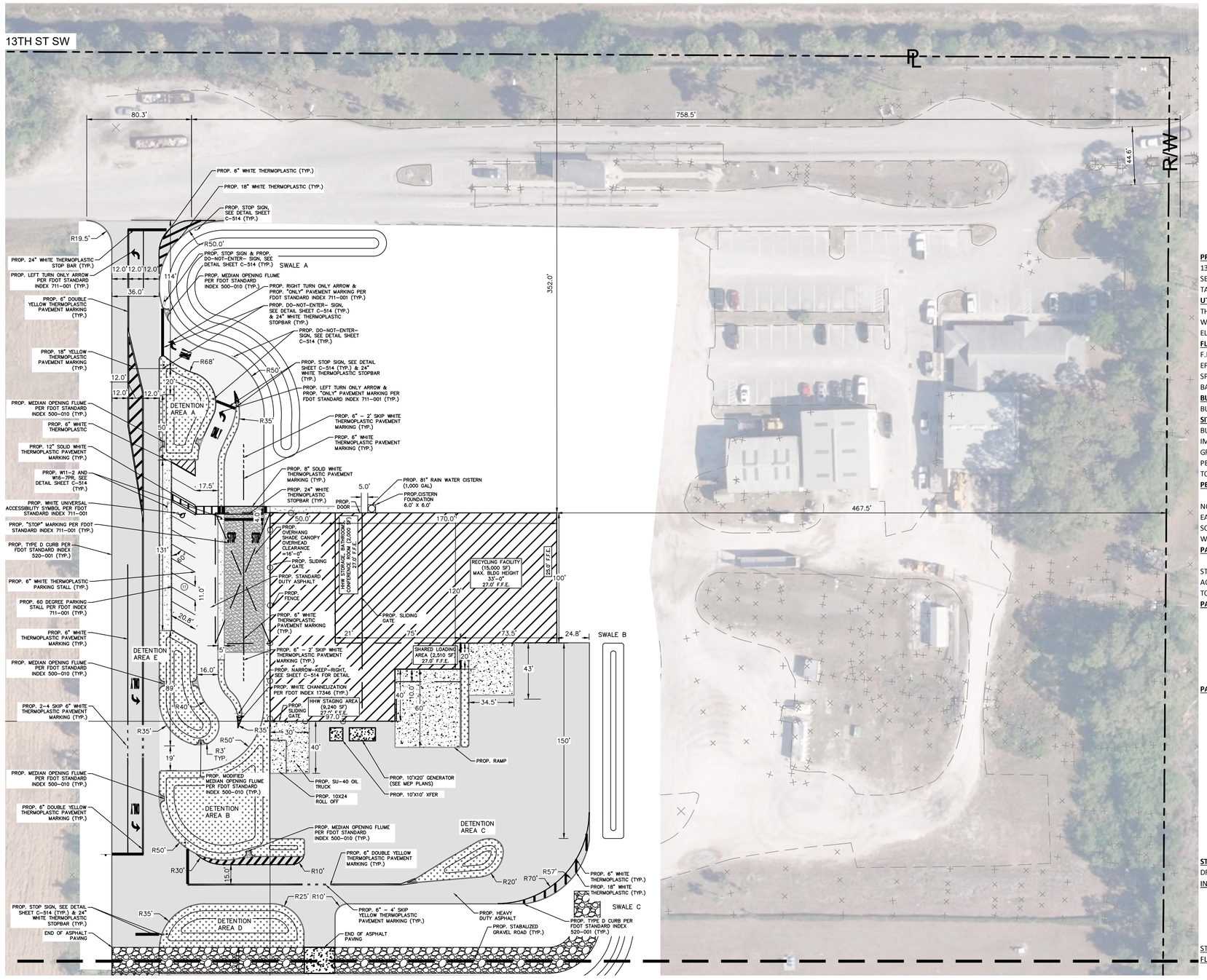
OVERALL SITE PLAN

IRC LANDFILL

PREPARED FOR
INDIAN RIVER COUNTY
FL

INDIAN RIVER COUNTY

SHEET NUMBER
C-400



SEE SHEET C-411 FOR CONTINUATION

LEGEND

- RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING
- PROP. GRAVEL ROAD
- PROP. HEAVY DUTY ASPHALT
- PROP. STANDARD DUTY ASPHALT
- PROP. LANDSCAPE AREA
- PROP. HEAVY DUTY CONC.
- PROP. STANDARD DUTY CONC.
- PROP. CONC. SIDEWALK

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

NOTES:

1. STANDARD DUTY ASPHALT TO BE INSTALLED ONLY IN THE PEDESTRIAN PARKING LOT & DROP-OFF AREA.
2. HEAVY DUTY ASPHALT TO BE INSTALLED ONLY IN THE TRUCK COURT AND THE NORTHERN/SOUTHERN ENTRANCES TO THE SITE.

PROJECT LOCATION
1325 74TH AVENUE SW, VERO BEACH, FL 32968
SECTION 25, TOWNSHIP 33, RANGE 38, INDIAN RIVER COUNTY, FL
TAX PARCEL ID: 33-28-25-00001-0090-00001.0

UTILITY PROVIDERS
THE PROJECT WILL BE SERVED BY:
WATER/SEWER INDIAN RIVER COUNTY
ELECTRIC FLORIDA POWER AND LIGHT

FLOOD ELEVATION
F.I.R.M NO.: 12061C0355H
EFFECTIVE DATE: 12/04/2012
SPECIAL FLOOD HAZARD AREA ZONE: ZONE X/ZONE A
BASE FLOOD ELEVATION: N/A

BUILDING HEIGTH
BUILDING HEIGHT: 33.0' MAX.

SITE AREA

BUILDING COVERAGE AREA: 28,750 SQ FT	0.66 (AC)	7.41%
IMPERVIOUS AREA: 100,277 SQ FT	2.86 (AC)	32%
GREEN OPEN SPACE AREA: 220,618 SQ FT	5.10 (AC)	57%
PERVIOUS AREA (OTHER): 10,348 SQ FT	0.24 (AC)	3.6%
TOTAL AREAS: 387,860 SQ FT	8.9 (AC)	100%

PERIMETER SETBACK

	REQUIRED	PROPOSED
NORTH	30 FT	352 FT
EAST		467.5 FT
SOUTH		2,085.5 FT
WEST		4,029 FT

PARKING SPACE SUMMARY

	REQUIRED	PROPOSED
STANDARD		10
ACCESSIBLE	N/A	1
TOTAL		11

PARKING SPACE NOTES
1 ALL PARKING SPACES WITH THE EXCEPTION OF HANDICAPPED PARKING SPACES SHALL BE STRIPED IN WHITE RETRO-REFLECTIVE PAINT AND BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, 2016, SECTION 710.
2 ALL HANDICAPPED PARKING SPACES SHALL BE PROPERLY SIGNED AND STRIPED IN ACCORDANCE WITH THE FDOT STANDARD INDEX 17346, 2016 EDITION.
3 ALL COMPACT SPACES SHALL BE MARKED "COMPACT" ON THE STALL OR TIRE STOP.

PAVEMENT MARKINGS NOTES
1 SIGNS AND PAVEMENT MARKINGS ARE TO CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE INDIAN RIVER COUNTY TYPICAL DRAWINGS FOR ROADWAY SIGNING, STRIPING & GEOMETRICS.
2 FIRE LANES SHALL BE MARKED WITH FREE STANDING SIGNS, MARKED CURBS, OR SIDEWALKS HAVING THE WORDS "FIRE LANE - NO PARKING" PAINTED WITH A CONTRASTING COLOR AT A SIZE AND SPACING APPROVED BY THE FIRE DIVISION.
3 HANDICAP STALL PARKING SHALL MEET THE REQUIREMENTS OF FDOT STANDARD DESIGN INDEX 17346 'SPECIAL MARKING AREAS', LATEST EDITION.
4 ALL PARKING STALL WIDTHS SHALL BE DIMENSIONED FROM CENTERLINE TO CENTERLINE OF THE WHITE STRIPES.
5 MINIMUM SPACE BETWEEN STOP BAR AND CROSSWALKS SHALL BE 4'.
6 ALL PARKING SPACES WITH EXCEPTION OF THE HANDICAPPED PARKING SPACES SHALL BE STRIPED IN WHITE, RETRO-REFLECTIVE TRAFFIC PAINT AND BE IN ACCORDANCE WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITION, SECTION 710.

STORMWATER DETENTION
DRY DETENTION AREA: 14,251 SQ FT (0.33 AC)

INDIAN RIVER COUNTY
- TYPE "B" STORMWATER PERMIT
- TREE REMOVAL PERMIT
-UTILITY CONSTRUCTION PERMIT(UCP)
-IRC LAND CLEARING
-IRC MAJOR SITE PLAN

ST. JOHN WATER MANAGEMENT DISTRICT
FLORIDA DEP
- ENVIRONMENTAL RESOURCES PERMIT
-WATER
-WASTEWATER

NET NEW TRIP GENERATION SUMMARY

DEVELOPMENT SCENARIO	AVERAGE WEEDAY DAILY GENERATION
EXISITNG DEVELOPMENT	56 VEHICLES TRIPS
PROPOSED REDEVELOPMENT	133 VEHICLE TRIPS
NET NEW REDEVELOPMENT	77 VEHICLE TRIPS

CONSTRUCTION TIMETABLE
CONSTRUCTION COMMENCEMENT SEPTEMBER 2021
CONSTRUCTION COMPLETION MARCH 2022

ZONING

EXISTING:	A-1 (AGRICULTURAL-1)
PROPOSED:	A-1 (AGRICULTURAL-1)
ADJACENT PROPERTIES:	
NORTH	IG (INDUSTRIAL)
SOUTH	A-1 (AGRICULTURAL-1)
EAST	A-1 (AGRICULTURAL-1)
WEST	AG-2 (AGRICULTURAL-2)

FUTURE LAND USE

EXISTING:	PUB (PUBLIC)
PROPOSED:	PUB (PUBLIC)
ADJACENT PROPERTIES:	
NORTH	C/I (COMMERCIAL INDUSTRIAL)
SOUTH	PUB (PUBLIC)
EAST	A-1 (AGRICULTURAL-1)
WEST	AG-2 (AGRICULTURAL-2)

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LICENSED PROFESSIONAL

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF
DATE:

SITE PLAN I

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-410

SEE SHEET C-410 FOR CONTINUATION

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RAW – PL — RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING
- PROP. GRAVEL ROAD
- PROP. HEAVY DUTY ASPHALT
- PROP. STANDARD DUTY ASPHALT
- PROP. LANDSCAPE AREA
- PROP. HEAVY DUTY CONC.
- PROP. STANDARD DUTY CONC.
- PROP. CONC. SIDEWALK

NOTES:

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2. HEAVY DUTY ASPHALT TO BE INSTALLED ONLY IN THE TRUCK COURT AND THE NORTHERN/SOUTHERN ENTRANCES TO THE SITE.

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LICENSED PROFESSIONAL

KHA PROJECT 143228000			
DATE JULY 2021			
SCALE AS SHOWN			
DESIGNED BY	MRG		
DRAWN BY	RMR		
CHECKED BY	BF		
DATE:			

SITE PLAN II

IRC LANDFILL

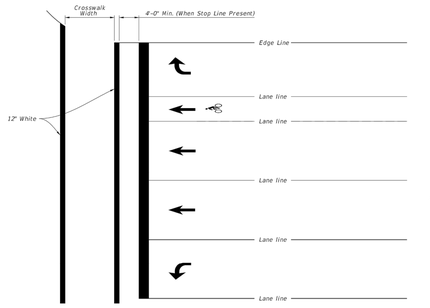
PREPARED FOR

INDIAN RIVER COUNTY

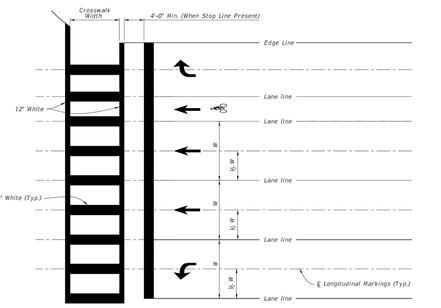
FL

INDIAN RIVER COUNTY

SHEET NUMBER
C-411



STANDARD CROSSWALK DETAILS

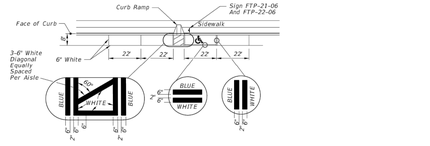


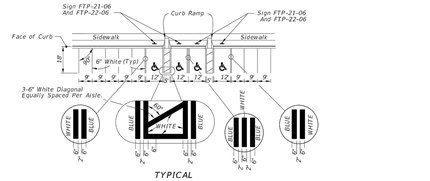
SPECIAL EMPHASIS CROSSWALK DETAILS

NOTES:

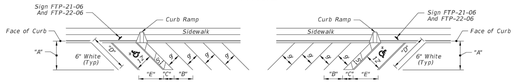
1. For crosswalk width, exceed width of the adjacent sidewalk, but do not make width less than 6' for intersection crosswalks and 10' for midblock crosswalks. Measure width from the inside of the transverse crosswalk markings.
2. When the Special Emphasis Crosswalk is not perpendicular to the lane lines, make the longitudinal markings parallel to the lane lines.
3. Refer to Index 522-002 when Curb Ramps are present.

LAST REVISION 02/05/21	DESCRIPTION: Added railroad pavement marking details.	FDOT FY 2021-22 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 10 of 14





TYPICAL



FORWARD-IN PARKING

REVERSE-IN PARKING

*FOR ACCESSIBLE MARKINGS - SEE ABOVE

DIMENSIONS					
∠ θ	"A"	"B"	"C"	"D"	"E"
45°	17'-0"	12'-9"	7'-0"	24'-0"	17'-0"

PAVEMENT MARKING FOR PARKING

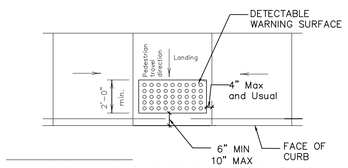
(See Note 6)

UNIVERSAL SYMBOL OF ACCESSIBILITY

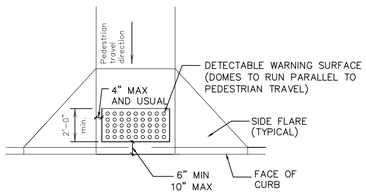
NOTES:

1. Dimensions are to the centerline of markings.
2. An Access Aisle is required for each accessible space when angle parking is used.
3. Criteria for pavement markings only, not public sidewalk curb ramp locations. For ramp locations refer to plans.
4. Tint blue pavement markings to match color 15180 of Federal Standards 595a.
5. Mount FTP-21-06 sign below the FTP-21-06 sign.
6. Use of the pavement symbol in accessible parking spaces is optional. When pavement symbol is used, the symbol is either 2'-0" or 5'-0" high and white in color.

LAST REVISION 02/05/21	DESCRIPTION: Added railroad pavement marking details.	FDOT FY 2021-22 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 12 of 14



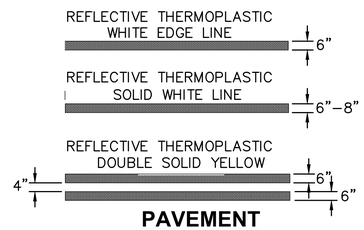
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

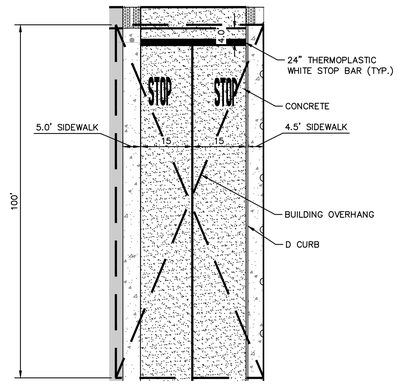
DETECTABLE WARNINGS

N.T.S.



PAVEMENT LINES

N.T.S.



DROP-OFF DRIVEWAY DETAIL

N.T.S.

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LICENSED PROFESSIONAL

KHA PROJECT 143228000	DESIGNED BY MRG
DATE JULY 2021	DRAWN BY RMR
SCALE AS SHOWN	CHECKED BY BF

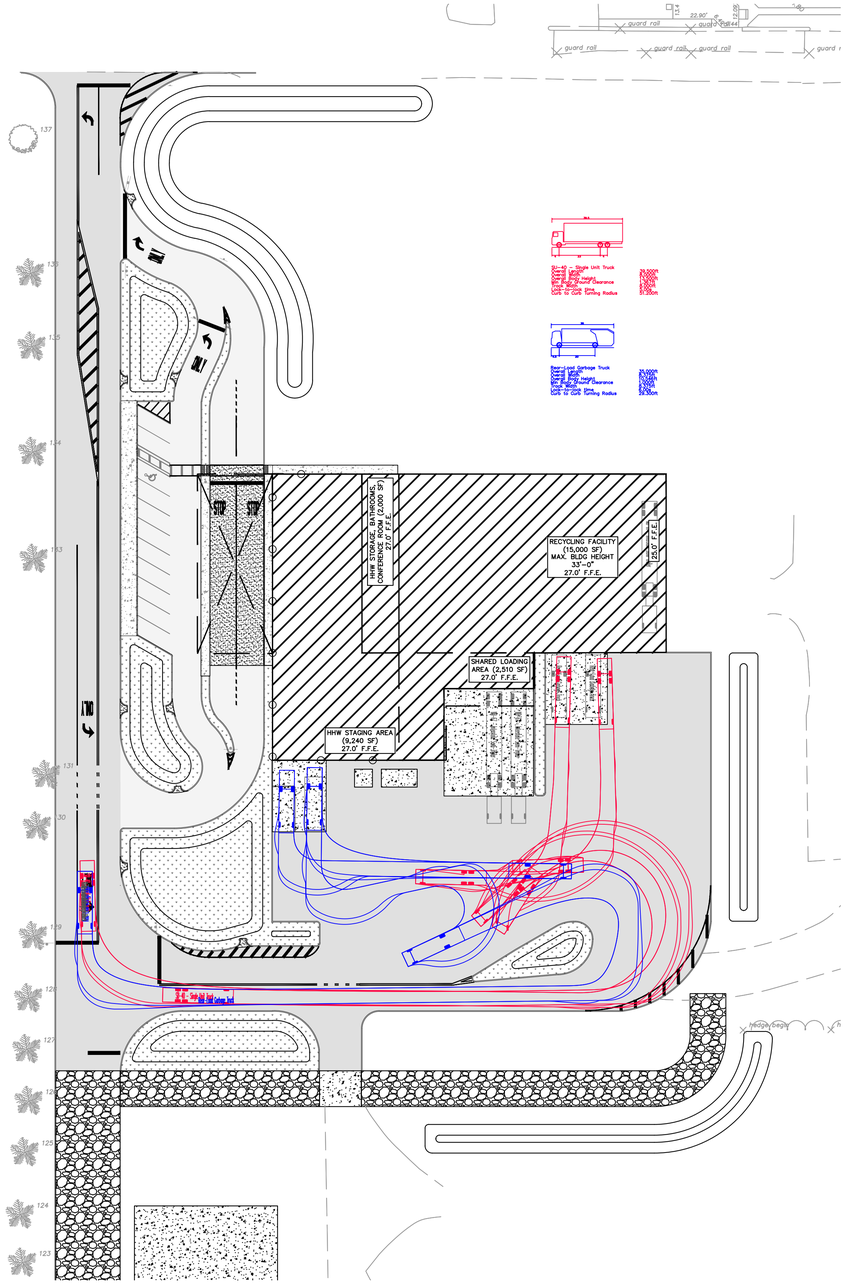
DATE:

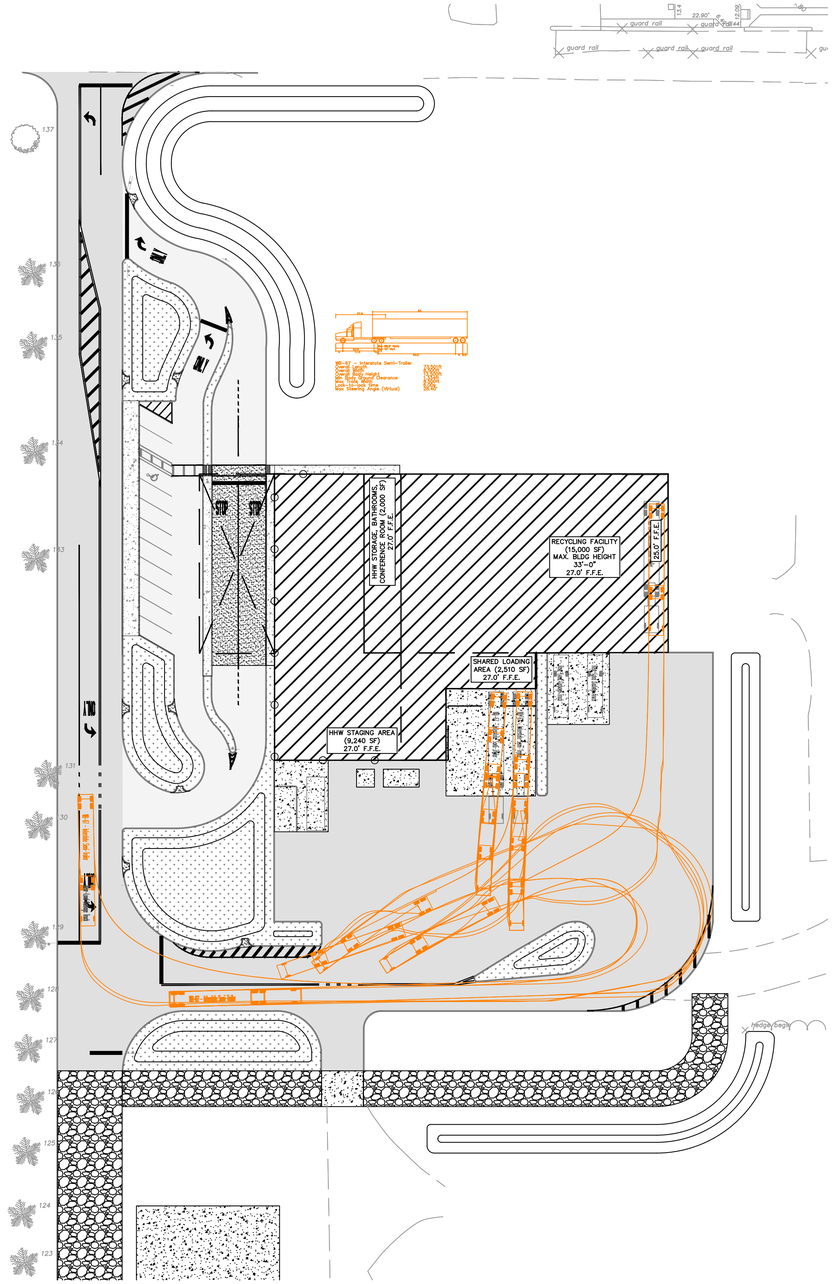
SITE PLAN DETAILS

IRC LANDFILL

PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-412





NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

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LICENSED PROFESSIONAL

KHA PROJECT 143228000
DATE JULY 2021
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DRAWN BY MRG
CHECKED BY BF
DATE:

MANEUVERABILITY

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-420

BARTON J. FYE
LICENSE
No 73898
STATE OF FLORIDA
PROFESSIONAL ENGINEER

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NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING
- PROP. HEAVY DUTY ASPHALT
- PROP. STANDARD DUTY ASPHALT
- PROP. LANDSCAPE AREA
- PROP. HEAVY DUTY CONC.
- PROP. STANDARD DUTY CONC.
- PROP. GRAVEL ROAD

13TH ST SW

74TH AVENUE SW
(45 MPH SPEED LIMIT)

RECYCLING FACILITY
(15,000 SF)
MAX. BLDG HEIGHT
33'-0"
27.0' F.F.E.

HHW STORAGE, BATHROOMS, CONFERENCE ROOM (2,200 SF)
27.0' F.F.E.

SHARED LOADING AREA (2,510 SF)
27.0' F.F.E.

HHW STAGING AREA
(9,240 SF)
27.0' F.F.E.

25.0' F.F.E.

15' WIDE FIRE LANE SURFACED WITH SOLID PAVEMENT TO BE USED DURING CONSTRUCTION, DESIGNED TO SUPPORT AND ACCOMMODATE FIRE APPARATUS WEIGHING A MIN. OF 32 TONS (TYP.)

15.0'
15.0'
15.0'
16'
130'

guard rail
flag pole
22.80
22.92
elec conduit
hedge begin
hedge pol
hedge end

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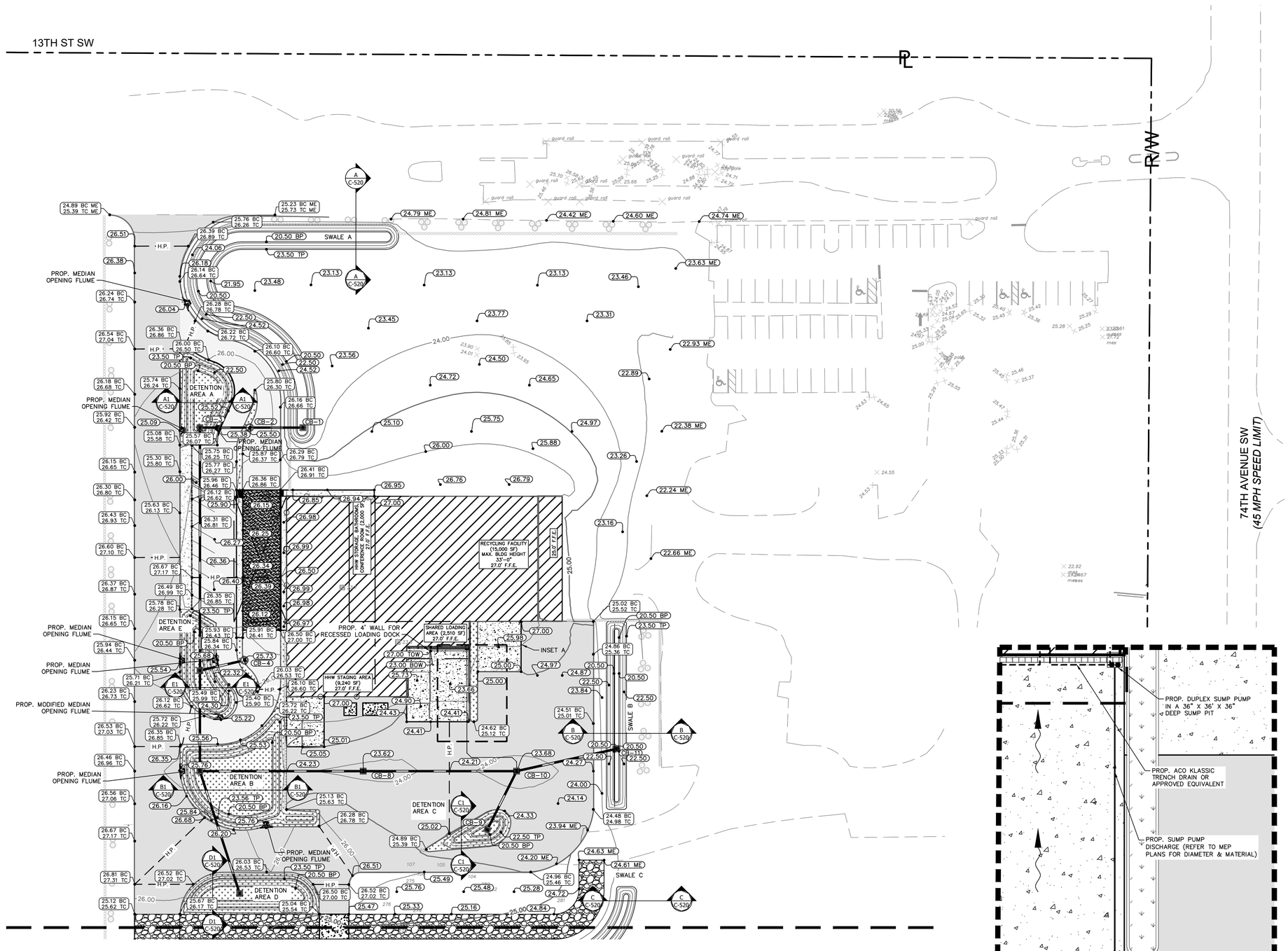
CHECKED BY BF

FIRE ACCESS PLAN

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY FL
INDIAN RIVER COUNTY

SHEET NUMBER
C-450



INSET A
1" = 10'

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- R/W – PL — RIGHT-OF-WAY LINE / PROPERTY LINE
- – – H.P. – – — HIGH POINT (H.P.)
- PROP. BUILDING
- FLOW ARROW
- PROP. HEAVY DUTY ASPHALT
- PROP. STANDARD DUTY ASPHALT
- PROP. LANDSCAPE AREA
- PROP. HEAVY DUTY CONC.
- PROP. STANDARD DUTY CONC.
- PROP. CONC. SIDEWALK
- PROP. GRAVEL ROAD
- 25.00 ME — PROP. MATCH EXISTING ELEVATION
- 25.00 — PROP. ELEVATION
- 25.00 TP — PROP. TOP OF POND ELEVATION
- 25.00 BP — PROP. BOTTOM OF POND ELEVATION

NOTES:

1. CONTRACTOR TO CONSTRUCT DRAINAGE STRUCTURES WITH USF GRATES, RIMS AND COVERS AS CALLED OUT OR APPROVED EQUAL.SHOP DRAWINGS ARE TO BE PROVIDED TO ENGINEER FOR APPROVAL PRIOR TO ANY CONSTRUCTION.
2. CONTRACTOR TO REFER TO FDOT DESIGN STANDARD (AND NOT LIMITED TO) INDEX'S 200, 201, 210, 211, 214, 232 & 233 FOR MANHOLE, INLET AND GRATE SPECIFICATIONS.
3. ALL DRAINAGE STRUCTURES SHALL BE CONSTRUCTED WITH (4) SIDED BEARING HEAVY DUTY H-20 RATED TRAFFIC RIMS AND GRATES.
4. CONTRACTOR TO VERIFY ALL EXISTING UTILITY RINGS AND COVERS ON SITE ARE HEAVY DUTY TRAFFIC RATED. TO REPLACE DEFICIENT RINGS AND COVERS WITH HEAVY DUTY TRAFFIC RATED RINGS AND COVERS. CONTRACTOR TO ADJUST RIM ELEVATIONS TO MATCH PROPOSED FINISHED GRADE OF ANY EXISTING UTILITIES TO REMAIN THAT CHANGE IN ELEVATION DURING CONSTRUCTION.
5. ALL CLEANOUT COVERS SHOULD BE RATED FOR HEAVY DUTY TRAFFIC.
6. ALL EXISTING PAVEMENT AND CONCRETE TO BE JOINED SHALL BE SAWCUT.
7. SIDEWALKS AND CROSSWALKS SHALL NOT EXCEED 2% CROSS SLOPE NOR 5% LONGITUDINALLY. GRADES IN ACCESSIBLE PARKING SPACES SHALL NOT EXCEED 2% IN ANY DIRECTION. IN CASES OF SIDEWALK AT BUILDING ENTRANCES, GRADES SHALL NOT EXCEED 2% IN ANY DIRECTION. ACCESSIBLE CURB RAMPS SHALL NOT EXCEED 6' IN LENGTH, 6" RISE, AND 1:12 SLOPE. LANDINGS ASSOCIATED WITH RAMPS AND AT CHANGES IN DIRECTION SHALL BE MINIMUM 60"X60" AND SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION. MINIMUM GRADE ON SIDEWALKS IN THE FIRST TEN (10) FEET ADJACENT TO BUILDINGS SHALL BE 1.5% MINIMUM.
8. SPOT ELEVATIONS ARE AT FACE OF CURB AND EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
9. EXISTING GRADES AND DRAINAGE HAVE BEEN TAKEN FROM A SURVEY PREPARED BYMASTELLER, MOLER & TAYLOR,INC. DATED MARCH 5, 2020. THE ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. THE PRIMARY BENCHMARK UTILIZED IS IRC BM267009, ELEV. = 20.50'. SITE BENCHMARKS ARE AS SHOWN.
10. HDPE STORM PIPE–CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE STORM DRAINAGE PIPE INSTALLATION MANUAL AND SPECIFICATIONS AND COMPLYING WITH ALL MANUFACTURER'S INSTALLATION PROCEDURES AND REQUIREMENTS. TESTING OF BACKFILL MATERIAL AND COMPACTION OF BACKFILL MATERIAL IS THE CONTRACTOR'S RESPONSIBILITY.
11. ROOF DRAIN CONNECTIONS TO DRAINAGE PIPE SHALL BE AS FOLLOWS:

11.A. FOR ADS N–12 CORRUGATED POLYETHYLENE DRAINAGE PIPE USE ADS DUAL WALL FABRICATED REDUCING SADDLE TEE4"–24" DIAMETER.

11.B FOR RCP DRAINAGE PIPE MAKE CONNECTION PER FDOT INDEX280,CONCRETE COLLAR FOR JOINING MAINLINE PIPE AND STUB PIPE DETAIL

11.C. NOTIFY CONSULTANT FOR CONNECTION METHOD TO STEEL PIPE.

12. ALL DRAINAGE PIPE JOINTS SHALL BE FILTER FABRIC WRAPPED PER FDOT INDEX #280. ALL DRAINAGE PIPE JOINTS NEED TO BE FILTER FABRIC WRAPPED REGARDLESS OF MATERIAL.
13. EXISTING STORM INLETS AND PIPES ON PROPERTY TO BE JETTED AND CLEANED PRIOR TO ENGINEER'S ACCEPTANCE OF SYSTEM.
14. CONTRACTOR SHALL COORDINATE PAVING IMPROVEMENTS TO AVOID TIRE MARKS FROM CONSTRUCTION ACTIVITY. FINAL PAVING SHALL BE AS SMOOTH AS POSSIBLE AND FREE FROM ANY MARKS, SCRAPES, GOUGES, TIRE MARKS, ETC. CAUSED DURING CONSTRUCTION ACTIVITY.
15. CONTRACTOR TO ENSURE POSITIVE RUNOFF FROM THE BUILDING. PAVING SHALL BE FREE OF PONDING AND MAINTAIN POSITIVE OUTFALL TO THE DRAINAGE SYSTEM. CONTRACTOR SHALL FIELD VERIFY EXISTING DRAINAGE PATTERNS AND TIE–IN GRADES AND ALERT OWNER AND ENGINEER SHOULD ANY CONFLICTS ARISE.
16. DURING CONSTRUCTION AND AFTER FINAL GRADING, NO SURFACE WATER RUNOFF MAY BE DIRECTED TO ADJACENT PROPERTIES, AND ALL SURFACE WATER RUNOFF MUST BE ROUTED TO APPROVED DRAINAGE FACILITIES OR BE RETAINED ON SITE. ALL RUNOFF FROM THE SITE, BOTH DURING AND AFTER CONSTRUCTION, MUST BE FREE OF POLLUTANTS, INCLUDING SEDIMENT, PRIOR TO DISCHARGE.
17. ALL SLOPES STEEPER THAN 6:1 SHALL BE SODDED.
18. ALL SIDEWALKS BEHIND AND ADJACENT TO LANDSCAPE ISLANDS WILL BE SLOPED TO PREVENT STANDING WATER ALONG THE LANDSCAPE ISLAND.
19. ALL MEDIAN OPENING FLUMES TO BE CONSTRUCTED PER FDOT STANDARD INDEX 500–010 UNLESS OTHERWISE NOTED.
20. EACH PUMP IN THE DUPLEX SUMP PUMP MUST HAVE A DISCHARGE RATE OF 80 GMP @ 5' TDH.

BARTON J. FYE — LICENSE — No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

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No.	REVISIONS	DATE	BY

Kimley»Horn

355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL — DATE:

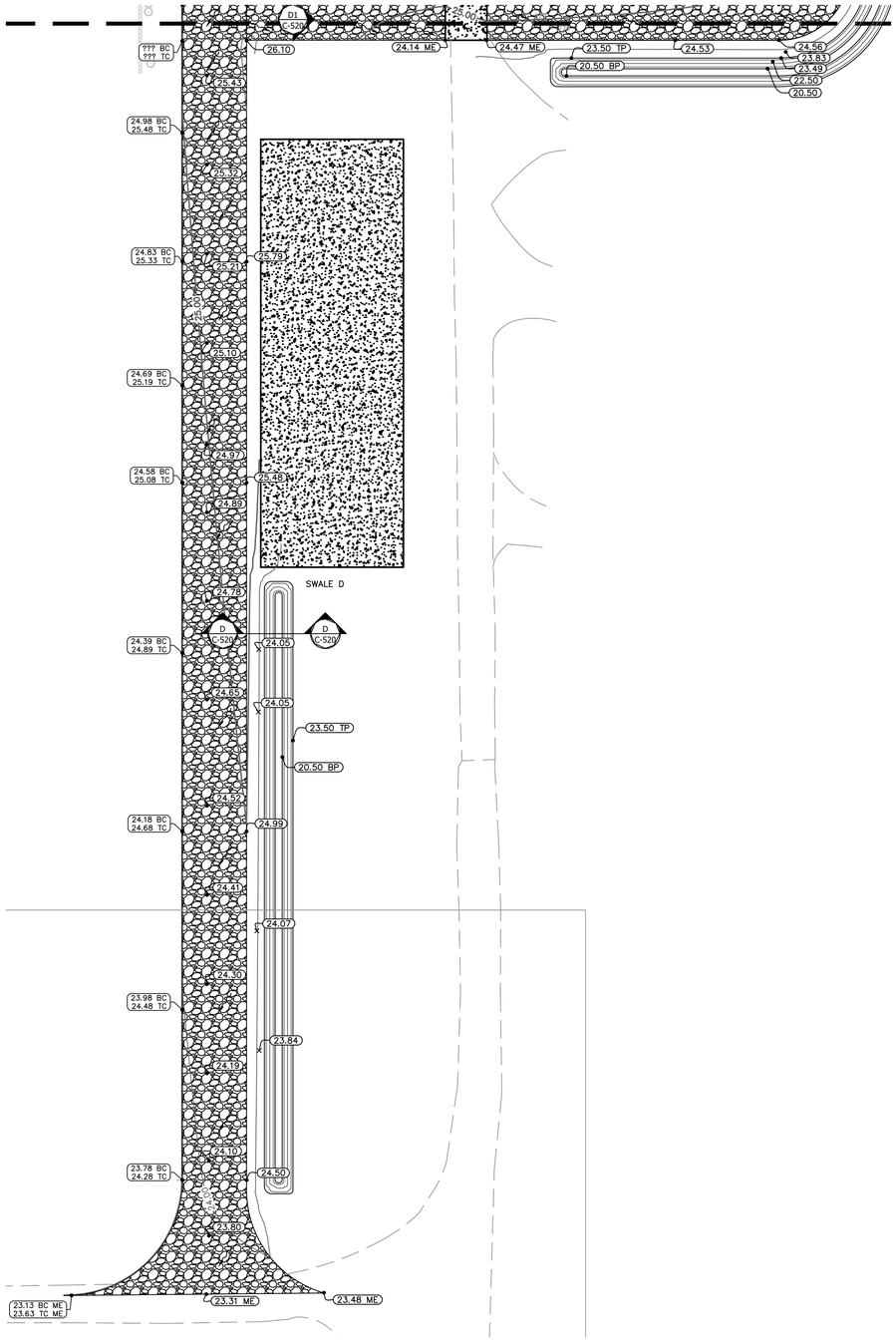
KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY ——
DRAWN BY ——
CHECKED BY ——

PAVING, GRADING AND DRAINAGE PLAN

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-510

SEE SHEET C-510 FOR CONTINUATION



74TH AVENUE SW
(45 MPH SPEED LIMIT)

RAW

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RAW – PL — RIGHT-OF-WAY LINE / PROPERTY LINE
- – – H.P. – – — HIGH POINT (H.P.)
- PROP. BUILDING
- FLOW ARROW
- PROP. HEAVY DUTY ASPHALT
- PROP. STANDARD DUTY ASPHALT
- PROP. LANDSCAPE AREA
- PROP. HEAVY DUTY CONC.
- PROP. STANDARD DUTY CONC.
- PROP. CONC. SIDEWALK
- PROP. GRAVEL ROAD
- 25.00 ME — PROP. MATCH EXISTING ELEVATION
- 25.00 — PROP. ELEVATION
- 25.00 TP — PROP. TOP OF POND ELEVATION
- 25.00 BP — PROP. BOTTOM OF POND ELEVATION

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LICENSED PROFESSIONAL

KHA PROJECT 143228000			
DATE JULY 2021			
SCALE AS SHOWN			
DESIGNED BY	MRG	DATE:	
DRAWN BY	RMR		
CHECKED BY	BF		

PAVING, GRADING AND DRAINAGE PLAN II

IRC LANDFILL

PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-511

DRAINAGE STRUCTURE TABLE			
STRUCTURE NUMBER	STRUCTURE TYPE	RIM ELEVATION	INVERT ELEVATION
CB-1	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS	RIM = 20.50	(18") 17.00 (W)
CB-2	PROP. P9 CURB INLET PER FDOT	RIM = 25.50	(18") 19.10 (W) (18") 19.10 (E)
CB-3	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS	RIM = 20.50	(18") 17.00 (E) (18") 17.00 (S)
CB-4	PROP. P9 CURB INLET PER FDOT	RIM = 25.73	(18") 19.10 (W)
CB-5	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS	RIM = 20.50	(18") 17.00 (N) (18") 17.00 (E) (18") 17.00 (S)
CB-6	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS WITH 60" TYPE J BOTTOM PER FDOT INDEX 425-010	RIM = 20.50	(18") 17.00 (E) (18") 17.00 (N) (18") 17.00 (S)
CB-7	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS	RIM = 20.50	(18") 17.00 (N)
CB-8	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS	RIM = 23.62	(18") 19.10 (E) * (18") 19.10 (W)*
CB-9	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS	RIM = 20.50	(18") 17.00 (NE)
CB-10	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS WITH 60" TYPE J BOTTOM PER FDOT INDEX 425-010	RIM = 23.68	(18") 17.00 (SW)* (18") 19.10 (W) * (18") 17.00 (E) *
CB-11	PRECAST DITCH BOTTOM INLET - TYPE C 10 FT. OR LESS	RIM = 20.50	(18") 17.00 (W)

*POLLUTION PREVENTION BAFFLE REQUIRED

BARTON J. FYE
LICENSE
No 73898
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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LICENSED PROFESSIONAL
DATE:

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF

C-512 PAVING GRADING AND DRAINAGE DETAILS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER

ROADWAY PAVING, GRADING, AND DRAINAGE

GENERAL

It is intended that the Florida Department of Transportation "Standard Specifications for Road and Bridge Construction" (latest edition) be used where applicable for various work, and that where such wording therein refers to the State of Florida and its Department of Transportation and personnel, such wording is intended to be replaced with that wording which would provide proper terminology, thereby making such "Standard Specifications for Road and Bridge Construction" as the Standard Specifications for this project.

If within that particular section another section, article or paragraph is referred to, it shall be part of the Standard Specifications also.

All work shall be performed in a workmanlike manner and shall conform with all applicable City, County, State and Federal Regulations and/or Codes. The Contractor shall also be responsible for obtaining all permits and licenses required to begin work.

The Contractor shall give the Engineer 24 hours notice prior to requesting required inspections and shall supply all equipment necessary to properly test and inspect the completed work.

The Contractor shall guarantee all work and materials for a period of one year from the date of project acceptance, during which time all faulty construction and/or materials shall be corrected at the Contractor's expense.

GENERAL NOTES

The Contractor shall be responsible for protecting all existing above–ground, underground, and on the surface structures and utilities against the construction operation that may cause damage to said facility. The Contractor shall be responsible consequential damages resulting from lack of protection.

The locations of existing underground utilities are shown in an approximate way only and have not been independently verified by the Owner or its representative. The Contractor shall determine the exact location of all existing utilities before commencing work, and agrees to 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 Contractor shall give adequate notification to all affected utility owners for removal, relocation, and alteration of their existing facilities.

Where encountered, unsuitable material shall be removed to a depth and area determined by the Engineer and backfilled with clean granular sand or select material approved by the Engineer. Backfilling shall be in layers not greater than 8" thickness and compacted to 100 percent of the maximum density as determined by AASHTO T–99–C.

Contractor is responsible for checking actual site conditions before starting construction.

Street or highway restoration work is to be done as per local or state agency having jurisdiction.

The Contractor shall comply with all rules and regulations of the State, County and City authorities regarding closing or restricting the use of public streets or highways.

Traffic control on all county and state highway rights–of–way shall meet the requirements of the Manual of Uniform Traffic Control Devices (U.S. DOT/FHA) and the requirements of the state and any local agency having jurisdiction.

CLEARING AND GRUBBING

All trees, brush, stumps, roots, grass, weeds, rubbish, and other obstructions resting on or lying within 12" below finished grade or subgrade shall be completely removed for the full width of all pavement, swales, utility easements and drainage easements. All work shall be performed in accordance with Section 110 of the Standard Specifications.

DISTURBED AREAS

All areas disturbed within right–of–way by construction shall be sodded as specified below:

Sodding:

Within the limits delineated in the plans, the Contractor shall, after final grading and cleanup, establish a stand of grass by furnishing and placing sod in accordance with Section 575 of the Standard Specifications. The Contractor shall water the sodded area to maintain moisture levels for optimum growth to assure a healthy stand of grass. Sod shall be Bahia grass sod. Sod shall be rolled and top dressed as required by the engineer.

GRADING

Contractor shall perform all necessary grading to achieve the typical road sections as per plan. All workmanship shall be in accordance with the Standard Specifications.

STAKING

If construction staking is performed by the Owner, loss or disturbance of control points due to negligence by the Contractor will be replaced at the Contractor's expense.

STABILIZING

Stabilized subgrade shall be constructed to the Florida bearing value as per plan for the depth and limits shown on the plan, and in accordance with Section 160 of the Standard Specifications.

All stabilized areas shall be compacted to at least 98% of the maximum density as determined by AASHTO T–180.

ROCK BASE

Rock base shall be constructed of either limerock material in accordance with Section 911 or cemented coquina shell material in accordance with Section 915 of the Standard Specifications.

Limerock base shall be constructed in accordance with Section 200 and cemented coquina shell base shall be constructed in accordance with Section 230 of the Standard Specifications. Contractor shall provide rock pit certification for cemented coquina shell material.

Rock base shall be constructed to the depth and limits as shown on the plan. The rock base shall be compacted to at least 98% of the maximum density as determined by AASHTO T–180 and shall be primed.

PRIME AND TACK COAT

Prime and tack coats for the base course shall be in accordance with Section 954.10 of the Indian River County Land Development Regulations and Section 300 of the Standard Specifications.

ASPHALTIC CONCRETE SURFACE COURSE (ACSC)

Asphaltic Concrete Surface Cource (ACSC) shall be constructed for the depth and limits shown on Sheet C–301, and in accordance with Sections 320, 330, and 334 of the Standard Specifications unless otherwise specified.

SIGNING AND PAVEMENT MARKING

All parking spaces, with the exception of the handicapped parking spaces, shall be marked in white, retro–reflective traffic paint and be in accordance with the Florida Department of Transportation (FDOT) Standard Specifications for Road and Bridge Construction (latest edition).

All handicapped parking spaces shall be properly signed and marked in accordance with FDOT Standard Index 17346 (latest edition).

TESTING

The Contractor shall retain the services of an Owner approved independent testing laboratory to conduct all required tests on subgrade, base and surface course materials. Test results must be submitted prior to any request for payment on the above items.

The schedule for testing the pavement shall be as follows:

1. Subgrade:
   a. Florida bearing value test shall be taken at intervals of not more than 200 feet, or closer as may be necessary in the event of variations in subsoil conditions.
   b. Density tests shall be taken at intervals of not more than 200 feet or closer as may be necessary.
2. Base:
   a. Density tests shall be taken at intervals of not more than 500 feet or closer as may be necessary.

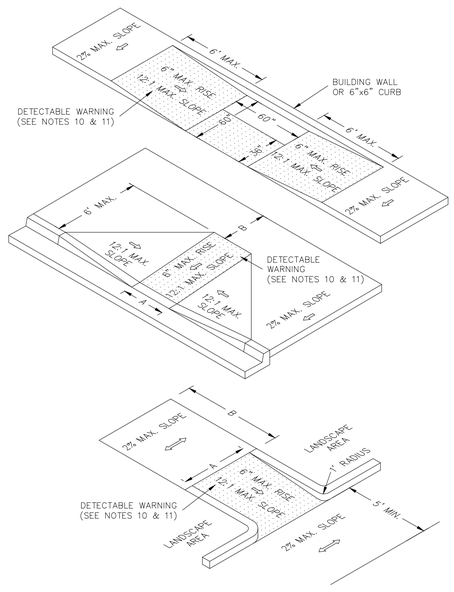
All testing shall be taken in a staggered sampling pattern from a point 12 inches inside the left edge, to the center, to a point 12 inches inside the right edge of the item tested.

If any test indicates that the work does not meet the specifications, the substandard item shall be reworked or corrected and retested, at the Contractor's expense, until the provisions of these specifications are met.

All passing tests shall be paid for by the Owner. All failing tests shall be paid for by the Contractor.

RAMP LOCATION	MINIMUM DIMENSION A	B
AT OUTSWING DOOR	44"	60"
AT INSWING/SLIDING DOOR	44"	48"
NO DOORWAY	36"	36"

NOTES:
1. ALL ACCESSIBLE COMPONENTS CONSTRUCTED AS PART OF THESE PLANS SHALL COMPLY WITH CHAPTER 11 OF THE FLORIDA BUILDING CODE.
2. ACCESSIBLE ROUTE TO ACCESSIBLE SPACES, BUILDING ENTRANCES, AND PUBLIC STREETS SHALL NOT EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE.
3. CHANGE IN ELEVATION WITHIN THE ACCESSIBLE ROUTE IS NOT TO EXCEED ½" WITHOUT A CURB RAMP.
4. UNLESS OTHERWISE SHOWN ON THE PLANS, THE MINIMUM CLEAR ROUTE SHALL BE 36" WIDE WITH A 60"x60" PASSING SPACE EVERY 200 FEET.
5. ACCESSIBLE ROUTES THROUGH PLANTERS SHALL BE LEVEL WITH THE SURROUNDING PAVEMENT OR PROVIDE CURB RAMPS AT EACH END WITH A MINIMUM 48" LEVEL LANDING IN BETWEEN.
6. THE ACCESSIBLE ROUTE IN FRONT OF PULL–IN PARKING SHALL BE A MINIMUM OF 44" WIDE AND NOT REDUCED BY VEHICLE OVERHANGS, CURBING, SIGN POSTS, OR OTHER OBSTRUCTIONS.
7. ANY WALK THAT CROSSES OR ADJOINS A VEHICULAR WAY NOT SEPARATED BY CURBS, RAILINGS, OR OTHER ELEMENTS SHALL BE DEFINED BY A CONTINUOUS 36" WIDE DETECTABLE WARNING.
8. SPECIAL RAMP RULES APPLY FOR ANY RISE GREATER THAN 6" INCLUDING BUT NOT LIMITED TO RESTRICTION ON SLOPE, TOTAL RISE BETWEEN LANDINGS, AND USE OF HANDRAILS, PER F.B.C 11–4.8.
9. PUBLIC SIDEWALK CURB RAMPS CONSTRUCTED WITHIN A PUBLIC RIGHT–OF–WAY, IN ABSENCE OF LOCAL ROADWAY GUIDELINES, SHALL MEET THE REQUIREMENTS OF F.D.O.T INDEX 304.
10. CURB RAMPS SHALL HAVE A DETECTABLE WARNING EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP
11. DETECTABLE WARNINGS SHALL CONSIST OF EXPOSED AGGREGATE CONCRETE, CUSHIONED SURFACES MADE OF RUBBER OR PLASTIC, OR RAISED STRIPS. GROOVED SURFACES ON OUTDOOR CURB RAMPS ARE NOT PERMITTED. VERIFY LOCAL REQUIREMENTS WITH THE BUILDING DEPARTMENT.



ACCESSIBLE RAMPS
N.T.S

CLEAN–UP

The Contractor must provide clean–up of excess construction material upon completion of the project. The site must be left in a neat, clean, graded condition.

DRAINAGE SPECIFICATIONS

Storm inlets and manholes shall be constructed in general accordance with Section 425 of the Standard Specifications.

All reinforcing steel to be ASTM A 615 (latest revision) Grade 40 Fyp=40,000 PSI, and shall be handled and placed in accordance with ACI 318 (latest revision).

Precast concrete manholes and storm inlets to be used (only after the Engineer's review of the manufacturer's shop drawings).

Storm sewer construction shall in accordance with Section 430 and related sections of the Standard Specifications.

CONCRETE

Unless otherwise specified or indicated, all concrete shall have a minimum compressive strength at 28 days of 3000 psi. All work shall comply with the current edition of the American Concrete Institute (ACI) building code and the applicable building codes having jurisdiction in the area.

PRECAST INLETS

All storm inlets shall be precast reinforced concrete in accordance with the details shown herein the project details. Type II Portland Cement shall be used in the concrete mix. Concrete shall have a minimum compressive strength at 28 days of 4000 psi.

CULVERT PIPES

Reinforced Concrete Pipe (RCP) shall be in accordance with Section 449 of the Standard Specifications.

Corrugated Aluminum Pipe (CAP) shall be in accordance with Section 945 the Standard Specifications.

High density polyethylene pipe (HDPE) shall be in accordance with Section 948 of the Standard Specs.

CONSTRUCTION OBSERVATION

The Contractor shall notify the Engineer prior to periods of the following construction activities so that the Engineer can notify the County or State to be present for construction observations:

I. Drainage
   - A. Laying of Pipe (before backfill)
   - B. All drainage structures and pipe laying completed
   - C. Construction and stabilization of retention areas and swales
   - D. Seeding, mulch, and sodding in areas where erosion is evident or where plans so identify

II. Utilities (U–2 permits or development order)
   - A. Pipe laying within County or State rights–of–way
   - B. Jack and boring in County or State rights–of–way
   - C. Restoration of all rights–of–way

III. Concrete
   - A. Completion of forming for curbing, sidewalk, and retaining walls before placement of concrete

IV. Pavement
   - A. Line and grade (Certification)
   - B. Sub–base (prior to adding base material)
   - C. Base (prior to priming and sand seal)
   - D. Base (after priming, sand seal, and before placing asphalt)
   - E. Asphalt or concrete (while paving is in progress)
   - F. Turn out construction on to County or State road (above inspections apply)
   - G. Test results on sub–base
   - H. Final project observation

INSPECTION AND TESTING

Lamping of the completed sewer system will be performed after complete backfilling and the laying of the roadway base. The lamping will determine that the lines have been laid to accurate line and grade. At the time of lamping, the line shall be clean and dry. A final inspection will be held after roadway is completed to verify that the system has not been damaged. All line appurtenances not meeting specifications or reasonable standards shall be repaired or replaced.

The Engineer may require a color T.V. survey and may require an exfiltration/infiltration test prior to acceptance. The survey and testing shall be at the Contractor's expense.

INSPECTIONS:
The Contractor shall notify the engineer of record at least 48 hours prior to beginning construction and prior to the inspection of the following items:
1.) Storm Drainage
2.) Sanitary Sewer
3.) Water System
4.) Subgrade – Submit and have approved densities prior to placement of rock.
5.) Limerock Base – have approved densities and as–builts prior to the placement of asphalt.
6.) Asphaltic Concrete
7.) Final walk–through Inspection

RECORD DRAWINGS

The Contractor shall maintain Record Drawings on the project site at all times which shall be annotated by the Contractor depicting any changes made in the field which differ from the contract drawings. Record Drawings shall include, but not be limited to, culvert lengths, invert and top elevations of storm sewer, manholes, inlets, and control structures. The Contractor shall submit complete and final Record Drawings in AutoCAD to the Engineer upon completion of the project and prior to final inspection and final payment. Record Drawings shall be certified by the Contractors, Engineer, or Surveyor registered in the State of Florida

BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

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LICENSED PROFESSIONAL — DATE:

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DATE JULY 2021
SCALE AS SHOWN
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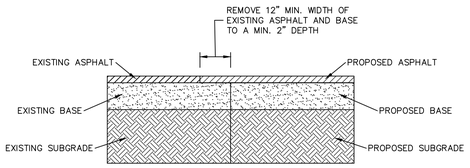
DRAWN BY RMR
CHECKED BY BF

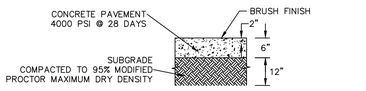
PAVING, GRADING AND DRAINAGE DETAILS II

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C–513

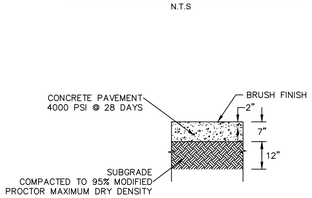


SAW-CUT
N.T.S



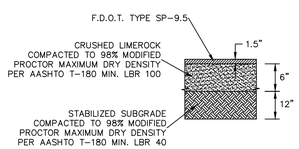
NOTE:
CONTROL JOINT SPACING – 10'x10' MAX.
MINIMUM SAW CUT DEPTH – 1.25 INCHES

STANDARD DUTY CONCRETE
N.T.S

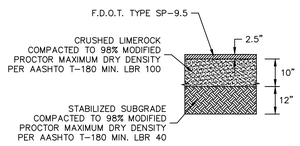


NOTE:
CONTROL JOINT SPACING – 14'x14' MAX.
MINIMUM SAW CUT DEPTH – 1.75 INCHES

HEAVY DUTY CONCRETE
N.T.S

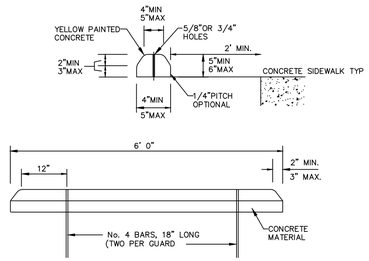


STANDARD DUTY ASPHALT
N.T.S



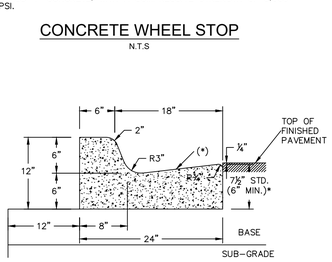
HEAVY DUTY ASPHALT
N.T.S

PAVEMENT NOTES:
1. CONTRACTOR TO REFER TO THE GEOTECHNICAL REPORT FOR SITE WORK SPECIFICATIONS.
2. CORE WEARING SURFACE OF ASPHALT PAVEMENT TO EVALUATE MATERIAL THICKNESS AND COMPOSITION AT A MINIMUM FREQUENCY OF 3,000 SF OR TWO LOCATIONS PER DAY'S PRODUCTION.
3. MATERIALS USED IN PAVEMENT CONSTRUCTION SHALL COMPLY WITH FDOT STANDARD SPECIFICAITONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
4. COMPACTION AND TESTING SHALL BE PER SECTION 13 OF THE GEOTECHNICAL REPORT.
5. ALL PARKING LOT SUBGRADE SOILS SHALL BE COMPACTED TO AT LEAST 95% OF THE MODIFIED PROCTOR – MAX DRY DENSITY (ASTM D 1557) TO A DEPTH AT LEAST 2' BELOW BOTTOM OF BASE, OR THE FULL DEPTH OF NEW FILL AND THE TOP 12 INCHES OF EXISTING SUBGRADE SOILS, WHICHEVER IS GREATER.



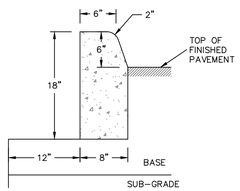
WHEEL STOPS SHALL BE DEPARTMENT OF TRANSPORTATION CLASS "I" CONCRETE, WITH A COMPRESSIVE STRENGTH OF 3,000 PSI.

CONCRETE WHEEL STOP
N.T.S

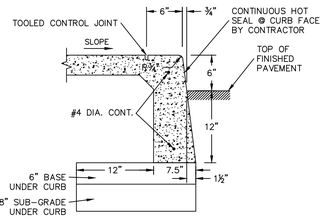


* WHEN USED ON HIGH SIDE OF ROADWAYS, THE CROSS SLOPE OF THE GUTTER SHALL MATCH THE CROSS SLOPE OF THE ADJACENT PAVEMENT AND THE THICKNESS OF THE LIP SHALL BE 6" UNLESS OTHERWISE SHOWN ON THE PLANS. ASPHALT SURFACE ON HIGH SIDE TO BE FLUSH WITH LIP OF CURB OR CURB & GUTTER.

TYPE "F" CURB AND GUTTER
N.T.S

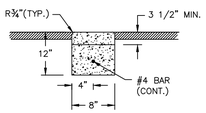


TYPE "D" CURB
N.T.S

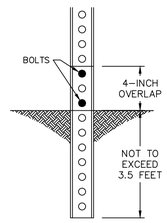


INTEGRAL CURB
N.T.S

NOTE: #4 BAR MAY BE OMITTED IN ALL SECTIONS OF HEADER CURB THAT DOES NOT CROSS A VEHICULAR TRAVEL LANE



FLUSH HEADER CURB
N.T.S

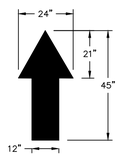


U-CHANNEL STEEL POST

CROSS SECTION

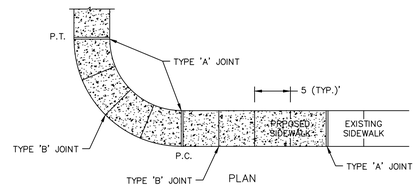
NOTE:
1. THE U-CHANNEL: ROLLED, MILD, CARBON STEEL POST WILL BEND, BREAK, OR PULL OUT OF THE GROUND WHEN IT IS HIT.
2. THE POST SHOULD BE DRIVEN INTO THE GROUND AND NOT ENCASED IN CONCRETE. DRIVE POSTS INTO THE GROUND NO MORE THAN 3.5 FEET TO MAKE IT EASIER TO PULL OUT DAMAGED POSTS.
3. SPLICES CAN BE PURCHASED COMMERCIALLY TO INSTALL AT GROUND LEVEL. THEY ALLOW THE POST TO BREAK OFF ON IMPACT. THESE DEVICES IMPROVE SAFETY WHEN THE POST IS HIT AND WILL MAKE REPAIR EASIER.

SIGN POST
N.T.S

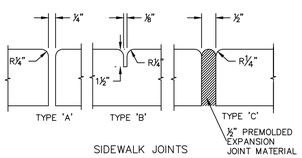


NOTE: ALL TRAFFIC FLOW ARROWS TO BE 90 MIL EXTRUDED THERMOPLASTIC.

ON-SITE TRAFFIC FLOW ARROW
N.T.S

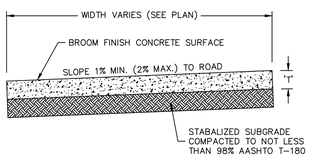


PLAN



SIDEWALK JOINTS

TABLE OF SIDEWALK JOINTS	
TYPE	LOCATION
'A'	100' MAX. SPACING, P.C./P.T. OF CURVES, JUNCTION OF EXISTING AND NEW SIDEWALKS.
'B'	5'–0" CENTER TO CENTER
'C'	WHERE SIDEWALK ABUTS CONCRETE CURBS, DRIVEWAYS AND SIMILAR STRUCTURES.

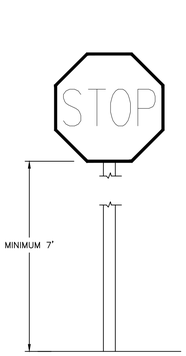


STANDARD CROSS SECTION

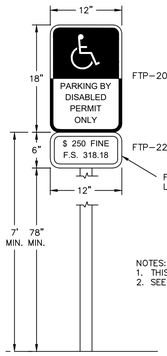
TABLE OF SIDEWALK THICKNESS	
LOCATION	'T'
PEDESTRIAN ONLY AREAS	4"
DRIVEWAYS AND OTHER TRAFFIC AREAS	6"

NOTE:
1. ALL SIDEWALK STREET CROSSINGS MUST MEET THE REQUIREMENTS OF THE AMERICAN DISABILITIES ACT (ADA) COMPLIANCE GUIDE. TRANSITIONS FROM RAMPS TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
2. SIDEWALK CONCRETE CONTAIN FIBERGLASS REINFORCEMENT.

CONCRETE SIDEWALK
N.T.S



REQUIRED SIGN HEIGHT
N.T.S

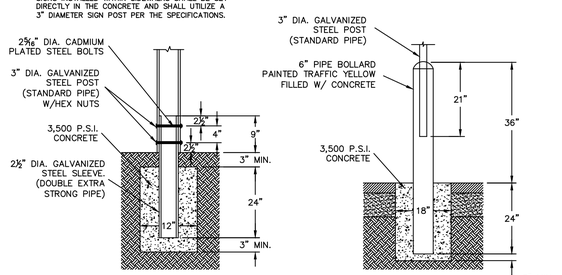


NOTES:
1. THIS SIGN MAY ALSO BE WALL MOUNTED
2. SEE ALSO SIGN BASE DETAILS

THESE SIGNS TYPICAL AT EACH ACCESSIBLE PARKING SPACE

ACCESSIBLE PARKING SIGN
N.T.S

NOTE:
SIGNS INSTALLED WITHIN SIDEWALKS SHALL BE SET DIRECTLY IN THE CONCRETE AND SHALL UTILIZE A 3" DIAMETER SIGN POST PER THE SPECIFICATIONS.



SIGN BASE WITHIN LANDSCAPED AREA

SIGN BASE WITHIN PAVED AREA

SIGN BASE
N.T.S

Street Signs
All internal street names signs shall be 8" in height with 6" letters. Street name signs at multi-lane roadway entrances, or adjacent to street with posted speed limit equal to or greater than 40MPH shall be 12" in height with 8" letters. (2003 edition MUTCD).

Sign Legend:

STREET SIGN DETAILS
N.T.S

BARTON J. FYE LICENSE No 73898 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Barton J. Fye, P.E. on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Date: 07/21/2021

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn

355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL ENGINEER

KHA PROJECT 143228000	
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRG
DRAWN BY	RMR
CHECKED BY	BF
DATE:	

PAVING, GRADING AND DRAINAGE DETAILS III

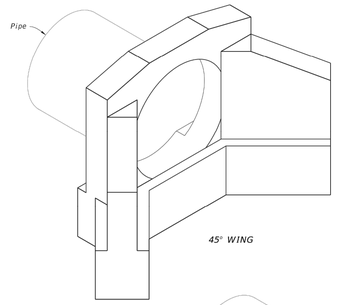
IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-514

GENERAL NOTES:

1. Use Class I concrete.
2. Chamfer all exposed edges and corners ¾" unless otherwise shown.
3. Quantities shown are for estimating purposes only.

TABLE OF CONTENTS:

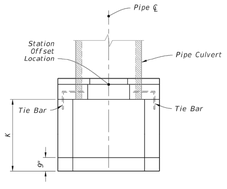


WINGED CONCRETE ENDWALLS

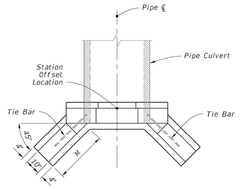
10/12/2020 7:28:59 AM

LAST REVISION	REVISION	DESCRIPTION:	FDOT	INDEX	SHEET
11/01/19			FY 2021-22 STANDARD PLANS	430-040	1 of 2

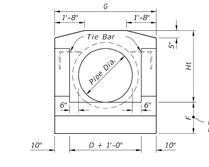
WINGED CONCRETE ENDWALLS



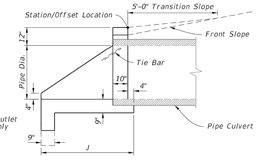
PLAN



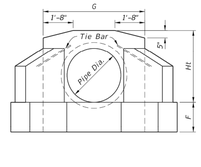
PLAN



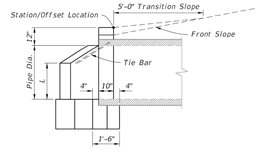
FRONT ELEVATION



SIDE ELEVATION



FRONT ELEVATION



SIDE ELEVATION

DIMENSIONS AND ESTIMATED QUANTITIES PIPE CULVERT ENDWALLS WITH U-TYPE WINGS

DIMENSIONS							QUANTITIES IN ONE ENDWALL						
Pipe		Wall			Footing		Concrete, Class I, Total (CY)						Steel Tie Bars
							RCP		CMP		CIP		
Dia. D	Area (ft²)	G	Ht	K	F	J	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
15"	1.2	3'-11"	2'-3"	1'-5"	1'-3"	2'-7"	0.59	0.67	0.62	0.70	0.61	0.70	none
18"	1.8	4'-2"	2'-6"	1'-9"	1'-3"	2'-11"	0.70	0.79	0.74	0.82	0.74	0.82	none
24"	3.1	4'-8"	3'-0"	2'-6"	1'-6"	3'-8"	1.01	1.11	1.06	1.16	1.06	1.16	2-#6 Bars x 2'-0"
30"	4.9	5'-2"	3'-6"	3'-3"	1'-6"	4'-5"	1.33	1.44	1.41	1.51	1.40	1.51	2-#6 Bars x 2'-0"
36"	7.1	5'-8"	4'-0"	4'-0"	1'-9"	5'-2"	1.73	1.85	1.84	1.96	1.82	1.94	2-#6 Bars x 2'-6"
42"	9.6	6'-2"	4'-6"	4'-9"	2'-0"	5'-11"	2.19	2.32	2.32	2.45			2-#6 Bars x 2'-6"
48"	12.6	6'-8"	5'-0"	5'-6"	2'-0"	6'-8"	2.64	2.78	2.81	2.95			2-#6 Bars x 3'-0"

ENDWALL WITH U-TYPE WINGS

DIMENSIONS AND ESTIMATED QUANTITIES PIPE CULVERT ENDWALLS WITH 45° WINGS

DIMENSIONS								QUANTITIES IN ONE ENDWALL			
Pipe		Wall				Footing		Concrete, Class I			
								Total (CY)			Steel Tie Bars
Dia. D	Area (ft²)	Ht	G	L	M	F		RCP	CMP	CIP	
15"	1.2	2'-3"	3'-7"	1'-0"	1'-3"	1'-3"		0.56	0.59	0.59	none
18"	1.8	2'-6"	3'-10"	1'-2"	1'-7"	1'-3"		0.74	0.77	0.77	none
24"	3.1	3'-0"	4'-4"	1'-5"	2'-1"	1'-4"		1.01	1.06	1.06	2 -#6 Bars x 2'-0"
30"	4.9	3'-6"	4'-10"	1'-9"	2'-5"	1'-6"		1.32	1.40	1.39	2 -#6 Bars x 2'-0"
36"	7.1	4'-0"	5'-4"	2'-0"	2'-11"	1'-8"		1.72	1.83	1.82	2 -#6 Bars x 2'-0"
42"	9.6	4'-6"	5'-10"	2'-3"	3'-6"	2'-0"		2.34	2.47		2 -#6 Bars x 2'-6"
48"	12.6	5'-0"	6'-4"	2'-6"	4'-0"	2'-0"		2.74	2.90		2 -#6 Bars x 2'-6"

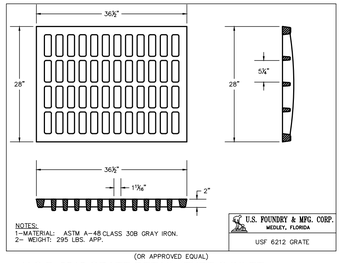
ENDWALL WITH 45° WINGS

U-TYPE AND 45° ENDWALLS

10/12/2020 7:28:59 AM

LAST REVISION	REVISION	DESCRIPTION:	FDOT	INDEX	SHEET
11/01/19			FY 2021-22 STANDARD PLANS	430-040	2 of 2

WINGED CONCRETE ENDWALLS



NOTES:
1-MATERIAL: ASTM A-48 CLASS 30B GRAY IRON.
2- WEIGHT: 295 LBS. APP.

(OR APPROVED EQUAL)

U.S.F. 6212 GRATE DETAIL (TYPE C INLET)

scale: N.T.S.

BARTON J. FYE LICENSE No 73898 STATE OF FLORIDA PROFESSIONAL ENGINEER

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355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL

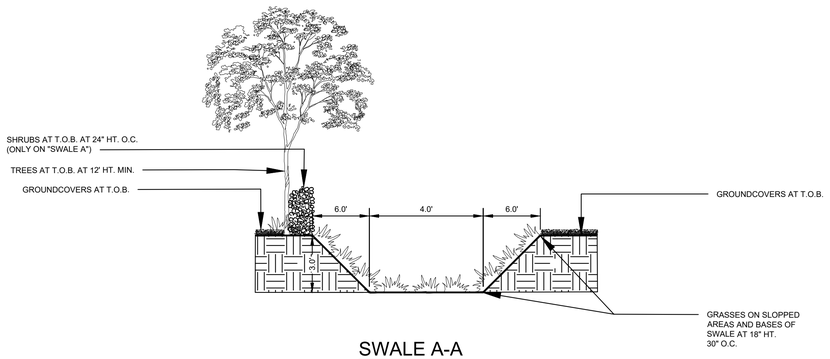
DATE:

KHA PROJECT	143228000
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRG
DRAWN BY	RMR
CHECKED BY	BF

PAVING, GRADING AND DRAINAGE DETAILS IV

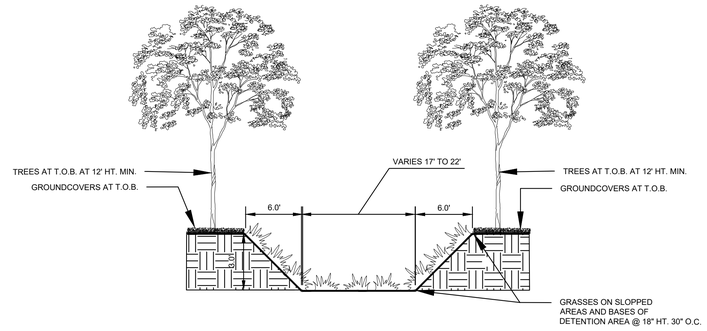
IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-515



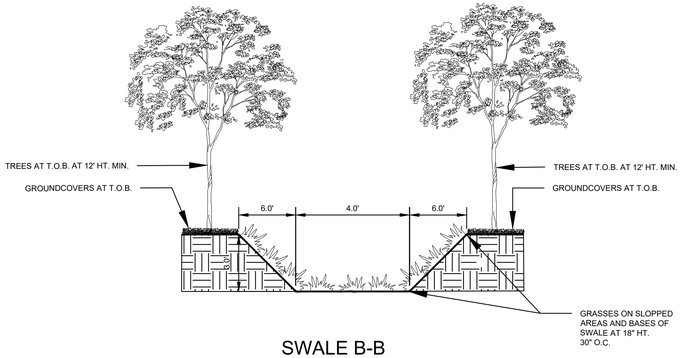
SWALE A-A

N.T.S



DETENTION AREA A1-A1

N.T.S



SWALE B-B

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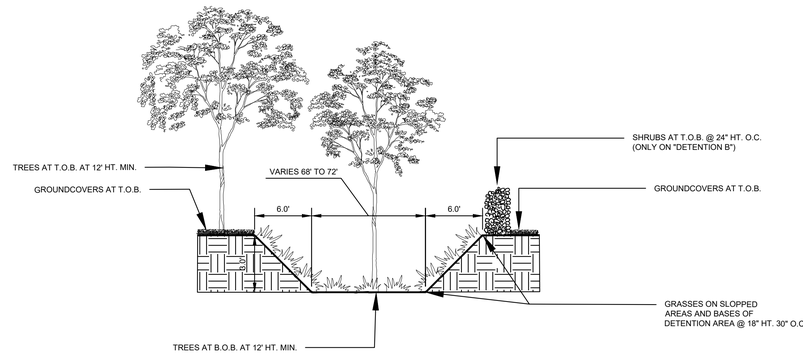
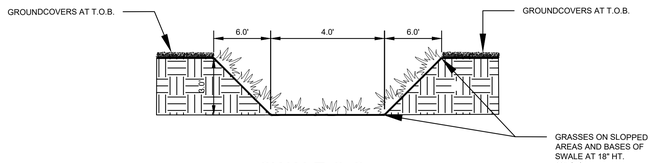


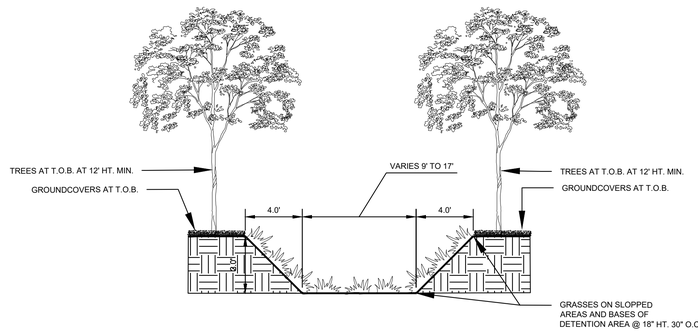
DETENTION AREA B1-B1

N.T.S



SWALE C-C

N.T.S



DETENTION AREA C1-C1

N.T.S

No.	REVISIONS	DATE	BY

Kimley»Horn
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355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL

DATE:

KHA PROJECT
143228000

DATE
JULY 2021

SCALE AS SHOWN

DESIGNED BY ---

DRAWN BY ---

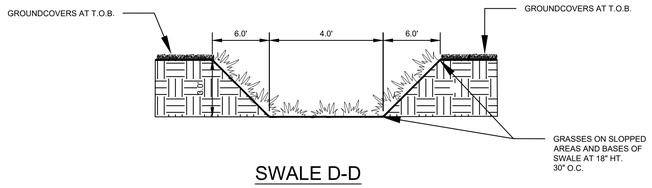
CHECKED BY ---

RETENTION AREAS CROSS SECTION

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
FL

INDIAN RIVER COUNTY

SHEET NUMBER
C-520



SWALE D-D

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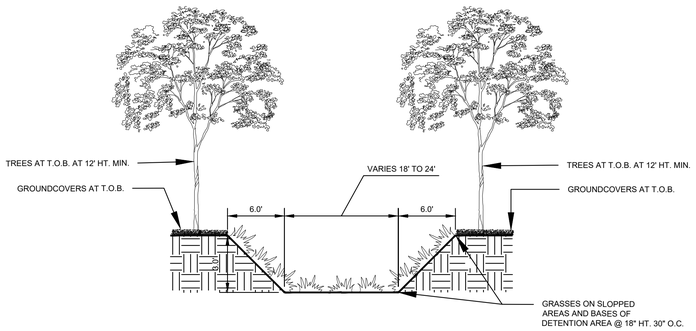

DETENTION AREA D1-D1

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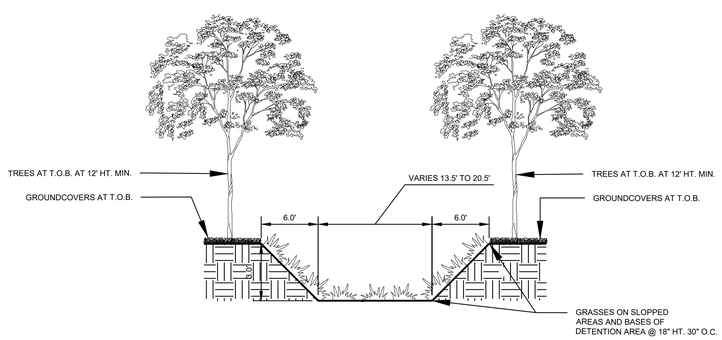

DETENTION AREA E1-E1

N.T.S

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LICENSED PROFESSIONAL

KHA PROJECT	143228000
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRG
DRAWN BY	RMR
CHECKED BY	BF
DATE:	

RETENTION AREAS CROSS SECTION

IRC LANDFILL

PREPARED FOR

INDIAN RIVER COUNTY

FL

INDIAN RIVER COUNTY

SHEET NUMBER

C-521

13TH ST SW

EXIST. 6" WATER MAIN
EXIST. SEWER FORCE MAIN
PROP. 2" IRRIGATION METER
PROP. 2" STAINLESS DOUBLE-STRAP SERVICE SADDLE
EXIST. MH-1
INV OUT: 19.90 8" RCP
EXIST. CATCH BASIN
EXIST. 8" SANITARY SEWER
EXIST. 4" FORCE MAIN
EXIST. STORM PIPE
EXIST. CATCH BASIN
EXIST. CATCH BASIN
EXIST. CATCH BASIN
EXIST. CATCH BASIN
EXIST. STORM PIPE
EXIST. WATER MAIN
EXIST. 8" SANITARY SEWER
PROP. 2" PEXA WATER SERVICE WITH 2" METER AND 2" RPZ
PROP. 6" PVC WM AND DDCVA WITH BOLLARDS
EXIST. MH-2
RIM: 23.79
INV IN: 18.87 8" RCP
INV IN: 19.00 4" PVC
INV OUT: 18.80 8" PVC
EXIST. STORM PIPE
PROP. 6" 90° BEND
PROP. 2" 90° BEND
PROP. 6" 90° BEND
PROP. 2" 90° BEND
PROP. 8"X6" WYE CONNECTION
EXIST. 8" SANITARY SEWER
PROP. 6" DIP CAP WITH FLUSH VALVE
6-IN SAN
6-IN SAN
EXIST. 8" SANITARY SEWER
PROP. 6" 45° BEND
PROP. 6" PVC @ 1.04%
PROP. 6" 45° BEND
HHW STORAGE, BATHROOMS, OFFICE AND CLOSET (9,240 SF) 27.0' F.F.E.
RECYCLING FACILITY (15,000 SF) MAX. BLDG HEIGHT 33'-0" 27.0' F.F.E.
25.0' F.F.E.
PROP. 6"X6" TEE TIED TO 6" GATE VALVE
PROP. 2" STAINLESS DOUBLE-STRAP SERVICE SADDLE
PROP. 6"X6" TEE TIED TO 6" GATE VALVE
PROP. FH
SHARED LOADING AREA (2,510 SF) 27.0' F.F.E.
HHW STAGING AREA (9,240 SF) 27.0' F.F.E.
PROP. 6" SANITARY SEWER @ 1.04% MIN. SLOPE (DOMESTIC USE ONLY)
EXIST. FIBER OPTIC (TYP.)
EXIST. FIRE HYDRANT
EXIST. 6" WATER MAIN
EXIST. 8" WATER MAIN
EXIST. 4" FORCE MAIN
EXIST. UTILITY LINE
EXIST. 8" WATER MAIN
EXIST. 6" WATER MAIN
EXIST. SEWER FORCE MAIN
EXIST. CATCH BASIN
EXIST. STORM PIPE
74TH AVENUE SW
(45 MPH SPEED LIMIT)

SEE SHEET C-711 FOR CONTINUATION

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING
- PROP. LANDSCAPE AREA
- PROP. HEAVY DUTY CONC.
- PROP. STANDARD DUTY CONC.
- PROP. CONC. SIDEWALK
- PROP. GRAVEL ROAD
- EXIST. GATE VALVE
- PROP. IRRIGATION METER
- EXIST. WATER METER
- EXIST. WATER MAIN
- EXIST. SAN. SEWER MH
- EXIST. SAN. SEWER PIPE
- EXIST. STORM MH
- EXIST. STORM CB
- PROP. STORM PIPE
- EXIST. STORM PIPE
- X-IN WM — PROP. WATER MAIN
- PROP. REDUCED PRESSURE BACKFLOW PREVENTER (R.P.Z.B.P.)
- PROP. DOUBLE CHECK DETECTOR VALVE ASSEMBLY (D.D.C.V.)

No.	REVISIONS	DATE	BY

Kimley»Horn
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355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL — DATE:

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF

WATER AND SEWER PLANS I

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-710

BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Barton J. Fye, P.E. on the date adjacent to the seal.

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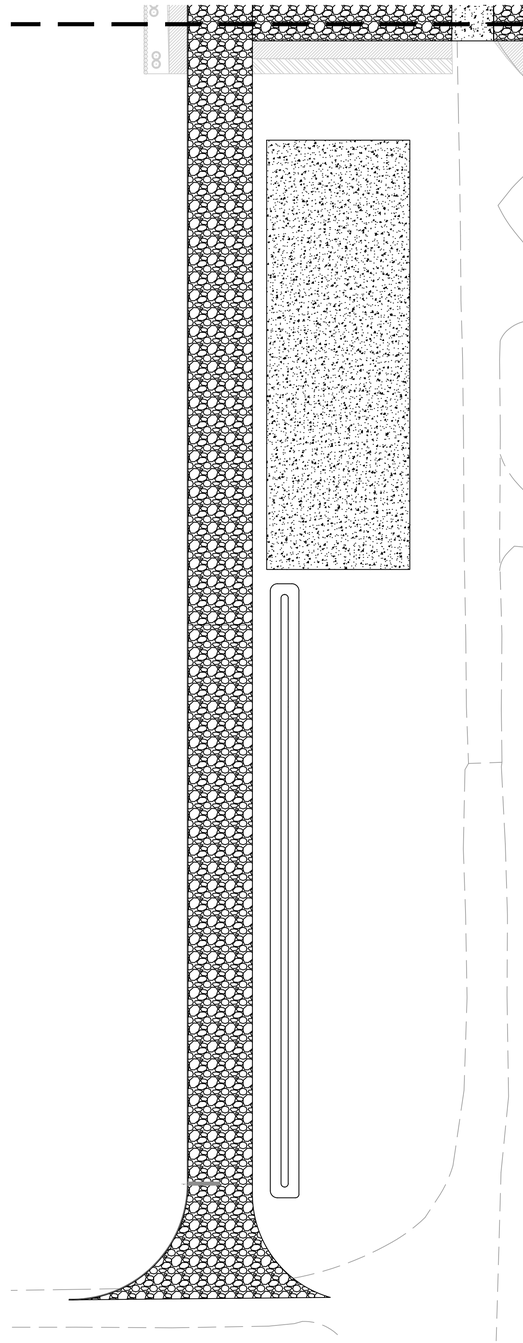
Date: 07/21/2021

SEE SHEET C-710 FOR CONTINUATION



74TH AVENUE SW
(45 MPH SPEED LIMIT)

RAW

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RAW – PL — RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING
- PROP. LANDSCAPE AREA
- PROP. HEAVY DUTY CONC.
- PROP. STANDARD DUTY CONC.
- PROP. CONC. SIDEWALK
- PROP. GRAVEL ROAD
- EXIST. GATE VALVE
- PROP. IRRIGATION METER
- EXIST. WATER METER
- EXIST. WATER MAIN
- EXIST. SAN. SEWER MH
- EXIST. SAN. SEWER PIPE
- EXIST. STORM MH
- EXIST. STORM CB
- PROP. STORM PIPE
- EXIST. STORM PIPE
- X-IN WM — PROP. WATER MAIN
- PROP. REDUCED PRESSURE BACKFLOW PREVENTER (R.P.Z.B.P.)
- PROP. DOUBLE CHECK DETECTOR VALVE ASSEMBLY (D.D.C.V.)

BARTON J FYE — LICENSE No 73898 STATE OF FLORIDA — PROFESSIONAL ENGINEER

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Date: 07/21/2021

Sunshine811

Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn
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355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
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LICENSED PROFESSIONAL

DATE:

DESIGNED BY	MRG	WN
DRAWN BY	RMR	RG
CHECKED BY	BF	MR

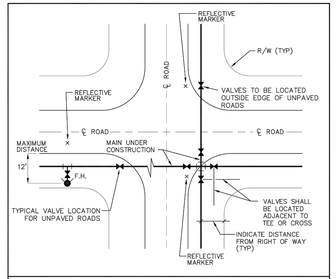
KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN

WATER AND SEWER PLANS II

IRC LANDFILL

PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

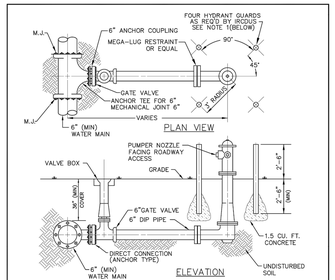
SHEET NUMBER
C-711



NOTES

1. VALVE SPACING ON WATER MAINS SHALL NOT EXCEED 1000' MAXIMUM.
2. A MINIMUM COVER OF 36" IS REQUIRED ABOVE BELL OF D.I.P. AND P.V.C. PIPE.
3. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF BLUE REFLECTIVE MARKERS (RAISED PENDANT MONUMENT) INDICATING A FIRE HYDRANT AND SHALL BE LOCATED IN THE CENTERLINE OF THE LANE CLOSEST TO THE HYDRANT.
4. DEAD END LINES, VALVES, AND HYDRANTS SHALL BE RESTRAINED.
5. ALL LINES SHALL BE A MINIMUM 10' OFFSET FROM BUILDINGS.
6. ALL MAINS LESS THAN 10' IN LENGTH AND LOCATED BETWEEN FITTINGS SHALL BE D.I.P.
7. REFLECTIVE MARKERS FOR: FIRE HYDRANT – BLUE
   WATER MAIN VALVE – WHITE
   FORCE MAIN VALVE – GREEN
   REUSE MAIN VALVE – PURPLE

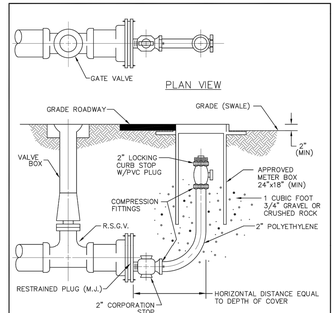
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | LOCATION DETAIL (VALVE AND FIRE HYDRANT) | DRAWING NO. W-1 | SEPTEMBER 2003



NOTES

1. HYDRANT GUARDS TO BE 4" DIAMETER GALVANIZED STEEL OR DUCTILE IRON PIPE FILLED w/ CONCRETE. GUARDS TO BE PAINTED SAME AS HYDRANT.
2. ℄ OF THE PUMPER CONNECTION SHALL BE 18" MIN. ABOVE THE ℄ OF THE NEAREST ROADWAY OR FINISH GRADE.
3. ALL HYDRANTS SHALL BE TRAFFIC BREAKAWAY TYPE.
4. COMPLETE ANCHORED TEE HYDRANT ASSEMBLY MAY BE UTILIZED IN LIEU OF ABOVE.
5. FIRE HYDRANT SHOULD BE LOCATED WITHIN 12' FROM EDGE OF PAVEMENT WHERE POSSIBLE.
6. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.
7. TRACE WIRE TO BE INSTALLED AS PER DETAIL M-14.
8. ALL BOLTS FOR FIRE HYDRANT FITTINGS AND VALVES SHALL BE STAINLESS STEEL. ALL NUTS SHALL BE STAINLESS STEEL.
9. MAINTAIN 6' RADIUS OF HYDRANT PERPENDICULAR TO ROADWAY OR CURB FACE (EXAMPLE MUST BE CLEAR OF SIGNS, TREES, SHRUBS, TRANSFORMERS, UTILITY POLES, ETC.)
10. HYDRANTS AND PROTECTION DEVICES SHALL HAVE CLEARANCES OF 7'-6" IN FRONT AND TO THE SIDES OF THE FIRE HYDRANT, WITH A 4' CLEARANCE TO THE REAR OF THE HYDRANT PURSUANT TO FIRE PREVENTION CODE 3-5.6.

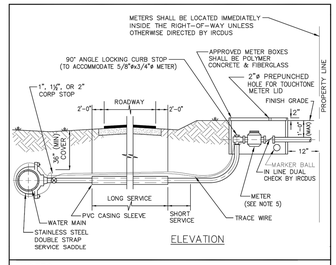
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | FIRE HYDRANT DETAILS | DRAWING NO. W-2 | SEPTEMBER 2003



NOTES

1. BLOW-OFF TO BE LOCATED AT ALL DEAD END LINES, AS REQUIRED BY IRCDUS.
2. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.
3. METHODS OF RESTRAINT AS APPROVED BY IRCDUS.
4. TRACE WIRE TO BE INSTALLED AS PER DETAIL M-14.
5. LOCATE MARKER BALLS ARE TO BE LOCATED ADJACENT TO ALL VALVE BOXES AND PLACED IN ALL METER BOXES WITHIN 24" FROM SURFACE.

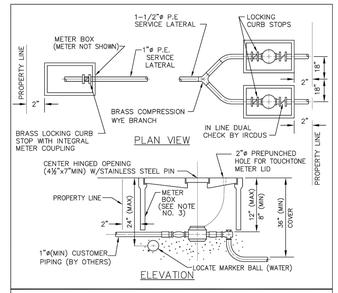
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | 2" BLOW-OFF | DRAWING NO. W-3 | SEPTEMBER 2003



NOTES

1. SUCCESSIVE TAPS INTO THE WATER MAIN SHALL BE A MINIMUM OF 18" ON CENTER.
2. ALL SERVICES REQUIRE 36" MINIMUM COVER.
3. MINIMUM SERVICE SIZE SHALL NOT BE LESS THAN 1"ø. DUAL SERVICES SHALL BE A MINIMUM 1-1/2"ø. TRIPLE SERVICES SHALL BE A MINIMUM 2"ø AND QUADRUPLE SERVICES SHALL BE APPROVED BY IRCDUS.
4. 1"ø & 1-1/2"ø LONG SERVICES REQUIRE A 2" MINIMUM I.D. CASING PIPE. 2"ø LONG SERVICES REQUIRE A 3" MINIMUM I.D. CASING PIPE. CASING PIPE SHALL BE SCHEDULE 40 P.V.C.
5. ALL METERS 2"ø OR SMALLER SHALL BE INSTALLED BY IRCDUS. REFER TO APPROVED MANUFACTURERS' PRODUCT LIST FOR METERS GREATER THAN 2"ø.
6. PIN LOCKS SHALL BE PURCHASED BY THE DEVELOPER AND/OR CONTRACTOR AND SHALL BE INSTALLED ON ALL LOCKING CURB STOPS, SAMPLING POINTS, AND WATER SERVICE CONNECTIONS AT THE TIME OF ACTIVATING ALL WATER MAINS OR AT SUCH TIME AS DIRECTED BY IRCDUS.
7. CURB STOPS SHALL BE THE SAME SIZE AS THE METERS THAT ARE INSTALLED.
8. TRACE WIRE TO BE INSTALLED AS PER DETAIL M-16.
9. LOCATE MARKER BALLS ARE TO BE PLACED IN ALL METER BOXES WITHIN 24" FROM SURFACE.
10. (2) TWO PREPUNCHED HOLES REQUIRED FOR 2"ø METERS.

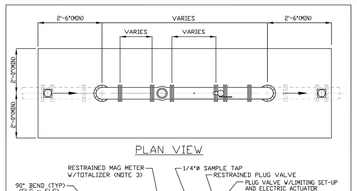
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | WATER SERVICE | DRAWING NO. W-4 | JULY 2004



NOTES

1. METERS OVER 2"ø MUST BE APPROVED BY IRCDUS AND INSTALLED BY CONTRACTOR.
2. ALL METERS 2"ø AND SMALLER WILL BE SUPPLIED AND INSTALLED BY IRCDUS.
3. MINIMUM SIZE OF METER BOXES: 1"ø SERVICE (12" X 18"); 1-1/2"ø AND 2"ø SERVICE (17" X 28").
4. METERS GREATER THAN 2"ø SHALL BE COMPOUND METERS. REFER TO IRCDUS APPROVED MANUFACTURERS PRODUCT LIST.
5. TRACE WIRE TO BE INSTALLED AS PER DETAIL M-14.
6. LOCATE MARKER BALLS ARE TO BE LOCATED ADJACENT TO ALL INLINE VALVE BOXES AND PLACED IN ALL METER BOXES WITHIN 24" FROM SURFACE.

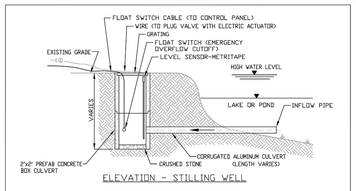
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | METER BOX | DRAWING NO. W-5 | JULY 2004



NOTES

1. TEMPORARY SAMPLING POINT MAY BE CONSTRUCTED OF ALTERNATE MATERIALS AS APPROVED BY IRCDUS.

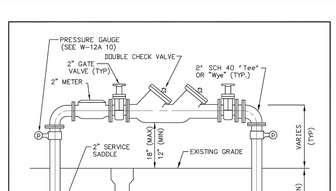
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | TEMPORARY SAMPLING POINT (BACTERIOLOGICAL) | DRAWING NO. W-6 | JUNE 2004



NOTES

1. A FULL LINE FLUSH IS THE ONLY FLUSHING METHOD APPROVED FOR MAINS. ALL FIRE HYDRANTS AND DETECTOR CHECK VALVES SHALL BE INSPECTED AND TESTED TO ENSURE THAT NO FOREIGN OBJECTS IMPEDE THE FLOW OF WATER.
2. A PRESSURE GAUGE SHALL BE INSTALLED UPSTREAM OF THE FLUSHING POINT. THE PRESSURE UPSTREAM SHALL NOT FALL BELOW 35 P.S.I.
3. PROVIDE ALL NECESSARY THRUST BLOCKS AND/OR OTHER RESTRAINTS.
4. INDIAN RIVER COUNTY UTILITY PERSONNEL, AFTER A MINIMUM OF A 48 HOUR NOTICE BY THE CONTRACTOR, SHALL BE PRESENT FOR ALL FLUSHING ACTIVITIES AND SHALL OPERATE ALL EXISTING VALVES.

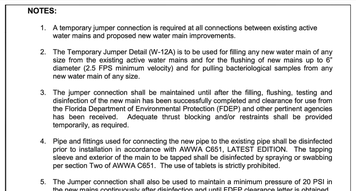
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | FLUSHING CONNECTION | DRAWING NO. W-7 | JUNE 2004



NOTES

1. ALL COMMERCIAL BUILDINGS AND INSTITUTIONS WITH BUILDING SPRINKLERS MUST HAVE AN IRCDUS APPROVED DETECTOR CHECK VALVE AND METER TO BE INSTALLED ON THEIR OWN PROPERTY. DETECTOR CHECKS SHALL BE INSTALLED IN ACCORDANCE WITH THE STATE FIRE MARSHALL CODE AND THE IRCDUS AND SHALL BE MOUNTED ABOVE GROUND.
2. DETAIL SHOWN CAN BE MODIFIED AND APPROVED BY IRCDUS FOR EACH INDIVIDUAL PROJECT.
3. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.

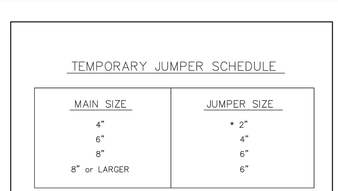
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | DOUBLE-DETECTOR CHECK VALVE ASSEMBLY | DRAWING NO. W-8 | SEPTEMBER 2003



NOTES

1. ALL HOSPITALS, SCHOOLS, COMMERCIAL, INDUSTRIAL, AND OTHER INSTITUTIONS ARE REQUIRED TO INSTALL DOUBLE CHECK BACKFLOW PREVENTER WITH REDUCED PRESSURE ZONE FEATURE AS DETERMINED BY UTILITY.
2. ALL MULTI-STORY, MULTI-FAMILY SERVICES ARE REQUIRED TO INSTALL RPZ BACKFLOW PREVENTERS.
3. APPROVED EQUALS HAVING FULL UL, USC, AND AWWA CERTIFICATIONS MAY BE INSTALLED ONLY AFTER SPECIFIC APPROVAL BY IRCDUS.
4. SUPPORT BACKFLOW PREVENTER FROM WALL OR APPROVED PIPE SUPPORT SYSTEM. PIPE SUPPORT SYSTEM SHALL BE BRASS, COPPER OR D.I.P., AS APPROVED BY IRCDUS.
5. BELOW GROUND INSTALLATION IN A VAULT MAY BE CONSIDERED FOR APPROVAL IF FINISHED GRADE OF BOTTOM OF VAULT IS AT LEAST 1'-0" ABOVE THE HIGH WATER LEVEL.
6. PIPING 2-1/2" OR GREATER SHALL BE FLANGED DUCTILE IRON PIPE.
7. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.
8. ALL FASTENERS SHALL BE 316 STAINLESS STEEL (OR APPROVED EQUAL).
9. ALL RPZ BACK FLOW PREVENTERS SHALL BE CERTIFIED BY APPROVED TESTER AND APPROPRIATE CERTIFIED FORM SUBMITTED TO IRCDUS.

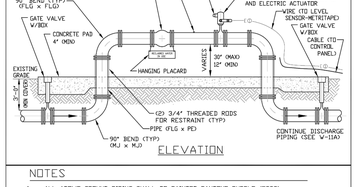
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | BACKFLOW PREVENTER | DRAWING NO. W-9 | JUNE 2004



NOTES

1. ALL ABOVE GROUND PIPING SHALL BE FLANGED DUCTILE IRON.
2. FIELD FABRICATED FLANGES ARE UNACCEPTABLE.
3. DEVICE TO BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
4. ASSEMBLY TO BE PRIMED WITH RUST INHIBITIVE PRIMER AND FINISHED PAINTED AFTER INSTALLATION. (SEE APPROVED MANUFACTURERS' PRODUCT LIST)
5. BY-PASS PIPE DIAMETER SHALL BE SAME SIZE AS MAIN PIPE.

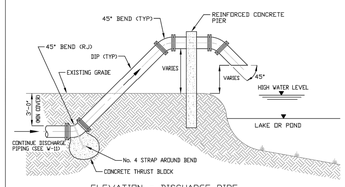
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MASTER METER COMBINATION ASSEMBLY | DRAWING NO. W-10 | JULY 2004



NOTES

1. ALL ABOVE GROUND PIPING SHALL BE PAINTED PANTONE PURPLE (522C).
2. PROVIDE A HANGING PLACARD WITH THE WORDS "RECLAIMED WATER IN USE."
3. MAG METER SHALL BE LINKED TO IRCDUS RTU FOR REMOTE MONITORING BY IRCDUS. THE METER SHALL REPORT IN GALLONS PER MINUTE. PLUG VALVE SHALL BE REMOTELY ACTUATED VIA EXISTING IRCDUS RTU AND BY LEVEL SENSOR-METRITAPE IN LAKE. PLUG VALVE SHALL REPORT "OPEN" OR "CLOSED" POSITION. INTERGRATE ALL LOGIC WITH IRCDUS SCADA SYSTEM.
4. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.

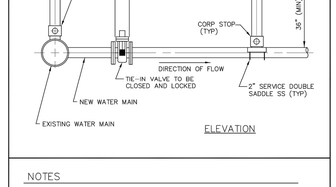
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | REUSE METER/VALVE ASSEMBLY DETAIL | DRAWING NO. W-11 | JUNE 2004



NOTES

1. ALL ABOVE GROUND PIPING SHALL BE PAINTED PANTONE PURPLE (522C).
2. PROVIDE A PLACARD WITH THE WORDS "RECLAIMED WATER IN USE."
3. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | REUSE PIPE DISCHARGE DETAIL | DRAWING NO. W-11 A | MARCH 2004



NOTES

1. TIE-IN VALVE SHALL BE OPERATED BY IRCDUS PERSONNEL ONLY AND IN THE PRESENCE OF THE ENGINEER OF RECORD.
2. ALL LINES TO BE FULL PIPE FLUSHED.
3. ALL MATERIALS TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | TEMPORARY JUMPER CABLE | DRAWING NO. W-12 | MARCH 2004

NOTES:

1. A temporary jumper connection is required at all connections between existing active water mains and proposed new water main improvements.
2. The Temporary Jumper Detail (W-12A) is to be used for filling any new water main of any size from the existing active water mains and for the flushing of new mains up to 8" diameter (2.5 FPS minimum velocity) and for pulling bacteriological samples from any new water main of any size.
3. The jumper connection shall be maintained until after the filling, flushing, testing and disinfection of the new main has been successfully completed and clearance for use from the Florida Department of Environmental Protection (FDEP) and other pertinent agencies has been received. Adequate thrust blocking and/or restraints shall be provided temporarily, as required.
4. Pipe and fittings used for connecting the new pipe to the existing pipe shall be disinfected prior to installation in accordance with AWWA C651, LATEST EDITION. The tapping sleeve and exterior of the main to be tapped shall be disinfected by spraying or swabbing per section Two of AWWA C651. The use of tablets is strictly prohibited.
5. The Jumper connection shall also be used to maintain a minimum pressure of 20 PSI in the new mains continuously after disinfection and until FDEP clearance letter is obtained.
6. The Contractor shall provide documentation demonstrating that the double check backflow prevention device is in good working order at the time of installation, and provide documentation that the double check backflow prevention device has been tested in the last 12 months, and is in good working order one year from installation by a qualified backflow technician as approved by IRCDUS.
7. Except as required to flush lines greater than 6" diameter, the tie-in valve shall remain closed and shall be locked in the closed position by the utility company. The tie-in valve shall remain locked closed until the new system has been cleared for use by the FDEP and all other pertinent agencies.
8. Upon receipt of clearance for use by FDEP and all other pertinent agencies, the Contractor shall remove the temporary jumper connection. The corporation stops are to be closed and plugged with 2" brass or PVC stops.
9. All installation and maintenance of the temporary jumper connection and associated backflow prevention device, fittings, valves, etc., shall be the responsibility of the Contractor.
10. If the water main to be flushed is greater than 6" diameter or such length that a full pipe flush at the 2.5 FPS velocity cannot be accomplished, the following procedure shall be utilized.
    a) Install pressure gauges as indicated on Temporary Jumper Detail (W-11).
    b) Open all downstream valves in the new system prior to flush.
    c) Flush new water main thru tie-in valve maintaining a 10+/- PSI pressure differential between gauges during flush.
    d) IRCDUS personnel, in the presence of the Engineer of Record shall operate tie-in valve to insure that the required pressure differential is maintained.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | TEMPORARY JUMPER DETAIL NOTES | DRAWING NO. W-12 (A) | MARCH 2004

TEMPORARY JUMPER SCHEDULE

MAIN SIZE	JUMPER SIZE
4"	* 2"
6"	4"
8"	6"
8" or LARGER	6"

NOTES

1.* WITH THE USE OF A 2" JUMPER, A CORPSTOP WITH SERVICE SADDLE MAY BE UTILIZED IN LIEU OF A CROSS AND VALVE AT MAIN CONNECTION.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | TEMPORARY JUMPER SCHEDULE | DRAWING NO. W-12 (B) | MARCH 2004

Kimley»Horn
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No.	REVISIONS	DATE	BY

LICENSED PROFESSIONAL

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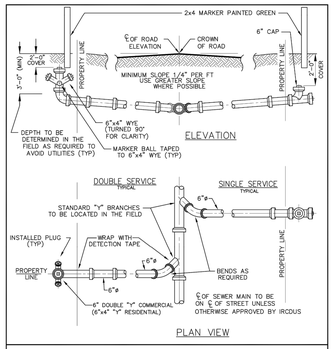
BARTOLOMEO FAYE No 73898 STATE OF FLORIDA PROFESSIONAL ENGINEER

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY ---
DRAWN BY ---
CHECKED BY ---
DATE: ---

INDIAN RIVER COUNTY WATER DETAILS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

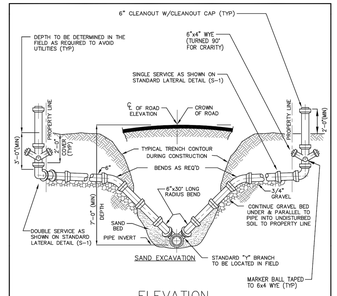
SHEET NUMBER
C-712



NOTE

1. SANITARY SEWER LATERALS SHALL BE A MINIMUM OF 6" IN DIAMETER.
2. MAGNETIC DETECTION TAPE SHALL BE INSTALLED OVER ALL SERVICE LATERALS.
3. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.
4. MARKER BALLS TO BE TAPED TO 6"x4" WYE 24" BELOW FINISHED GRADE.

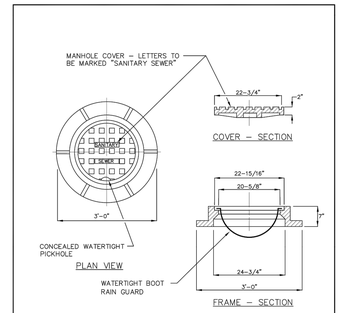
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | STANDARD LATERAL (SHALLOW SEWER) | DRAWING NO. S-1



NOTES

1. 3/4" GRAVEL BEDDING SHALL BE USED FOR EXCAVATION IN ROCK. SAND BEDDING SHALL BE USED FOR EXCAVATION IN SAND.
2. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.
3. MARKER BALLS TO BE TAPED TO 6"x4" 24" BELOW FINISHED GRADE.
4. HOUSE BUILDER WILL BE RESPONSIBLE FOR CUTTING SEWER CLEANOUT TO GRADE PRIOR TO CONNECTION.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MODIFIED RISER LATERAL (DEEP SEWER) | DRAWING NO. S-2 | MARCH 2004



NOTES

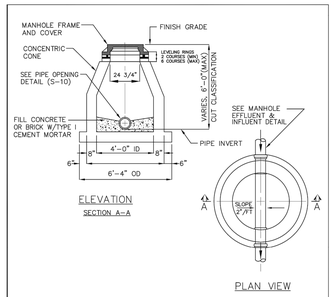
1. A WATERTIGHT BOOT RAIN GUARD SHALL BE PROVIDED FOR ALL MANHOLE FRAME/COVERS AND APPROVED BY INDIAN RIVER COUNTY.
2. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | STANDARD MANHOLE CASTING | DRAWING NO. S-3 | SEPTEMBER 2021

MANHOLE NOTES

1. REINFORCING AREA OF 0.20 SQ. IN./FT. FOR WALL SECTION, MINIMUM TO MEET OR EXCEED A.S.T.M. A 185.
2. ALL CEMENT TO BE TYPE I.
3. ALL CONCRETE FOR PRECAST MANHOLES TO BE MINIMUM 3,000 P.S.I. TO MEET OR EXCEED A.S.T.M. C 478.
4. BOTTOMS AND CHANNELS OF ALL MANHOLES TO BE OF 2,500 P.S.I. FILL CONCRETE FINISHED SMOOTH WITH STEEL TROWEL.
5. CONCRETE MANHOLES TO HAVE A MIN. WALL THICKNESS OF 8".
6. INSIDE OF MANHOLE SHALL BE COATED WITH TWO COATS OF COAL TAR EPOXY AND TWO COATS OUTSIDE. (KOPPERS 300 OR EQUAL).
7. CHANNELS TO BE FORMED IN ALL MANHOLES TO ACCEPT T.V. CAMERA.
8. ORIENT ECCENTRIC CONE AS REQUIRED BY ENGINEER IN FIELD.
9. BOTTOM SECTION TO BE MONOLITHIC POUR EXCEPT WHERE DROP CONNECTION REQUIRED.
10. CONNECTIONS TO EXISTING MANHOLE AND LIFT STATION WET WELL STRUCTURES SHALL BE BY MEANS OF BORING A PENETRATION IN THE STRUCTURE, RATHER THAN PUNCHING. THE CONTRACTOR SHALL TAKE POSITIVE MEASURES TO PREVENT ANY CONCRETE OR CONSTRUCTION DEBRIS FROM ENTERING THE WASTEWATER SYSTEM.
11. BUOYANCY CALCULATIONS SHALL BE REQUIRED FOR MANHOLES IN FLOOD ZONES.
12. NO. 4@ BARS 9" O.C. EACH WAY IN SLAB (TOP AND BOTTOM).
13. SLOPES ON CHANNEL BOTTOMS TO EQUAL SLOPES OF LINES ENTERING AND EXITING MANHOLES.
14. 2 COURSES BRICK MINIMUM, 6 COURSES BRICK MAXIMUM BETWEEN ALL PRECAST MANHOLE TOPS AND CASTINGS.
15. 3/4" CRUSHED STONE FOUNDATIONS FOR A MINIMUM DEPTH OF 12" SHALL BE PROVIDED AS REQUIRED BY IRCDUS.
16. MANHOLE LID SHALL BE TRAFFIC BEARING (H-20 LOADING).
17. SEWER PIPE INVERTS AT BOTTOM OF MANHOLES SHALL HAVE AN INVERT ELEVATION DIFFERENTIAL OF 0.1 FEET FOR A CHANGE IN DIRECTION AND 0.05 FEET FOR A STRAIGHT RUN.
18. A WATERTIGHT RAIN GUARD BOOT, TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST, SHALL BE PROVIDED FOR ALL MANHOLE FRAME/COVERS.
19. MATERIALS FOR LINING MANHOLES, WHERE REQUIRED, TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST. FIBERGLASS LINERS SHALL BE INSTALLED ON ALL MANHOLES RECEIVING PUMPED SEWAGE.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MANHOLE NOTES | DRAWING NO. S-4 | JUNE 2004

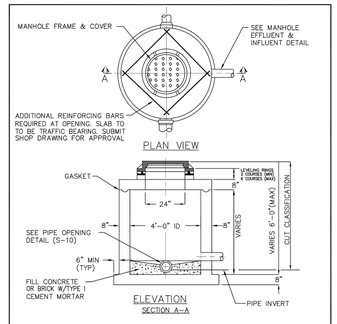


TO BE USED WHEN CUT CLASSIFICATION IS 6'-0" OR LESS

NOTES

1. SEE MANHOLE NOTES ON DRAWING NO. S-4
2. SEE STANDARD MANHOLE CASTING DRAWING NO. S-3
3. SEE PIPE OPENING DETAIL DRAWING NO. S-10
4. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-11

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MANHOLE STANDARD SHALLOW | DRAWING NO. S-5 | JULY 2004

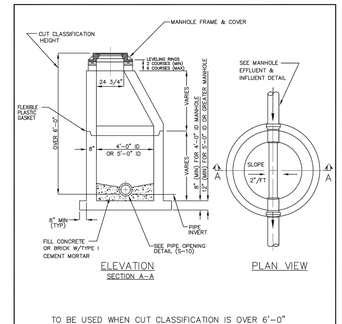


TO BE USED WHEN CUT CLASSIFICATION IS 6'-0" OR LESS

NOTES

1. SEE MANHOLE NOTES ON DRAWING NO. S-4.
2. SEE STANDARD MANHOLE CASTING DRAWING NO. S-3.
3. SEE PIPE OPENING DETAIL DRAWING NO. S-10.
4. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-11.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MANHOLE SLAB TOP | DRAWING NO. S-6 | JULY 2004

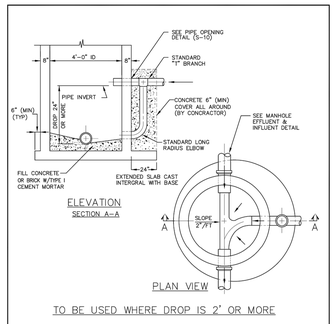


TO BE USED WHEN CUT CLASSIFICATION IS OVER 6'-0"

NOTES

1. SEE MANHOLE NOTES ON DRAWING NO. S-4.
2. SEE STANDARD MANHOLE CASTING DRAWING NO. S-3.
3. SEE PIPE OPENING DETAIL DRAWING NO. S-10.
4. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-11.
5. USE 5'-0" I.D. MANHOLE AS DIRECTED BY THE IRCDUS.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MANHOLE STANDARD DEEP | DRAWING NO. S-7 | JULY 2004

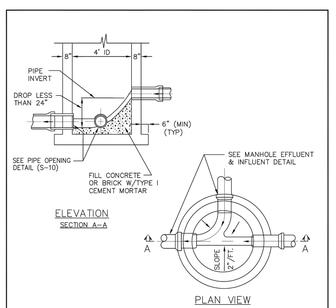


TO BE USED WHERE DROP IS 2' OR MORE

NOTES

1. SEE MANHOLE NOTES ON DRAWING NO. S-4.
2. SEE PIPE OPENING DETAIL DRAWING NO. S-10.
3. SEE MANHOLE EFFLUENT & INFLUENT DETAIL; DRAWING NO. S-11.
4. SOLVENT JOINTS SHALL NOT BE USED FOR DROP PIPE.
5. SEWER LATERALS SHALL NOT BE CONNECTED DIRECTLY INTO MANHOLES.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MANHOLE TYPE "A" DROP | DRAWING NO. S-8 | SEPTEMBER 2021

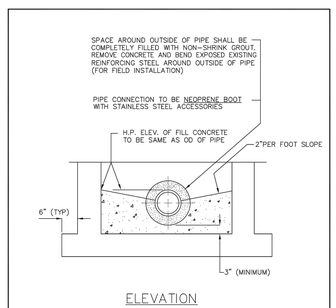


TO BE USED WHERE DROP IS LESS THAN 2'

NOTES

1. SEE MANHOLE NOTES ON DRAWING NO. S-4.
2. SEE PIPE OPENING DETAIL DRAWING NO. S-10.
3. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-11.

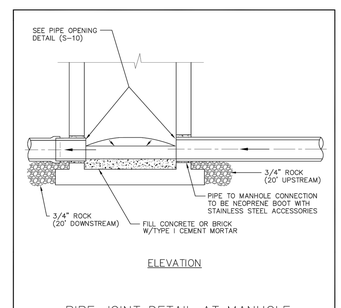
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MANHOLE TYPE "B" DROP | DRAWING NO. S-9 | SEPTEMBER 2021



NOTES

1. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.

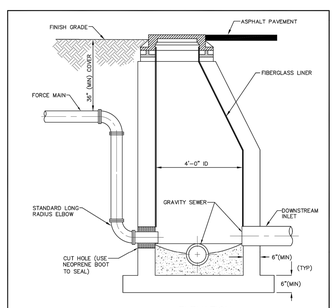
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | PIPE OPENING DETAIL | DRAWING NO. S-10 | SEPTEMBER 2021



NOTE

1. PIPE JOINT DETAIL IS TYPICAL FOR ALL PIPE TO MANHOLE CONNECTIONS
2. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.
3. 3/4" ROCK TO BE USED AS BEDDING FOR 20' UPSTREAM & DOWNSTREAM OF MANHOLE.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | MANHOLE EFFLUENT & INFLUENT | DRAWING NO. S-11 | SEPTEMBER 2021



NOTES

1. SEE MANHOLE NOTES ON DRAWING NO. S-4.
2. SEE PIPE OPENING DETAIL DRAWING NO. S-10.
3. SEE MANHOLE EFFLUENT & INFLUENT DETAIL DRAWING NO. S-11.
4. NO INSIDE DROP WILL BE ACCEPTED.
5. MATERIALS FOR LINING MANHOLES SHALL BE EQUAL TO THAT MANUFACTURED BY ASSOCIATED FIBERGLASS ENGINEERS OR APPROVED EQUAL AND SHALL BE ENGINEERED TO A STANDARD OF 18,000-POUND VERTICAL DYNAMIC WHEEL LOAD (AASTHO H-20). FIBERGLASS LINERS SHALL BE INSTALLED ON ALL MANHOLES RECEIVING PUMPED SEWAGE.
6. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCT LIST.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | FORCE MAIN TIE-IN | DRAWING NO. S-12 | JULY 2004

BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Barton J. Fye, P.E. on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Date: 07/21/2021

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No.	REVISIONS	DATE	BY

LICENSED PROFESSIONAL

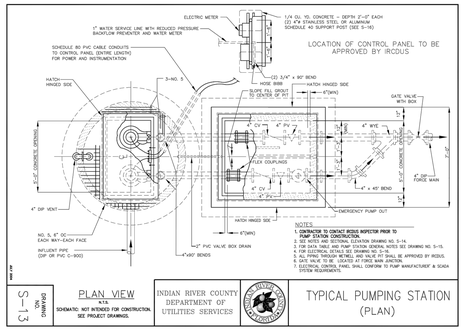
KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF
DATE:

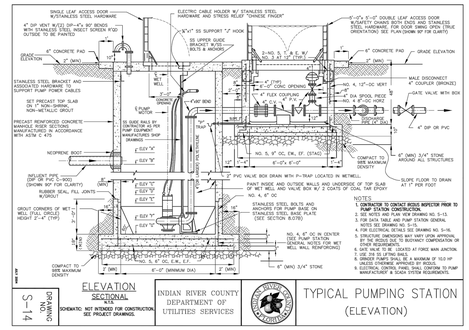
INDIAN RIVER COUNTY SEWER DETAILS

IRC LANDFILL

PREPARED FOR
INDIAN RIVER COUNTY
FL

SHEET NUMBER
C-713





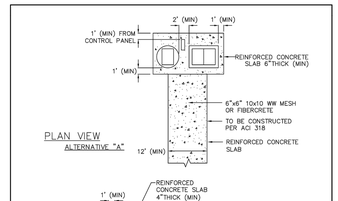
PUMP STATION GENERAL NOTES

1. Contractor shall take necessary precautions against floatation of wet well until all back fill is in place.
2. All concrete shall be class A-A (4,000 PSI for precast and 3,000 PSI for cast-in-place) unless otherwise specified.
3. Reinforcing steel shall be grade 60 fabricated and placed in accordance with ACI code splices and shall be six (6) times the bar diameter number size or 18" minimum unless otherwise noted (STAG. SPL., TYP).
4. All backfill around the pump station site shall be compacted @ 98% density, per T-180.
5. Chamfer exposed concrete edges ¾" (TYP).
6. Wet well wall shall contain a minimum of .022 sq in/linear foot reinforcement, each way top to bottom.
7. All piping at the pump station site shall be restrained.
8. All Pumps and Pumping Equipment – See IRCDUS approved manufacturers' product list.
9. Stainless steel cable holder shall be located on opposite side of wet well from the influent pipe.
10. Bouyancy calculations shall be required for all pump stations along with the required pump station cal
11. No uni-flange pipe connections allowed.
12. Maintain minimum of 6" between any piping, fittings etc. and precast concrete.
13. Fiberglass liners shall be installed on all manholes receiving pumped sewage.
14. Pump station control panel shall be provided with appropriate lightning arrestor. Verify all driven grounds per N.E.C.
15. An access drive shall be provided to all IRCDUS maintained lift stations. All access drives shall be a minimum of 12' wide. If fence is installed, gate shall have a 12' opening.
16. All proposed private station owners are to sign an agreement acknowledging station is to remain private unless subject station is constructed to IRCDUS standards.
17. Pumps shall be designed to provide a minimum pump run time equal to half the cycle time.
18. Pumps shall be designed to provide a maximum clearance of ten feet outside of lift station wet well for future maintenance.
19. All re-pump stations shall have bio-cube odor control systems as required by manufacturer, and approved by IRCDUS.

FLOAT CONTROL SYSTEM

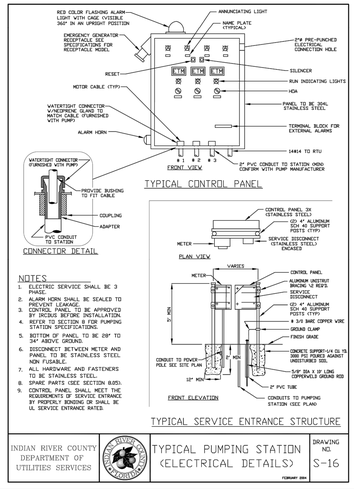
PUMPING STATION DATA TABLE			
LIFT STATION NUMBER			
PRIMARY CONDITION	PUMPING CAPACITY	G.P.M.	00
	TOTAL HEAD (-X)	FEET	00
	EFFICIENCY	%	00%
INTERMEDIATE CONDITION	PUMPING CAPACITY	G.P.M.	---
	TOTAL HEAD	FEET	---
	EFFICIENCY	%	---
SECONDARY CONDITION	PUMPING CAPACITY	G.P.M.	---
	TOTAL HEAD (+X)	FEET	---
	EFFICIENCY	%	---
MIN. SOLIDS PASS IMPELLER		INCHES	3"
PUMP MODEL NUMBER		NO.	00000-0-0"
PUMP IMPELLER		INCHES	XX-00
PUMP SPEED (SESSION)		R.P.M.	0000
MOTOR NAMEPLATE H.P.		H.P.	0
MAX. PUMP BRAKE H.P.		H.P.	# 0.0
MAX. NPSHR @ SECONDARY		FEET	---
MAX. MOTOR SPEED		R.P.M.	0000
INITIAL INFLUENT INFLOW PEAK		G.P.M.	00
MIN. PUMP CYCLE TIME		MINS.	00
ALARM SIGNAL ON ELEV.		ELEV."X"	0.00
INFLUENT PIPE INV. ELEV.		ELEV."X"	0.00
LAG PUMP ON ELEV.		ELEV."X"	0.00
LEAD PUMP ON ELEV. (+)		ELEV."X"	0.00
PUMPS OFF ELEVATION		ELEV."X"	0.00
ALARM SIGNAL ON ELEV.		ELEV."Y"	---
BOTTOM OF WET WELL		ELEV."X"	C-10.00
PUMP MANUFACTURER			XXX
** PUMP VOL DIFFERS BETWEEN PRIMARY AND SECONDARY PUMPS.			

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — TYPICAL PUMPING STATION (DATA TABLE & NOTES) — DRAWING NO. S-15 — FEBRUARY 2004



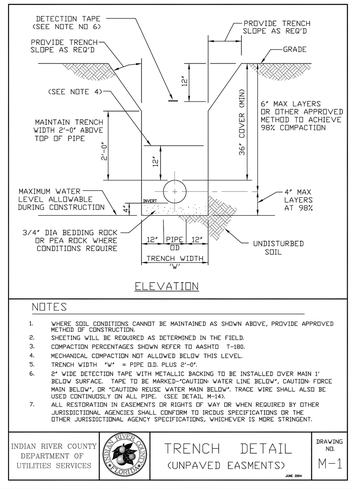
NOTE
1. LOCATION OF CONTROL PANEL PER IRCDUS INSPECTOR.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — TYPICAL PUMPING STATION (DETAIL SHEET) — DRAWING NO. S-15 (A) — SEPTEMBER 2004



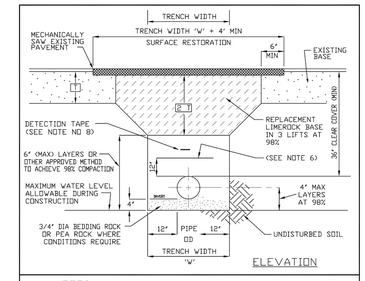
NOTES
1. ELECTRIC SERVICE SHALL BE 3 PHASE.
2. ALARM HORN SHALL BE SEALED TO PREVENT LEAKAGE.
3. ELECTRICAL PLANS TO BE APPROVED BY IRCDUS BEFORE INSTALLATION.
4. REFER TO SECTION 9 FOR PUMPING STATION SPECIFICATIONS.
5. BOTTOM OF PANEL TO BE 29" TO 34" ABOVE GROUND.
6. DISCONNECT BETWEEN METER AND PANEL TO BE STAINLESS STEEL NON FUSIBLE.
7. ALL HARDWARE AND FASTENERS TO BE STAINLESS STEEL.
8. SPARE PARTS (SEE SECTION 9.05).
9. CONTROL PANEL SHALL MEET THE REQUIREMENTS OF SERVICE ENTRANCE BY PROPERLY BONDING OR SHALL BE UL SERVICE ENTRANCE RATED.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — TYPICAL PUMPING STATION (ELECTRICAL DETAILS) — DRAWING NO. S-16 — FEBRUARY 2004



NOTES
1. WHERE SOIL CONDITIONS CANNOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. COMPACTION PERCENTAGES SHOWN REFER TO AASHTO T-180.
4. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
5. TRENCH WIDTH "W" = PIPE O.D. PLUS 2'-0".
6. 2" WIDE DETECTION TAPE WITH METALLIC BACKING TO BE INSTALLED OVER MAIN 1' BELOW SURFACE. TAPE TO BE MARKED-"CAUTION WATER LINE BELOW". CAUTION FORCE MAIN BELOW", OR "CAUTION REUSE WATER MAIN BELOW". TRACE WIRE SHALL ALSO BE USED CONTINUOUSLY ON ALL PIPE. (SEE DETAIL M-14).
7. ALL RESTORATION IN EASEMENTS OR RIGHTS OF WAY OR WHEN REQUIRED BY OTHER JURISDICTIONAL AGENCIES SHALL CONFORM TO IRCDUS SPECIFICATIONS OR THE OTHER JURISDICTIONAL AGENCY SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — TRENCH DETAIL (UNPAVED EASMENTS) — DRAWING NO. M-1 — JUNE 2004



NOTES
1. WHERE SOIL CONDITIONS CANNOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED METHOD OF CONSTRUCTION.
2. SHEETING WILL BE REQUIRED AS DETERMINED IN THE FIELD.
3. NEW SURFACING MATERIALS SHALL BE CONSISTENT WITH EXISTING MATERIALS AND SHALL HAVE LAPPED AND FEATHERED JOINTS. (1-1/2" MIN. THK.)
4. COMPACTION PERCENTAGES SHOWN REFER TO AASHTO T-180.
5. ALL ROADWAY RESTORATION SHALL COMPLY WITH INDIAN RIVER COUNTY PUBLIC WORKS/FDOT STANDARDS.
6. MECHANICAL COMPACTION NOT ALLOWED BELOW THIS LEVEL.
7. TRENCH WIDTH "W" = PIPE O.D. PLUS 2'-0".
8. 2" WIDE DETECTION TAPE WITH METALLIC BACKING TO BE INSTALLED OVER MAIN 1' BELOW SURFACE. TAPE TO BE MARKED-"CAUTION WATER LINE BELOW". CAUTION FORCE MAIN BELOW", OR "CAUTION REUSE WATER MAIN BELOW". TRACE WIRE SHALL BE USED CONTINUOUSLY ON ALL PIPE. (SEE DETAIL M-14).
9. 98% COMPACTION IN SHOULDER OF RIGHT OF WAY.

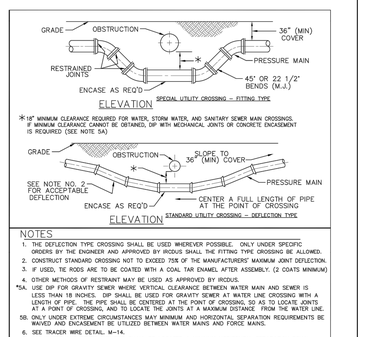
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — TRENCH DETAIL (PAVED AREAS & SHOULDERS) — DRAWING NO. M-2 — JUNE 2004

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — RESTRAINING SCHEDULE AND NOTES — DRAWING NO. M-3

RESTRAINED LENGTH IN FEET EACH SIDE OF									RESTRAINED LENGTH IN FEET FOR REDUCER								
PIPE DIAMETER (INCHES)	D. I. P.				P. V. C.				PIPE DIAMETER (INCHES)	3"	4"	6"	8"	10"	12"	16"	20"	24"	30"
	90°	45°	22 ½°	11 ¼°	90°	45°	22 ½°	11 ¼°											
3"	30'	15'	10'	5'	40'	20'	10'	5'	3"	0	0	0	0	0	0	0	0	0	0
4"	35'	15'	10'	5'	55'	25'	15'	10'	4"	40'	0	0	0	0	0	0	0	0	0
6"	55'	25'	10'	5'	80'	35'	20'	10'	6"	50'	45'	0	0	0	0	0	0	0	0
8"	65'	30'	15'	10'	90'	40'	20'	10'	8"	75'	70'	40'	0	0	0	0	0	0	0
10"	80'	35'	20'	10'	110'	50'	25'	15'	10"	95'	90'	70'	40'	0	0	0	0	0	0
12"	95'	40'	20'	10'	130'	55'	30'	15'	12"	120'	115'	100'	75'	40'	0	0	0	0	0
16"	120'	50'	25'	15'	165'	70'	35'	20'	16"	160'	155'	140'	125'	100'	70'	0	0	0	0
20"	150'	65'	30'	15'	200'	85'	40'	20'	20"	200'	195'	185'	170'	150'	130'	75'	0	0	0
24"	180'	70'	35'	20'	235'	90'	45'	25'	24"	160'	155'	150'	140'	135'	120'	90'	50'	0	0
30"	190'	80'	40'	20'	250'	105'	50'	25'	30"	195'	190'	185'	180'	170'	160'	125'	105'	70'	0
36"	220'	95'	45'	25'	0	0	0	0	36"	225'	220'	215'	210'	205'	195'	180'	150'	125'	70'
42"	245'	105'	50'	25'	0	0	0	0	42"	245'	240'	235'	230'	225'	220'	205'	180'	155'	105'
48"	260'	120'	60'	30'	0	0	0	0	48"	255'	250'	245'	240'	235'	230'	215'	195'	175'	125'

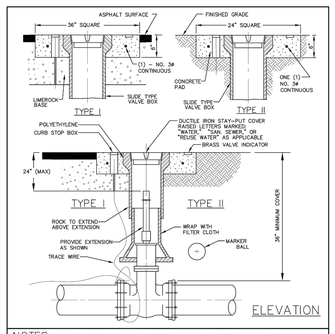
RESTRAINED LENGTHS FOR DEAD ENDS AND BRANCHES FROM TEES SHALL BE THE SAME AS FOR 90° BENDS

LENGTH OF RESTRAINED JOINT FOR LARGER DIAMETER PIPE



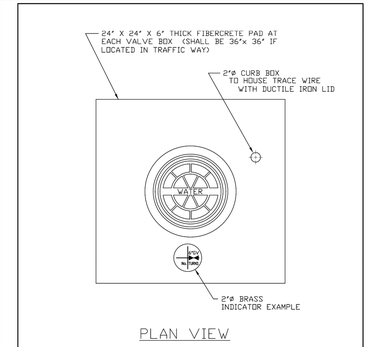
NOTES
1. THE DEFLECTION TYPE CROSSING SHALL BE USED WHEREVER POSSIBLE. ONLY UNDER SPECIFIC ORDERS BY THE ENGINEER AND APPROVED BY IRCDUS SHALL THE FITTING TYPE CROSSING BE ALLOWED.
2. CONSTRUCT STANDARD CROSSING NOT TO EXCEED 75% OF THE MANUFACTURERS' MAXIMUM JOINT DEFLECTION.
3. IF USED, TIE RODS ARE TO BE COATED WITH A COAL TAR ENAMEL AFTER ASSEMBLY. (2 COATS MINIMUM)
4. OTHER METHODS OF RESTRAINT MAY BE USED AS APPROVED BY IRCDUS.
*5A. USE DIP FOR GRAVITY SEWER WHERE VERTICAL CLEARANCE BETWEEN WATER MAIN AND SEWER IS LESS THAN 18 INCHES. DIP SHALL BE USED FOR GRAVITY SEWER AT WATER LINE CROSSING WITH A LENGTH OF PIPE. THE PIPE SHALL BE CENTERED AT THE POINT OF CROSSING, SO AS TO LOCATE JOINTS AT A POINT OF CROSSING, AND TO LOCATE THE JOINTS AT A MAXIMUM DISTANCE FROM THE WATER LINE.
5B. ONLY UNDER EXTREME CIRCUMSTANCES MAY MINIMUM AND HORIZONTAL SEPARATION REQUIREMENTS BE WAIVED AND ENCASEMENT BE UTILIZED BETWEEN WATER MAINS AND FORCE MAINS.
6. SEE TRACER WIRE DETAIL, M-14.
7. ALL WATER AND SEWER UTILITIES SHALL BE LOCATED A MINIMUM HORIZONTAL SEPARATION EQUAL TO THE DEPTH OF THE PIPE PLUS THE DIAMETER OF THE PIPE FROM ANY PERMANENT ABOVE GROUND STRUCTURES (I.E. WALLS, TREES, TRANSFORMER PADS, ETC.) AND A MINIMUM HORIZONTAL SEPARATION EQUAL TO FOUR (4) FEET FROM ANY UNDERGROUND UTILITIES (I.E. GAS MAINS, TELEPHONE LINES, CABLE LINES, IRRIGATION MAINS, ETC.)
8. ALL WATER AND SEWER UTILITIES SHALL BE LOCATED A MINIMUM HORIZONTAL SEPARATION EQUAL TO TWO TIMES THE DEPTH OF THE PIPE PLUS THE DIAMETER OF THE PIPE FROM THE TOP OF THE BANKS OF ANY BODIES OF WATER (I.E. STORMWATER PONDS, CANALS, ETC.)
9. ALL WATER AND SEWER UTILITIES SHALL BE LOCATED SUCH THAT A MINIMUM HORIZONTAL SEPARATION OF 10' EXISTS AS MEASURED FROM THE OUTSIDE WALL OF EACH MAIN.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — UTILITY CROSSINGS — DRAWING NO. M-4 — JUNE 2004



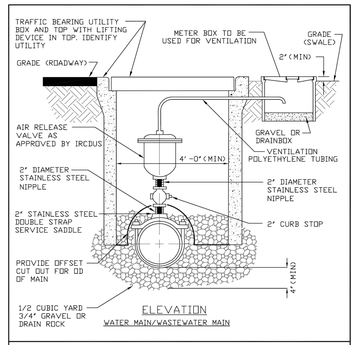
NOTES
1. ALL VALVE BOLTS SHALL BE STAINLESS STEEL WITH BRASS NUTS
2. PERMANENT LAND MARKERS ARE TO BE USED OVER ALL F.M. VALVES (SEE M-11)
3. LOCATE MARKER BALLS ARE TO BE PLACED ADJACENT TO ALL VALVE BOXES
4. SEE TRACER WIRE DETAIL, M-14
5. RPMS ARE TO BE LOCATED IN ROADWAY FOR ALL WATER VALVES. (SEE W-1)
6. REFLECTIVE MARKERS FOR: FIRE HYDRANT – BLUE
WATER MAIN VALVE – WHITE
FORCE MAIN VALVE – GREEN
REUSE MAIN VALVE – PURPLE

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — VALVE AND BOX — DRAWING NO. M-5 — JULY 2004



NOTES
1. VALVE BOX LID SHALL BE PAINTED: BLUE FOR WATER
GREEN FOR FORCE MAINS
PURPLE FOR REUSE WATER
2. BRASS VALVE INDICATOR TO BE PROVIDED WITH ENGRAVED DIAGRAM OF VALVE LOCATION AND DESCRIPTION. (SEE EXAMPLE)

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — VALVE BOX PAD — DRAWING NO. M-6 — JULY 2004



NOTES
1. AUTOMATIC AIR RELEASE VALVE TO BE LOCATED ONLY WHERE CONDITIONS MAKE IT INACCESSABLE OR AS REQUIRED BY THE IRCDUS.
2. AIR RELEASE RISERS TO BE IN A VERTICAL POSITION AND PLACED AT SUMMITS IN THE SYSTEM. FOR DIRECTIONAL DRILLS, AIR RELEASE VALVES TO BE PLACED ON EITHER SIDE OF THE CROSSING.
3. SEE TRACER WIRE DETAIL. (M-14)

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES — BELOW GROUND AIR RELEASE VALVE DETAIL (AUTOMATIC - WATER/WASTEWATER) — DRAWING NO. M-7 — JUNE 2004

BARTON J. FYE — LICENSE No 73898 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Barton J. Fye, P.E. on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Date: 07/21/2021

Sunshine811

Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.

Check positive response codes before you dig!

Kimley»Horn

355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

No.	REVISIONS	DATE	BY

LICENSED PROFESSIONAL

KHA PROJECT 143228000	
DATE	JULY 2021
SCALE	AS SHOWN
DESIGNED BY	MRG
DRAWN BY	RMR
CHECKED BY	BF
DATE:	

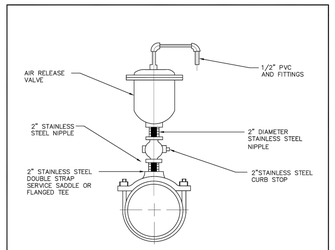
INDIAN RIVER COUNTY SEWER DETAILS

IRC LANDFILL

PREPARED FOR INDIAN RIVER COUNTY

INDIAN RIVER COUNTY FL

SHEET NUMBER C-714



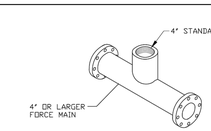
ELEVATION

WATER MAIN/WASTEWATER MAIN

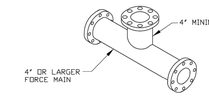
NOTES

1. AUTOMATIC AIR RELEASE VALVE TO BE LOCATED ONLY WHERE CONDITIONS MAKE IT INACCESSABLE OR AS REQUIRED BY THE IRCDUS.
2. AIR RELEASE RISERS TO BE IN A VERTICAL POSITION AND PLACED AT SUMMITS IN THE SYSTEM. FOR DIRECTIONAL DRILLS, AIR RELEASE VALVES TO BE PLACED ON EITHER SIDE OF THE CROSSING.
3. SEE TRACER WIRE DETAIL, M-14.
4. IF FORCE MAIN IS 6" OR LARGER A 4" TAP AND AIR RELEASE VALVE SHALL BE USED.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | AIR RELEASE VALVE DETAIL 4" ABOVE GROUND (AUTOMATIC – WATER/WASTEWATER) | DRAWING NO. M-8



FLANGED TEE WITH THREADS FOR CONNECTION TO AIR RELEASE VALVE



FLANGED TEE WITH FLANGE FOR CONNECTION TO AIR RELEASE VALVE

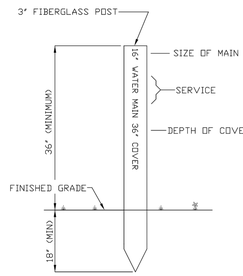
ISOMETRIC VIEW

WATER MAIN/WASTEWATER MAIN

NOTES

1. IF FORCE MAIN IS 6" OR LARGER A 4" TAP AND AIR RELEASE VALVE SHALL BE USED.
2. SEE M-8 FOR AIR RELEASE VALVE DETAIL.
3. SEE TRACER WIRE DETAIL, M-14.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | FLANGED TEE FOR ABOVE GROUND AIR RELEASE VALVES | DRAWING NO. M-8 (A)

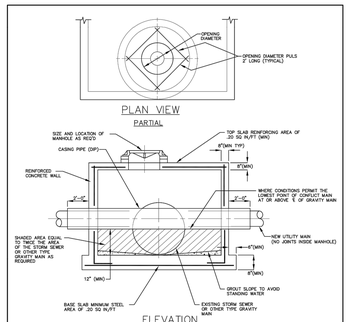


PLACE OVER PIPE IN VALVE LOCATION

NOTES

1. MARKER TO BE PLACED DIRECTLY OVER PIPE.
2. MARKER TO BE USED AT ALL CANAL CROSSING AND AS DIRECTED BY IRCDUS.
3. MARKER TO BE USED OVER WATER MAIN VALVES, FORCE MAIN VALVES AND RE-USE MAIN VALVES.
4. ALL MATERIALS ARE TO BE PER IRCDUS APPROVED MANUFACTURERS' PRODUCTS LIST.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | PERMANENT LAND MARKER | DRAWING NO. M-9

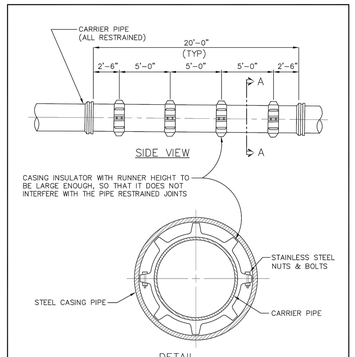


ELEVATION

NOTES

1. CONFLICT MANHOLES WILL BE ALLOWED WHERE DESIGN PROBLEMS AND ECONOMICS PROVE THEM TO BE THE ONLY VIABLE SOLUTION AS APPROVED BY IRCDUS.
2. CONFLICT MANHOLES WILL NOT BE ALLOWED FOR WATER MAINS CROSSING GRAVITY WASTEWATER SYSTEMS.
3. REFER TO M-12 FOR CASING SIZE.

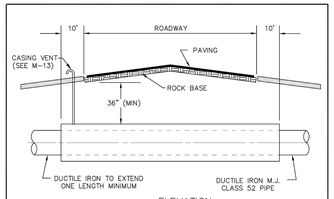
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | CONFLICT MANHOLE | DRAWING NO. M-10



NOTES

1. NUMBER OF INSULATORS AS PER MANUFACTURERS' SPECIFICATIONS.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | JACK AND BORE (BLOCKING DETAIL) | DRAWING NO. M-11

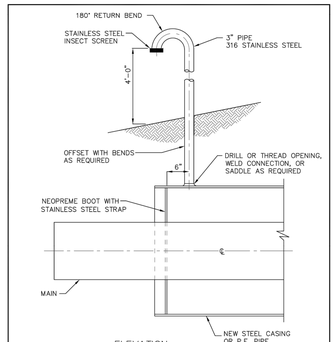


CARRIER PIPE SIZE	STEEL CASING	MINIMUM WALL THICKNESS
4"	12"	.188
6"	14"	.250
8"	16"	.250
10"	20"	.250
12"	24"	.250
16"	32"	.375
20"	40"	.375
24"	48"	.500
30"	60"	.625
36"	72"	.625
42"	84"	.625
48"	96"	.625

NOTE

1. IF RETAINER GLANDS ARE REQUIRED, THE CASING SIZE SHALL BE ADJUSTED ACCORDINGLY.

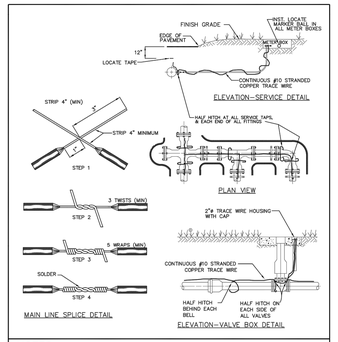
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | CASING INSTALLATION DETAILS | DRAWING NO. M-12



NOTE

1. LOCATION OF CASING VENTS TO BE DETERMINED BY THE ENGINEER IN THE FIELD. CONTRACTOR TO PROVIDE FITTINGS AS REQUIRED.

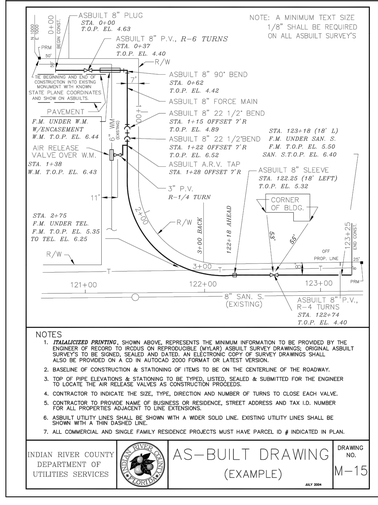
INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | JACK AND BORE (CASING VENT) | DRAWING NO. M-13



NOTES

1. TRACE WIRE IS REQUIRED ON ALL PIPES.
2. INCLUDE ALL COST OF MATERIAL & LABOR IN PRICE OF PIPE.
3. CONTRACTOR RESPONSIBLE FOR CONTINUITY THROUGHOUT ENTIRE PROJECT OF ALL TRACE WIRE.
4. ALL SPLICE CONNECTIONS ARE TO BE HOT SOLDERED (50/50 RESIN CORE), WRAP W/3 ALTERNATING LAYERS TAPE, COVER WITH WATERPROOFING COMPOUND AND HEAT SHRINK WRAP.
5. ALL SOLDER JOINTS WILL BE WATERPROOFED WITH HEAT SHRINK WRAP.
6. ALL MATERIALS ARE TO BE PER IRCOUS APPROVED MANUFACTURERS' PRODUCT LIST.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | TRACE WIRE DETAILS | DRAWING NO. M-14



NOTES

1. *ITALICIZED PRINTING*, SHOWN ABOVE, REPRESENTS THE MINIMUM INFORMATION TO BE PROVIDED BY THE ENGINEER OF RECORD TO IRCOUS ON REPRODUCIBLE (MYLAR) ASBUILT SURVEY DRAWINGS. ORIGINAL ASBUILT SURVEY'S TO BE SIGNED, SEALED AND DATED. AN ELECTRONIC COPY OF SURVEY DRAWINGS SHALL ALSO BE PROVIDED ON A CD IN AUTOCAD 2000 FORMAT OR LATEST VERSION.
2. BASELINE OF CONSTRUCTION & STATIONING OF ITEMS TO BE ON THE CENTERLINE OF THE ROADWAY.
3. TOP OF PIPE ELEVATIONS & STATIONING TO BE TYPED, DATED, SEALED & SUBMITTED FOR THE ENGINEER TO LOCATE THE AIR RELEASE VALVES AS CONSTRUCTION PROCEEDS.
4. CONTRACTOR TO INDICATE THE SIZE, TYPE, DIRECTION AND NUMBER OF TURNS TO CLOSE EACH VALVE.
5. CONTRACTOR TO PROVIDE NAME OF BUSINESS OR RESIDENCE, STREET ADDRESS AND TAX I.D. NUMBER FOR ALL PROPERTIES ADJACENT TO LINE EXTENSIONS.
6. ASBUILT UTILITY LINES SHALL BE SHOWN WITH A WIDER SOLID LINE. EXISTING UTILITY LINES SHALL BE SHOWN WITH A THIN DASHED LINE.
7. ALL COMMERCIAL AND SINGLE FAMILY RESIDENCE PROJECTS MUST HAVE PARCEL ID # INDICATED IN PLAN.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | AS-BUILT DRAWING (EXAMPLE) | DRAWING NO. M-15

INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
AS-BUILT REQUIREMENTS

1. All as-built drawings (24"x36") shall state in 1" lettering "AS-BUILT" located in the bottom right hand side of the drawing original and/or copies, along with the as-built date.
2. All state plane coordinates shall be based on the Florida State Plane Horizontal data (East Zone); or Florida High Precision Geodetic Network (superstation) and NAD 83/1990 – final adjustment.
3. All elevations shown shall be based on 1929 NGVD.
4. All incoming as-built drawings (24"x36") shall be received on a CD, as an electronic copy, AutoCad 2000 format, with a tie to a minimum of two (2) state plane coordinates. (NOTE: Prior to submitting the electronic copy, one (1) copy of each as-built shall be submitted for review and approval. After all approvals, a (24"x36") Mylar reproducible along with **five (5)** signed and sealed copies of each as-built shall be submitted.)
5. All engineering or surveying as-built drawings shall be tied to a minimum of one (1) permanent reference monument (P.R.M.) that shall be tied to a minimum of one (1) section corner or one-quarter (1/4) section corner whichever is closest to the project. State plane coordinates shall be physically shown on the drawing next to the P.R.M. used.
6. All utility as-built construction located within the rights-of-way, easements and alike shall be tied to the respective rights-of way, easements, etc., every 1,000 feet and change of direction.
7. All utility as-built construction plans that are located within a distance of one (1) mile from any Indian River County Global Positioning System (G.P.S.) control project monuments shall be tied into the project from one (1) on-site Permanent Reference Monument (P.R.M.) subdivision Corner, or site plan project corner.
8. All as-builts shall clearly depict as-built utility lines that were constructed along with their respective easement (if required). As-builts will not be accepted unless the verbiage "Proposed" and/or "To Be constructed" have been revised to read "AS-Built" . As-built Construction drawings with, to be constructed terminology, will not be accepted.
9. All as-builts shall be certified by the project engineer or contracting surveyor.
10. All projects, which utilize lift stations, shall specify on plans as to whether or not subject lift stations are to remain private or are to be dedicated to the county.
11. All fire hydrants and valves shall be located with state plane coordinates and shall be identified on the as-built.
12. All as-builts shall be complete and approved before commencement of field test.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | AS-BUILT REQUIREMENTS | DRAWING NO. M-16

INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
SURVEY REQUIREMENTS

1. All Construction and/or Route surveys shall meet the minimum requirements of the Chapter 61G67, Florida Administration Code Pursuant to section 472 of the Florida Statutes.
2. All state plane coordinates shall be based on the Florida State Plane Horizontal data (East Zone); or Florida High Precision Geodetic Network (superstation) and NAD 83/1990 – final adjustment.
3. All elevations shown shall be based on 1929 NGVD.
4. All incoming route construction survey drawings shall be received on a CD, as an electronic copy, AutoCad 2000 format, with a tie to a minimum of two (2) state plane coordinates. (NOTE: Prior to submitting the electronic copy, one (1) copy of each as-built (24"x36") shall be submitted for review and approval. After all approvals, a (24"x36") Mylar reproducible along with **five (5)** signed and sealed copies of each as-built shall be submitted.
5. All construction surveys shall be tied to a minimum of one (1) permanent reference monument (P.R.M.) at the end of each project. One P.R.M. shall be tied to a minimum of one (1) section corner or one-quarter (1/4) section corner whichever is closest to the project. State plane coordinates shall be physically shown on the drawing next to the P.R.M. used.
6. All surveys that are required for the use of engineering design, and are located within a distance of one (1) mile from any Indian River County Global Positioning System (G.P.S.) control project monuments, shall be tied into the GPS monument from one (1) permanent reference point or the subdivision corner that is along the survey route and shall then be tied to the survey base line.
7. Horizontal Control Monumentation for utility lines shall be a minimum of two (2) points at a maximum of 1,400 feet between points and shown on all plans.
8. Vertical Control (when required) for linear utility lines, such as sewer, shall have a maximum of 1,100 feet between existing construction or established benchmarks.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | CONSTRUCTION/ROUTE SURVEY REQUIREMENTS | DRAWING NO. M-16 (A)

GENERAL INFORMATION TO BE SHOWN ON AS-BUILT AND SURVEY DRAWINGS

1. Existing right-of-way limits and/or easements within the limits of construction.
2. Survey baseline stationing every 100', control points set every 500', and at angle change of direction.
3. Show cross section elevations at grade every 100' for gravity sewer line construction and 500' for water line and force main construction. Elevations that reflect any significant change in grade between the previously stated footage shall be shown on plans.
4. Existing parcels, tracts, and lot corner locations shown with front footage dimensions per plat when platted. If construction project is along back of lots, then show back lot dimensions.
5. EXISTING ROADWAY EDGE OF PAVEMENT OR EDGE OF DIRT ROAD.
6. Existing utilities as located in field (water, sewer, telephone, electric, cable TV, etc.) (NOTE: Sunshine One to be contacted by surveying firm prior to survey locate; with the intent of county excavation.)
7. Existing utilities as associated with number 5 above (example: valves, meters, manholes, etc.)
8. Existing curbs, driveway widths and types.
9. Existing drainage pipe crossings and driveway culverts (type, sizes and invert elevations.)
10. Existing swales and/or ditches and elevations every 100' at top and bottom if within area of construction.
11. Existing fences.
12. Existing trees and/or shrubbery.
13. All other non-movable items such as mailboxes, flag poles, etc.
14. All street names.

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES | AS-BUILT/SURVEY REQUIREMENTS | DRAWING NO. M-16 (B)

BARTON J. FYE LICENSE No 73898 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Barton J. Fye, P.E. on the date adjacent to the seal.

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Date: 07/21/2021

Sunshine811

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Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn

355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF
DATE:

IRC LANDFILL

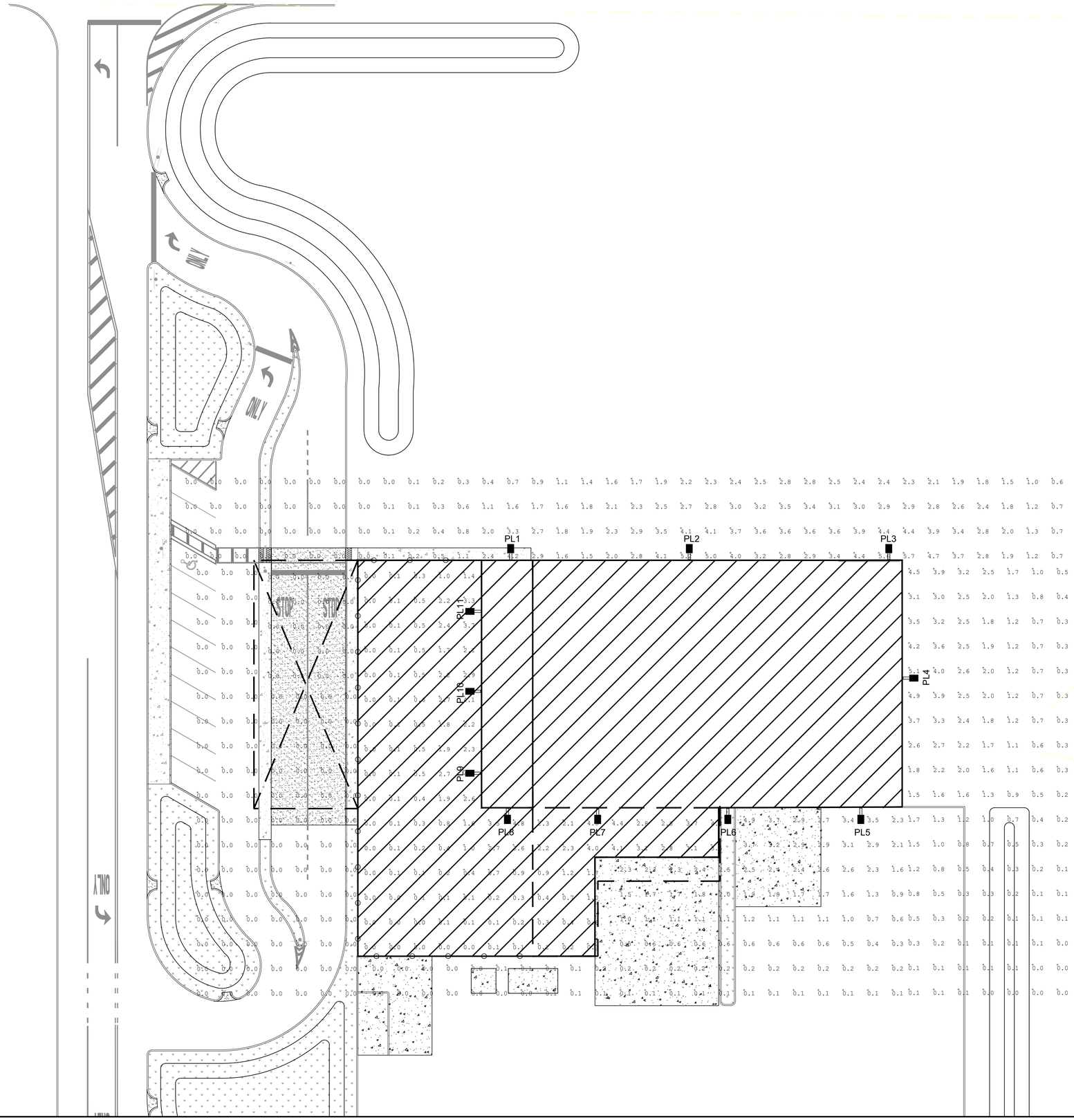
PREPARED FOR

INDIAN RIVER COUNTY

INDIAN RIVER COUNTY SEWER DETAILS

FL

SHEET NUMBER C-715



GRAPHIC SCALE IN FEET
0 10 20 40

LEGEND:

- R/W OR PROPERTY LINE
- CENTERLINE
- SANITARY SEWER
- +X.X FOOTCANDLES
- PROP. HEAVY DUTY CONC.
- PROP. STANDARD DUTY CONC.
- PROP. CONC. SIDEWALK

NOTES:

1. ALL MOUNTING HEIGHTS REFERENCED ARE TO TOP OF BRACKET/FIXTURE.

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
North Building Face	Illuminance	Fc	1.79	5.70	0.00	N/A	N/A
South Building Face	Illuminance	Fc	1.09	4.90	0.00	N/A	N/A
West Building Face	Illuminance	Fc	0.00	0.00	0.00	N/A	N/A
East Building Face	Illuminance	Fc	1.2	5.10	0.00	N/A	N/A

Luminaire Schedule				
Symbol	Qty	Catalog Number	Total Lamp Lumens	LLF
	4	WDGE4_LED_P4_70CRI_R3_50K	20,163.10	0.85
	7	WDGE2_LED_P3_50K_80CRI_VW	3,206.30	0.85

Lighting Fixture Schedule					
Type	Manufacturer	Catalog No.	Mounting	Lamp	Remarks
PL1	LITHONIA LIGHTING	WDGE2_LED_P3_50K_80CRI_VW	WALL MOUNTED 17-0'	5000K	SINGLE WALL SCONCE LIGHT
PL2	LITHONIA LIGHTING	WDGE4_LED_P4_70CRI_R3_50K	WALL MOUNTED 25-0'	5000K	SINGLE WALL SCONCE LIGHT
PL3	LITHONIA LIGHTING	WDGE4_LED_P4_70CRI_R3_50K	WALL MOUNTED 25-0'	5000K	SINGLE WALL SCONCE LIGHT
PL4	LITHONIA LIGHTING	WDGE4_LED_P4_70CRI_R3_50K	WALL MOUNTED 25-0'	5000K	SINGLE WALL SCONCE LIGHT
PL5	LITHONIA LIGHTING	WDGE2_LED_P3_50K_80CRI_VW	WALL MOUNTED 20-0'	5000K	SINGLE WALL SCONCE LIGHT
PL6	LITHONIA LIGHTING	WDGE4_LED_P4_70CRI_R3_50K	WALL MOUNTED 25-0'	5000K	SINGLE WALL SCONCE LIGHT
PL7	LITHONIA LIGHTING	WDGE2_LED_P3_50K_80CRI_VW	WALL MOUNTED 15-0'	5000K	SINGLE WALL SCONCE LIGHT
PL8	LITHONIA LIGHTING	WDGE2_LED_P3_50K_80CRI_VW	WALL MOUNTED 14-0'	5000K	SINGLE WALL SCONCE LIGHT
PL9	LITHONIA LIGHTING	WDGE2_LED_P3_50K_80CRI_VW	WALL MOUNTED 14-0'	5000K	SINGLE WALL SCONCE LIGHT
PL10	LITHONIA LIGHTING	WDGE2_LED_P3_50K_80CRI_VW	WALL MOUNTED 14-0'	5000K	SINGLE WALL SCONCE LIGHT
PL11	LITHONIA LIGHTING	WDGE2_LED_P3_50K_80CRI_VW	WALL MOUNTED 14-0'	5000K	SINGLE WALL SCONCE LIGHT

This item has been digitally signed and sealed by Armando Jesus Lopez, P.E. on the date adjacent to the seal.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.
Date: 07/21/2021

ARMANDO JESUS LOPEZ · LICENSE · No 84672 · STATE OF FLORIDA · PROFESSIONAL ENGINEER

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

LICENSED PROFESSIONAL

KHA PROJECT 143228000
DATE JULY 2021
SCALE AS SHOWN
DESIGNED BY MRC
DRAWN BY RMR
CHECKED BY BF
DATE:

LIGHTING PLAN

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
C-800

IRC HHW AND RECYCLING FACILITY

1325 74TH AVENUE SW, VERO BEACH, FL 32968
INDIAN RIVER COUNTY
SECTION 25, TOWNSHIP 33, RANGE 38
JUNE 2021

LANDSCAPE PLAN SUBMITTAL

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LANDSCAPE ARCHITECT
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ARCHITECT
MARCOS IBARGUEN
CMK DESIGN STUDIO, INC.
6822 22ND AVENUE, #148
ST.PETERSBURG, FL 33710
PHONE: 813-362-6381

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WATER MANAGEMENT DISTRICT
525 COMMUNITY COLLEGE PARKWAY
PALM BAY, FL 329009
321-676-6602
CONTACT: MARK CROSBY

WATER AND SEWER
INDIAN RIVER COUNTY
DEPARTMENT OF UTILITY SERVICES
1801 27TH STREET
VERO BEACH,FL 32960
772-226-1824
CONTACT: KEVIN OSTHUS

FIRE PREVENTION
INDIAN RIVER COUNTY FIRE DEPARTMENT
1800 27TH STREET
VERO BEACH, FL 32960
772-567-3160 X109
CONTACT: LT. SANDRA SEELEY, FIRE CHIEF

ENGINEERING
CITY OF MIAMI PUBLIC WORKS DEPARTMENT
444 SW 2ND AVENUE
MIAMI, FL 33130
305-416-1200
CONTACT: LEN HELMARS

NATURAL GAS PROVIDER
CITY GAS COMPANY FLORIDA
4180 S. U.S. HWY 1
ROCKLEDGE, FLORIDA 32955
321-638-3419
CONTACT: HOLLY COOMBS

PLANNING AND ZONING
INDIAN RIVER COUNTY
PLANNING DEPARTMENT
1801 27TH STREET
VERO BEACH, FL 32960
772-226-1235
CONTACT: JOHN MCCOY

BUILDING DIVISION
INDIAN RIVER COUNTY
BUILDING DEPARTMENT
1801 27TH STREET
VERO BEACH, FL 32960
772-226-1268
CONTACT: SCOTT MCADAMS

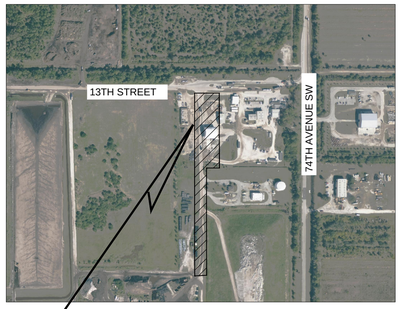
TELEPHONE PROVIDER
AT&T DISTRIBUTION
600 NW 79th AVE
ROOM 336
MIAMI, FL 33126
305-260-8243
CONTACT: DINNO FARRUGGIO

ELECTRIC PROVIDER
FLORIDA POWER AND LIGHT
425 N WILLIAMSON BLVD.
DAYTONA BEACH, FL 32114
386-586-6403
CONTACT: JOEL BRAY

FLORIDA DEPARTMENT OF TRANSPORTATION
DISTRICT FOUR
3400 WEST COMMERCIAL BLVD
FT. LAUDERDALE, FL 33309
954-777-4377
CONTACT: CHRISTINE NABONG BACOMO

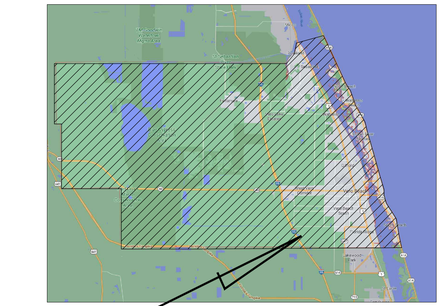
OWNER:

INDIAN RIVER COUNTY
1325 75TH AVENUE SW
VERO BEACH, FLORIDA 32968
772-226-3211



VICINITY MAP

GRAPHIC SCALE IN FEET
0 250 500 1000



LOCATION MAP
N.T.S.

NORTH

Kimley»Horn

355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM CA 00000696

Sheet List Table	
Sheet Number	Sheet Title
L-000	COVER SHEET
L-100	TREE DISPOSITION PLAN
L-150	TREE DISPOSITION NOTES & DETAILS
L-200	LANDSCAPE PLAN
L-201	LANDSCAPE REQUIREMENTS
L-250	LANDSCAPE DETAILS
L-251	LANDSCAPE NOTES & SPECIFICATIONS
L-300	IRRIGATION PLAN
L-350	IRRIGATION SPECIFICATIONS
L-351	IRRIGATION SPECIFICATIONS
L-352	IRRIGATION DETAILS
L-353	IRRIGATION DETAILS

No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

REGISTERED LANDSCAPE ARCHITECT
STATE OF FLORIDA
No LA6667406
07/02/2021

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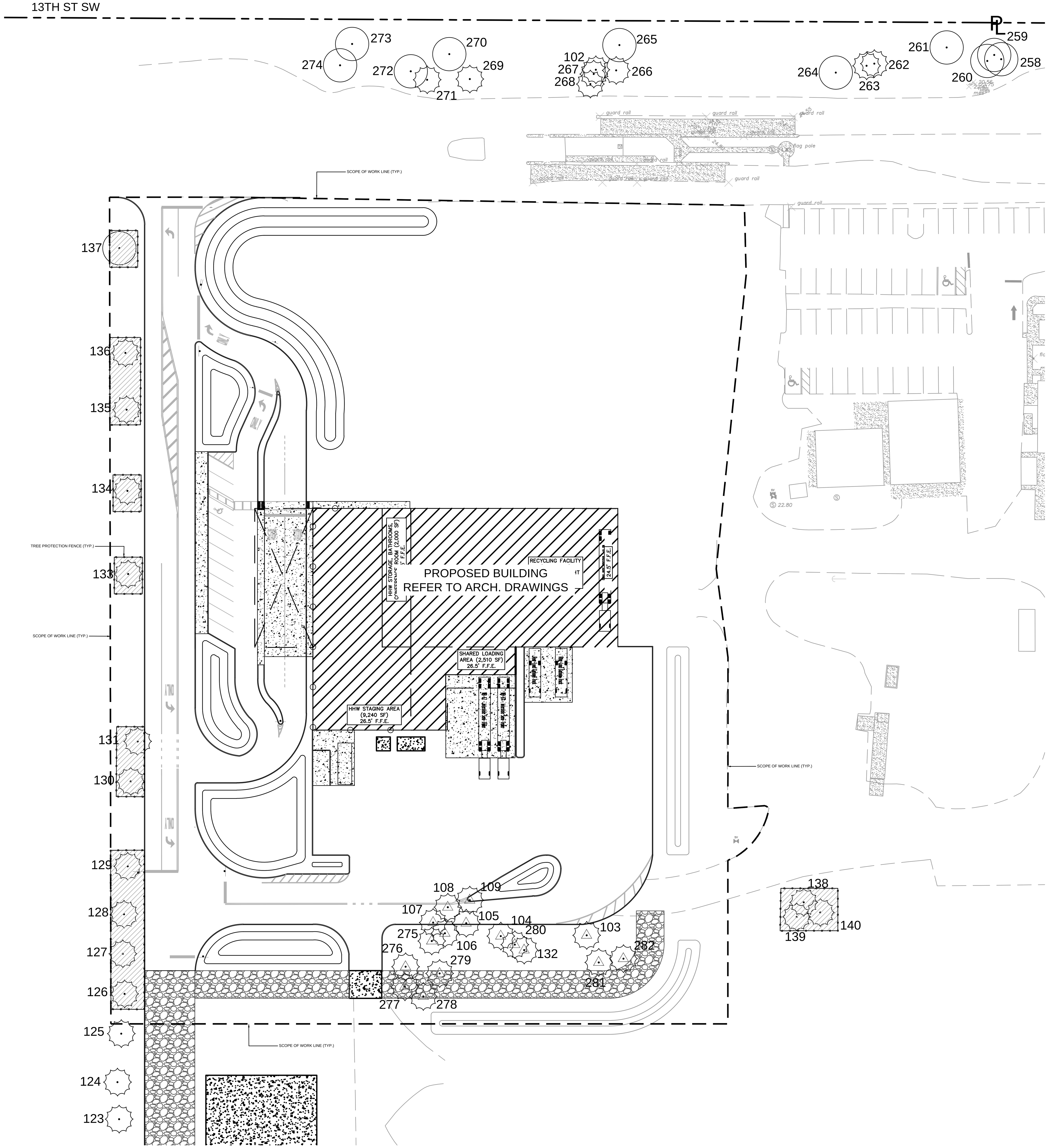
KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY MW
DRAWN BY CF
CHECKED BY MW

COVER SHEET

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
FL
INDIAN RIVER COUNTY

SHEET NUMBER
L-000

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!



TREE LIST

SURVEY TREE #	COMMON NAME	HEIGHT (FT)	DBH (IN)	CANOPY (FT)	CONDITION	DISPOSITION
102	Palm	10	21	11	GOOD	REMAIN
103	Palm	14	18.5	10	GOOD	RELOCATE
104	Palm	14	19	11	GOOD	RELOCATE
105	Palm	16	22	11	GOOD	RELOCATE
106	Palm	14	17	9	GOOD	RELOCATE
107	Palm	14	21	10	GOOD	RELOCATE
108	Palm	14	21	10	GOOD	RELOCATE
109	Palm	14	20	10	GOOD	RELOCATE
110	Palm	8	25	9	GOOD	REMAIN
111	Palm	10	24	10	GOOD	REMAIN
112	Palm	10	18	13	MODERATE	REMAIN
113	Palm	8	20	11	GOOD	REMAIN
114	Palm	6	16	9	MODERATE	REMAIN
115	Palm	12	20	13	GOOD	REMAIN
116	Palm	6	17	9	GOOD	REMAIN
117	Palm	8	21	12	GOOD	REMAIN
118	Palm	10	20	13	GOOD	REMAIN
119	Palm	10	26	16	GOOD	REMAIN
120	Palm	8	19	10	GOOD	REMAIN
121	Palm	12	19	13	GOOD	REMAIN
122	Palm	10	27	18	GOOD	REMAIN
123	Palm	14	19	13	GOOD	REMAIN
124	Palm	12	20	13	GOOD	REMAIN
125	Palm	10	21	11	GOOD	REMAIN
126	Palm	8	17	11	GOOD	REMAIN
127	Palm	10	18	9	GOOD	REMAIN
128	Palm	10	16	8	GOOD	REMAIN
129	Palm	10	18	7	GOOD	REMAIN
130	Palm	8	24	14	GOOD	REMAIN
131	Palm	10	10	18	GOOD	REMAIN
132	Palm	10	18	8	MODERATE	RELOCATE
133	Palm	8	22	20	GOOD	REMAIN
134	Palm	8	18	8	GOOD	REMAIN
135	Palm	8	22	17	GOOD	REMAIN
136	Palm	8	17	10	GOOD	REMAIN
137	Oak Tree	10	21	16	GOOD	REMAIN
138	Palm	12	16.5	8	GOOD	REMAIN
139	Palm	10	16.5	8	GOOD	REMAIN
140	Palm	16	16.5	10	GOOD	REMAIN
258	Pine Tree	10	45	9	GOOD	REMAIN
259	Pine Tree	10	30	12	GOOD	REMAIN
260	Pine Tree	14	54	22	GOOD	REMAIN
261	Pine Tree	18	53	28	GOOD	REMAIN
262	Palm	12	19	8	GOOD	REMAIN
263	Palm	12	18	8	GOOD	REMAIN
264	Pine Tree	20	49	33	GOOD	REMAIN
265	Pine Tree	20	44	26	GOOD	REMAIN
266	Palm	14	26	10	GOOD	REMAIN
267	Palm	10	18	8	GOOD	REMAIN
268	Palm	10	17	8	GOOD	REMAIN
269	Palm	15	21	9	GOOD	REMAIN
270	Pine Tree	18	43	25	GOOD	REMAIN
271	Palm	12	23	11	GOOD	REMAIN
272	Pine Tree	12	45	12	GOOD	REMAIN
273	Pine Tree	15	43	12	POOR	REMAIN
274	Pine Tree	12	47	18	MODERATE	REMAIN
275	Palm	12	20	10	GOOD	RELOCATE
276	Palm	12	21	10	GOOD	RELOCATE
277	Palm	12	21	11	GOOD	RELOCATE
278	Palm	12	19.5	10	GOOD	RELOCATE
279	Palm	12	18	10	GOOD	RELOCATE
280	Palm	12	27	12	GOOD	RELOCATE
281	Palm	12	19	10	GOOD	RELOCATE
282	Palm	12	25	12	GOOD	RELOCATE

NOTE:

INFORMATION UTILIZED IN PREPARATION OF THE TREE LIST ASCERTAINED FROM AND RELIANT UPON THE 1325 74th AVENUE SW, VERO BEACH, FL. BOUNDARY SURVEY PREPARED BY MASTELLER, MOLER & TAYLOR INC. DATED 05/18/20.

TREE DISPOSITION GRAPHIC LEGEND

SYMBOL	DESCRIPTION
TREE #	EXISTING TREE TO REMAIN
PALM #	EXISTING PALM TO REMAIN
PALM #	EXISTING PALM TO RELOCATE
	TREE PROTECTION FENCE

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

LEGEND

- RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING OUTLINE
- PROP. ASPHALT
- PROP. CONC.
- PROP. GRAVEL ROAD
- SCOPE OF WORK LINE

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PHONE: 305-673-2025
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REGISTERED LANDSCAPE ARCHITECT No LA6667406 STATE OF FLORIDA 07/02/2021

No.	REVISIONS	DATE	BY

KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY MW
DRAWN BY CF
CHECKED BY MW

TREE DISPOSITION PLAN

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-100

TREE REMOVAL/TRANSPLANT SPECIFICATIONS

PART 1 - EXPLANATION OF NATURAL RESOURCE PRESERVATION PROCEDURES

The sequence of operation is critical to the protection of the trees.

A. Tree canopy pruning is to compensate for root loss and damage.
B. Fertilization is to stimulate root systems to heal quickly and grow back in root-pruned areas. It also produces faster availability of food to a root system that is less efficient due to the damage incurred.
C. Root pruning is to remove the roots with a trenching procedure that is less damaging to the roots than regular construction.
D. Mulching is to increase moisture-holding capacity and keep the temperature of the soil more constant.

PART 2 - DEFINITIONS

A. Combo Fence - Combination silt and natural resource protection fence (see detail).
B. Critical Root Zone - The mass of roots surrounding a tree that is required by the tree to live. The critical root zone is often much larger than the canopy. Shown on the plans as dashed circles.
C. DBH - Diameter Breast High - Indicates the location on the trunk, approximately 4.5' above ground, to measure the diameter of a tree.
D. Grade - Refers specifically to grade on the Significant Tree or Transplant Schedule. The grade of a tree refers to the overall health and appearance of the tree. The grades range from "A" being excellent to "D" being hazardous.
E. Preserve Trees - Trees that are to be saved in place.
F. Project Urban Forester - A representative, hired and paid for by the owner, that supervises the construction of the procedures shown on the natural resource plans.
G. Protection Zones/Areas - Any area enclosed partially or completely by a fence shown on the natural resource plans.
H. Spade Transplant - A tree transplanted using a tree spade machine.
I. Transplanted Trees - Trees that are to be moved by hand, spade, crane or gantry to another location.

PART 3 - PRODUCTS FOR TREE TREATMENT

Every effort shall be made to utilize chemicals of an organic or biodegradable nature in order to offer the least impact to the natural environment. Contractor is responsible for mixing, applying, and disposal of all chemicals in accordance with strict adherence to manufacturer's directions, unless otherwise directed in these drawings.

A. Chemical Treatments.
1. Recommended Fertilizer:
a. "XL Injecto Feed", product of Doggett Corp., Lebanon, New Jersey (908) 236-6335. Apply a 12/24/24 ratio with a dilution rate 1/3 more water than specified on bag.
2. Recommended Wetting Agent:
a. "APSA-80", product of Amway Corp. (800) 253-7088.
3. Mycorrhizal Treatment:
a. Plant Health Care, Inc. (800) 421-9051. Products of the same type from other sources shall not be excluded, provided they possess like physical and functional characteristics and are approved by the Project Landscape Architect.

B. Insecticide Treatments.
1. "Astro", a product of FMC Corporation. (800) 321-1362.

C. Fencing Materials.
1. Woven wire fence (Minimum 14.5 gauge maximum 6" mesh spacing).
2. Artic Vinyl Flagging, Color: International Orange. Forestry Suppliers Catalog (800) 647-5368. Artic Vinyl Flagging is required due to strength and longevity. No substitution without approval of Project Urban Forester.
3. 6' T-Bar Post.
4. T-Bar Post Caps.
a. Rebar Caps. Brilliant Orange mushroom type as manufactured by Mutual Industries North (800) 523-0888 or equal.
b. R-4 T-Bar Post Caps as manufactured by RammFence (800) 434-8455 or equal.

PART 4 - EXECUTION

A. Tree Canopy Pruning Operation
1. Trees to be pruned shall include only trees affected by construction or as designated on Significant Tree or Transplant Schedule. This item is to be coordinated by the Project Urban Forester.
2. All pruning shall be done in accordance with ANSI A300 (Part 1) Pruning.
3. Certified Arborist shall perform all pruning.
4. Pruning shall consist of the following methods:
a. Cleaning, see Sect. 5.6.1.
b. Interfering branch removal.
c. Raising, see Sect. 5.6.4. Height to be 6' (min.) in parking lot areas only.

B. Fertilization Operation
1. Only trees affected by construction or as shown on the Tree Removal Plan shall be treated
2. Trees specified to receive fertilizer shall be treated in the fall of 2008. Preserve Tree Injectable Fertilizer Treatment. See detail sheet.
a. Mix fertilizer with a dilution rate 1/3 more water than label instructions into a tank with agitation capability (15lbs. = 133 Gallons).
b. Mix Wetting Agent at a rate of 5 oz. Per 100 gallons of fertilizer solution into same tank with fertilizer. Agitate mix.
c. Inject the mixture with a hydraulic injection system set at 100 to 150 p.s.i. for sandy soils, 200 p.s.i. for silt/clay soils, into the upper 6-12 inches of soil with a soil probe. Inject at the rate of one third (1/3) gallon at each injection site.
d. Critical Root Zone areas shall be injected, where possible, in the Critical Root Zone area plus 2' beyond Critical Root Zone, but not beyond Root Prunes. See detail.
e. Fertilizer shall be installed prior to installation of any aeration systems. AT THE REQUEST OF THE SPECIFIER, EMPTY PRODUCT BAGS TO BE RETURNED TO THE SPECIFIER FOR PROOF OF USE.
3. Transplant Injectable Fertilizer Treatment.
a. Mix fertilizer with a dilution rate 1/3 more water than label instructions into a tank with agitation capability (15lbs. = 133 Gallons).
b. Mix Wetting Agent at a rate of 5 oz. Per 100 gallons of fertilizer solution into same tank with fertilizer. Agitate mix.
c. Inject the mixture with a hydraulic injection system set at 100 to 150 p.s.i. for sandy soils, 200 p.s.i. for silt/clay soils, into the upper 6-12 inches of soil with a soil probe. Inject at the rate of one third (1/3) gallon at each injection site.
d. See transplant details on this sheet for injection locations. EMPTY PRODUCT BAGS TO BE STOCKPILED FOR INSPECTION BY PROJECT LANDSCAPE ARCHITECT PRIOR TO DISPOSAL.
4. Transplant Inoculant & Biostimulant. See Detail Sheet.
a. Use one 3 oz. Packet of MycorTree Tree Saver Transplant Mycorrhizal Transplant Inoculant for every 1-foot diameter of root ball. Mix inoculant in 10" wide topsoil ring around the root ball.
b. Mix one 4 oz. Bag of MycorTree Tree Saver Injectable Mycorrhizal Inoculant and 4 packs (to equal 1 pound) PHC BioPack per 100 gallons of water.
c. Agitate for 10 minutes.
d. Inject the mixture with a hydraulic injection system set at 100 to 150 p.s.i. for sandy soils, 200 p.s.i. for silt/clay soils, into the upper 6-12 inches of soil with a soil probe. Inject at the rate of one third (1/3) gallon at each injection site. See transplant details on this sheet for injection locations.
EMPTY PRODUCT BAGS TO BE STOCKPILED FOR INSPECTION BY PROJECT LANDSCAPE ARCHITECT PRIOR TO DISPOSAL.
5. Transplant Maintenance
a. Approximately one year after planting, the Tree Relocation Contractor shall refertilize all transplants utilizing the same procedure.

C. Insecticide Operation
1. Apply "Astro" as a topical solution if recommended by Project Landscape Architect or by these plans. Notify Project Landscape Architect if an infestation is noticed. Apply around base of trunk to soil line, trunk and any limb 1/3 the size of the trunk to 25'-30' high. Insure complete coverage. Reapply "Astro" 2-3 months after initial application utilizing same procedure.
2. Follow all manufacturers' recommendations concerning application when applying "Astro". Read all warning labels. Any pets, as well as, the pets food and water bowls should be removed from the area and any swimming pools should be covered. Coordinate with Project Urban Forester for further instruction.

D. Root Pruning Trenching Operation
1. Trenching locations shall be approved in the field by the Project Landscape Architect.
2. Trenching equipment that will turn at high RPM's is preferred. Trenching equipment is to be used to perform all root pruning operations. A minimum depth of three feet is required. Clean cut roots in trench on tree side with loppers or chain saw after trenching is complete.
3. The trench shall be backfilled and compacted immediately.

E. Natural Resource Protection (or Tree Protection) Fencing
1. See details for types and locations.
2. Fencing is to be located accurately per plan by General Contractors Surveyor.

F. Tree Removals
1. Natural Resource Contractor shall remove and discard all trees shown on the tree removal plan to be removed, see Existing Tree Schedule. All trees shown to be removed shall be felled with a chain saw and stump ground 6" below surface. Any tree shown to be removed and is in an area where compaction is critical the tree shall be felled with a chain saw and stump removed by Clearing Contractor. Care must be taken not to damage trees marked for
2. Clearing Contractor is to clear all remaining trees after the Natural Resource Fencing is installed. If fence is damaged, repair is to be performed immediately. See Fence Penalties. Care must be taken not to damage trees marked for preservation.
3. All wood from removals shall be hauled from the site the same day, except for tops. All tops are to be mulched and stockpiled or hauled directly to mulched areas, if scheduling permits. (See landscape plans for mulching). All excess wood chips should be hauled off site after landscaping is complete.
4. Clearing Contractor is to haul off all stumps.
5. All burn pits if applicable must be approved by the Project Urban Forester and owner.

G. Topsoil
1. All clean backfill/clean topsoil necessary for transplant operations shall fall within the limits of the planting specifications, located elsewhere in the contract documents.

H. Machine Dug Transplant Operation
1. Dig transplant-receiving hole.
2. Set spade dug root ball into receiving hole 4"-6" above existing grade.
3. Wash sand or topsoil into air pockets between root ball and receiving hole.
4. Install topsoil ring, 4" high, 10" wide, around perimeter of root ball. Mix MycorrTree Tree Saver Mycorrhizal Transplant Inoculant into topsoil ring. See Part 4 Section B for procedure.
5. Install 4"-6" mulch from perimeter of root ball to within 6" of tree trunk.
6. Cover topsoil ring with 1" of mulch and extend mulch 4"-6" deep, 6" away from perimeter of root ball.
7. Water transplant.

I. Holding Area for Transplants
1. Coordinate with Owner's Representative for location. Coordinate construction and scheduling with Owner's Representative.
2. Install protection fencing surrounding holding area after all transplants have been moved unless otherwise instructed by Owner's Representative.
3. Transplants shall be placed into the soil at the holding area unless the soil is deemed unacceptable by Project Landscape Architect. If unacceptable soil is encountered, the holding area shall be relocated to a new location or excavated to a depth determined by Project Landscape Architect and new approved topsoil installed. Transplants shall be backfilled with approved topsoil.
4. Install three (3) 12" tensiometers. One on opposite corners and one in the middle of the holding area. Project Landscape Architect shall adjust locations of tensiometers per observations in the field.
5. General Contractor shall supply temporary irrigation to the holding area. Temporary irrigation shall consist of above the ground PVC or Polyethylene pipe, spray or rotor heads (with head to head coverage) and a controller. Set schedule per Part 7.

PART 5 - PENALTIES

A. Repair of Damaged Trees
1. If any damage to trees or other natural resources should occur by accident or negligence during the construction period, the Project Urban Forester shall appraise the damage and make recommendations to the owner for repair by the General Contractor.
2. If any tree that is designated to be saved is deemed substantially damaged or dead due to construction damage, at the sole discretion of Project Landscape Architect, the following penalties will apply;
a. Trees 1" - 12" of trunk diameter, measured at 1' from the ground will be valued at $300.00 per diameter inch.
b. Trees 13" and above of trunk diameter measured at 4.5' from the ground will be valued at $400.00 per diameter inch.
c. If any tree designated to be saved is removed from the site without permission of the owner's representative, the penalty will be $600.00 per inch.

B. Repair of Damaged Natural Resource Fences
1. If any damage to Natural Resource Fences should occur by accident or negligence, the General Contractor will be responsible for immediate repairs of the initial damage. Fines will be imposed as follows:
a. First time offense, a fine of $200.00 will be imposed.
b. In the event the fence is not repaired within 24 hours to the Owner's Representative's satisfaction, an additional fine of $100.00 per day will be imposed, until the fence is satisfactorily repaired.
c. In the event a natural resource is damaged due to fence being down, a fine of $200.00 plus the cost of repair or replacement of the natural resource as appraised by the Project Landscape Architect will be imposed.

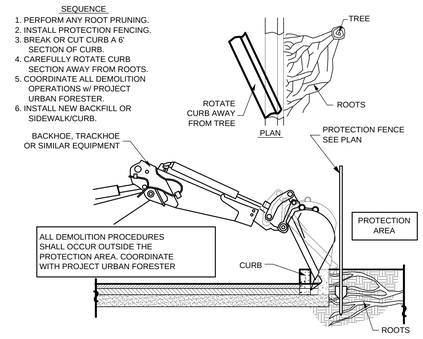
PART 6 - NATURAL RESOURCE PROTECTION SEQUENCE

A. The sequence of tree treatment and preservation measures shall be:
1. Root Pruning and Root Barriers.
2. Natural Resource Fencing.
3. Clearing and Grading.
4. Tree Pruning.
5. Fertilization.
6. Insecticide
General Contractor's Surveyor shall stake all site improvements in order to facilitate accurate location of trenching and fencing operations.
B. Maintain and repair Natural Resource fencing during site construction operations.
C. General Contractor's access to Fenced protection areas will be permitted only with approval of owner's representative.
D. Perform any excavation or grading required within the fenced root zone areas by hand. This operation is to be supervised by the Project Landscape Architect or Owner's Representative.
E. Limit required grading to 3" cut or fill within the fenced tree root zone areas. All grading to be supervised by the Owner's Representative.
F. Clear by hand designated trees, shrubs, vines and groundcover from protected root zone areas.
G. Do not install conduit, sprinklers, or any utility line in any critical root zone area without the approval of the Project Landscape Architect.

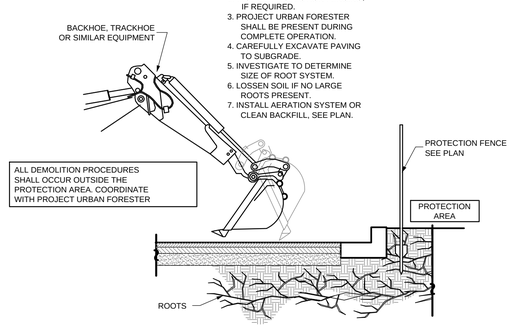
PART 7 - IRRIGATION

Every effort shall be made to water the transplants as shown below. The Landscape Architect and/or Owner's Representative shall inspect all irrigation zones during the initial irrigation months and adjust settings accordingly to insure proper watering. Water in all transplants immediately after planting. Tree Relocation Contractor shall water by hand or by temporary irrigation, all transplants after planting as required by Landscape Architect or Owner's Representative until permanent irrigation is installed and operating. Irrigation Contractor shall install systems and set controllers as shown below.

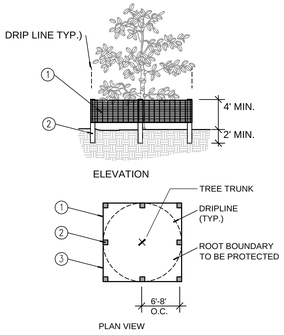
A. Transplant Irrigation Zones & Holding Area Zones
Use the following watering schedule for all transplants:
1. Set the controller to water for the following limits:
First 90 days = 15 minutes, 4 times a week. (0.5" per application = 2" per week)
90 days - 270 days = 2 times a week.(1" per application = 2" per week)
270 days on = 2 times a week.(0.5" per application = 1" per week)
Irrigation within current watering restrictions, as applicable.



A DEMOLITION PROCEDURE - CURB
NTS



B DEMOLITION PROCEDURE - PAVEMENT
NTS



1. 6" X 6" X 6" WIRE MESH ATTACHED TO EACH 4" X 4" POST
2. 4" X 4" PRESSURE TREATED PINE POSTS
3. 2" X 6" PRESSURE TREATED PINE FRAMING STUDS OR 6" X 6" X 6" NAILED TO POSTS

INSTALLATION NOTES:

A. POST SELECTION SHOULD BE BASED ON EXPECTED STRENGTH NEEDS AND THE LENGTH OF TIME FENCE WILL BE IN PLACE.
B. DRIP LINE REFERS TO THE AREA DEFINED BY THE OUTERMOST CIRCUMFERENCE OF A TREE CANOPY WHERE WATER DRIPS FROM AN ONTO THE GROUND. REFER TO ARBORIST REPORT FOR DIAMETER OF CANOPY.
C. COORDINATE ALL IMPROVEMENTS WITHIN THE TREE PROTECTION WITH CERTIFIED ARBORIST.
D. NO CONSTRUCTION MATERIALS OR ACTIVITIES ALLOWED IN THE TREE PROTECTION ZONE AREA UNLESS SUPERVISED / COORDINATED WITH CERTIFIED ARBORIST. REFER TO ARBORIST REPORT FOR CRITICAL ROOT ZONE (CRZ).
E. TREE PROTECTION ZONE SHALL BE KEPT CLEAR OF DEBRIS.
F. ALL EXCAVATION AND REMOVAL OF HARDSCAPE WITHIN THE TREE PROTECTION ZONE SHALL BE DONE EITHER MANUALLY OR THROUGH THE USE OF AN AIR SPADE.
G. THE MINIMUM DISTANCE BETWEEN AN OPEN TRENCH AND ANY TREE SHALL BE BETWEEN 6" - 1'-0" FOR EVERY INCH OF TRUNK DIAMETER (REFER TO DBH IN ARBORIST REPORT AND TREE DISPOSITION PLAN). MINIMUM CLEARANCE SHALL BE 10'-0".
H. BARRIER TO FORM CONTINUOUS CIRCLE AROUND THE TREE OR GROUP OF TREES.

C TREE PROTECTION FENCE/BARRIER DETAIL
NTS

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

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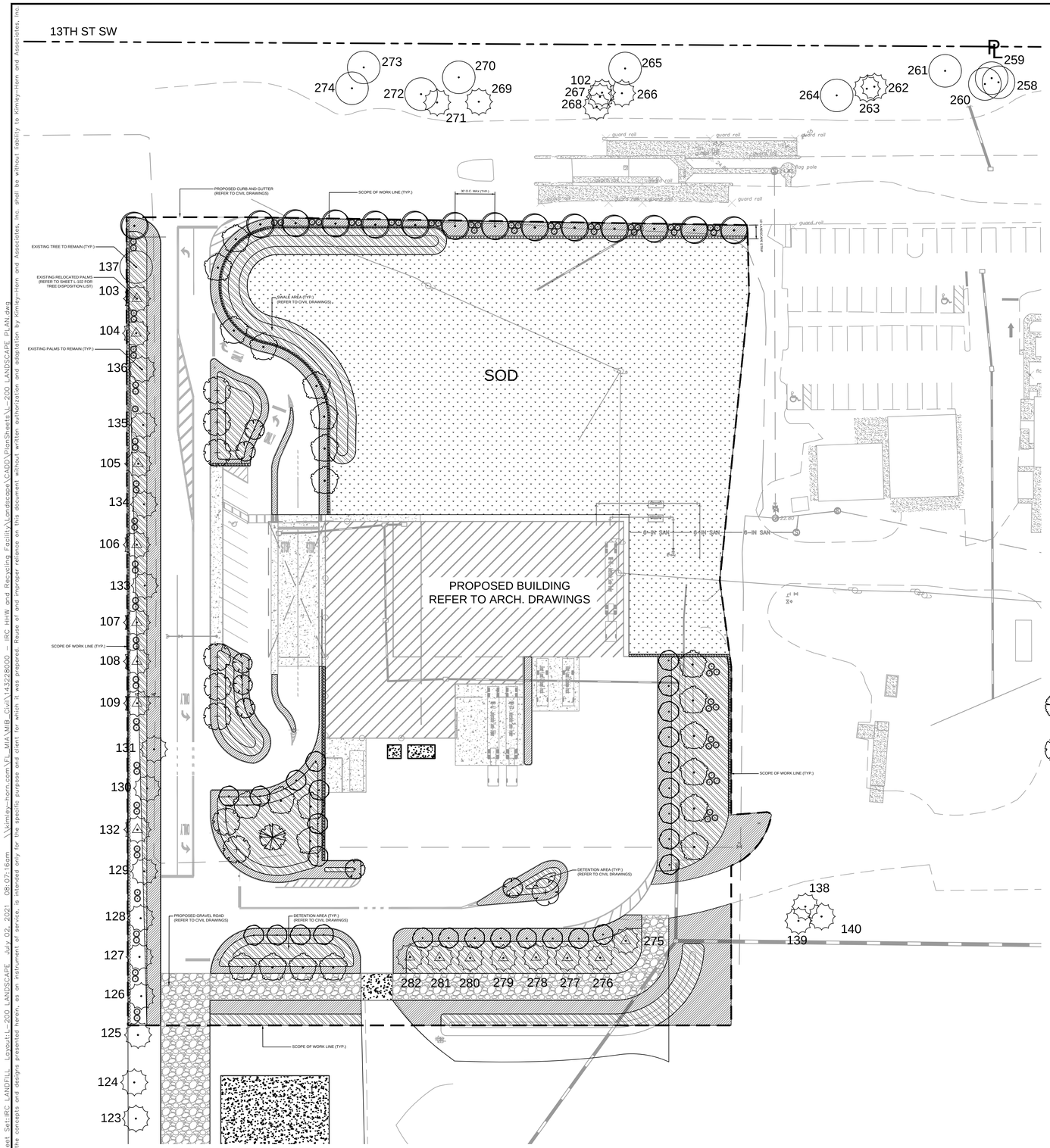
REGISTERED LANDSCAPE ARCHITECT MARIA C. NEWSOME No LA6667406 STATE OF FLORIDA 07/02/2021

KHA PROJECT	143228000
DATE	APRIL 2021
SCALE	AS SHOWN
DESIGNED BY	MW
DRAWN BY	CF
CHECKED BY	MW

TREE DISPOSITION NOTES & DETAILS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-150



INDIAN RIVER COUNTY LANDSCAPE CALCULATIONS

Zoning District: A-1 Net Lot Area: 6.2 Acres or 266,535 SF*

	REQUIRED	PROVIDED
OPEN SPACE		
A. Square feet of open space required by Section 911.06:		
Open space area = 266,535 x 60%	159,921 SF*	139,209 SF***
LAWN AREA CALCULATION		
A. Total square feet of landscape open space required by Section 911.06 =	159,921 SF	
B. Maximum lawn area permitted = 50% x required landscape open space =	79,961 SF	69,579 SF
NON- VEHICULAR AREA LANDSCAPING		
A. The number of canopy trees required per Section 926.10 (1 tree/ 3000 SF of non-vehicular open space) = 46.40 site trees per net lot area less the existing number of trees that meet minimum requirements 0 existing trees required trees per Section 926.10 = 47 trees - existing trees	47 trees	47 trees
B. 30 % palm trees allowed (three palms = one tree) =	15 "trees"	n/a "trees"
C. Percentage of native trees required = the number of trees provided x 50% =	24 trees	47 trees
Percentage of low maintenance and drought tolerant trees = provided trees x 50% =	24 trees	47 trees
PARKING AREA INTERIOR LANDSCAPING		
A. Total square footage of paved areaspan Section 926.09 (driving isles, driveways, parking spaces, loading areas) =	75,122 SF	
B. Minimum interior landscaping in parking areas = 12% x total paved areas =	12,766 SF	12,915 SF
PLANTING ALONG ROADWAYS - NORTH		
A. Trees along Exclusive Driveways per Section 926.09 (3.3 Canopy Trees, 6.6 Understory Trees per 100 LF):		
422 linear feet along north driveway/100 x 3.3 Canopy Trees=	14 trees	14 trees
422 linear feet along north driveway/100 x 6.6 Understory Trees =	28 trees	31 trees
B. Total number of shrubs along the exclusive driveways		
423 linear feet along north driveway/100 x 40 Shrubs =	169 shrubs	175 shrubs
C. The number of shrubs required x 50% = the number of native shrubs required	84 shrubs	175 shrubs
PLANTING ALONG ROADWAYS - WEST		
A. Trees along Exclusive Driveways per Section 926.09 (3.3 Canopy Trees, 6.6 Understory Trees per 100 LF):		
597 linear feet along north driveway/100 x 3.3 Canopy Trees= 19.701		
less the existing number of trees that meet minimum requirements 11 existing trees		
existing trees to be relocated = 8 relocated		
required trees per Section 926.10 = 1 trees	1 trees	1 trees
597 linear feet along north driveway/100 x 6.6 Understory Trees =	39 trees	39 trees
B. Total number of shrubs along the exclusive driveways		
597 linear feet along north driveway/100 x 40 Shrubs =	239 shrubs	282 shrubs
C. The number of shrubs required x 50% = the number of native shrubs required	119 shrubs	282 shrubs
BUILDING PLANTING		
A. Total number of required building planting area (760 LF of Fascade x 0.4 = 304 LF of Foundation planting) 304LF x 10FT Avg. Depth Min. = 3040 SF of Planting required		
B. Canopy Trees (1 tree/150 SF of Required Planting Area) =	20 trees	20 tress
C. Understory Trees (1 tree/ 300 SF of Required Planting Area) =	10 trees	15 trees
D. Shrubs (1.5 Shrubs/ 100f of required planting area) =	304 shrubs	359 shrubs
E. The number of shrubs required x 50% = the number of native shrubs required	152 shrubs	359 shrubs

* Portion of Larger Property (Refer to Civil Engineer Drawings)
*** Refer to Civil Engineering Drawings for additional open space associated with drainage improvements, which will increase the total square footage currently shown in the provided colum

TREE DISPOSITION GRAPHIC LEGEND

SYMBOL	DESCRIPTION
TREE #	EXISTING TREE TO REMAIN
PALM #	EXISTING PALM TO REMAIN
PALM #	EXISTING PALM TO RELOCATE
	TREE PROTECTION FENCE

LEGEND

- RAW – PL RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING OUTLINE
- PROP. ASPHALT
- PROP. CONC.
- PROP. GRAVEL ROAD
- SCOPE OF WORK LINE

PLANT SCHEDULE

CANOPY TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL / DBH	HT	SPRD	NATIVE
	BS	22	BURSERA SIMARUBA	GUMBO LIMBO	FG	2" DBH	12` HT. MIN. / 5` C.T. MIN.	4.5` MIN	YES
	CS	7	CONOCARPUS ERECTUS SERICEUS	SILVER BUTTONWOOD	FG	2" DBH	12` HT. MIN. / 5` C.T. MIN.	4.5` MIN	YES
	CU	1	COCCOLOBA UVIFERA	SEA GRAPE	FG	2" DBH	12` HT. MIN. / 5` C.T. MIN.	4.5` MIN	YES
	QV	8	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	FG	2" DBH	12` HT. MIN. / 5` C.T. MIN.	4.5` MIN	YES
	TD	1	TAXODIUM DISTICHUM	BALD CYPRESS	FG	2" DBH	12` HT. MIN. / 5` C.T. MIN.	4.5` MIN	YES
NARROW CANOPY TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL / DBH	HT	SPRD	NATIVE
	MF	28	MYRCIANTHES FRAGRANS	SIMPSON`S STOPPER	FG	2" DBH	12` HT. MIN. / 5` C.T. MIN.	4.5` MIN	YES
STREET TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL / DBH	HT	SPRD	NATIVE
	QV2	14	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	FG	2" DBH	12` HT. MIN. / 5` C.T. MIN.	4.5` MIN	YES
SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	NATIVE	DROUGHT TOLERANT
	CR	308	CHRYSOBALANUS ICACO `RED TIP`	RED TIP COCOPLUM	CONT.	24" O.C.	24" HT MIN	YES	YES
ROADWAY SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	NATIVE	DROUGHT TOLERANT
	MF2	427	MYRCIANTHES FRAGRANS	SIMPSON`S STOPPER	CONT.	24" OC	24" HT MIN	YES	YES
UNDERSTORY TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	NATIVE	DROUGHT TOLERANT
	SR	85	SERENOA REPENS	SAW PALMETTO	CONT.	36" OC	36" HT MIN	YES	YES
SHRUB AREAS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	NATIVE	DROUGHT TOLERANT	SPACING
	CN	81	CLUSIA ROSEA `NANA`	DWARF PITCH APPLE	CONT.	30" OC	18" HT MIN	YES	YES	30" o.c.
	TF	5,814	TRIPSACUM DACTYLOIDES	FAKAHATCHEE GRASS	CONT.	30" OC	18" HT.	YES	YES	30" o.c.
GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE	NATIVE	DROUGHT TOLERANT
	AG	28,391 SF	ARACHIS GLABRATA	PERENNIAL PEANUT	SOD	SOD	SOD	NO	YES
	PN	69,579 SF	PASPALUM NOTATUM	BAHIA GRASS	PALLET	SOD	SOD	NO	

GRAPHIC SCALE IN FEET
0 20 40 80

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
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No.	REVISIONS	DATE	BY

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KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN — DESIGNED BY MW — DRAWN BY CF — CHECKED BY MW

LANDSCAPE ARCHITECT — REGISTERED — MATTHEW WOLFENSKI — No LA6667406 — STATE OF FLORIDA — 07/02/2021

LANDSCAPE PLAN

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-200

LANDSCAPING POINTS REQUIREMENTS

SEC.926.11

LANDSCAPE POINT SYSTEM. NOTWITHSTANDING THE OTHER PROVISIONS OF THIS CHAPTER, EACH LANDSCAPE PLAN MUST SATISFY A MINIMUM OF THIRTY (30) POINTS FROM THE FOLLOWING LIST OF OPTIONS:

DESIGN OPTIONS	AVAILABLE POINTS	PROVIDED POINTS
IRRIGATION SYSTEM: 1. MOISTURE SENSING CONTROLLER	5	
2. PLAN SUBMITTED WITH LOW, MODERATE AND HIGH WATER USAGE ZONES INDICATED	5	
SHRUBS: 1. FIFTY (50) TO SEVENTY-FIVE (75) PERCENT OF TOTAL QUANTITY OF PLANTS RATED "VERY DROUGHT TOLERANT"	5	
2. SEVENTY-SIX (76) TO ONE HUNDRED (100) PERCENT OF TOTAL QUANTITY OF PLANTS RATED "VERY DROUGHT TOLERANT"	10	10
TREES: 1. FIFTY (50) TO SEVENTY-FIVE (75) PERCENT OF TOTAL QUANTITY OF TREES RATED "VERY DROUGHT TOLERANT"	5	
2. SEVENTY-SIX (76) TO ONE HUNDRED (100) PERCENT OF TOTAL QUANTITY OF TREES RATED "VERY DROUGHT TOLERANT"	10	10
EXTRA SHADE/CANOPY TREES IN VEHICULAR USE AREAS: 1. TWENTY (20) TO FORTY (40) PERCENT MORE THAN REQUIRED	5	
2. MORE THAN FORTY (40) PERCENT MORE THAN REQUIRED	10	
SOD/GRASS AREAS: 1. THIRTY-ONE (31) TO FIFTY (50) PERCENT OF LANDSCAPE AREA	5	5
2. LESS THAN THIRTY (30) PERCENT OF LANDSCAPE AREA	10	
FLORIDA NATIVE LANDSCAPE: 1. ONE HUNDRED (100) PERCENT OF LANDSCAPE AREA IS PRESERVED OR RE-ESTABLISHED FLORIDA NATIVE VEGETATION, OR NEW NATIVE PLANTINGS OF SPECIES LISTED IN APPENDIX A AND APPENDIX C. PLAN MUST INCLUDE TREES, UNDERSTORY, AND GROUNDCOVER WITH A MAXIMUM OF FIFTY (50) PERCENT OF SITE SODDED/GRASSED	30	30
2. SEVENTY-FIVE (75) TO NINETY-NINE (99) PERCENT OF LANDSCAPE AREA IS PRESERVED OR RE-ESTABLISHED FLORIDA NATIVE VEGETATION, OR NEW NATIVE PLANTINGS OF SPECIES LISTED IN APPENDIX A AND APPENDIX C. PLAN MUST INCLUDE TREES, UNDERSTORY, AND GROUNDCOVER WITH A MAXIMUM OF FIFTY (50) PERCENT OF SITE SODDED/GRASSED	15	
	TOTAL	55

* THE LIST OF DROUGHT TOLERANT NATURAL GRASS, SHRUBS, AND TREE SPECIES IS CONTAINED IN WATERWISE, THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT PLANT AND LANDSCAPE PRACTICES GUIDE, AS MAY BE AMENDED. THESE SPECIES SHOULD HOWEVER, NOT INCLUDE INVASIVE SPECIES.

No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

REGISTERED LANDSCAPE ARCHITECT
No. LA6667406
STATE OF FLORIDA

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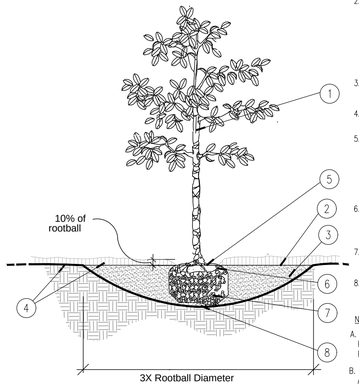
KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY MRG
DRAWN BY RMR
CHECKED BY BF

LANDSCAPE REQUIREMENTS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-201



1. TRUNK
2. 3" MINIMUM OF MULCH AS SPECIFIED. WHERE TREES ARE PLACED IN SOD, MULCH RING FOR TREES COVER ROOTBALL SIDES AND EXTEND 18" BEYOND ON ALL SIDES. NO MULCH SHALL BE PLACED OVER TRUNK.
3. SHALLOW/ WIDE PLANT HOLE; TOP SHALL BE 3X THE SIZE OF ROOTBALL.
4. FINISHED GRADE – LANDSCAPE SOIL
5. FIND TOP-MOST ROOT ON ROOTBALL; POSITION ROOTBALL SO THIS TOP ROOT IS 1-2" ABOVE LANDSCAPE SOIL. (APPROX. 10% OF ROOTBALL SHALL BE ABOVE LANDSCAPE SOIL)
6. B & B OR CONTAINER (SEE SPECIFICATIONS FOR ROOT BALL REQUIREMENTS).
7. REMOVE ALL SYNTHETIC MATERIALS FROM ROOTBALL.
8. ROOTBALLS SHALL BE PLACED ON UNDISTURBED SOIL TO PREVENT SETTLING.

NOTES:

A. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING PITS PRIOR TO INSTALLATION.

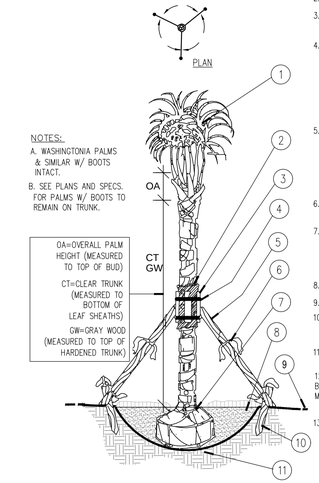
B. FINAL TREE STAKING DETAILS AND PLACEMENT TO BE APPROVED BY OWNER AFTER REVIEWED BY LANDSCAPE ARCHITECT.

C. CONTRACTOR SHALL PAINT ALL STAKES BENJAMIN MOORE, EXTERIOR GRADE PAINT FLAT MATTE BLACK, 2 COATS.

D. SEE ALTERNATE STAKING METHODS, THIS SHEET.

* ALL TREES SHALL BE PLUMB VERTICALLY WITHIN A TOLERANCE OF THREE DEGREES, UNLESS OTHERWISE DIRECTED BY OWNER'S REPRESENTATIVE.

A Tree Planting
SECTION NTS



NOTES:

A. WASHINGTONIA PALMS & SIMILAR W/ BOOTS INTACT.

B. SEE PLANS AND SPECS. FOR PALMS W/ BOOTS TO REMAIN ON TRUNK.

OA=OVERALL PALM HEIGHT (MEASURED TO TOP OF BUD)

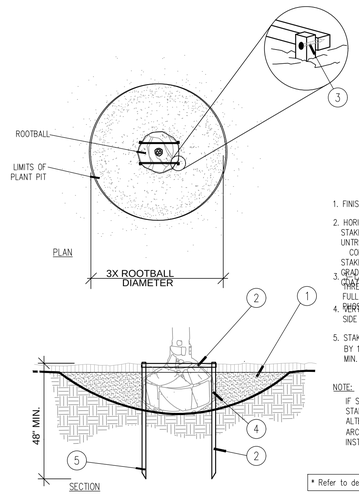
CT=CLEAR TRUNK (MEASURED TO BOTTOM OF LEAF SHEATHS)

GW=GRAY WOOD (MEASURED TO TOP OF HARDENED TRUNK)

1. MINIMUM OF NINE (9) GOOD PALM FRONDS; PRUNE AND TIE FRONDS WITH HEMP TWINE, SABAL PALMS TO BE SELECTIVELY "HURRICANE CUT", LEAVING ONLY NEWLY- EMERGING GROWTH.
2. 5 LAYERS OF BURLAP TO PROTECT TRUNK.
3. FIVE (5) 18"L, 2X4 WOOD BATTENS. UNTREATED, #2
4. SECURE BATTENS WITH TWO (2) 3/4" CARBON STEEL BANDS TO HOLD BATTENS IN PLACE. NO NAILS SHALL BE DRIVEN INTO PALM. HEIGHT OF BATTENS SHALL BE LOCATED PROPORTIONATELY TO THE HEIGHT OF THE PALM FOR ADEQUATE BRACING.
5. THREE (3) 8'L 2X4 SUPPORTS. NAIL (DRILL AND NAIL IF NECESSARY) TO BATTENS AND 2" X 4" STAKES. PALMS SHALL BE PLUMB VERTICALLY UNLESS OTHERWISE NOTED.
6. PROVIDE FLAGGING AT MIDPOINT AND BASE OF SUPPORTS.
7. TOP-MOST ROOT SHALL BE VISIBLE AT THE SURFACE OF THE ROOTBALL, SLIGHTLY ABOVE SURROUNDING GRADE.
8. 3" SPECIFIED MULCH
9. FINISH GRADE
10. 24"L (MIN.) 2X4 P.T. WOOD STAKES, NAIL TO SUPPORT POLES
11. PREPARED PLANTING SOIL AS SPECIFIED
12. CONTRACTOR SHALL PAINT ALL STAKES BENJAMIN MOORE, EXTERIOR GRADE PAINT FLAT MATTE BLACK, 2 COATS.
13. ALTERNATE PALM ANCHORING SYSTEMS MAY BE SUBSTITUTED UPON APPROVAL BY OWNER OR OWNER'S REPRESENTATIVE AFTER REVIEW BY LANDSCAPE ARCHITECT

ALTERNATE SYSTEMS:
*BROOKS TREE BRACE SYSTEM
*ARBOR TIE TREE BRACING

B Palm Planting and Staking
SECTION NTS

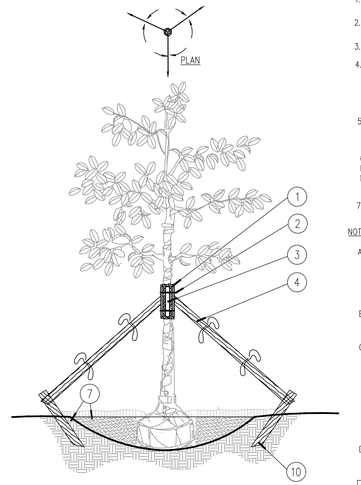


1. FINISH GRADE
2. HORIZONTAL 2X2 SCREWED TO 2X2 STAKE. ALL WOOD SHALL BE #2 UNTREATED. CONTRACTOR SHALL PAINT ALL STAKES BENJAMIN MOORE, EXTERIOR GRADE PAINT FLAT MATTE BLACK, 2 COATS.
3. #12x2" DRYWALL SCREW, THREAD SIZE 12, SHARP POINT, FULL THREAD, BLACK OXIDE FINISH
4. VERTICAL STAKES SHALL ABUT SIDE OF ROOTBALL
5. STAKES TO EXTEND INTO NATIVE SOIL BY 1-1/2 X THE ROOTBALL DEPTH MIN.

NOTE:
IF SPATIAL REQUIREMENTS PRECLUDE STAKING WITH THIS METHOD, SUBMIT ALTERNATE FOR LANDSCAPE ARCHITECT'S APPROVAL PRIOR TO INSTALLING PLANT.

* Refer to details B and E for planting

C Staking – up to 65 gal. or B&B to 3-1/2" Cal.
PLAN/SECTION NTS



1. FIVE (5) LAYERS OF BURLAP TO PROTECT TRUNK
2. TWO STEEL BANDS TO SECURE BATTENS
3. FIVE 2 X 4 X 18"L WOOD BATTENS
4. THREE (3) 2" X 8' LODGE POLES. DRILL, USING GALVANIZED SCREWS, TO BATTENS AND 2" X 4" STAKES. NO SCREWS SHALL PENETRATE TREE. FLAG AT MIDPOINT AND AT BASE.
5. 2" x 4" x 3' (MIN), P.T. WOOD STAKES BURIED 3" BELOW FINISHED GRADE.
6. CONTRACTOR SHALL PAINT ALL STAKES BENJAMIN MOORE, EXTERIOR GRADE PAINT FLAT MATTE BLACK, 2 COATS.
7. FINISHED GRADE (SEE GRADING PLAN)

NOTES:

A. ALL TREES SHALL BE PLUMB VERTICALLY WITHIN A TOLERANCE OF THREE DEGREES, UNLESS OTHERWISE DIRECTED BY OWNER'S REPRESENTATIVE.

B. FINAL TREE STAKING DETAILS AND PLACEMENT TO BE APPROVED BY OWNER.

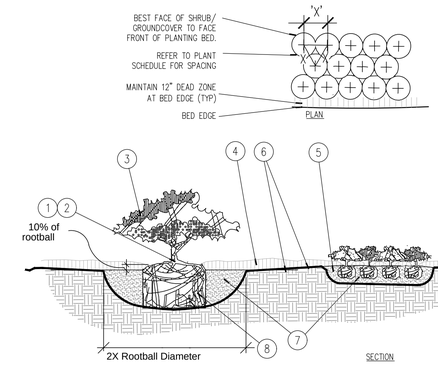
C. ALTERNATE TREE ANCHORING SYSTEMS MAY BE SUBSTITUTED FOR WOOD STAKING SYSTEM UPON APPROVAL BY OWNER OR OWNER'S REPRESENTATIVE AFTER REVIEWED BY LANDSCAPE ARCHITECT.

ALTERNATE SYSTEMS:
*BROOKS TREE BRACE SYSTEM
*ARBOR TIE TREE BRACING

D. RUBBER HOSE/WIRE SYSTEMS ARE NOT ALLOWED.

* Refer to details B and D for planting

D Large Tree Staking – 100 Gal + or B&B 4" +
SECTION NTS

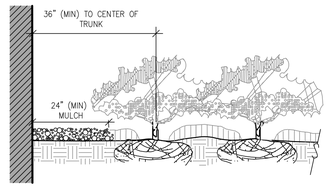


NOTES:

1. FIND POINT WHERE TOPMOST ROOT EMERGES FROM TRUNK WITHIN 2" OF SURFACE. CLEAR EXCESS SOIL IF NECESSARY.
2. TOP 10% OF SHRUB AND GROUNDCOVER ROOTBALLS TO BE PLANTED ABOVE THE LANDSCAPE GRADE. DO NOT COVER EXPOSED 10% ON SIDES WITH SOIL.
3. PRUNE ALL LIKE SHRUBS WITHIN A PLANTED MASS TO ACHIEVE A UNIFORM MASS/HEIGHT.
4. 3" MINIMUM MULCH AS SPECIFIED – DO NOT COVER ENTIRE SHRUB ROOTBALL OR CREATE "WATER RINGS" ONLY COVER SIDES OF ROOTBALL WITH MULCH
5. EXCAVATE ENTIRE BED SPECIFIED FOR GROUNDCOVER BED.
6. FINISHED GRADE (SEE GRADING PLAN).
7. PREPARED PLANTING SOIL AS SPECIFIED. NOTE: WHEN GROUND- COVERS AND SHRUBS USED IN MASSES, ENTIRE BED TO BE AMENDED WITH PLANTING SOIL MIX AS SPECIFIED.
8. SCARIFY ROOTBALL SIDES AND BOTTOM.

* ALL SHRUBS AND GROUNDCOVERS SHALL BE PLUMB VERTICALLY, UNLESS OTHERWISE DIRECTED BY OWNER'S REPRESENTATIVE.

E Shrub / Groundcover Planting
PLAN/SECTION NTS



NOTES

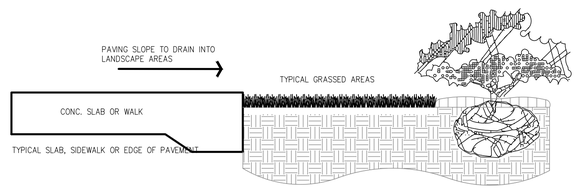
* CLEAR ZONE: 36" MIN. FROM BUILDING TO CENTER OF NEARES SHRUB.

* STONE MULCH: 24" MIN. FROM BUILDING, INSTALL STONE MULCH. MULCH TYPE TO BE GRAY GRANITE OR OWNER'S REPRESENTATIVE APPROVED EQUAL. STONE MULCH TO BE INSTALLED TO A DEPTH OF 3" (MIN.) CONTRACTOR SHALL SUBMIT SAMPLE FOR APPROVAL.

F Plantings Adjacent to Buildings
SECTION NTS

1. TYPICAL SOLID SOD LAID LEVEL WITH TIGHT JOINTS SET ADJACENT TO EDGE OF PAVEMENT SUCH THAT THE TOP OF SOD WHEN FRESHLY MOWED IS FLUSH WITH TOP OF PAVEMENT IN ORDER NOT TO IMPEDE THE FLOW OF RUNOFF INTO LANDSCAPE AREAS AND TO APPEAR NEAT AND WELL MAINTAINED.
2. ALL SOD LAID ADJACENT TO THE SHRUB OR GROUNDCOVER PLANTING AREAS SHALL HAVE WELL DEFINED BEDLINES, AND SHALL BE INSTALLED A DISTANCE BACK FROM THE FACE EDGE OF PLANT MATERIALS TO ALLOW FOR GROWTH OF THE PLANTS. THE TOP OF THE SOD AND THE FINISHED GRADE OF THE 2" MULCH COVER SHALL BE FLUSH AND LEVEL.
3. SOD SET ON PREPARED GRADE WHICH IS LEVEL OR GRADED TO MEET THE REQUIREMENTS OF THE ENGINEERED SITE DRAINAGE PLANS.
4. PROVIDE 60 DAYS MAINTENANCE TO ESTABLISH THE NEW SOD. MAINTENANCE INCLUDES ROLLING, FERTILIZING MONTHLY, WEED AND INSECT CONTROL (PRE- & POST- EMERGENT). MOWING WITH REEL TYPE MOWERS, TRIMMING, AND EDGING.

FOR SOD BEING USING AS SPORTS FIELD:
1. CONTRACTOR SHALL COORDINATE METHODOLOGY FOR INSTALLATION & SOD GROWING PERIOD PERIOD WITH CITY OF MIAMI'S PARKS AND REC DEPT SPORTS FIELD MANAGER PRIOR TO PROCUREMENT & INSTALLATION. ALL PRODUCTS, INCLUDING FERTILIZER & PEST/WEED CONTROL SHALL BE APPROVED BY CITY OF MIAMI SPORTS FIELD MANAGER.
2. CONTRACTOR SHALL MOW AFTER ESTABLISHMENT PERIOD TO NO HIGHER THAN 1" PER CITY OF MIAMI, PARKS & REC. DEPT.



G Typical Sod Planting Detail
SECTION NTS

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

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REGISTERED LANDSCAPE ARCHITECT MATTHEW WOLFE No LA6667406 STATE OF FLORIDA 07/02/2021

KHA PROJECT	
143228000	
DATE	
APRIL 2021	
SCALE	AS SHOWN
DESIGNED BY	MW
DRAWN BY	CF
CHECKED BY	MW

LANDSCAPE DETAILS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-250

GENERAL LANDSCAPE SPECIFICATIONS AND NOTES

A. SCOPE OF WORK

1. THE WORK CONSISTS OF: FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT AS SHOWN ON THE DRAWINGS, AS INCLUDED IN THE PLANT LIST, AND AS HEREIN SPECIFIED.

2. WORK SHALL INCLUDE MAINTENANCE AND WATERING OF ALL CONTRACT PLANTING AREAS UNTIL CERTIFICATION OF ACCEPTABILITY BY THE OWNER.

B. PROTECTION OF EXISTING STRUCTURES

ALL EXISTING BUILDINGS, WALKS, WALLS, PAVING, PIPING, OTHER SITE CONSTRUCTION ITEMS, AND PLANTING ALREADY COMPLETED OR ESTABLISHED SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. ALL DAMAGE RESULTING FROM NEGLIGENCE SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER, AT NO COST TO THE OWNER.

C. PROTECTION OF EXISTING PLANT MATERIALS OUTSIDE LIMIT OF WORK

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNAUTHORIZED CUTTING OR DAMAGE TO TREES AND SHRUBS EXISTING OR OTHERWISE, CAUSED BY CARELESS EQUIPMENT OPERATION, MATERIAL STOCKPILING, ETC. THIS SHALL INCLUDE COMPACTION BY DRIVING OR PARKING INSIDE THE DRIP-LINE AND SPILLING OIL, GASOLINE, OR OTHER DELETERIOUS MATERIALS WITHIN THE DRIP-LINE. NO MATERIALS SHALL BE BURNED WHERE HEAT WILL DAMAGE ANY PLANT. EXISTING TREES KILLED OR DAMAGED SO THAT THEY ARE MISSHAPEN AND/ OR UNSIGHTLY SHALL BE REPLACED AT THE COST TO THE CONTRACTOR OF ONE HUNDRED DOLLARS ($100) PER CALIPER INCH ON AN ESCALATING SCALE WHICH ADDS AN ADDITIONAL TWENTY (20) PERCENT PER INCH OVER FOUR (4) INCHES CALIPER AS FIXED AND AGREED LIQUIDATED DAMAGES. CALIPER SHALL BE MEASURED SIX (6) INCHES ABOVE GROUND LEVEL FOR TREES UP TO AND INCLUDING FOUR (4) INCHES IN CALIPER AND TWELVE (12) INCHES ABOVE GROUND LEVEL FOR TREES OVER FOUR (4) INCHES IN CALIPER.

D. MATERIALS

1. GENERAL

MATERIALS LISTED BELOW SHALL BE SUBMITTED FOR APPROVAL. UPON SUBMITTALS' APPROVAL, DELIVERY OF MATERIALS MAY COMMENCE.

MATERIAL	SUBMITTAL
MULCH	PRODUCT DATA
TOPSOIL MIX	AMENDMENT MIX/ PRODUCT DATA/ TEST RESULTS
PLANTS	PHOTOGRAPHS OF ONE (1) OF EACH SPECIES (OR TAGGED IN NURSERY) WITH MEASURING POLE INDICATE SIZES (HEIGHT/WIDTH) AND QUALITY PER SPEC. CLIENT-REQUESTED TAGGING MAY SUBSTITUTE PHOTOS.
FERTILIZER	PRODUCT DATA
INNOCULANT	PRODUCT DATA
HERBICIDE	PRODUCT DATA

2. PLANT MATERIALS

A. PLANT SPECIES AND SIZE SHALL CONFORM TO THOSE INDICATED ON THE DRAWINGS. NOMENCLATURE SHALL CONFORM TO STANDARDIZED PLANT NAMES, 1942 EDITION. ALL NURSERY STOCK SHALL BE IN ACCORDANCE WITH GRADES AND STANDARDS FOR NURSERY PLANTS, LATEST EDITION, PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES. ALL PLANTS SHALL BE FLORIDA GRADE NO. 1 OR BETTER AS DETERMINED BY THE FLORIDA DIVISION OF PLANT INDUSTRY. ALL PLANTS SHALL BE HEALTHY, VIGOROUS, SOUND, WELL-BRANCHED, AND FREE OF DISEASE AND INSECTS, INSECT EGGS AND LARVAE AND SHALL HAVE ADEQUATE ROOT SYSTEMS. TREES FOR PLANTING IN ROWS SHALL BE UNIFORM IN SIZE AND SHAPE. ALL MATERIALS SHALL BE SUBJECT TO APPROVAL BY THE OWNER. WHERE ANY REQUIREMENTS ARE OMITTED FROM THE PLANT LIST, THE PLANTS FURNISHED SHALL BE NORMAL FOR THE VARIETY. PLANTS SHALL BE PRUNED PRIOR TO DELIVERY ONLY WITH APPROVAL FROM OWNER OR OWNER'S REPRESENTATIVE. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN PERMISSION FROM THE OWNER'S REPRESENTATIVE

B. MEASUREMENTS: THE HEIGHT AND/OR WIDTH OF TREES SHALL BE MEASURED FROM THE GROUND OR ACROSS THE NORMAL SPREAD OF BRANCHES WITH THE PLANTS IN THEIR NORMAL POSITION. THIS MEASUREMENT SHALL NOT INCLUDE THE IMMEDIATE TERMINAL GROWTH. PLANTS LARGER IN SIZE THAN THOSE SPECIFIED IN THE PLANT LIST MAY BE USED IF APPROVED BY THE OWNER. IF THE USE OF LARGER PLANTS IS APPROVED, THE BALL OF EARTH OR SPREAD OF ROOTS SHALL BE INCREASED IN PROPORTION TO THE SIZE OF THE PLANT.

C. INSPECTION: PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, OR UPON DELIVERY TO THE SITE, AS DETERMINED BY THE OWNER, FOR QUALITY, SIZE, AND VARIETY; SUCH APPROVAL SHALL NOT IMPAIR THE RIGHT OF INSPECTION AND REJECTION AT THE SITE DURING PROGRESS OF THE WORK OR AFTER COMPLETION FOR SIZE AND CONDITION OF ROOT BALLS OR ROOTS, LATENT DEFECTS OR INJURIES. REJECTED PLANTS SHALL BE REMOVED IMMEDIATELY FROM THE SITE. NOTICE REQUESTING INSPECTION SHALL BE SUBMITTED IN WRITING BY THE CONTRACTOR AT LEAST ONE (1) WEEK PRIOR TO ANTICIPATED DATE.

E. SOIL MIXTURE (PLANTING MEDIUM, PLANTING MIX, TOPSOIL MIX)

1. SOIL MIXTURE (PLANTING MEDIUM FOR PLANTERS) SHALL CONSIST OF 70% SAND, 30% NORTH FLORIDA PEAT, AS DESCRIBED BELOW:
2. SOIL FOR USE IN PREPARING SOIL MIXTURE FOR BACKFILLING PLANTERS SHALL BE FERTILE, FRIABLE, AND OF A LOAMY CHARACTER; REASONABLY FREE OF SUBSOIL, BRUSH WEEDS AND OTHER LITTER; FREE OF ROOTS, STUMPS, STONES LARGER THAN 2" IN ANY DIRECTION, AND OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH. SHALL HAVE A PH BETWEEN 5.5 AND 7.0 – SUBMIT SAMPLE AND PH TESTING RESULTS FOR APPROVAL.
3. SAND SHALL BE COARSE, CLEAN, WELL-DRAINING, NATIVE ORTONA MINED SAND. CONTRACTOR SHALL SUBMIT RESULTS OF SOIL TESTS FOR TOPSOIL AND SAND PROPOSED FOR USE UNDER THIS CONTRACT FOR APPROVAL BY THE OWNER.
4. CONTRACTOR TO SUBMIT SAMPLES OF SOIL MIXTURE FOR OWNER'S REPRESENTATIVE APPROVAL PRIOR TO PLANT INSTALLATION OPERATIONS COMMENCE.
5. CONTRACTOR SHALL PROVIDE PH TEST RESULTS FOR ALL MIX COMPONENTS.
6. CONTRACTOR SHALL PROVIDE PENETROMETER ON-SITE AT ALL TIMES FOR COMPACTION INSPECTION AT THE DISCRETION OF THE LANDSCAPE ARCHITECT.
7. PENETROMETER CRITERIA / SPECIFICATION SHALL RANGE FROM APPROX. 75 PSI TO LESS THAN 300 PSI OR AS DETERMINE BY LANDSCAPE ARCHITECT.
8. SOIL SHALL BE SUPPLIED BY ATLAS PEAT & SOIL INC. 9612 STATE RD,BOYNTON BEACH,FLORIDA 33472. PHONE: 561-734-7300 OR APPROVAL EQUAL.
9. FINAL MIX SHAL BE TESTED TO HAVE SATURATED WEIGHT OF NO MORE THAN 110 POUNDS PER CUBIC FOOT WHEN COMPACTED TO 85% STANDARDS PROCTOR.
10. MINIMUM DEPTH OF SOIL SHALL BE 3'-0" IN PLANTERS. IN PLANTERS WITH EXISTING TREES, SOIL SHALL BE REMOVED TO A DEPTH REQUIRED TO ELIMINATE SOD CONDITION TO REWORK THE ORIGINAL SOIL CONDITION WITH NEW SOIL, WHILE PRESERVING EXISTING TREE ROOTS AND AVOIDING ADVERSE IMPACT OF ROOTS.

F. WATER

1. WATER NECESSARY FOR PLANTING AND MAINTENANCE SHALL BE OF SATISFACTORY QUALITY TO SUSTAIN AN ADEQUATE PLANT GROWTH AND SHALL NOT CONTAIN HARMFUL, NATURAL OR MAN-MADE ELEMENTS DETRIMENTAL TO PLANTS. WATER MEETING THE ABOVE STANDARD SHALL BE OBTAINED ON THE SITE FROM THE OWNER, IF AVAILABLE, AND THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE ARRANGEMENTS FOR ITS USE BY HIS TANKS, HOSES, SPRINKLERS, ETC.. IF SUCH WATER IS NOT AVAILABLE AT THE SITE, THE CONTRACTOR SHALL PROVIDE SATISFACTORY WATER FROM SOURCES OFF THE SITE AT NO ADDITIONAL COST TO THE OWNER.

*WATERING/IRRIGATION RESTRICTIONS MAY APPLY – REFER TO PROPERTY'S JURISDICTIONAL AUTHORITY.

2. CONTRACTOR SHALL INSURE ALL PLANT MATERIAL RECEIVES APPROPRIATE WATER THROUGHOUT THE GUARANTEE PERIOD SO PLANT MATERIAL THRIVES AND ESTABLISHES READILY.

G. FERTILIZER

CONTRACTOR SHALL PROVIDE FERTILIZER APPLICATION SCHEDULE TO OWNER, AS APPLICABLE TO SOIL TYPE, PLANT INSTALLATION TYPE, AND SITE'S PROPOSED USE. SUGGESTED FERTILIZER TYPES SHALL BE ORGANIC OR OTHERWISE NATURALLY-DERIVED.

*FERTILIZER RESTRICTIONS MAY APPLY – REFER TO PROPERTY'S JURISDICTIONAL AUTHORITY.

H. MULCH

MULCH MATERIAL SHALL BE MOISTENED AT THE TIME OF APPLICATION TO PREVENT WIND DISPLACEMENT, AND APPLIED AT A MINIMUM DEPTH OF 3 INCHES. CLEAR MULCH FROM EACH PLANT'S CROWN (BASE). TYPE OF MATERIAL: "FLORIMULCH" OR SHREDDED, STERILE EUCALYPTUS MULCH

I. DIGGING AND HANDLING

1. PROTECT ROOTS OR ROOT BALLS OF PLANTS AT ALL TIMES FROM SUN, DRYING WINDS, WATER AND FREEZING, AS NECESSARY UNTIL PLANTING. PLANT MATERIALS SHALL BE ADEQUATELY PACKED TO PREVENT DAMAGE DURING TRANSIT. TREES TRANSPORTED MORE THAN TEN (10) MILES OR WHICH ARE NOT PLANTED WITHIN THREE (3) DAYS OF DELIVERY TO SITE SHALL BE SPRAYED WITH AN ANTITRANSPIRANT PRODUCT ("WILTPRUF" OR EQUAL) TO MINIMIZE TRANSPIRATIONAL WATER LOSS.
2. BALLED AND BURLAPPED PLANTS (B&B) SHALL BE DUG WITH FIRM, NATURAL BALLS OF SOIL OF SUFFICIENT SIZE TO ENCOMPASS THE FIBROUS AND FEEDING ROOTS OF THE PLANTS. NO PLANTS MOVED WITH A ROOT BALL SHALL BE PLANTED IF THE BALL IS CRACKED OR BROKEN. PLANTS BALLED AND BURLAPPED OR CONTAINER GROWN SHALL NOT BE HANDLED BY STEMS.
3. PLANTS MARKED "BR" IN THE PLANT LIST SHALL BE DUG WITH BARE ROOTS, COMPLYING WITH FLORIDA GRADES AND STANDARDS FOR NURSERY PLANTS, CURRENT EDITION. CARE SHALL BE EXERCISED THAT THE ROOTS DO NOT DRY OUT DURING TRANSPORTATION AND PRIOR TO PLANTING.
4. PROTECTION OF PALMS (IF APPLICABLE): ONLY A MINIMUM OF FRONDS SHALL BE REMOVED FROM THE CROWN OF THE PALM TREES TO FACILITATE MOVING AND HANDLING. CLEAR TRUNK (CT) SHALL BE AS SPECIFIED AFTER THE MINIMUM OF FRONDS HAVE BEEN REMOVED. ALL PALMS SHALL BE BRACED PER PALM PLANTING DETAIL.
5. EXCAVATION OF TREE PITS SHALL BE PERFORMED USING EXTREME CARE TO AVOID DAMAGE TO SURFACE AND SUBSURFACE ELEMENTS SUCH AS UTILITIES OR HARDSCAPE ELEMENTS, FOOTERS AND PREPARED SUB- BASES.

J. CONTAINER GROWN STOCK

1. ALL CONTAINER GROWN MATERIAL SHALL BE HEALTHY, VIGOROUS, WELL-ROOTED PLANTS ESTABLISHED IN THE CONTAINER IN WHICH THEY ARE SOLD. THE PLANTS SHALL HAVE TOPS WHICH ARE OF GOOD QUALITY AND ARE IN A HEALTHY GROWING CONDITION, FLORIDA #1 OR BETTER.
2. AN ESTABLISHED CONTAINER GROWN PLANT SHALL BE TRANSPLANTED INTO A CONTAINER AND GROWN IN THAT CONTAINER SUFFICIENTLY LONG FOR THE NEW FIBROUS ROOTS TO HAVE DEVELOPED SO THAT THE ROOT MASS WILL RETAIN ITS SHAPE AND HOLD TOGETHER WHEN REMOVED FROM THE CONTAINER. CONTAINER GROWN STOCK SHALL NOT BE HANDLED BY THEIR STEMS.
3. PLANT ROOTS BOUND IN CONTAINERS ARE NOT ACCEPTABLE.
4. SUBSTITUTION OF NON-CONTAINER GROWN MATERIAL FOR MATERIAL EXPLICITLY SPECIFIED TO BE CONTAINER GROWN WILL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL IS OBTAINED FROM THE OWNER OR OWNER'S REPRESENTATIVE.

K. COLLECTED STOCK

WHEN THE USE OF COLLECTED STOCK IS PERMITTED AS INDICATED BY THE OWNER OR OWNER'S REPRESENTATIVE, THE MINIMUM SIZES OF ROOTBALLS SHALL BE EQUAL TO THAT SPECIFIED FOR THE NEXT LARGER SIZE OF NURSERY GROWN STOCK OF THE SAME VARIETY.

L. NATIVE STOCK

PLANTS COLLECTED FROM WILD OR NATIVE STANDS SHALL BE CONSIDERED NURSERY GROWN WHEN THEY HAVE BEEN SUCCESSFULLY RE-ESTABLISHED IN A NURSERY ROW AND GROWN UNDER REGULAR NURSERY CULTURAL PRACTICES FOR A MINIMUM OF TWO (2) GROWING SEASONS AND HAVE ATTAINED ADEQUATE ROOT AND TOP GROWTH TO INDICATE FULL RECOVERY FROM TRANSPLANTING INTO THE NURSERY ROW.

M. MATERIALS LIST

QUANTITIES NECESSARY TO COMPLETE THE WORK ON THE DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR. QUANTITY ESTIMATES HAVE BEEN MADE CAREFULLY, BUT THE LANDSCAPE ARCHITECT OR OWNER ASSUMES NO LIABILITY FOR OMISSIONS OR ERRORS. SHOULD A DISCREPANCY OCCUR BETWEEN THE PLANS AND THE PLANT LIST QUANTITY, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED FOR CLARIFICATION PRIOR TO BIDDING OR INSTALLATION. ALL DIMENSIONS AND/OR SIZES SPECIFIED SHALL BE THE MINIMUM ACCEPTABLE SIZE

N. FINE GRADING

1. FINE GRADING UNDER THIS CONTRACT SHALL CONSIST OF FINAL FINISHED GRADING OF LAWN AND PLANTING AREAS THAT HAVE BEEN ROUGH GRADED BY OTHERS. BERMING AS SHOWN ON THE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED.
2. THE CONTRACTOR SHALL FINE GRADE THE LAWN AND PLANTING AREAS TO BRING THE ROUGH GRADE UP TO FINAL FINISHED GRADE ALLOWING FOR THICKNESS OF SOD AND/OR MULCH DEPTH. THIS CONTRACTOR SHALL FINE GRADE BY HAND AND/OR WITH ALL EQUIPMENT NECESSARY INCLUDING A GRADING TRACTOR WITH FRONT-END LOADER FOR TRANSPORTING SOIL WITHIN THE SITE.
3. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED FOR POSITIVE DRAINAGE TO SURFACE/SUBSURFACE STORM DRAIN SYSTEMS. AREAS ADJACENT TO BUILDINGS SHALL SLOPE AWAY FROM THE BUILDINGS. REFER TO CIVIL ENGINEER'S PLANS FOR FINAL GRADES.

O. PLANTING PROCEDURES

1. CLEANING UP BEFORE COMMENCING WORK: THE CONTRACTOR SHALL CLEAN WORK AND SURROUNDING AREAS OF ALL RUBBISH OR OBJECTIONABLE MATTER. ALL MORTAR, CEMENT, AND TOXIC MATERIAL SHALL BE REMOVED FROM THE SURFACE OF ALL PLANT BEDS. THESE MATERIALS SHALL NOT BE MIXED WITH THE SOIL. SHOULD THE CONTRACTOR FIND SUCH SOIL CONDITIONS BENEATH THE SOIL WHICH WILL IN ANY WAY ADVERSELY AFFECT THE PLANT GROWTH, HE SHALL IMMEDIATELY CALL IT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. FAILURE TO DO SO BEFORE PLANTING SHALL MAKE THE CORRECTIVE MEASURES THE RESPONSIBILITY OF THE CONTRACTOR.
2. VERIFY LOCATIONS OF ALL UTILITIES, CONDUITS, SUPPLY LINES AND CABLES, INCLUDING BUT NOT LIMITED TO: ELECTRIC, GAS (LINES AND TANKS), WATER, SANITARY SEWER, STORMWATER SYSTEMS, CABLE, AND TELEPHONE. PROPERLY MAINTAIN AND PROTECT EXISTING UTILITIES. CALL NATIONAL ONE CALL – 811 – TO LOCATE UTILITIES.
3. SUBGRADE EXCAVATION: CONTRACTOR IS RESPONSIBLE TO REMOVE ALL EXISTING AND IMPORTED COMPACTED MATERIAL FROM ALL PROPOSED TREE, PALM, SHRUB, AND GROUNDCOVER LANDSCAPE PLANTING AREAS TO A MINIMUM DEPTH OF 36" AND ALL PROPOSED LAWN/SOD AREAS TO A MINIMUM OF 6". REFER TO SECTION E. SOIL MIXTURE (PLANTING MEDIUM, PLANTING MIX, MIX, SOIL MIX). REFER TO E.10 FOR EXCAVATION ADJACENT TO TREE ROOTS. CONTRACTOR IS RESPONSIBLE TO BACKFILL THESE PLANTING AREAS TO ROUGH FINISHED GRADE WITH CLEAN TOPSOIL FROM AN ON-SITE SOURCE OR AN IMPORTED SOURCE. IF LIMEROCK OR OTHER ADVERSE CONDITIONS OCCUR IN PLANTED AREAS AFTER 36" DEEP EXCAVATION BY THE CONTRACTOR, AND ADEQUATE PERCOLATION CAN NOT BE ACHIEVED, CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING.
4. FURNISH NURSERY'S CERTIFICATE OF COMPLIANCE WITH ALL REQUIREMENTS AS HEREIN SPECIFIED AND REQUIRED. INSPECT AND SELECT PLANT MATERIALS BEFORE PLANTS ARE DUG AT NURSERY OR GROWING SITE.
5. GENERAL: COMPLY WITH APPLICABLE FEDERAL, STATE, COUNTY, AND LOCAL REGULATIONS GOVERNING LANDSCAPE MATERIALS AND WORK. CONFORM TO ACCEPTED HORTICULTURAL PRACTICES AS USED IN THE TRADE. UPON ARRIVAL AT THE SITE , PLANTS SHALL BE THOROUGHLY WATERED AND PROPERLY MAINTAINED UNTIL PLANTED. PLANTS STORED ON-SITE SHALL NOT REMAIN UNPLANTED FOR A PERIOD EXCEEDING TWENTY-FOUR (24) HOURS. AT ALL TIMES, METHODS CUSTOMARY IN GOOD HORTICULTURAL PRACTICES SHALL BE EXERCISED.
6. THE WORK SHALL BE COORDINATED WITH OTHER TRADES TO PREVENT CONFLICTS. COORDINATE PLANTING WITH IRRIGATION WORK TO ASSURE AVAILABILITY OF WATER AND PROPER LOCATION OF IRRIGATION APPURTENANCES AND PLANTS.
7. ALL PLANTING PITS SHALL BE EXCAVATED TO SIZE AND DEPTH IN ACCORDANCE WITH AMERICAN STANDARD FOR NURSERY STOCK (ANSI260.1),, UNLESS SHOWN OTHERWISE ON THE DRAWINGS, AND BACKFILLED WITH THE PREPARED PLANTING SOIL MIXTURE AS SPECIFIED IN SECTION E. TEST ALL TREE PITS WITH WATER BEFORE PLANTING TO ASSURE PROPER DRAINAGE PERCOLATION IS AVAILABLE. NO ALLOWANCE WILL BE MADE FOR LOST PLANTS DUE TO IMPROPER PERCOLATION. IF POOR PERCOLATION EXISTS, UTILIZE "POOR DRAINAGE CONDITION" PLANTING DETAIL. TREES SHALL BE SET PLUMB AND HELD IN POSITION UNTIL THE PLANTING MIXTURE HAS BEEN FLUSHED INTO PLACE WITH A SLOW, FULL HOSE STREAM. ALL PLANTING SHALL BE PERFORMED BY PERSONNEL FAMILIAR WITH PLANTING PROCEDURES AND UNDER THE SUPERVISION OF A QUALIFIED LANDSCAPE FOREMAN. PROPER "JETTING IN" SHALL BE ASSURED TO ELIMINATE AIR POCKETS AROUND THE ROOTS. "JET STICK" OR EQUAL IS RECOMMENDED.
8. TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO BUILDINGS AND BUILDING STRUCTURES WHILE INSTALLING TREES.
9. SOIL MIXTURE SHALL BE AS SPECIFIED IN SECTION E OF THESE SPECIFICATIONS.
10. TREES AND SHRUBS SHALL BE SET STRAIGHT AT AN ELEVATION THAT, AFTER SETTLEMENT, THE PLANT CROWN WILL STAND ONE (1) TO TWO (2) INCHES ABOVE GRADE. EACH PLANT SHALL BE SET IN THE CENTER OF THE PIT. PLANTING SOIL MIXTURE SHALL BE BACKFILLED, THOROUGHLY TAMPED AROUND THE BALL, AND SETTLED BY WATER (AFTER TAMPING).
11. AMEND PINE AND OAK PLANT PITS WITH ECTOMYCORRHIZAL SOIL APPLICATION PER MANUFACTURER'S RECOMMENDATION. ALL OTHER PLANT PITS SHALL BE AMENDED WITH ENDOMYCORRHIZAL SOIL APPLICATION PER MANUFACTURER'S RECOMMENDATION. PROVIDE PRODUCT INFORMATION SUBMITTAL PRIOR TO INOCULATION.
12. FILL HOLE WITH SOIL MIXTURE, MAKING CERTAIN ALL SOIL IS SATURATED. TO DO THIS, FILL HOLE WITH WATER AND ALLOW TO SOAK MINIMUM TWENTY (20) MINUTES, STIRRING IF NECESSARY TO GET SOIL THOROUGHLY WET. PACK LIGHTLY WITH FEET. ADD MORE WET SOIL MIXTURE. DO NOT COVER TOP OF BALL WITH SOIL MIXTURE, ONLY WITH MULCH. ALL BURLAP, ROPE, WIRES, BASKETS, ETC.., SHALL BE REMOVED FROM THE SIDES AND TOPS OF BALLS, BUT NO BURLAP SHALL BE PULLED FROM UNDERNEATH.
13. PRUNING: TREES SHALL BE PRUNED, AT THE DIRECTION OF THE OWNER OR OWNER'S REPRESENTATIVE, TO PRESERVE THE NATURAL CHARACTER OF THE PLANT. ALL SOFT WOOD OR SUCKER GROWTH AND ALL BROKEN OR BADLY DAMAGED BRANCHES SHALL BE REMOVED WITH A CLEAN CUT. ALL PRUNING TO BE PERFORMED BY LICENSED ARBORIST, IN ACCORDANCE WITH ANSI A-300.
14. SHRUBS AND GROUND COVER PLANTS SHALL BE EVENLY SPACED IN ACCORDANCE WITH THE DRAWINGS AND AS INDICATED ON THE PLANT LIST. CULTIVATE ALL PLANTING AREAS TO A MINIMUM DEPTH OF 6", REMOVE AND DISPOSE ALL DEBRIS. MIX TOP 4" TO ACHEIVE SOIL MIXTURE AS SPECIFIED IN SECTION E. THOROUGHLY WATER ALL PLANTS AFTER INSTALLATION.
15. TREE GUYING AND BRACING SHALL BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH THE PLANS TO INSURE STABILITY AND MAINTAIN TREES IN AN UPRIGHT POSITION. IF THE CONTRACTOR AND OWNER DECIDE TO WAIVE THE TREE GUYING AND BRACING, THE OWNER SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING AND AGREE TO INDEMNIFY AND HOLD HARMLESS THE LANDSCAPE ARCHITECT IN THE EVENT UNSUPPORTED TREES PLANTED UNDER THIS CONTRACT FALL AND DAMAGE PERSON OR PROPERTY.
16. MULCHING: PROVIDE A THREE INCH (MINIMUM) LAYER OF SPECIFIED MULCH OVER THE ENTIRE AREA OF EACH SHRUB BED, GROUND COVER, VINE BED, AND TREE PIT PLANTED UNDER THIS CONTRACT.
17. HERBICIDE WEED CONTROL: ALL PLANT BEDS SHALL BE KEPT FREE OF NOXIOUS WEEDS UNTIL FINAL ACCEPTANCE OF WORK. IF DIRECTED BY THE OWNER, "ROUND-UP" SHALL BE APPLIED FOR WEED CONTROL BY QUALIFIED PERSONNEL TO ALL PLANTING AREAS IN SPOT APPLICATIONS PER MANUFACTURER'S PRECAUTIONS AND SPECIFICATIONS. PRIOR TO FINAL INSPECTION, TREAT ALL PLANTING BEDS WITH AN APPROVED PRE-EMERGENT HERBICIDE AT AN APPLICATION RATE RECOMMENDED BY THE MANUFACTURER. (AS ALLOWED BY JURISDICTIONAL AUTHORITY)

P. LAWN SODDING

1. THE WORK CONSISTS OF LAWN BED PREPARATION, SOIL PREPARATION, AND SODDING COMPLETE, IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND THE APPLICABLE DRAWINGS TO PRODUCE A TURF GRASS LAWN ACCEPTABLE TO THE OWNER.
2. LAWN BED PREPARATION: ALL AREAS THAT ARE TO BE SODDED SHALL BE CLEARED OF ANY ROUGH GRASS, WEEDS, AND DEBRIS, AND THE GROUND BROUGHT TO AN EVEN GRADE. THE ENTIRE SURFACE SHALL BE ROLLED WITH A ROLLER WEIGHING NOT MORE THAN ONE-HUNDRED (100) POUNDS PER FOOT OF WIDTH. DURING THE ROLLING, ALL DEPRESSIONS CAUSED BY SETTLEMENT SHALL BE FILLED WITH ADDITIONAL SOIL, AND THE SURFACE SHALL BE REGRADED AND ROLLED UNTIL PRESENTING A SMOOTH AND EVEN FINISH TO THE REQUIRED GRADE.
3. SOIL PREPARATION: PREPARE LOOSE BED FOUR (4) INCHES DEEP. HAND RAKE UNTIL ALL BUMPS AND DEPRESSIONS ARE REMOVED. WET PREPARED AREA THOROUGHLY.
4. SODDING
   A. THE CONTRACTOR SHALL SOD ALL AREAS THAT ARE NOT PAVED OR PLANTED AS DESIGNATED ON THE DRAWINGS WITHIN THE CONTRACT LIMITS, UNLESS SPECIFICALLY NOTED OTHERWISE.
   B. THE SOD SHALL BE CERTIFIED TO MEET FLORIDA STATE PLANT BOARD SPECIFICATIONS, ABSOLUTELY TRUE TO VARIETAL TYPE, AND FREE FROM WEEDS, FUNGUS, INSECTS AND DISEASE OF ANY KIND.
   C. SOD PANELS SHALL BE LAID TIGHTLY TOGETHER SO AS TO MAKE A SOLID SODDED LAWN AREA. SOD SHALL BE LAID UNIFORMLY AGAINST THE EDGES OF ALL CURBS AND OTHER HARDSCAPE ELEMENTS, PAVED AND PLANTED AREAS. ADJACENT TO BUILDINGS, A 24 INCH STONE MULCH STRIP SHALL BE PROVIDED – REFER TO DETAILS. IMMEDIATELY FOLLOWING SOD LAYING, THE LAWN AREAS SHALL BE ROLLED WITH A LAWN ROLLER CUSTOMARILY USED FOR SUCH PURPOSES, AND THEN THOROUGHLY IRRIGATED. IF, IN THE OPINION OF THE OWNER, TOP-DRESSING IS NECESSARY AFTER ROLLING TO FILL THE VOIDS BETWEEN THE SOD PANELS AND TO EVEN OUT INCONSISTENCIES IN THE SOD, CLEAN SAND, AS APPROVED BY THE OWNER'S REPRESENTATIVE, SHALL BE UNIFORMLY SPREAD OVER THE ENTIRE SURFACE OF THE SOD AND THOROUGHLY WATERED IN. FERTILIZE INSTALLED SOD AS ALLOWED BY PROPERTY'S JURISDICTIONAL AUTHORITY.
5. DURING DELIVERY, PRIOR TO, AND DURING THE PLANTING OF THE LAWN AREAS, THE SOD PANELS SHALL AT ALL TIMES BE PROTECTED FROM EXCESSIVE DRYING AND UNNECESSARY EXPOSURE OF THE ROOTS TO THE SUN. ALL SOD SHALL BE STACKED SO AS NOT TO BE DAMAGED BY SWEATING OR EXCESSIVE HEAT AND MOISTURE.
6. LAWN MAINTENANCE:
   A. WITHIN THE CONTRACT LIMITS, THE CONTRACTOR SHALL PRODUCE A DENSE, WELL ESTABLISHED LAWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND RE-SODDING OF ALL ERODED, SUNKEN OR BARE SPOTS (LARGER THAN 12"X12") UNTIL CERTIFICATION OF ACCEPTABILITY BY THE OWNER'S REPRESENTATIVE. REPAIRED SODDING SHALL BE ACCOMPLISHED AS IN THE ORIGINAL WORK (INCLUDING REGRADING IF NECESSARY).
   B. CONTRACTOR RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SOD/LAWN UNTIL ACCEPTANCE BY THE OWNER'S REPRESENTATIVE. PRIOR TO AND UPON ACCEPTANCE, CONTRACTOR TO PROVIDE WATERING/IRRIGATION SCHEDULE TO OWNER. OBSERVE ALL APPLICABLE WATERING RESTRICTIONS AS SET FORTH BY THE PROPERTY'S JURISDICTIONAL AUTHORITY.

Q. CLEANUP

UPON COMPLETION OF ALL PLANTING WORK AND BEFORE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL MATERIAL, EQUIPMENT, AND DEBRIS RESULTING FROM HIS WORK. ALL PAVED AREAS SHALL BE BROOM-CLEANED AND THE SITE LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE.

R. PLANT MATERIAL MAINTENANCE

ALL PLANTS AND PLANTING INCLUDED UNDER THIS CONTRACT SHALL BE MAINTAINED BY WATERING, CULTIVATING, SPRAYING, AND ALL OTHER OPERATIONS (SUCH AS RE-STAKING OR REPAIRING GUY SUPPORTS) NECESSARY TO INSURE A HEALTHY PLANT CONDITION BY THE CONTRACTOR UNTIL CERTIFICATION OF ACCEPTABILITY BY THE OWNER'S REPRESENTATIVE. MAINTENANCE AFTER THE CERTIFICATION OF ACCEPTABILITY SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS IN THIS SECTION. CONTRACTORS ARE REQUESTED TO PROVIDE A BID ESTIMATE TO COVER LANDSCAPE AND IRRIGATION MAINTENANCE FOR A PERIOD OF 90 CALENDAR DAYS COMMENCING AFTER ACCEPTANCE.

S. MAINTENANCE (ALTERNATE BID ITEM)

CONTRACTORS ARE REQUESTED TO PROVIDE A BID ESTIMATE FOR MAINTENANCE FOLLOWING THE INITIAL 90-DAY MAINTENANCE PERIOD ON A COST-PER-MONTH BASIS.

T. FINAL INSPECTION AND ACCEPTANCE OF WORK

FINAL INSPECTION AT THE END OF THE WARRANTY PERIOD SHALL BE ON PLANTING, CONSTRUCTION AND ALL OTHER INCIDENTAL WORK PERTAINING TO THIS CONTRACT. ANY REPLACEMENT AT THIS TIME SHALL BE SUBJECT TO THE SAME ONE (1) YEAR WARRANTY (OR AS SPECIFIED BY THE LANDSCAPE ARCHITECT OR OWNER IN WRITING) BEGINNING WITH THE TIME OF REPLACEMENT AND ENDING WITH THE SAME INSPECTION AND ACCEPTANCE HEREIN DESCRIBED.

U. WARRANTY

1. THE LIFE AND SATISFACTORY CONDITION OF ALL PLANT MATERIAL INSTALLED BY THE LANDSCAPE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A MINIMUM OF ONE (1) CALENDAR YEAR COMMENCING AT THE TIME OF CERTIFICATION OF ACCEPTABILITY BY THE OWNER'S REPRESENTATIVE.
2. REPLACEMENT: ANY PLANT NOT FOUND IN A HEALTHY GROWING CONDITION AT THE END OF THE WARRANTY PERIOD SHALL BE REMOVED FROM THE SITE AND REPLACED AS SOON AS WEATHER CONDITIONS PERMIT. ALL REPLACEMENTS SHALL BE PLANTS OF THE SAME KIND AND SIZE AS SPECIFIED IN THE PLANT LIST. THEY SHALL BE FURNISHED PLANTED AND MULCHED AS SPECIFIED UNDER "PLANTING", AT NO ADDITIONAL COST TO THE OWNER.
3. IN THE EVENT THE OWNER DOES NOT CONTRACT WITH THE CONTRACTOR FOR LANDSCAPE (AND IRRIGATION) MAINTENANCE, THE CONTRACTOR IS ENCOURAGED TO VISIT THE PROJECT SITE PERIODICALLY DURING THE ONE YEAR WARRANTY PERIOD TO EVALUATE MAINTENANCE PROCEDURES BEING PERFORMED BY THE OWNER, AND SHALL NOTIFY THE OWNER IN WRITING OF MAINTENANCE PROCEDURES OR CONDITIONS WHICH THREATEN VIGOROUS AND HEALTHY PLANT GROWTH. IT IS SUGGESTED SUCH SITE VISITS SHALL BE CONDUCTED A MINIMUM OF ONCE PER MONTH FOR A PERIOD OF TWELVE (12) MONTHS FROM THE DATE OF ACCEPTANCE.
4. THE CONTRACTOR SHALL REPLACE ALL PLANT MATERIAL IN SHOCK PRIOR TO ISSUANCE OF A C.O. AS DETERMINED BY THE LANDSCAPE ARCHITECT AND THE COUNTY AT THE CONTRACTOR'S OWN EXPENSE.

V. ROOT PRUNING

1. ROOT PRUNING SHALL BE CONDUCTED FOR A MINIMUM PERIOD OF 90 DAYS/ UNTIL NEW ROOT GROWTH IS OBSERVED / AS DIRECTED BY AN ISA CERTIFIED ARBORIST. ROOT PRUNING TIMEFRAME VARY PER SPECIES AND CONDITION OF EXISTING MATERIALS AND SHALL BE AS DIRECTED BY AN ISA CERTIFIED ARBORIST. STAKING AND IRRIGATION SHALL BE PROVIDED DURING ROOT PRUNING PROCESS. ANY CANOPY TRIMMING / PRUNING SHALL BE COORDINATED AND DIRECTED BY ISA CERTIFIED ARBORIST RELATIVE TO THE ROOT PRUNING PROCESS TO INSURE THERE ARE NO ADVERSE EFFECTS O THE EXISTING MATERIAL BEING PREPARED FOR RELOCATION.

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Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn
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PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MATTHEW VINCENT WISNIEWSKI LA6667406 ON THE DATE ADJACENT TO THE SEAL.

REGISTERED LANDSCAPE ARCHITECT
Matthew Vincent Wisniewski
No LA6667406
07/02/2021
STATE OF FLORIDA

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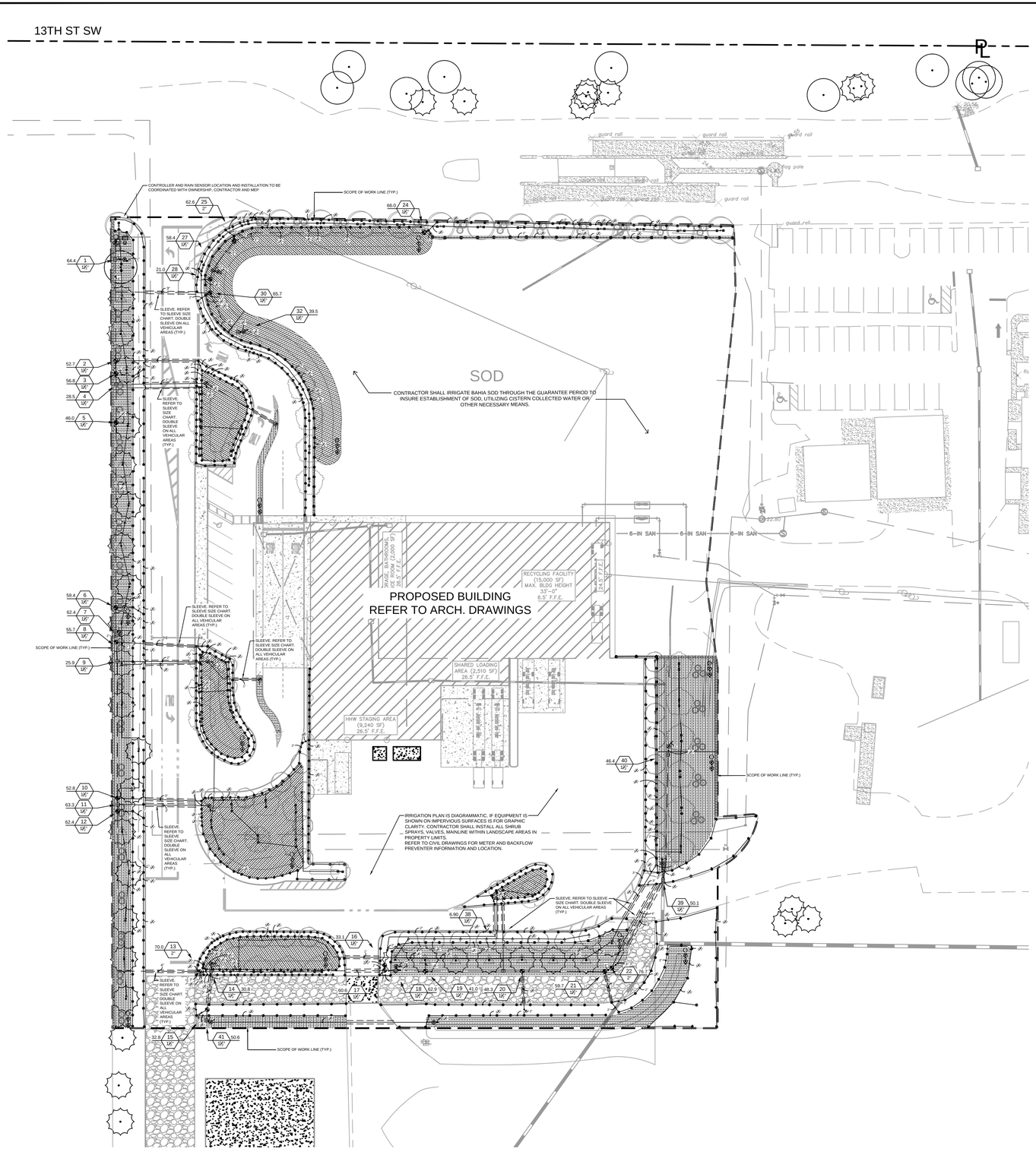
KHA PROJECT	143228000
DATE	APRIL 2021
SCALE	AS SHOWN
DESIGNED BY	MW
DRAWN BY	CF
CHECKED BY	MW

LANDSCAPE NOTES & SPECIFICATIONS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-251



IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
12 15 18	RAIN BIRD 1806-PRS ADJ SHRUB SPRAY 6.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL, SIDE AND BOTTOM INLET. 1/2" NPT FEMALE THREADED INLET. WITH PRESSURE REGULATING DEVICE.	717
CST LCS RCS CSP SST	RAIN BIRD 1812-PRS 1S STRIP SERIES SHRUB SPRAY 12.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL, SIDE AND BOTTOM INLET. 1/2" NPT FEMALE THREADED INLET. WITH PRESSURE REGULATING DEVICE.	3
12 15 18	RAIN BIRD 1812-PRS ADJ SHRUB SPRAY 12.0" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL, SIDE AND BOTTOM INLET. 1/2" NPT FEMALE THREADED INLET. WITH PRESSURE REGULATING DEVICE.	105
1401 1402 1404 1406	RAIN BIRD 1800-1400 FLOOD 1401 FIXED FLOW RATE (0.25-2.0GPM), FULL CIRCLE BUBBLER, 1/2" FIPT.	162

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XCZ-150-LCS HIGH FLOW CONTROL ZONE KIT, FOR LARGE COMMERCIAL DRIP ZONES; 1-1/2" PEB GLOBE VALVE WITH SINGLE 1-1/2" PRESSURE REGULATING (40PSI) QUICK-CHECK BASKET FILTERS. FLOW RANGE: 15-62GPM.	13
	PIPE TRANSITION POINT IN DRIP BOX PIPE TRANSITION POINT FROM PVC LATERAL TO DRIP TUBING WITH RISER IN 6" (150MM) DRIP BOX.	16
F	RAIN BIRD MDCFCAP DRIPLINE FLUSH VALVE CAP IN COMPRESSION FITTING COUPLER.	12
A	RAIN BIRD ARV050 1/2" AIR RELIEF VALVE, MADE OF QUALITY RUST-PROOF MATERIALS, WITH A 6.0" DRIP VALVE BOX (SEB 7X9.EMITTER BOX). USE WITH INSTALLATION BELOW SOIL. THE VALVE WILL ALLOW AIR TO ESCAPE THE PIPELINE, THUS PREVENTING WATER HAMMER OR BLOCKAGE.	12
DOP	RAIN BIRD OPERPRO DRIP SYSTEM OPERATION INDICATOR, STEM RISES 6" FOR CLEAR VISIBILITY WHEN DRIP SYSTEM IS CHARGED TO A MINIMUM OF 20PSI. INCLUDES 18"OF 1/4" DISTRIBUTION TUBING WITH CONNECTION FITTING PRE-INSTALLED.	12
	AREA TO RECEIVE DRIPLINE RAIN BIRD XFS-09-12 XFS SUB-SURFACE PRESSURE COMPENSATING DRIPLINE W/COPPER SHIELD TECHNOLOGY, 0.9 GPH EMITTERS AT 12" O.C. LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. UV RESISTANT. SPECIFY XF INSERT FITTINGS.	39,341 L.F.

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD PEB 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION.	19
BF	REDUCED PRESSURE BACKFLOW PREVENTER 2" REFER TO CIVIL PLANS	1
C	RAIN BIRD ESPBLXMEF-LXMM-LXMMPED WITH (03) ESPLXMSM12 44 STATION CAPABLE COMMERCIAL CONTROLLER. MOUNTED ON A POWDER-COATED METAL PEDESTAL. FLOW SENSING AND WATER MANAGEMENT CAPABILITIES.	1
W	RAIN BIRD RSD-BEX RAIN SENSOR, WITH METAL LATCHING BRACKET, EXTENSION WIRE.	1
M	WATER METER 2" REFER TO CIVIL PLANS	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21	+/- 10,343 L.F.
	IRRIGATION MAINLINE: PVC SCHEDULE 40	+/- 1,402 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40	AS NEEDED

Valve Callout
Valve Number
Valve Flow
Valve Size

LEGEND

- RAW — PL — RIGHT-OF-WAY LINE / PROPERTY LINE
- PROP. BUILDING OUTLINE
- PROP. ASPHALT
- PROP. CONC.
- PROP. GRAVEL ROAD
- SCOPE OF WORK LINE

NORTH

GRAPHIC SCALE IN FEET
0 20 40 80

SLEEVING CHART

SLEEVE SIZE SCHEDULE (SCH 40)

PIPE SIZE	SLEEVE SIZE
1"	2"
1½"	4"
2"	4"
2½"	6"
3", 4"	6"
5", 6"	8"
7", 8"	10"

*CONTRACTOR SHALL USE THE ABOVE SCHEDULE TO SIZE SLEEVES. THE PIPE SIZE IN THE ABOVE SCHEDULE SHALL REFLECT THE CUMULATIVE VALUE OF ALL PIPES GRAPHICALLY SHOWN THROUGH SLEEVE.
*SLEEVING ON VEHICULAR AREAS / DRIVEWAYS / PARKING SHALL BE DOUBLE.

IRRIGATION NOTES

1. REFER TO LANDSCAPE PLANS FOR THE LOCATIONS OF PLANTING MATERIAL.
2. INSTALLATION WORK SHALL BE COORDINATED WITH OTHER CONTRACTORS IN SUCH A MANNER AS TO ALLOW FOR SPEEDY AND ORDERLY COMPLETION OF ALL WORK ON THE SITE.
3. ALL PROPOSED TREES AND SHRUBS SHALL BE IRRIGATED BY A 100% AUTOMATIC UNDERGROUND IRRIGATION SYSTEM.
4. IRRIGATION SYSTEM SHALL BE CAPABLE OF SUPPLYING AN AVERAGE OF 1" OF WATER PER WEEK WITHIN WATERING RESTRICTIONS AS APPLICABLE.
5. IRRIGATION SYSTEM SHALL NOT BE INSTALLED THROUGH EXISTING, OR PRESERVED PLANT COMMUNITIES.
6. IRRIGATION SPRINKLER ZONES SHALL BE SEPARATED FOR HIGH AND LOW WATER REQUIREMENTS AND OPERATING ON DIFFERENT WATERING CYCLES.
7. IRRIGATION OVERTHROW TO IMPERVIOUS AND NATURAL AREAS SHALL BE MINIMIZED.
8. A RAIN SENSOR OR SOIL MOISTURE SENSOR SHALL BE INSTALLED WITH THE IRRIGATION CONTROL SYSTEM, INSTALLED AT A LOCATION TO BE COORDINATED WITH OWNER.
9. IRRIGATION PIPING INSTALLED UNDER ROADS AND SIDEWALKS SHALL BE IN SCHEDULE 40 PVC SLEEVING AT 2X THE PIPE SIZE. ALL SLEEVING SHALL BE FREE OF STONES AND DEBRIS.
10. IRRIGATION SYSTEM TO USE THE LOWEST QUALITY WATER AVAILABLE WHICH ADEQUATELY AND SAFELY MEETS THE WATER NEEDS OF THE SYSTEM. STORM WATER REUSE, RECLAIMED WATER USE, AND GRAY WATER IRRIGATION SYSTEMS SHALL BE USED WHERE FEASIBLE. IRRIGATION CONTRACTOR TO VERIFY THE SYSTEM MAY BE CONNECTED TO A FUTURE RE-USE WATER MAIN WHEN IT BECOMES AVAILABLE.
11. IRRIGATED AREAS SHALL BE FULLY IRRIGATED WITH SPRAY HEADS & ROTORS SPACED TO PROVIDE 100% HEAD TO HEAD COVERAGE. ALL PROPOSED TREES AND PALMS SHALL BE IRRIGATED WITH TREE BUBBLERS.
12. CONTRACTOR SHALL PROVIDE LANDSCAPE ARCHITECT WITH SHOP DRAWINGS DEPICTING IRRIGATION DESIGN FOR APPROVAL PRIOR TO PROCUREMENT AND CONSTRUCTION.
13. CONTRACTOR SHALL PROVIDE "AS-BUILT" DRAWINGS OF THE FINAL INSTALLATION TO OWNER AT SUBSTANTIAL COMPLETION BEFORE RECEIVING FINAL PAYMENT.
14. POINT OF CONNECTION TO BE DETERMINED BY IRRIGATION CONTRACTOR AND VERIFIED WITH THE LANDSCAPE ARCHITECT. IRRIGATION SYSTEM CONNECTIONS TO THE CITY OR COUNTY SERVICE SHALL COMPLY WITH ALL APPLICABLE CODES.
15. IRRIGATION SYSTEM CONNECTION TO POTABLE WATER SUPPLY WILL REQUIRE A DEDICATED IRRIGATION METER AND BACKFLOW PREVENTER, AS REQUIRED BY GOVERNING MUNICIPALITY. IRRIGATION CONTRACTOR RESPONSIBLE FOR ASSOCIATED PERMITTING AND FEES.
16. CONTRACTOR SHALL REFER TO THE IRRIGATION DETAILS, IRRIGATION SCHEDULE, SPECIFICATIONS, AND ALL CONTRACT DOCUMENTS FOR FURTHER AND COMPLETE INSTRUCTIONS.
17. IRRIGATION QUANTITIES ARE PROVIDED FOR CONVENIENCE, IN THE EVENT OF QUANTITY DISCREPANCIES, THE DRAWING SHALL TAKE PRECEDENCE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BIDDING.
18. ANY SUBSTITUTIONS FOR SPECIFIED IRRIGATION EQUIPMENT MUST BE APPROVED BY LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE IN WRITING PRIOR TO CONSTRUCTION.
19. CONTRACTOR SHALL FIELD ADJUST LOCATION OF IRRIGATION EQUIPMENT AS NECESSARY TO AVOID DAMAGE TO EXISTING UNDERGROUND UTILITIES AND/OR INTERFERE WITH EXISTING ABOVE GROUND ELEMENTS. ALL FIELD ADJUSTMENTS SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE AND SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE AND THE LANDSCAPE ARCHITECT.
20. CONTRACTOR SHALL FAMILIARIZE HIMSELF/HERSELF WITH THE LIMITS OF WORK AND EXISTING CONDITIONS AND VERIFY ALL INFORMATION. IF DISCREPANCIES EXIST, CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE IN WRITING WITHIN SEVEN CALENDAR DAYS OF NOTICE TO PROCEED.
21. IRRIGATION PLAN IS DIAGRAMMATIC, EQUIPMENT SHOWN ON IMPERVIOUS SURFACES IS FOR GRAPHIC CLARITY UNLESS OTHERWISE NOTED. CONTRACTOR SHALL INSTALL ALL EQUIPMENT WITHIN LANDSCAPE AREAS IN PROPERTY LIMITS.
22. LATERAL, MAINLINE, BUBBLER, AND VALVE LOCATIONS SHOWN FOR DIAGRAMMATIC PURPOSES ONLY.
23. RUN ALL PIPES THROUGH PLANTER AREAS AND ALONGSIDE OTHER SLEEVING TO MAXIMUM EXTENT POSSIBLE.
24. TRENCH ALONG SIDEWALKS, CURBS, AND FENCES AS MUCH AS POSSIBLE.
25. AVOID TRENCHING ALONG DRIPLINES OF EXISTING TREES TO MAXIMUM EXTENT POSSIBLE. IF IT IS NOT POSSIBLE TO AVOID TRENCHING UNDER DRIPLINES, CONTRACTOR IS TO NOTIFY LANDSCAPE ARCHITECT PRIOR TO TRENCH EXCAVATION FOR APPROVAL.
26. GROUP AND LOCATE VALVES INSIDE PLANTER AREAS (TYP).
27. THE IRRIGATION SYSTEM SHALL PROVIDE 100% COVERAGE FOR ALL PROPOSED LANDSCAPE AREAS.
28. ZONES SHALL BE SEPARATED BY WATER NEED AND EQUIPMENT. BUBBLERS, DRIPLINES, AND SPRAYS SHALL BE SEPARATE.
29. CONTRACTOR SHALL IRRIGATE BAHIA SOD THROUGH THE GUARANTEE PERIOD TO INSURE ESTABLISHMENT OF SOD, UTILIZING CISTERN COLLECTED WATER OR OTHER NECESSARY MEANS.

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No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY MICHELLE WEINSTEIN LA66674O5 ON THE DATE ADJACENT TO THE SEAL.

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THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY MICHELLE WEINSTEIN LA66674O5 ON THE DATE ADJACENT TO SEAL.

REGISTERED LANDSCAPE ARCHITECT MICHELLE WEINSTEIN No. LA66674O5 STATE OF FLORIDA 07/02/2021

KHA PROJECT	143228000
DATE	APRIL 2021
SCALE	AS SHOWN
DESIGNED BY	MW
DRAWN BY	CF
CHECKED BY	MW

IRRIGATION PLAN

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-300

UNDERGROUND IRRIGATION SYSTEM

PART I: GENERAL
1.01 SCOPE

A. The work covered by this specification shall include the furnishing of all labor, materials, tools and equipment necessary to perform and complete the installation of an automatic irrigation system as specified herein and as shown on the drawings and any incidental work not shown or specified which can reasonably be determined to be part of the work and necessary to provide a complete and functional system.

B. The work covered by this specification also includes all permits, federal, state and local taxes and all other costs, both foreseeable and unforeseeable at the time of construction.

C. No deviation from these specifications, the accompanying drawings, or agreement is authorized or shall be made without prior written authorization signed by the Owner or his duly appointed representative.

1.02 QUALITY ASSURANCE

D. Installer Qualifications: A firm specializing in irrigation work with not less than five (5) years of experience in installing irrigation systems similar to those required for this project.

E. Coordination: Coordinate and cooperate with other contractors to enable the work to proceed as rapidly and efficiently as possible.

F. Inspection of Site: The Contractor shall acquaint himself with all site conditions, including underground utilities before construction is to begin. Contractor shall coordinate placement of underground materials with contractors previously working underground in the vicinity or those scheduled to do underground work in the vicinity. Contractor is responsible for minor adjustments in the layout of the work to accommodate existing facilities.

G. Protection of Existing Plants and Site Conditions: The Contractor shall take necessary precautions to protect site conditions to remain. Should damages be incurred, this Contractor shall repair the damage to its original condition at his own expense. Any disruption, destruction, or disturbance of any existing plant, tree, shrub, or turf, or any structure shall be completely restored to the satisfaction of the Owner and his representatives, solely at the Contractor's expense.

H. Protection of Work and Property: The Contractor shall be liable for and shall take the following actions as required with regard to damage to any of the Owner's property.

1. Any existing building, equipment, piping, pipe coverings, electrical systems, sewers, sidewalks, roads, grounds, landscaping or structure of any kind (including without limitation, damage from leaks in the piping system being installed or having been installed by Contractor) damaged by the Contractor, or by his agents, employees, or subcontractors, during the course of his work, whether through negligence or otherwise, shall be replaced or repaired by Contractor at his own expense in a manner satisfactory to Owner, which repair or replacement shall be a condition precedent to Owner's obligation to make final payment under the Contract.

2. Contractor shall also be responsible for damage to any work covered by these specifications before final acceptance of the work. He shall securely cover all openings into the systems and cover all apparatus, equipment and appliances, both before and after being set in place to prevent obstructions on the pipes and the breakage, misuse or disfigurement of the apparatus, equipment or appliance.

3. All trenching or other work under the leaf canopy of any and all trees shall be done by hand or by other methods so that no branches are damaged in any way.

   Buildings, walks, walls, and other property shall be protected from damage. Open ditches left exposed shall be flagged and barricaded by the Contractor by approved means. The Contractor shall restore disturbed areas to their original condition.

4. The Contractor shall be responsible for requesting the proper utility company to stake the exact location of any underground lines including but not limited to electric, gas, telephone service, water, and cable.

   The Contractor shall take whatever precautions are necessary to protect these underground lines from damage. In the event damage does occur, all damage shall be completely repaired to its original condition, at no additional cost to the Owner.

5. The Contractor shall request the Owner, in writing, to locate any private utilities (i.e., electrical service to outside lighting) before proceeding with any excavation. If, after such requests and necessary staking, private utilities which were not staked are encountered and damaged by the Contractor, they shall be repaired by the Owner at no cost to the Contractor. If the Contractor damages staked or located utilities, they shall be repaired at the Contractor's expense.

J. Codes and Inspections: The entire installation shall comply fully with all local and state laws and ordinances and with all established codes arrange for all necessary inspections and shall pay all fees and expenses in connection with same, as part of the work under this Contract. Upon completion of the work, he shall furnish to the "Owner" all inspection certificates customarily issued in connection with the class of work involved.

K. The Contractor shall keep on his work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Owner, or Owner's representative.

L. The superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor.

M. The Owner's Landscape Architect or designated individual shall have full authority to approve or reject work performed by the Contractor. The Owner's Authorized Representative shall also have full authority to make field changes that are deemed necessary.

N. Final Acceptance: Final acceptance of the work may be obtained from the Owner upon the satisfactory completion of all work. Acceptance by the Landscape Architect and/or Owner in no way removes the Contractor of his responsibility to make further repairs, corrections and adjustments to eliminate any deficiencies which may later be discovered.

O. Guarantee: All work shall be guaranteed for one year from date of final acceptance against all defects in material, equipment and workmanship to the satisfaction of the Owner. Repairs, if required, shall be done promptly at no cost to the Owner.

1. The guarantee shall also cover repair of damage to any part of the premises resulting from leaks or workmanship, to the satisfaction of the Owner. The Contractor shall not be responsible for work damaged by others. Repairs, if required, shall be done promptly. The guarantee shall state the name of the Owner, provide full guarantee terms, effective and termination date, name and license number of Contractor providing guarantee, address, and telephone number. It shall be signed by the chief executive of the Contractor of his liability under the guarantee. Such warranties shall only supplement the guarantee.

2. If, within ten (10) days after mailing of written notice by the Owner to the Contractor requesting repairs or replacement resulting from a breach of warranty, the Contractor shall neglect to make or undertake with due diligence to make the same, the Owner may make such repairs at the Contractor's expense; provided, however, that in the case of emergency where, in the judgment of the Owner, delay would cause serious loss or damage, repairs or replacement may be made without notice being sent to the Contractor, and Contractor shall pay the cost thereof.

P. The Contractor shall provide full, 100% irrigation coverage in all areas designed with proposed plantings, in accordance with the site's governing permitting requirements and as designed.

Q. On-site Observation: At any time during the installation of the irrigation system by the Contractor, the Owner or Landscape Architect may visit the site to observe work underway. Upon request, the Contractor shall be required to uncover specified work as directed by the Owner or material, workmanship or method of installation not meet the standards specified herein, the Contractor shall replace the work at his own expense.

R. Workmanship: All work shall be installed by qualified, skilled personnel, proficient in the trades required, in a neat, orderly, and responsible manner with recognized standards of workmanship. The Contractor shall have had considerable experience and demonstrated ability in the installation of sprinkler irrigation systems of this type.

1.04 SUBMITTALS

All materials shall be those specified and/or approved by the Landscape Architect.

A. Product Data: After the award of the Contract and prior to beginning work, the Contractor shall submit for approval by the Owner and Landscape Architect, two copies of the complete list of materials, manufacturer's technical data, and installation instructions which he proposes to install.

B. Commence no work before approval of material list and descriptive material by the Landscape Architect.

C. Record Drawings: The Contractor shall record on reproducibles, all changes that may be made during actual installation of the system. Provide controller sequencing and control valve locations.

1. Immediately upon installation of any piping, valves, wiring, sprinklers, etc., in locations other than shown on the original drawings or of sizes other than indicated, the Contractor shall clearly indicate such changes on a set of blueline prints. Records shall be made on a daily basis. All records shall be neat and subject to the approval of the Owner.

2. The Contractor shall also indicate on the record prints the location of all wire splices, original or due to repair, that are installed underground in a location other than the controller pedestal, remote control valve box, power source or connection to a valve-in-head sprinkler.

3. These drawings shall also serve as work progress sheets. The Contractor shall make neat and legible notations thereon daily as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for review and shall be kept in a location designated by the Owner's Representative.

4. Progress payment request and record drawing information must be approved by Landscape Architect before payment is made.

5. If in the opinion of the Owner or his representative, the record drawing information is not being properly or promptly recorded, construction payment may be stopped until the proper information has been recorded and submitted.

6. Before the date of the final site observation and approval, the Contractor shall deliver one set (copies) of reproducible record drawing plans and notes to the Landscape Architect. Record drawing information shall be approved by the Landscape Architect prior to submittal to Owner for final payments, including retentions.

D. The contractor shall provide detailed engineered shop drawings for irrigation system design for review and approval by landscape architect prior to procurement and fabrication of system. The contractor shall certify in writing that the irrigation system provided in shop drawing complies with Section 926.11 Irrigation Standards.

E. Operations and Maintenance Manuals: The Contractor shall prepare and deliver to the Owner, or his designated representative within ten (10) calendar days prior to completion of construction, a hard cover binder with three rings containing the following information:

1. Index sheet stating the Contractor's address and business telephone number, list of equipment with name(2) and address(es) of local manufacturer's representative(s).

2. Catalog and parts sheets on every material and equipment installed under this Contract.

3. Complete operating and maintenance instruction on all major equipment. Include initial controller schedule and recommended schedule after establishment period.

4. Demonstrate to and provide the Owner's maintenance personnel with instructions for major equipment and show evidence in writing to the Owner, or his designated representative at the conclusion of the project that this service has been rendered.

1.05 EXPLANATION OF DRAWINGS

A. Due to the scale of the drawings, it is not possible to indicate all offsets, fittings and sleeves which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of the work and plan his work accordingly, furnishing such offsets, fittings and sleeves as may be required to meet such conditions.

B. The drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting and architectural features. Deviations shall be brought to the Landscape Architects attention.

C. All work called for a on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.

D. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been known in engineering. Such obstructions or differences should be brought to the attention of the Landscape Architect. In the event that notification is not performed, the Contractor shall assume full responsibility for any revision necessary.

E. If, in the opinion of the Landscape Architect, the labor furnished by the Contractor is incompetent, unskilled, or unreliable, his equipment inadequate, improper or unsafe, or if the Contractor shall fail to continuously and diligently execute the construction, the Landscape Architect or Owner shall, in writing, instruct the Contractor to remove all such causes of noncompliance and the Contractor shall promptly comply.

F. The Contractor shall be responsible for full and complete coverage of all irrigation areas. The Landscape Architect shall be notified of any necessary adjustments at no additional cost to the Owner. Any revisions to the irrigation system must be submitted and answered in written form, along with any change in Contract price. Layout may be modified, if necessary to obtain coverage. Spacing not to exceed 60% of the diameter.

PART II: PRODUCTS

2.01 MATERIALS

Material and equipment shall be supplied by the Contractor. No substitutions shall be allowed without the prior written approval of the Owner/Landscape Architect. The Contractor shall inspect all materials and equipment prior to installation, and defective materials shall be replaced with the proper materials and equipment. Those items used in the installation found to be defective, improperly installed or not as specified, shall be removed and the proper materials and equipment installed in the proper manner, as interpreted by the Owner/Landscape Architect. The Contractor shall remove all damaged and defective pipe and equipment from the site.

2.02 PIPING

A. General Provisions: All materials throughout the system shall be new and in perfect condition unless otherwise directed by the Landscape Architect.

B. Polyvinyl Chloride Pipe (PVC): (Where indicated on plan, use non-potable purple piping.)

1. Laterals: PVC shall conform to the requirements of ASTM Designation D 2241, Class 1120 or 1220. All lateral piping less than 3" in diameter shall be Class 200 SDR-21.

2. Main Line Under Pressure: PVC shall conform to the requirements of ASTM Designation D 2241, Class 1120 or 1220, Schedule 40 with belled end for solvent weld connection.

3. Pipe Markings: All PVC pipe shall bear the following markings:
   - o Manufacturer's Name
   - o Nominal Pipe Size
   - o Schedule or Class
   - o Pressure Rating of PSI
   - o NSF (National Sanitation Foundation) Approval
   - o Date of Extrusion

2.04 PVC JOINTS

Joints in PVC pipe smaller than 3" shall be solvent welded in accordance with the recommendations of the pipe manufacturer; the solvent cleaner and welding compound furnished with the pipe.

2.05 THREADED CONNECTIONS

A. Threaded PVC connections shall be made up using Teflon tape only.

B. Connection between mainline pipe fittings and automatic or manual control valves shall be made using Schedule 80 threaded fittings and nipples.

2.06 SOLVENT CEMENT

A. General: Provide solvent cement and primer for PVC solvent weld pipe and fittings recommended by the manufacturer. Pipe joints for solvent weld pipe to be belled end. Pipe joints for gasketted pipe to be intrical ring type. Insert gaskets will not be accepted.

B. Thrust Blocks: Main line piping 3" or greater in diameter shall have thrust blocks sized and placed in accordance with the pipe manufacturer's recommendations or, in the absence of specified recommendations by the pipe manufacturer. 3000 PSI concrete thrusts shall be properly installed at tees, elbows, 45's, crosses, reducers, plugs, caps and valves.

2.07 PIPE AND WIRE SLEEVES

A. Sleeves to be installed:

1. The Contractor shall install irrigation system pipe and wire sleeves conforming to the following:

   a. All pipe sleeves shall extend a minimum of 36" beyond the edges of pavement.

   b. All pipe sleeves to be installed beneath future/existing road surfaces shall be PVC pipe Schedule 40 or jack and bore steel pipe as per FDOT specifications, and as shown on plans.

   c. All irrigation system wires shall be sleeved seperately from main or lateral lines.

   d. All pipe sleeves shall be installed at the minimum depth specified for main lines, lateral lines, and electric wire.

   e. Contractor shall coordinate all pipe sleeve locations and depths prior to initiating installation of the irrigation system.

2.08 SPRINKLER HEADS

A. Spray Sprinklers: The sprinkler shall be a fixed spray type designed for in-ground installation. The nozzle shall elevate 6" (or as designated on plan) when in operation. The body of the sprinkler shall be constructed of non-corrosive heavy duty Cycolac. A filter screen shall be in the nozzle piston. All sprinkler parts shall be removable through the tip of the unit by removal of a threaded cap.

   Riser mounted spray shall be as indicated on the plans. The sprinkler shall consist of a nozzle and body. The body of the riser-mount sprinkler shall be constructed of non-corrosive materials. A cone strainer shall be a separate part with the nozzle assembly to allow for easy flushing of the sprinkler. Maximum working pressure at the base of the sprinkler shall be 40 PSI.

No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
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THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY MATTHEW W. DIEMER, PLA ON THE DATE ADJACENT TO SEAL.

LANDSCAPE ARCHITECT
REGISTERED
No LA6667406
STATE OF FLORIDA
07/02/2021

KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY MW
DRAWN BY CF
CHECKED BY MW

IRRIGATION SPECIFICATIONS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY FL
INDIAN RIVER COUNTY

SHEET NUMBER
L-350

2.09 AUTOMATIC CONTROL VALVE

The automatic remote control valves shall be as specified on the plans, or approved equal.

2.10 GATE VALVES

A. Gate valves for 3/4" through 2-1/2" shall be of brass or bronze construction, solid wedge, IPS threads, non-rising stem with wheel operating handle, for a continuous working pressure of 150 PSI.

B. Gate valves for 3" and larger: Iron body, brass or bronze mounted AWWA gate valves, with a clear waterway equal to the full nominal diameter of the valve, rubber gasket for a continuous working pressure of 150p PSI. Valve shall be equipped with a square operating nut.

2.11 VALVE BOXES

A. For gate valves, use AMETEK #10-181-014 box with #10-181-015 locking lid, or as per the drawings.

B. For control valves 3/4" through 2", the drip valve assemblies, use AMETEK #10-181-014 box with #10-181-015 locking lid, or sized as necessary to effectively house the equipment

C. For control wiring splices, use AMETEK #10-181-014 box with #10-181-015 locking lid, or as per the drawings.

2.12 IRRIGATION WIRING

A. Wiring used for connecting the electric control valves to the controllers shall be Type UF, 600 volt, single strand, solid copper with PVC insulation 4/64" thick. Size shall be 14 gauge, red for "hot" or lead wires, and common wire to be 14 gauge, white in color.

B. Contractor shall perform an ohm test on ground to assure adequate protection against surges and indirect lightning strikes.

2.13 MISCELLANEOUS MATERIALS

A. Drainage Backfill: Cleaned gravel or crushed stone, graded from 1" maximum to 3/4" minimum.

B. Metalized Underground Tape: The detectable, underground utility marking tape shall consist of a minimum: 5 mil (0.005") overall thickness; five-ply composition; ultra-high molecular weight, 100% virgin polyethylene; acid, alkaline and corrosion resistant; with no less than 150 pounds of tensile break strength per 6" width; color-code impregnated with color stable, lead-free, organic pigments suitable for direct burial. Tapes utilizing reprocessed plastics or resins shall not be acceptable. The detectable, underground utility marking tape shall have a 35 gauge (0.0035") solid aluminum foil, core encapsulated within a 2.55 mil (0.00255") polyethylene backing and a 0.6 mil (0.006") PET cover coating. The laminate on each side shall consist of a 0.75 mil (0.00075") layer of hot LPDE, poly-fusing the "sandwich" without use of adhesives.

2.14 AUTOMATIC CONTROL SYSTEM

An Independent Station Controller: Furnish a solid state controller, as specified on the plans.
Each station shall be capable of timing from zero (0) minute to 99 minutes per station in one (1) minute increments.

Each station shall be capable of operating two (2) 7VA electric valve-in-head solenoids.

The stand-alone controller shall have two (2) possible programs.

The stand-alone controller shall provide global percentage increase/decrease (water budget) for all stations simultaneously, from ten (10) to two hundred (200) percent, in ten (10) percent increments.

All stations shall be able to be turned on/off manually buy operating timing mechanism or by manual switch at station output.

The stand-alone controller shall incorporate an integral MOV surge protection into the terminal block for each of its 24 VAC field wire outputs. Controller power input wires will also incorporate surge protection.

The control panel shall provide continuous display time. It shall have alphanumeric displays of descriptive English menus and legend identifiers with cursor selection of function and precision value adjustment by rotary dial input.

The stand-alone controller shall be UL listed and FCC approved.

The stand-alone controller shall have 117 VAC, 60 Hz input, 26.5 VAC, 60 Hz output for operating 24 VAC solenoids.

The stand-alone controller cabinet shall be a lockable and weather-resistant outdoor cabinet. Mount as noted on plans.

The controller shall be equipped with lightening protection, by the Contractor, on both the primary (120v) and each secondary (24v) circuit. The controller circuits shall be grounded to a copper clad grounding rod located at each controller.

The controller shall be equipped for a water conservation device. as specified.

PART III: EXECUTION

3.01 INSPECTION

The Contractor shall examine the areas and conditions under which landscape irrigation system is to be installed and notify the Landscape Architect in writing of conditions detrimental to the proper and timely completion of the work. The Contractor shall proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Landscape Architect.

3.02 PREPARATION

The Contractor shall provide sleeves to accommodate piping under walks or paving. The Contractor shall coordinate with other trades and install to accurate levels prior to paving work. Cutting and patching of paving and concrete will not be permitted. The Contractor shall maintain all warning signs, shoring, barricades, flares and red lanterns, as required by any local codes, ordinances or permits.

3.03 TRENCHING AND BACKFILLING

A. Excavation: The Contractor shall stake out the location of each run of pipe, sprinkler heads, sprinkler valves and isolation valves prior to trenching. Excavation shall be open vertical construction sufficiently wide to provide free working space around the work installed and to provide ample space or backfilling and tamping. Trenches for pipe shall be cut to required grade lines, and compacted to provide accurate grade and uniform bearing for the full length of the line. The bottom of the trenches shall be free of rock or other sharp edged objects. Minimum cover shall be as follows:

Pipe and Wire Depth

Pressure Mainline	18" at top of pipe from Finish Grade
Lateral Piping (rotor)	12" at top of pipe from Finish Grade
Lateral Piping (pop-up)	12" at top of pipe from Finish Grade
Control Wiring	Side of main Line

B. Minimum Clearances: All pipelines shall have a minimum clearance of six inches from each other and from lines of other crafts. Parallel lines shall not be installed directly over one another. No lateral line shall be installed in the main-line trench.

3.04 INSTALLATION OF PIPING

A. PVC Pipe and Joints: The Contractor shall not install solvent wild pipe when air temperature is below 40ø F. Installation shall be in accordance with the manufacturer's instructions.

1. Only the solvent recommended by the pipe manufacturer shall be used. All PVC pipe and fittings shall be installed as outlined and instructed by the pipe manufacturer, and it shall be the Contractor's full responsibility to make arrangements with the pipe manufacturer for any field assistance that may be necessary. The Contractor shall assume full responsibility for the correct installation.

3.05 BACKFILLING PROCEDURES

Initial backfill on PVC lines shall be pulverized native soil, free of foreign matter. Within radius of 4" of the pipe shall be clean soil or sand. Plant locations shall take precedence over sprinkler and pipe locations. The Contractor shall coordinate the location of trees and shrubs with the routing of lines and final head locations.

A. Backfill and Compaction: The Contractor shall leave trenches slightly mounded to allow for settlement after the backfilling is completed. The Contractor shall clean the site of the work continuously of excess waste materials as the backfilling progresses, and leave in a neat condition. No trenches shall be left open for a period of more than 48 hours. Protect open trenches as required.

The Contractor shall carefully backfill excavated materials approved for backfilling, consisting of earth, loam, sand, and other approved materials, free of rock and debris over 1" in size. Backfill shall be compacted to original density of surrounding soil without dips, sunken areas, or irregularities.

The Contractor shall conform to DOT requirements for methods and required compaction percentages, for roads and paving.

The Contractor shall hand place the first 6" of backfill (or to top of pipe) and have it walked on so as to secure the position of the pipe and wire.

No wheel rolling will be allowed. The Contractor shall remove rock or debris extracted from backfill materials and dispose of offsite. The Contractor shall fill any voids left in backfill with approved backfill materials.

B. Existing Lawns: Where trenching is required across existing lawns, uniformly cut strips of sod 6" wider than trench. The Contractor shall remove sod in rolls of suitable size for handling and keep moistened until replanted. The Contractor shall replant sod within 48 hours after removal, roll and water generously. The Contractor shall resod any areas not in healthy condition equal to adjoining lawns 10 days after replanting.

C. Seeded Area: Trenching will be required across existing seeded areas, primarily roadway edging. The Contractor shall conform to the requirements of seeding, Section 02930 for the reseeding of the disturbed trench area.

D. Pavements: Jack and bore or directional bore piping under paving materials as per local regulatory codes. No cutting and patching of pavement will be permitted.

3.06 VALVES

A. Isolation Valves: Shall be sized corresponding to adjacent pipe size. Specified valve boxes shall be installed flush with finish grade in such a manner that surface forces applied to their exposed area will not be transmitted to the piping in which the valve is installed nor any other piping, wiring or other lines in the vicinity of said valves.

B. Gate Valves: Install where shown, in valve boxes.

C. Electric Control Valves: Shall be installed in specified valve boxes. The valve shall have 6" of 3/4" pea gravel installed below the bottom of the valve. If the valve box does not extend to the base of the valve, a valve box extension shall be installed. Electric control valves shall be installed where shown and grouped together where practical. The Contractor shall place no closer than 24" to walk edges, bikeway edges, buildings and walls. The Contractor shall adjust the valve to provide flow rate or rated operating pressure required for each sprinkler circuit.

3.07 CONDUIT AND SLEEVES

A. Conduit and Sleeves for Control Wiring and Main/Lateral Pipe: The Contractor shall provide and install where necessary. Contractor shall coordinate locations of previously installed sleeving with the General Site Contractor.

The Contractor shall coordinate installation of sleeves with work of other disciplines.

3.08 CONTROLS

A. The Contractor shall connect electric control valves to controllers in a clockwise sequence to correspond with station settings beginning with Stations 1, 2, 3, etc. Automatic controllers shall be provided and installed by the Contractor as noted on the drawings. All zones will be labeled on the controller.

B. Controllers shall be equipped with lightning protection and grounded to a standard 5/8" copper clad steel ground rod driven a minimum of 8' into the ground and clamped.

C. The electrical service to the controllers shall be performed by an electrical subcontractor in compliance with NEC requirements.

3.09 CONTROL WIRE

A. Control wiring between the controller and electric valves shall be buried in main line trenches or in separate trenches. Electrical connection at valve will allow for pigtail so solenoid can be removed from valve with sufficient slack to allow ends to be pulled 12" above ground for examination and cleaning.

B. An expansion loop shall be provided at every valve at 100' o.c. Expansion loop shall be formed by wrapping wire at least eight times around a 3/4" pipe and withdrawing pipe.

C. The wire shall be bundled and taped every ten feet. The wire shall be laid in the trench prior to installing the pipe being careful to install wire beneath and 6" to the side of the main pipe line.

D. Electrical connections to electric control valves shall be made with Rainbird Pen-Tite or Techdel GT-3-GEL - Tite connectors or equal.

Power Connections: Electrical connections to power and signal wires shall be made using 3M 82-A2 power cable splice kits.

3.10 SPRINKLER HEADS

A. General Provisions:

1. Sprinkler heads shall be installed as designated on the shop drawings. Heads shall be installed on flexible PVC. Top to be flush with finish grade or top of curb.

2. Spacing of heads shall not exceed the maximum indicated on the shop drawings (unless directed by the Landscape Architect). In no case shall the spacing exceed the maximum recommended by the manufacturer.

B. Head Types:

1. Pop-up- Rotary Sprinkler Heads: Shall be installed on flex joint and be set with top of head flush with finish grade. Heads installed at curb shall have 6" to 10" between perimeter of head and concrete. Heads placed at edge of pavement having no curb shall be installed 24" from edge of pavement.

2. Spray Pop-up Sprinkler Heads: Shall be installed on flexible PVC and be set with top of head flush with finished grade. Sprinkler heads placed adjacent to curbs will be installed 9" from concrete. Sprinkler heads placed adjacent to pavement having no curb shall be installed 24" from the edge of pavement.

3.11 COMPLETION

A. Flushing: Before sprinkler heads are set, the Contractor shall flush the lines thoroughly to make sure there is no foreign matter in the lines.

The Contractor shall flush the main lines from dead end fittings for a minimum of five minutes under a full head of pressure.

B. Testing: The Contractor shall notify Landscape Architect and Owner forty-eight (48) hours in advance of testing.

Prior to backfilling of main line fittings, Contractor shall fill the main line piping with water, in the presence of the Owner/Landscape Architect, taking care to purge the air from it by operating all the sprinkler control valves one or more times and/or such other means as may be necessary. A small, high pressure pump or other means of maintaining a continuous water supply shall be connected to the main line and set so as to maintain 100 PSI in the main line system for two (2) hours without interruption. When this has been accomplished and while the pressure in the system is still 100 PSI, leakage testing shall be performed in accordance with AWWA Standard C-600. Pressure readings shall be noted and make up water usage shall be recorded. Should the rate of make up water usage indicate significant leakage, the source of such leakage shall be found and corrected and the system then retested until the Owner/Landscape Architect is satisfied that the system is reasonably sound. Lateral line testing shall be conducted during the operating testing of the system by checking visually the ground surface until no leaks in this portion of the system are evident. Leaks shall be repaired or paid for by the Contractor at any time they appear during the warranty period.

C. Adjustment and Coverage of System: Coordinate pressure testing with adjustments and coverage test of system so both may occur at the same time. The Contractor shall balance and adjust the various components of the system so that the overall operation of the system is most efficient. This includes a synchronization of the controllers, adjustments to pressure regulators, pressure relief valves, part circle sprinkler heads, and individual station adjustments on the controllers.

3.12 WARRANTY

A. The Contractor shall fully warrant the landscape irrigation system for a period of one (1) year after the written final acceptance and will receive a written confirmation from the Landscape Architect that the warranty period is in effect.

B. During the warranty period, the Contractor will enforce all manufacturer's and supplier's warranties as if made by the Contractor himself. Any malfunctions, deficiencies, breaks, damages, disrepair, or other disorder due to materials, workmanship, or installation by the Contractor and his suppliers shall be immediately and properly corrected to the proper order as directed by the Owner and/or Landscape Architect.

C. Any damages caused by system malfunction shall be the responsibility of the Contractor who shall make full and immediate restoration for said damages.

Sunshine811
Call 811 or www.sunshine811.com two full business days before digging to have utilities located and marked.
Check positive response codes before you dig!

No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
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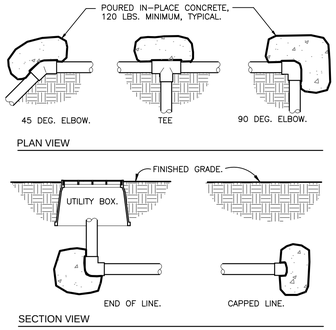
REGISTERED LANDSCAPE ARCHITECT MATTHEW WINDEMUTH No LA6667406 STATE OF FLORIDA

KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY MW
DRAWN BY CF
CHECKED BY MW

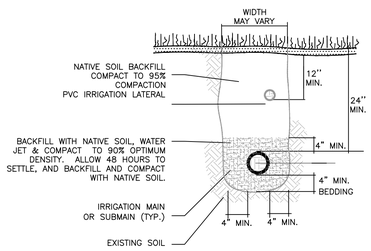
IRRIGATION SPECIFICATIONS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-351



1 THRUST BLOCKING
3/4" = 1'-0"



2 TRENCHING DETAIL
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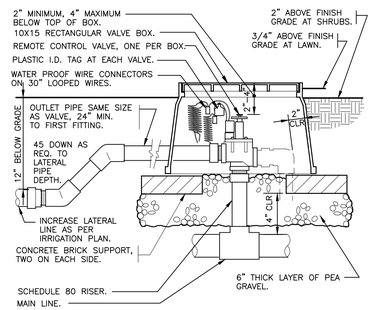
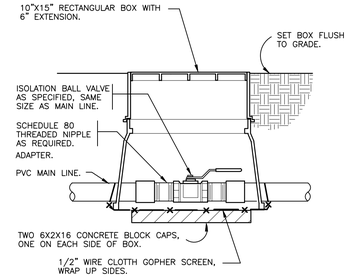
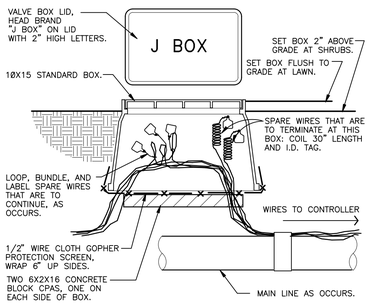


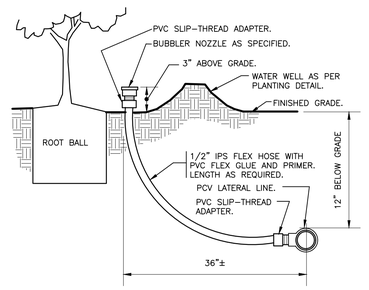
3 ELECTRIC REMOTE CONTROL VALVE
1 1/2" = 1'-0"



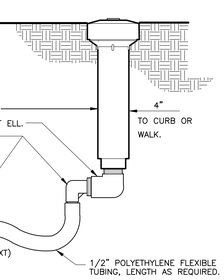
4 BRASS BALL ISOLATION VALVE
1 1/2" = 1'-0"



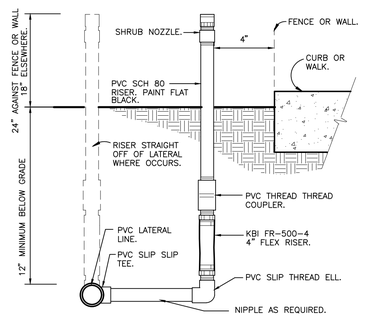
5 WIRE BUNDLE JUNCTION BOX
1 1/2" = 1'-0"



6 BUBBLER ON FLEX HOSE RISER
3" = 1'-0"

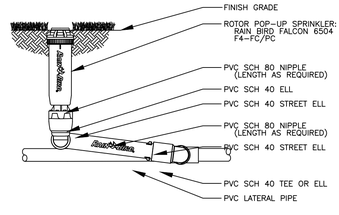


7 POP-UP SPRAY FLEX ASSEMBLY
3" = 1'-0"

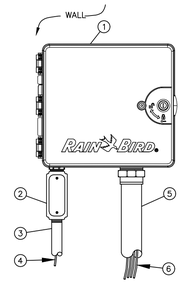


8 SHRUB SPRAY FIXED RISER
3" = 1'-0"

32 8403.23-01



9 ROTOR POP UP SPRINKLER
NOT TO SCALE

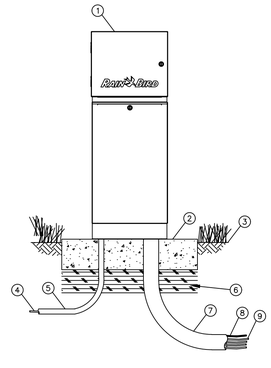


1. IRRIGATION CONTROLLER: RAIN BIRD ESP-LXME CONTROLLER IN PLASTIC CABINET WITH WALL MOUNT. INSTALL CONTROLLER AND CABINET ON WALL PER MANUFACTURER'S RECOMMENDATIONS.
2.
3. JUNCTION BOX
4. 1-INCH CONDUIT AND FITTINGS TO POWER SUPPLY
5. POWER SUPPLY WIRE
6. 2-INCH CONDUIT AND FITTINGS FOR STATION WIRES

WIRES TO REMOTE CONTROL VALVES

NOTES:
1. ESP-LXMEF CONTROLLER IS AVAILABLE IN 8- OR 12-STATION BASE MODELS. ADDITIONAL MODULES IN 4-, 8- AND 12-STATION VERSIONS MAY BE ADDED TO BRING THE CONTROLLER UP TO 48 STATIONS MAXIMUM.
2. FOR EASE OF INSTALLATION INTO A CONTROLLER WITH MORE THAN 24 STATIONS, INSTALL A JUNCTION BOX AT THE BASE OF CONTROLLER AND TRANSITION LARGER VALVE AND COMMON WIRES FROM FIELD TO 18 AWG MULTI CONDUCTOR WIRE TO BE USED IN CONTROLLER.
3. USE STEEL CONDUIT FOR ABOVE GRADE AND SCH 40 PVC CONDUIT FOR BELOW GRADE CONDITIONS.
3. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND RESISTANCE OF 10 OHMS OR LESS.

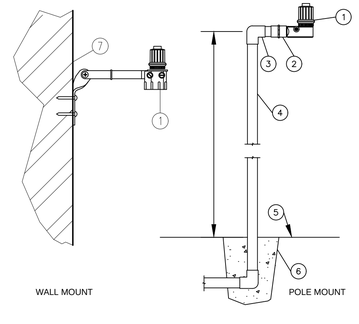
10 ESP-LXMEF CONTROLLER IN PLASTIC CABINET
NOT TO SCALE



1. IRRIGATION CONTROLLER: RAIN BIRD ESP-LXMEF CONTROLLER WITH FLOW SMART MODULE IN LXMM METAL CABINET AND LXMMPED METAL PEDESTAL. INSTALL CONTROLLER, CABINET AND PEDESTAL PER MANUFACTURER'S RECOMMENDATIONS.
2. CONCRETE PAD: 6-INCH MINIMUM THICKNESS
3. FINISH GRADE
4. POWER SUPPLY WIRE
5. 1-INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL FOR POWER SUPPLY
6. COMPACTED SUBGRADE
7. 3-INCH SCH 40 PVC CONDUIT, FITTINGS AND SWEEP ELL FOR STATION WIRES
8. FLOW SENSOR WIRE (PE 39, 89 OR 54) TO FLOW SENSOR
9. MASTER VALVE AND REMOTE CONTROL VALVE WIRES

NOTES:
1. ESP-LXMEF CONTROLLER IS AVAILABLE IN 8- OR 12-STATION BASE MODELS. ADDITIONAL MODULES IN 4-, 8- AND 12-STATION VERSIONS MAY BE ADDED TO BRING THE CONTROLLER UP TO 48 STATIONS MAXIMUM.
2. FOR EASE OF INSTALLATION INTO A CONTROLLER WITH MORE THAN 24 STATIONS, INSTALL A JUNCTION BOX AT THE BASE OF CONTROLLER AND TRANSITION LARGER VALVE AND COMMON WIRES FROM FIELD TO 18 AWG MULTI CONDUCTOR WIRE TO BE USED IN CONTROLLER.
3. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND RESISTANCE OF 10 OHMS OR LESS.

11 ESP-LXMEF CONTROLLER IN STAINLESS STEEL PEDESTAL - LXMMS SPED
NOT TO SCALE



1. RAIN SENSOR: RAIN BIRD WR2 WIRELESS
2. FEMALE ADAPTER (SLIP X FIPT)
3. GALVANIZED 90° EL (1 OF 2)
4. 3/4-INCH GALVAVIZED PIPE
5. FINISHED GRADE
6. CONCRETE BASE
7. EXTERIOR WALL (SEE NOTES BELOW)

NOTES:

MOUNT SENSOR ON SURFACE WHERE IT WILL BE EXPOSED TO UNOBSTRUCTED RAINFALL, BUT NOT IN PATH OF SPRINKLER SPRAY. COORDINATE MOUNTING WITH OWNER AND ARCHITECT.

PAINT PIPE SEMI GLOSS BLACK AND SISTER THE PIPE TO A LIFT STATION FENCE POST WITH SS PIPE CLAMPS

12 RAIN SENSOR
NOT TO SCALE

Sunshine811
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No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY-HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305-673-2025
WWW.KIMLEY-HORN.COM REGISTRY 696

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REGISTERED LANDSCAPE ARCHITECT MATTHEW WINCHESTER No LA6667406 STATE OF FLORIDA 07/02/2021

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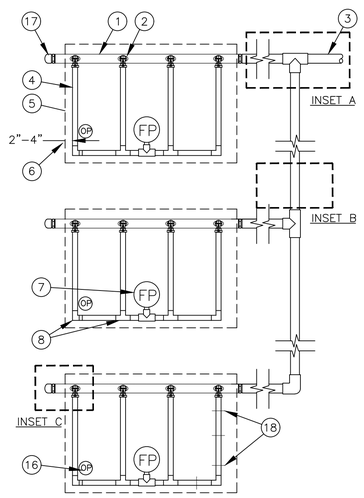
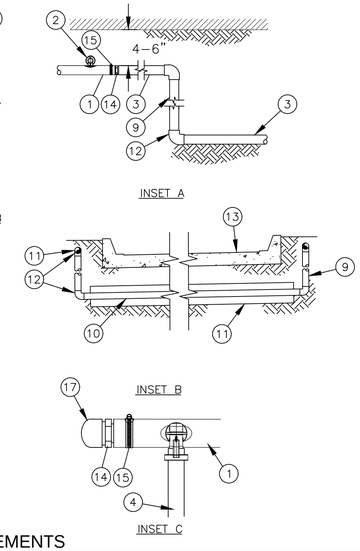
KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY MW
DRAWN BY CF
CHECKED BY MW

IRRIGATION DETAILS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L-352





1. QF–SUPPLY HEADER
2. PRE–INSTALLED BARB FITTING
3. PVC DRIP MANIFOLD FROM RAIN BIRD CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
4. RAIN BIRD XFS SERIES DRIPLINE (TYPICAL)
5. PERIMETER OF AREA
6. PERIMETER DRIPLINE PIPE TO BE INSTALLED 2"–4" FROM PERIMETER OF AREA
7. FLUSH POINT (TYPICAL) – SEE RAIN BIRD XFD DETAILS FOR FLUSH POINT INSTALLATION
8. BARB X BARB INSERT TEE OR ELL: RAIN BIRD XFF–TEE OR RAIN BIRD XFF–ELBOW (TYPICAL)
9. PVC RISER PIPE
10. PVC SUPPLY MANIFOLD
11. PVC SCH 40 SLEEVE PIPE SIZED TWICE THE SIZE OF MANIFOLD PIPE SIZE
12. PVC SCH 40 TEE OR ELL (TYPICAL)
13. PAVEMENT AND CURB
14. MALE ADAPTER INSERT
15. STAINLESS STEEL, OETIKER OR MURRAY CLAMP
16. OPERATION INDICATOR RAIN BIRD MODEL: OPERIND
17. PVC SCH 40 CAP
18. XF SERIES TIE–DOWN STAKES (TDS–050) REFER TO RAIN BIRD DRIPLINE DESIGN GUIDE FOR PROPER SPACING

NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. SEE INSTALLATION SPECIFICATIONS ON RAIN BIRD WEB SITE (WWW.RAINBIRD.COM) FOR SUGGESTED SPACING.
2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM SPACING SHOWN IN THE ACCOMPANYING TABLE.
3. PLACE TIE DOWN STAKES EVERY THREE FEET IN SAND, FOUR FEET IN LOAM, AND FIVE FEET IN CLAY.
4. AT FITTINGS WHERE THERE IS A CHANGE OF DIRECTION SUCH AS TEES OR ELBOWS, USE TIE–DOWN STAKES ON EACH LEG OF THE CHANGE OF DIRECTION.

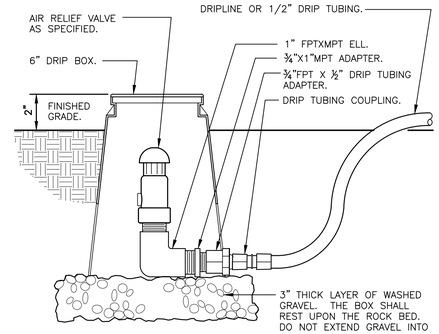
XFS Dripline Maximum Lateral Lengths (Feet)

Inlet Pressure psi	12" Spacing		18" Spacing		24" Spacing	
	Nominal Flow (gph)		Nominal Flow (gph)		Nominal Flow (gph)	
	0.6	**0.9**	**0.6**	**0.9**	**0.6**	**0.9**
15	273	155	314	250	424	322
20	318	169	353	294	508	368
30	360	230	413	350	586	414
40	395	255	465	402	652	474
50	417	285	528	420	720	488
60	460	290	596	455	780	514

1 TYPICAL DRIPLINE LAYOUT REQUIREMENTS

NOT TO SCALE

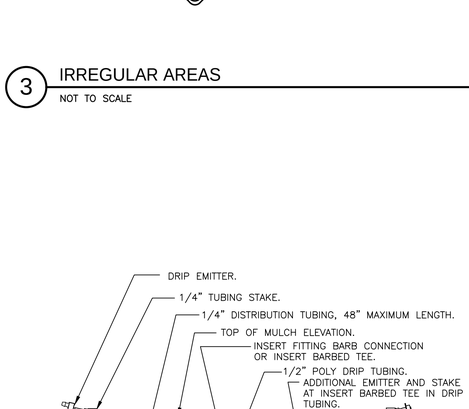
DETAIL–FILE



2 DRIP AIR RELIEF VALVE IN BOX

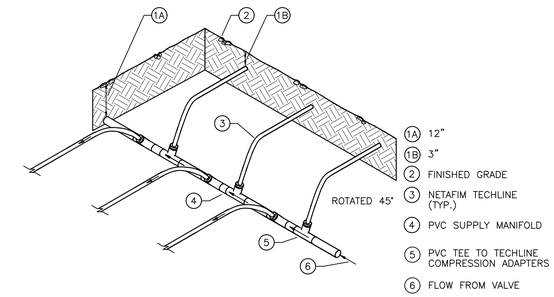
3" = 1'–0"

32 8413.53–03



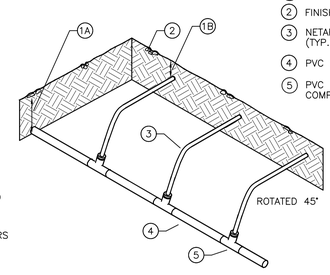
3 IRREGULAR AREAS

NOT TO SCALE



1A 12"
1B 3"
2 FINISHED GRADE
3 NETAFIM TECHLINE (TYP.)
4 PVC SUPPLY MANIFOLD
5 PVC TEE TO TECHLINE COMPRESSION ADAPTERS
6 FLOW FROM VALVE

CENTER FEED SUPPLY MANIFOLD

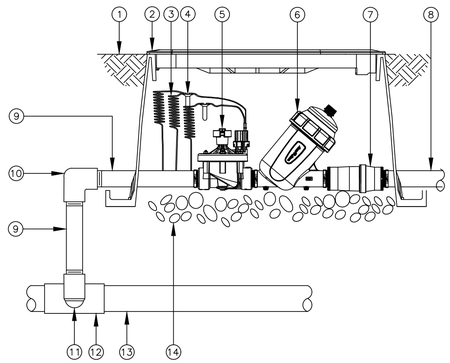


1A 12"
1B 3"
2 FINISHED GRADE
3 NETAFIM TECHLINE (TYP.)
4 PVC SUPPLY/EXHAUST MANIFOLD
5 PVC TEE TO TECHLINE COMPRESSION ADAPTERS

SUPPLY/EXHAUST MANIFOLD

4 LATERAL TO DRIP FEED DETAILS

NOT TO SCALE

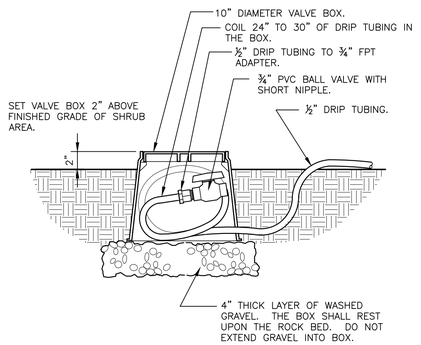


1. FINISH GRADE/TOP OF MULCH
2. JUMBO VALVE BOX WITH COVER: RAIN BIRD VB–JUMBO
3. 30–INCH LINEAR LENGTH OF WIRE, COILED
4. WATERPROOF CONNECTION: RAIN BIRD DB SERIES
5. 1 1/2" PEB VALVE (INCLUDED IN XCZ–150–LCS KIT)
6. 1 1/2" FILTER – RAIN BIRD LARGE CAPACITY SCREEN FILTER (INCLUDED IN XCZ–150–LCS KIT)
7. 1 1/2" HIGH FLOW PRESSURE REGULATOR (INCLUDED IN XCZ–150–LCS KIT)
8. LATERAL PIPE
9. PVC SCH 80 NIPPLE 1 1/2"
10. PVC SCH 40 ELBOW
11. PVC SCH 80 NIPPLE (2" LENGTH, HIDDEN) AND PVC 40 ELBOW
12. PVC SCH 40 TEE OR ELBOW
13. MAINLINE PIPE
14. 3" MINIMUM DEPTH OF 3/4" WASHED GRAVEL

5 ZONE CONTROL

3" = 1'–0"

32 8413.46–03



6 DRIP EMITTER AT 1/4" TUBING

3" = 1'–0"

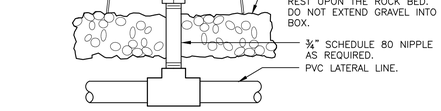
32 8413.13–13

7 DRIP ZONE CONTROL VALVE KIT IN JUMBO VALVE BOX

8 DRIP FLUSH VALVE

1 1/2" = 1'–0"

32 8413.49–03



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No.	REVISIONS	DATE	BY

Kimley»Horn
2021 KIMLEY–HORN AND ASSOCIATES, INC.
355 ALHAMBRA CIRCLE, SUITE 1400, CORAL GABLES, FL 33134
PHONE: 305–673–2025
WWW.KIMLEY–HORN.COM REGISTRY 696

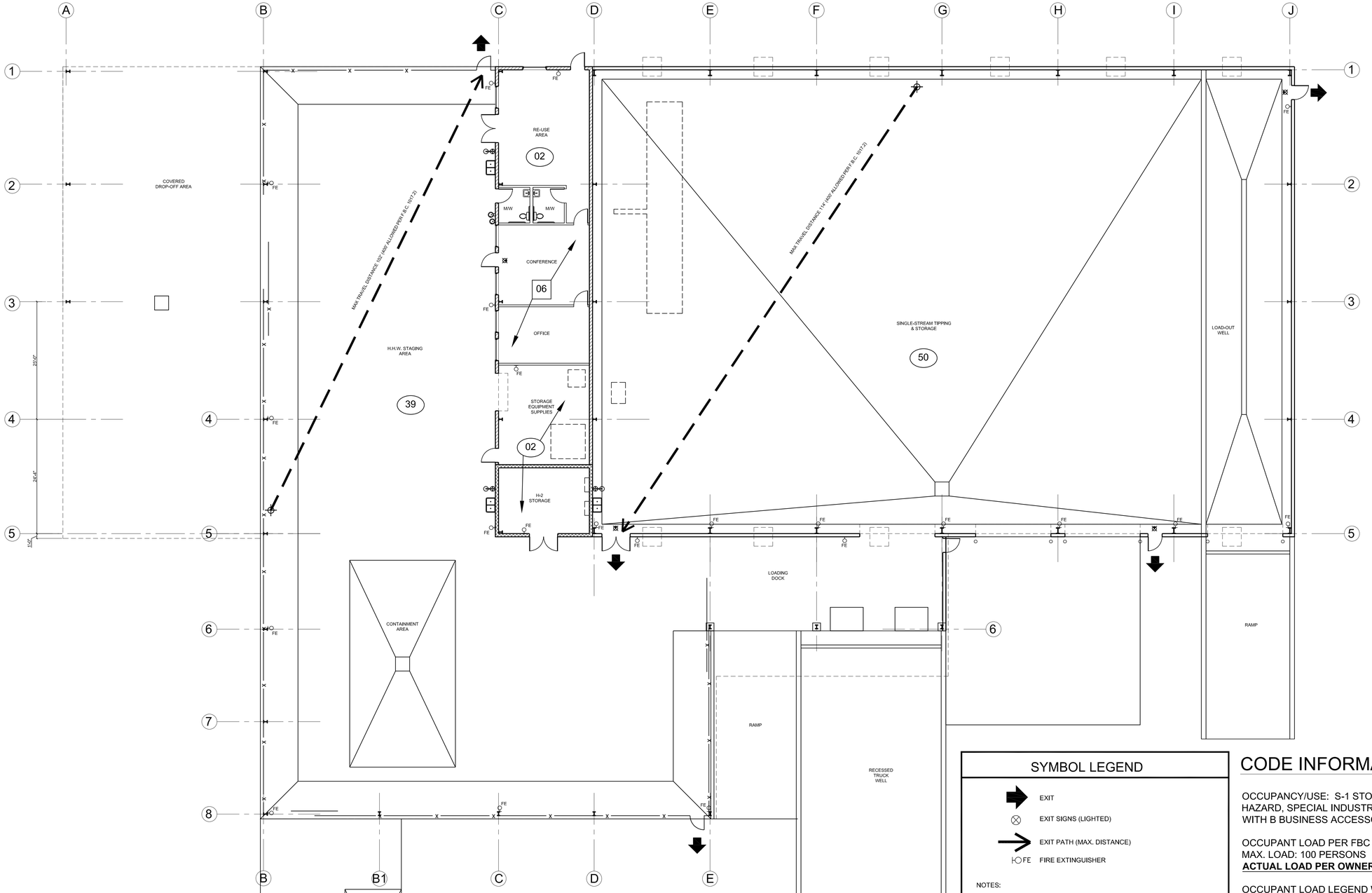
REGISTERED LANDSCAPE ARCHITECT ANTHONY WEWER
No LA6667405
STATE OF FLORIDA

KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY MW
DRAWN BY CF
CHECKED BY MW

IRRIGATION DETAILS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
L–353



1 LS101 LIFE SAFETY PLAN
SCALE: 3/32" = 1'-0"

SYMBOL LEGEND

- EXIT
- EXIT SIGNS (LIGHTED)
- EXIT PATH (MAX. DISTANCE)
- FE FIRE EXTINGUISHER

NOTES:

1. THE LIFE SAFETY DRAWING IS PROVIDED FOR REFERENCE ONLY; REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL INFORMATION.
2. SEE SHEET G000 FOR ADDITIONAL BUILDING CODE INFORMATION.
3. NUMBER OF EXITS REQUIRED: 2. NUMBER OF EXITS PROPOSED: 4.
4. MAXIMUM TRAVEL DISTANCE TO EXIT ALLOWED BY FBC 1017.2: 400'. MAXIMUM TRAVEL DISTANCE TO EXIT PROPOSED: 114'.

CODE INFORMATION

OCCUPANCY/USE: S-1 STORAGE - MODERATE HAZARD, SPECIAL INDUSTRIAL OCCUPANCY, WITH B BUSINESS ACCESSORY USE

OCCUPANT LOAD PER FBC 1004.5:
MAX. LOAD: 100 PERSONS
ACTUAL LOAD PER OWNER: 10 PERSONS

OCCUPANT LOAD LEGEND W/LOADS PER FBC TABLE 1004.1.2:

(00) STORAGE @ 300 GROSS, 28,200/300 = 94

[00] BUSINESS @ 150 GROSS, 790/150 = 6

PERMIT SET

CMK Design Studio, Inc.
Planning & Design of the Built Environment
6822 22nd Ave. N. #148
St. Petersburg, Florida 33710
Ph: 813.362.6381
FL. LIC. NO.: AA26002603
marcos@cmkdesignstudio.com

STATE OF FLORIDA
MARCOS F. IBARGUEN
AR0013117
REGISTERED ARCHITECT

MARCOS IBARGUEN
AR 13117

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INDIAN RIVER COUNTY LANDFILL HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY

Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO.
2016

ISSUE DATE:
7/2/2021

DRAWN BY:
MI

SHEET TITLE
LIFE SAFETY PLAN

SHEET NO.
LS101

GENERAL NOTES

1. ALL LABOR, MATERIALS, FINISH REQUIREMENTS AND FINAL FINISHED PRODUCT AS OUTLINED AND REQUIRED BY THE PLANS, SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS SHALL CONFORM WITH THE CURRENT STANDARD EDITION OF LOCAL CODES AND REQUIREMENTS.

2. CONTRACTOR SHALL SECURE ALL BUILDING PERMITS AND INSPECTIONS NECESSARY FOR CONSTRUCTION.

3. DRAWINGS ARE NOT TO BE SCALED FOR INFORMATION.

4. DISCREPANCIES BETWEEN ARCHITECTURAL AND ENGINEERING DOCUMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY UPON DISCOVERY AND PRIOR TO CONTINUING WITH THE WORK.

5. ALL NEW DOOR HARDWARE DEPICTED HEREIN SHALL BE HEAVY-DUTY EXTERIOR GRADE STAINLESS STEEL HARDWARE. NEW DOOR HANDLES SHALL BE HEAVY-DUTY EXTERIOR GRADE LEVER-TYPE HANDLES. NEW CLOSERS SHALL BE HEAVY-DUTY EXTERIOR GRADE PARALLEL ARM CLOSERS. COORDINATE ALL LOCKING REQUIREMENTS DIRECTLY WITH OWNER.

6. ALL DIMENSIONS ARE TO FACE OF STEEL STRUCTURE OR CENTERLINE OF PARTITION UNLESS NOTED OTHERWISE. DIMENSIONS NOTED AS "CLEAR" REFER TO FINISHED FACE OF CONSTRUCTION.

7. DOOR FRAMES OCCURRING ADJACENT TO INTERSECTING PARTITIONS SHALL BE INSTALLED FOUR INCHES FROM THE PARTITION UNLESS OTHERWISE NOTED.

8. ALL PARTITION EXTERIOR CORNERS SHALL HAVE SCREW ATTACHED METAL CORNER BEADS UNLESS NOTED OTHERWISE.

9. WALL SURFACES SHALL BE PROPERLY PREPARED TO RECEIVE NEW FINISHES. JOINTS SHALL NOT BE VISIBLE AFTER NEW FINISH HAS BEEN APPLIED.

10. GYPSUM WALLBOARD ON PARTITIONS SHALL BE TAPED AND THE SCREWS SPOTTED WHETHER OR NOT WALL TREATMENT IS SCHEDULED.

11. BLOCKING/BACKING IS REQUIRED IN WALLS AT THE FOLLOWING LOCATIONS:
    a. WALL MOUNTED CABINETS
    b. WALL MOUNTED ACCESSORIES OR EQUIPMENT
    c. WALL MOUNTED DOOR STOPS
    d. WALL MOUNTED DOOR HOLD-OPEN DEVICES AND/OR CLOSERS
    e. TOILET ROOM ACCESSORIES
    f. OTHER LOCATIONS AS INDICATED OR REQUIRED FOR PROPER INSTALLATION OF DEPICTED ITEMS

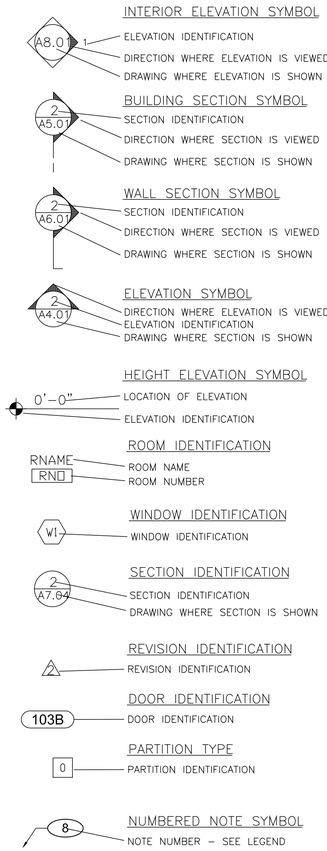
15. GENERAL CONTRACTOR TO VERIFY ALL OWNER-PROVIDED EQUIPMENT AND APPLIANCE DIMENSIONS AND INSTALLATION REQUIREMENTS WITH OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION.

16. ALL FINISHES SHALL MEET FLORIDA BUILDING CODE FINISH REQUIREMENTS.

17. REFER TO CIVIL ENGINEERING DRAWINGS FOR SIDEWALKS, RAMPS AND OTHER EXTERIOR FEATURES NOT SHOWN. NOTE: MAXIMUM LEVEL CHANGE AT ALL EXTERIOR DOORS SHALL NOT EXCEED 1/2".

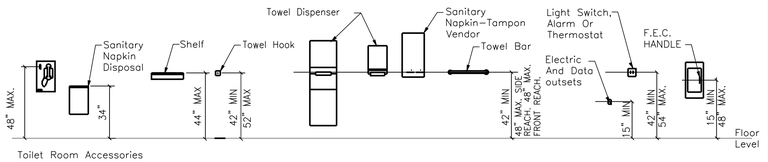
18. PROVIDE BRACKET-MOUNTED FIRE EXTINGUISHERS AS SHOWN ON PLANS AFTER VERIFICATION OF REQUIREMENTS WITH LOCAL FIRE PROTECTION AUTHORITIES.

SYMBOLS LEGEND



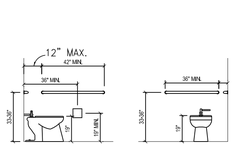
ADA CLEARANCES

NOTE: PROVIDE BLOCKING IN WALL FOR MOUNTING OF ALL ACCESSORIES. BLOCKING TO BE F.R. TREATED LUMBER.

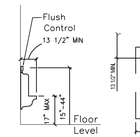


Toilet Room Accessories

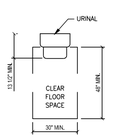
Clear Floor Space at Water Closets



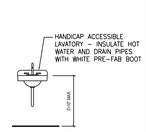
Water Closet Elevations



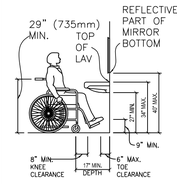
Urinal SIDE VIEW



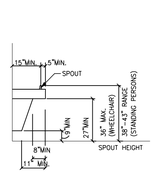
Urinal PLAN VIEW



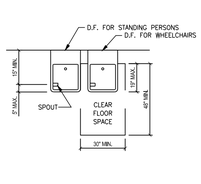
Lavatory Elevation



Lavatory Clearances

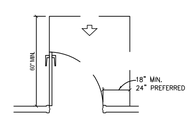


Drinking Fountain SIDE VIEW

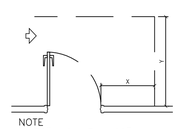


Drinking Fountain PLAN VIEW

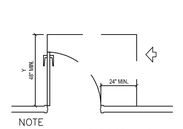
U-Turn and Passing Spaces



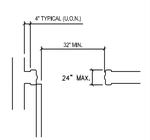
Pull Side Door Clearance



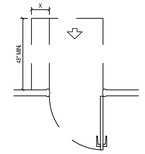
NOTE
X=36" MIN. IF Y=60"
X=42" MIN. IF Y=54"
Pull Side Door Clearance



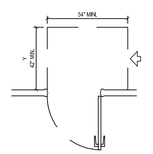
NOTE
Y=54" MIN. IF DOOR HAS CLOSER
Pull Side Door Clearance



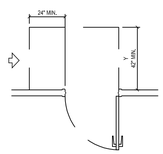
Doorway Opening



NOTE
X=12" IF DOOR HAS BOTH A CLOSER AND LATCH
Push Side Door Clearance



NOTE
Y=48" MIN. IF DOOR HAS BOTH A LATCH AND CLOSER
Push Side Door Clearance



NOTE
Y=48" MIN. IF DOOR HAS CLOSER
Push Side Door Clearance

CMK Design Studio

CMK Design Studio, Inc.
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6822 22nd Ave. N. #148
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marcos@cmkdesignstudio.com

STATE OF FLORIDA
MARCOS F. IBARGUEN
AR0013117
REGISTERED ARCHITECT

MARCOS IBARGUEN
AR 13117

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INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY

Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO.
2016

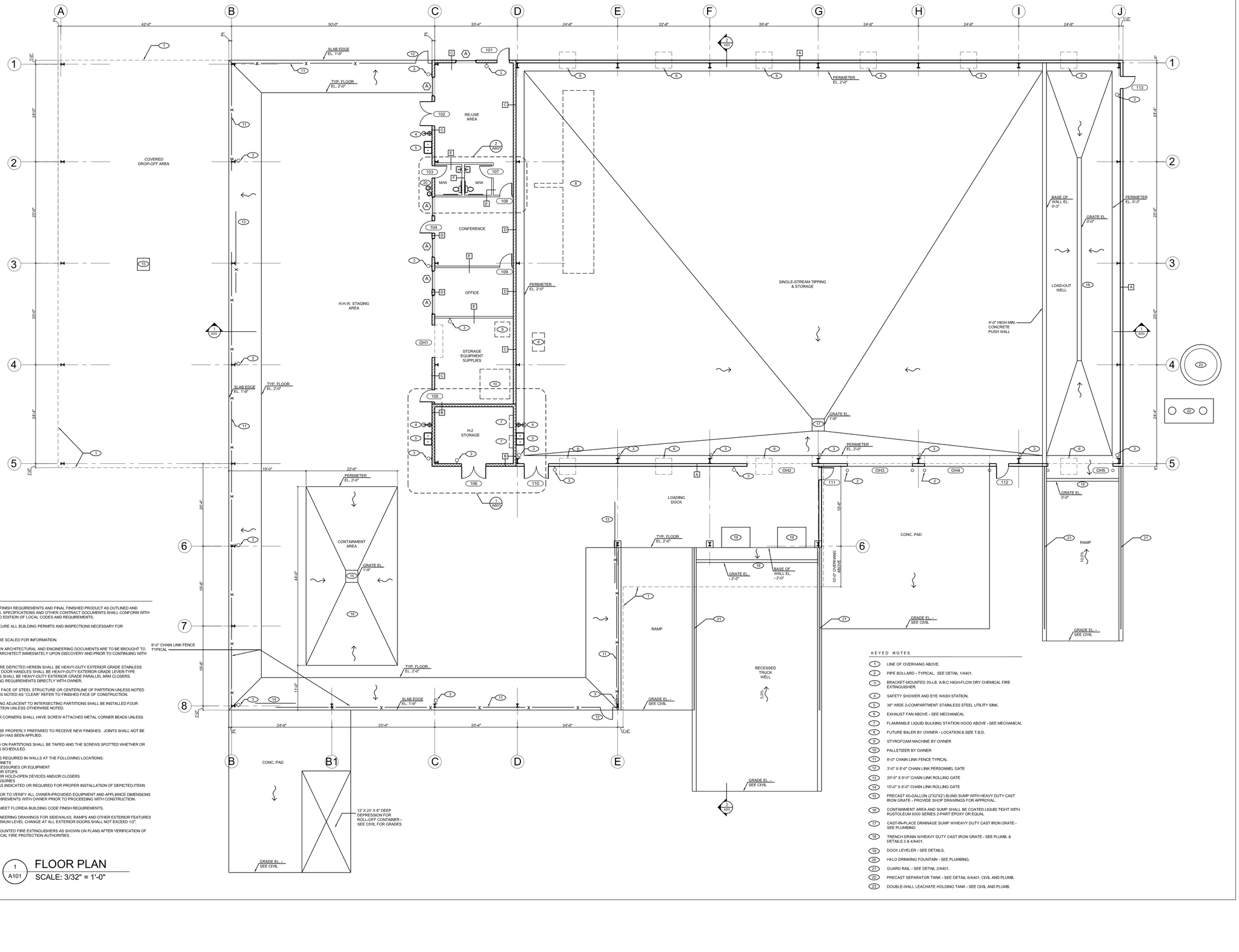
ISSUE DATE:
7/2/2021

DRAWN BY:
MI

SHEET TITLE
LEGEND AND GENERAL INFORMATION

SHEET NO.
A001

PERMIT SET



GENERAL NOTES

1. ALL LABOR, MATERIALS, FINISH REQUIREMENTS AND FINAL FINISHED PRODUCT AS OUTLINED AND REQUIRED BY THE PLANS, SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS SHALL CONFORM WITH THE CURRENT STANDARD EDITION OF LOCAL CODES AND REQUIREMENTS.
2. CONTRACTOR SHALL SECURE ALL BUILDING PERMITS AND INSPECTIONS NECESSARY FOR CONSTRUCTION.
3. DRAWINGS ARE NOT TO BE SCALED FOR INFORMATION.
4. DISCREPANCIES BETWEEN ARCHITECTURAL AND ENGINEERING DOCUMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY UPON DISCOVERY AND PRIOR TO CONTINUING WITH THE WORK.
5. ALL NEW DOOR HARDWARE DEPICTED HEREIN SHALL BE HEAVY-DUTY EXTERIOR GRADE STAINLESS STEEL HARDWARE. NEW DOOR HANDLES SHALL BE HEAVY-DUTY EXTERIOR GRADE LEVER-TYPE HANDLES. NEW CLOSERS SHALL BE HEAVY-DUTY EXTERIOR GRADE PARALLEL ARM CLOSERS. COORDINATE ALL LOCKING REQUIREMENTS DIRECTLY WITH OWNER.
6. ALL DIMENSIONS ARE TO FACE OF STEEL STRUCTURE OR CENTERLINE OF PARTITION UNLESS NOTED OTHERWISE. DIMENSIONS NOTED AS "CLEAR" REFER TO FINISHED FACE OF CONSTRUCTION.
7. DOOR FRAMES OCCURRING ADJACENT TO INTERSECTING PARTITIONS SHALL BE INSTALLED FOUR INCHES FROM THE PARTITION UNLESS OTHERWISE NOTED.
8. ALL PARTITION EXTERIOR CORNERS SHALL HAVE SCREW ATTACHED METAL CORNER BEADS UNLESS NOTED OTHERWISE.
9. WALL SURFACES SHALL BE PROPERLY PREPARED TO RECEIVE NEW FINISHES. JOINTS SHALL NOT BE VISIBLE AFTER NEW FINISH HAS BEEN APPLIED.
10. GYPSUM WALLBOARD ON PARTITIONS SHALL BE TAPED AND THE SCREWS SPOTTED WHETHER OR NOT WALL TREATMENT IS SCHEDULED.
11. BLOCKING/BACKING IS REQUIRED IN WALLS AT THE FOLLOWING LOCATIONS:
    a. WALL MOUNTED CABINETS
    b. WALL MOUNTED ACCESSORIES OR EQUIPMENT
    c. WALL MOUNTED DOOR STOPS
    d. WALL MOUNTED DOOR HOLD-OPEN DEVICES AND/OR CLOSERS
    e. TOILET ROOM ACCESSORIES
    f. OTHER LOCATIONS AS INDICATED OR REQUIRED FOR PROPER INSTALLATION OF DEPICTED ITEMS
15. GENERAL CONTRACTOR TO VERIFY ALL OWNER-PROVIDED EQUIPMENT AND APPLIANCE DIMENSIONS AND INSTALLATION REQUIREMENTS WITH OWNER PRIOR TO PROCEEDING WITH CONSTRUCTION.
16. ALL FINISHES SHALL MEET FLORIDA BUILDING CODE FINISH REQUIREMENTS.
17. REFER TO CIVIL ENGINEERING DRAWINGS FOR SIDEWALKS, RAMPS AND OTHER EXTERIOR FEATURES NOT SHOWN. NOTE: MAXIMUM LEVEL CHANGE AT ALL EXTERIOR DOORS SHALL NOT EXCEED 1/2".
18. PROVIDE BRACKET-MOUNTED FIRE EXTINGUISHERS AS SHOWN ON PLANS AFTER VERIFICATION OF REQUIREMENTS WITH LOCAL FIRE PROTECTION AUTHORITIES.

1 / A101 FLOOR PLAN
SCALE: 3/32" = 1'-0"

KEYED NOTES

1. LINE OF OVERHANG ABOVE.
2. PIPE BOLLARD - TYPICAL. SEE DETAIL 1/A401.
3. BRACKET-MOUNTED 20-LB. A:B:C HIGH-FLOW DRY CHEMICAL FIRE EXTINGUISHER.
4. SAFETY SHOWER AND EYE WASH STATION.
5. 36" WIDE 2-COMPARTMENT STAINLESS STEEL UTILITY SINK.
6. EXHAUST FAN ABOVE - SEE MECHANICAL
7. FLAMMABLE LIQUID BULKING STATION HOOD ABOVE - SEE MECHANICAL
8. FUTURE BALER BY OWNER - LOCATION & SIZE T.B.D.
9. STYROFOAM MACHINE BY OWNER
10. PALLETIZER BY OWNER
11. 8'-0" CHAIN LINK FENCE TYPICAL
12. 3'-0" X 8'-0" CHAIN LINK PERSONNEL GATE
13. 20'-0" X 8'-0" CHAIN LINK ROLLING GATE
14. 10'-0" X 8'-0" CHAIN LINK ROLLING GATE
15. PRECAST 60-GALLON (2'X2'X2') BLIND SUMP WITH HEAVY DUTY CAST IRON GRATE - PROVIDE SHOP DRAWINGS FOR APPROVAL.
16. CONTAINMENT AREA AND SUMP SHALL BE COATED LIQUID TIGHT WITH RUSTOLEUM 6500 SERIES 2-PART EPOXY OR EQUAL
17. CAST-IN-PLACE DRAINAGE SUMP W/HEAVY DUTY CAST IRON GRATE - SEE PLUMBING
18. TRENCH DRAIN W/HEAVY DUTY CAST IRON GRATE - SEE PLUMB. & DETAILS 3 & 4/A401.
19. DOCK LEVELER - SEE DETAILS.
20. HI-LO DRINKING FOUNTAIN - SEE PLUMBING.
21. GUARD RAIL - SEE DETAIL 2/A401.
22. PRECAST SEPARATOR TANK - SEE DETAIL 6/A401, CIVIL AND PLUMB.
23. DOUBLE-WALL LEACHATE HOLDING TANK - SEE CIVIL AND PLUMB.

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Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO. **2016**

ISSUE DATE: 7/2/2021

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SHEET TITLE: FLOOR PLAN

SHEET NO. **A101**

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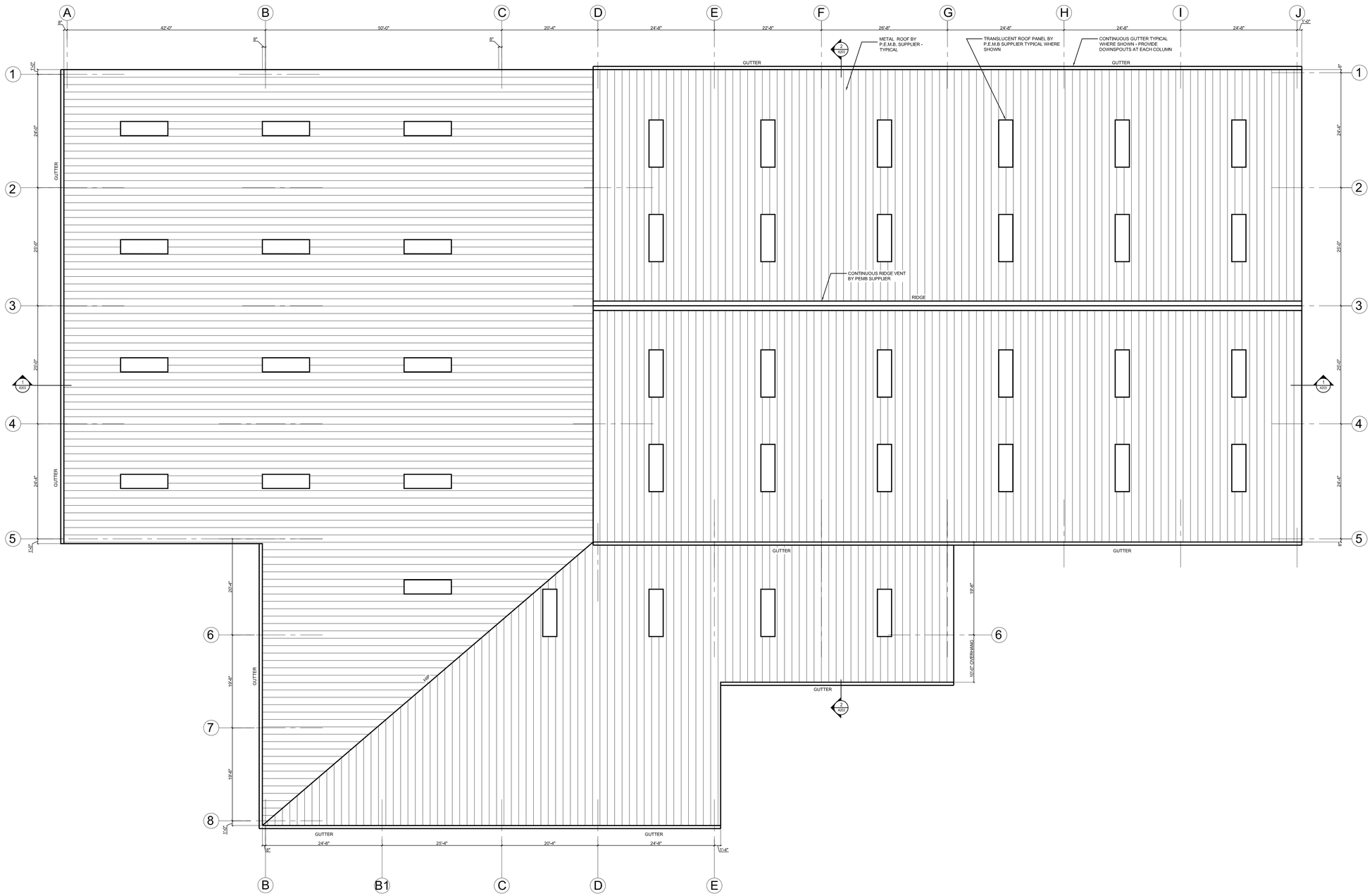

1 A102 ROOF PLAN
SCALE: 3/32" = 1'-0"

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SHEET TITLE
ROOF PLAN

SHEET NO.
A102

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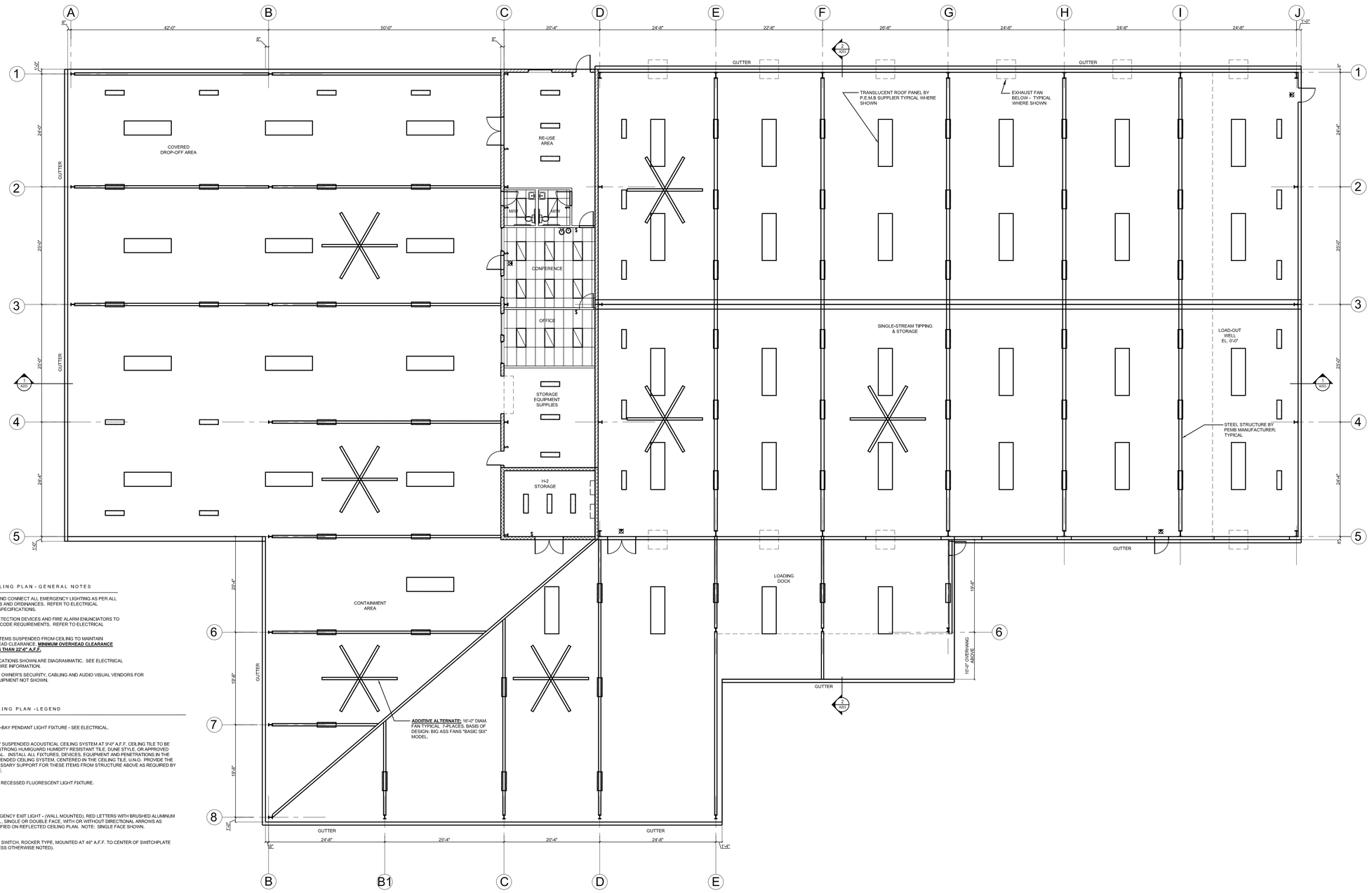

REFLECTED CEILING PLAN - GENERAL NOTES

1. SUPPLY, INSTALL AND CONNECT ALL EMERGENCY LIGHTING AS PER ALL APPLICABLE CODES AND ORDINANCES. REFER TO ELECTRICAL DOCUMENTS FOR SPECIFICATIONS.
2. INSTALL SMOKE DETECTION DEVICES AND FIRE ALARM ENUNCIATORS TO COMPLY WITH ALL CODE REQUIREMENTS. REFER TO ELECTRICAL DOCUMENTS.
3. COORDINATE ALL ITEMS SUSPENDED FROM CEILING TO MAINTAIN REQUIRED OVERHEAD CLEARANCE. **MINIMUM OVERHEAD CLEARANCE SHALL BE NO LESS THAN 22'-0" A.F.F.**
4. LIGHT FIXTURE LOCATIONS SHOWN ARE DIAGRAMMATIC. SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION.
5. COORDINATE WITH OWNER'S SECURITY, CABLING AND AUDIO VISUAL VENDORS FOR LOCATIONS OF EQUIPMENT NOT SHOWN.

REFLECTED CEILING PLAN -LEGEND

- HIGH-BAY PENDANT LIGHT FIXTURE - SEE ELECTRICAL.
- 2' X 4' SUSPENDED ACOUSTICAL CEILING SYSTEM AT 9'-0" A.F.F. CEILING TILE TO BE ARMSTRONG HUMGUARD HUMIDITY RESISTANT TILE, DUNE STYLE, OR APPROVED EQUAL. INSTALL ALL FIXTURES, DEVICES, EQUIPMENT AND PENETRATIONS IN THE SUSPENDED CEILING SYSTEM, CENTERED IN THE CEILING TILE U.N.O. PROVIDE THE NECESSARY SUPPORT FOR THESE ITEMS FROM STRUCTURE ABOVE AS REQUIRED BY CODE.
- 2' x 4' RECESSED FLUORESCENT LIGHT FIXTURE.
- EMERGENCY EXIT LIGHT - (WALL MOUNTED), RED LETTERS WITH BRUSHED ALUMINUM PANEL, SINGLE OR DOUBLE FACE, WITH OR WITHOUT DIRECTIONAL ARROWS AS SPECIFIED ON REFLECTED CEILING PLAN. NOTE: SINGLE FACE SHOWN.
- WALL SWITCH, ROCKER TYPE, MOUNTED AT 48" A.F.F. TO CENTER OF SWITCHPLATE (UNLESS OTHERWISE NOTED).

1 / A103 CEILING PLAN

SCALE: 3/32" = 1'-0"

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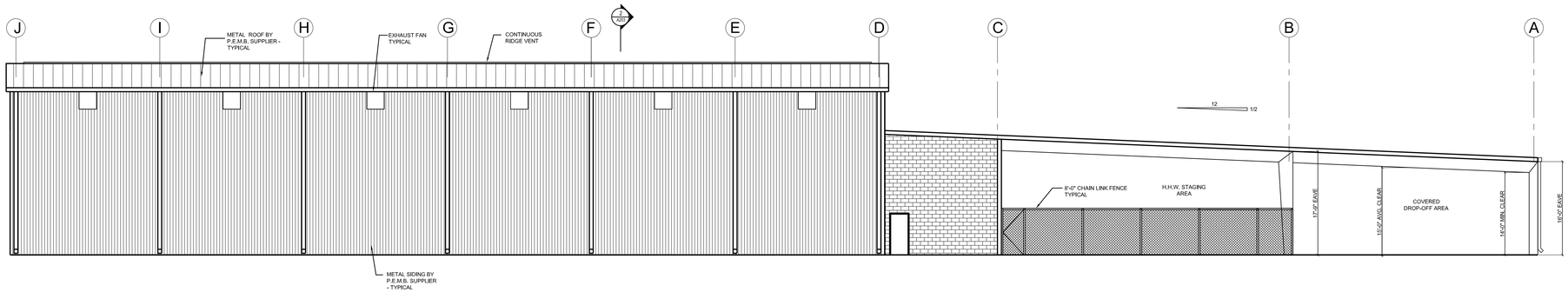
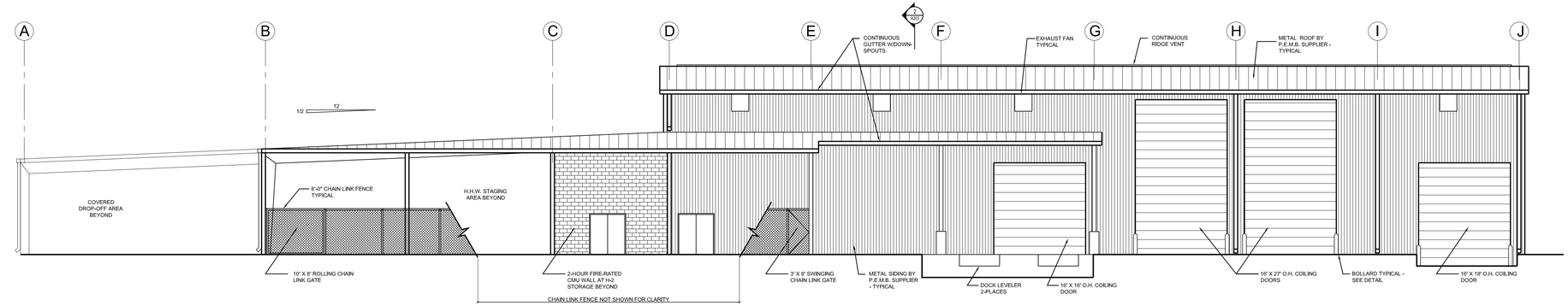
SHEET TITLE
CEILING PLAN

SHEET NO.
A103



1 A201 NORTH ELEVATION
SCALE: 3/32" = 1'-0"



2 A201 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"

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SHEET TITLE
ELEVATIONS

SHEET NO.
A201

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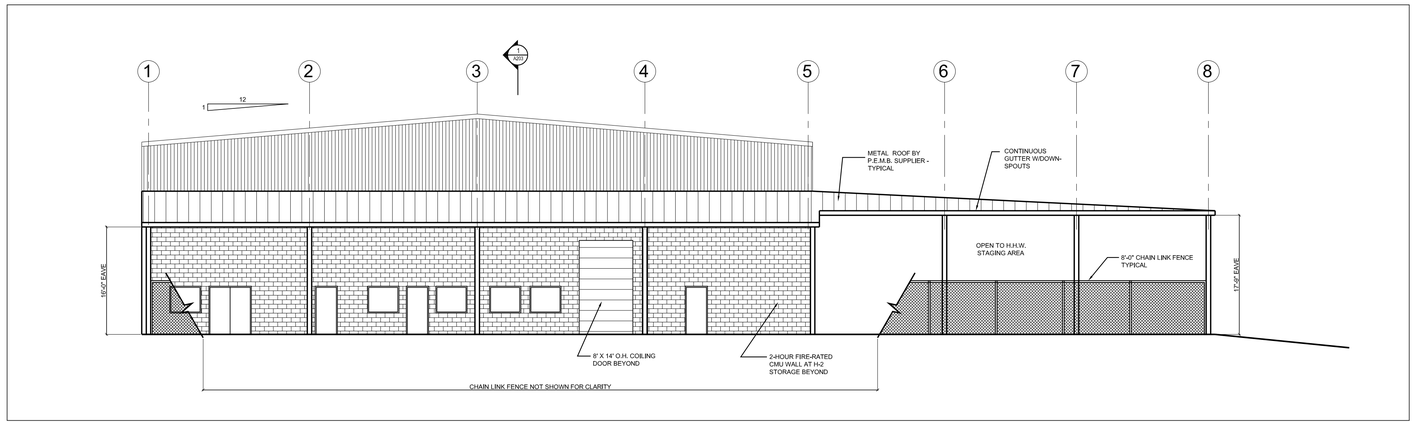
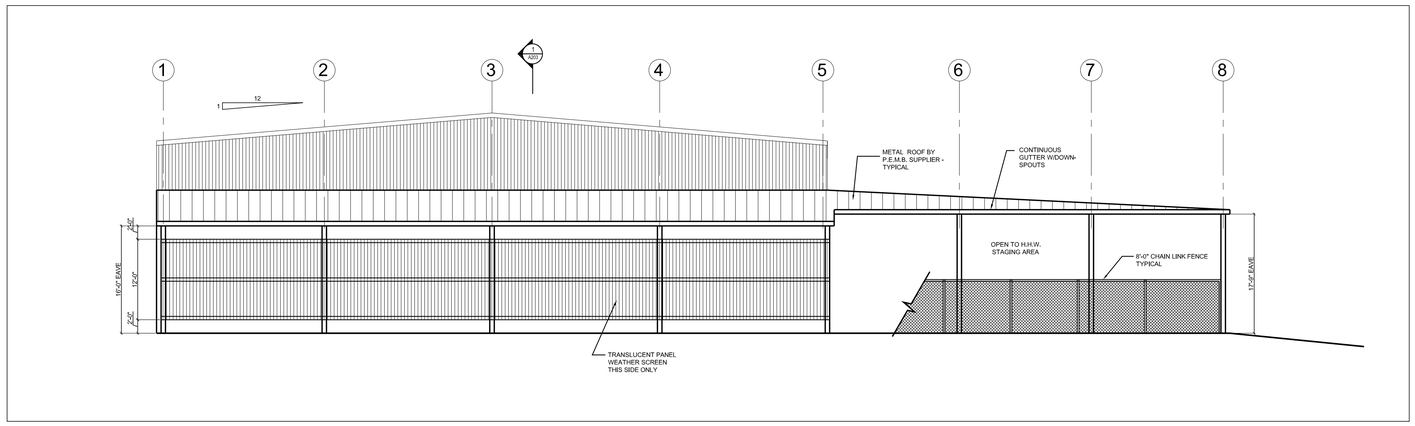


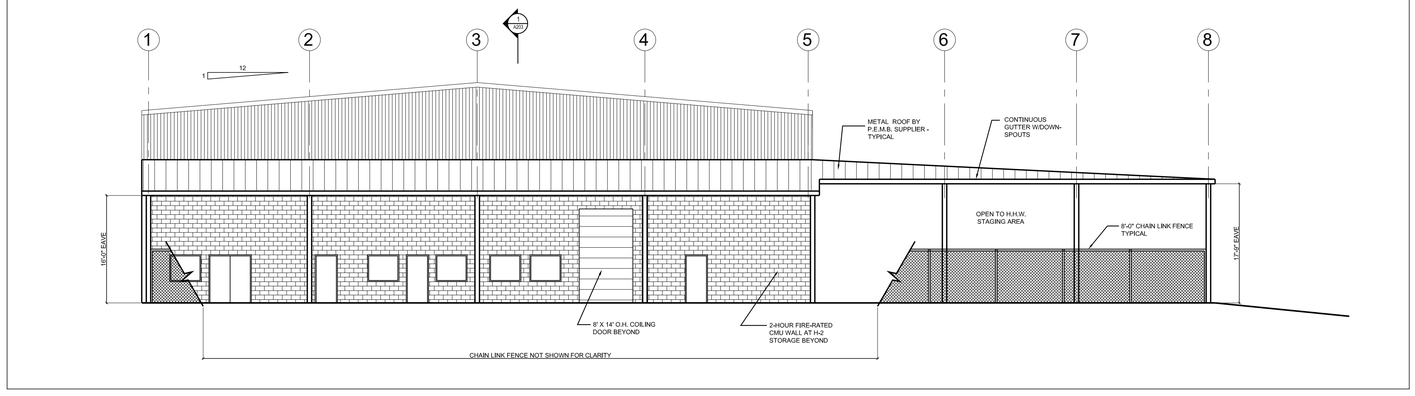
1 A202 WEST ELEVATION (WEATHER SCREEN NOT SHOWN)

SCALE: 3/32" = 1'-0"



2 A202 WEST ELEVATION (WITH WEATHER SCREEN)

SCALE: 3/32" = 1'-0"



3 A202 EAST ELEVATION

SCALE: 3/32" = 1'-0"

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ELEVATIONS

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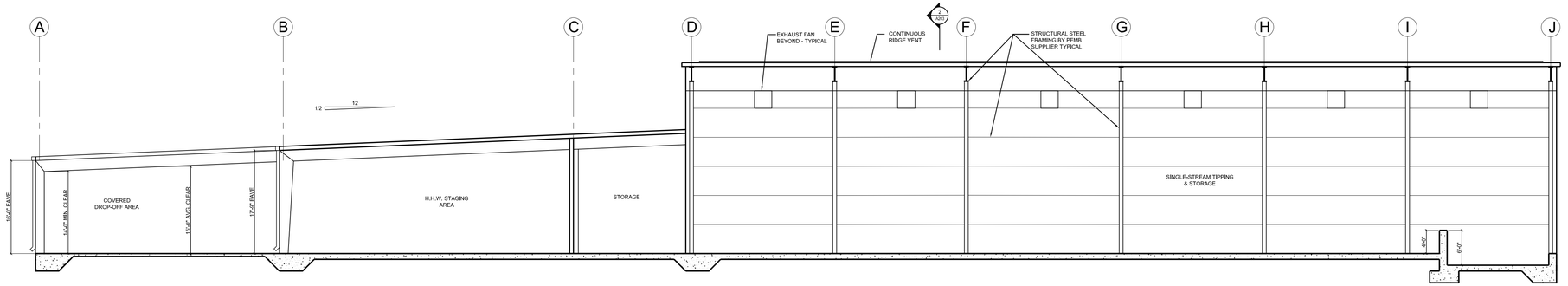
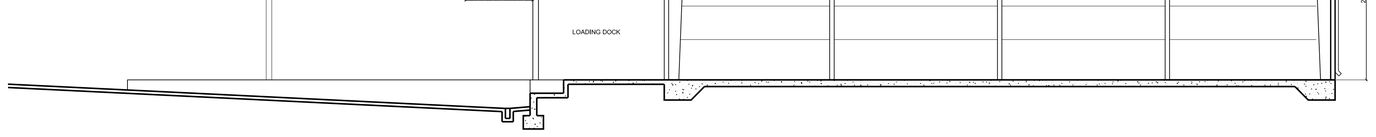


1 A203 LONGITUDINAL BUILDING SECTION

SCALE: 3/32" = 1'-0"



2 A203 BUILDING CROSS SECTION

SCALE: 3/32" = 1'-0"

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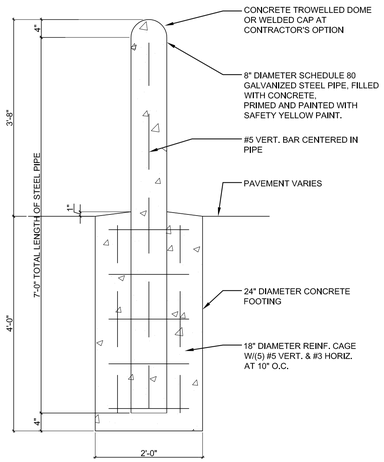
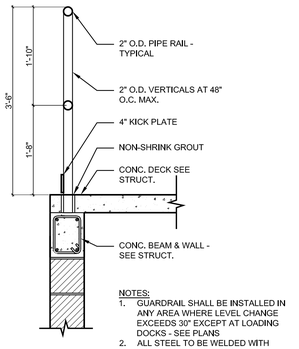
SHEET TITLE
BUILDING SECTIONS

SHEET NO.
A203

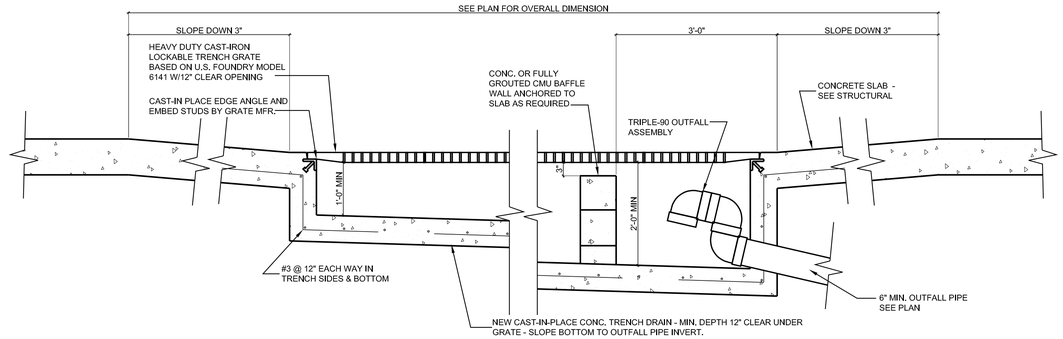


1 A401 TYPICAL BOLLARD DETAIL
SCALE: 3/4" = 1'-0"



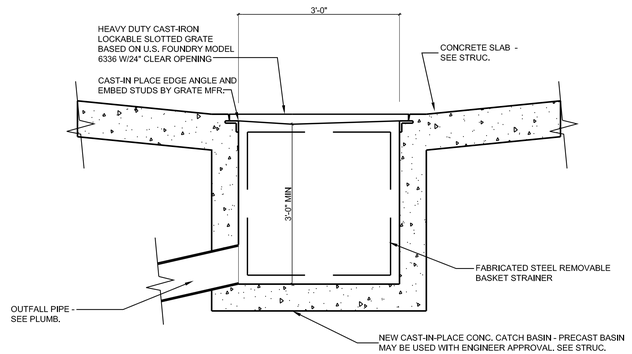
NOTES:
1. GUARDRAIL SHALL BE INSTALLED IN ANY AREA WHERE LEVEL CHANGE EXCEEDS 30" EXCEPT AT LOADING DOCKS - SEE PLANS
2. ALL STEEL TO BE WELDED WITH JOINTS GROUND SMOOTH.
3. ALL STEEL TO BE PAINTED SAFETY YELLOW WITH RUST-INHIBITING PAINT.
4. SUBMIT SHOP DRAWINGS FOR APPROVAL.

2 A401 GUARD RAIL DETAIL
SCALE: 3/4" = 1'-0"



3 A401 TRENCH DRAIN LONG. SECTION
SCALE: 3/4" = 1'-0"

4 A401 TRENCH DRAIN CROSS SECTION
SCALE: 3/4" = 1'-0"



5 A401 CATCH BASIN DETAIL
SCALE: 3/4" = 1'-0"

6 A401 LEACHATE SEPARATOR TANK
SCALE: 3/4" = 1'-0"

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SHEET TITLE
SECTIONS & DETAILS

SHEET NO.
A401

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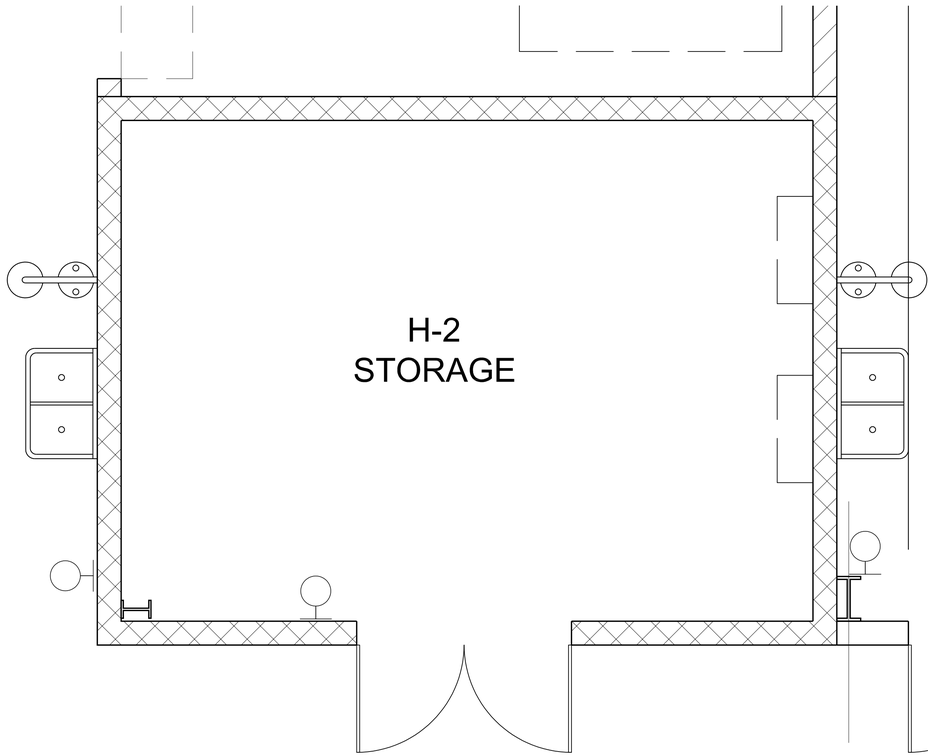
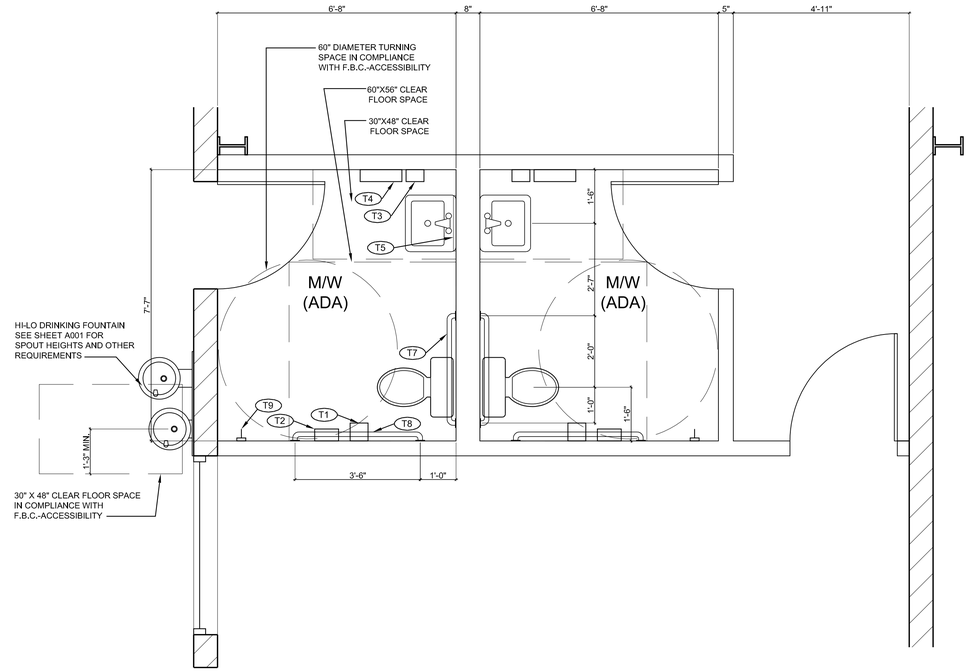


1 A601 ENLARGED PLAN AT H2 STORAGE
SCALE: 1/2" = 1'-0"



2 A601 ENLARGED PLAN AT RESTROOMS
SCALE: 1/2" = 1'-0"

TOILET ACCESSORY SCHEDULE

MARK	MANUF./MODEL #	ACCESSORY	MOUNTING HEIGHT (A.F.F.)	REMARKS
T1	ASI 0030	SURFACE MOUNTED DOUBLE ROLL TOILET TISSUE DISPENSER	29" A.F.F. TO TOP OF PART	
T2	ASI 0852	SURFACE MOUNTED NAPKIN DISPOSAL CABINET	30" A.F.F. TO OPERABLE PART	(1)
T3	ASI 9343	SURFACE MOUNTED SOAP DISPENSER		
T4	ASI 0462-AD9	SURFACE MOUNTED COMPACT TOWEL DISPENSER & WASTE	46" A.F.F. TO OPERABLE PART	
T5	ASI 0600 - 20 X 30	STAINLESS STEEL FRAMED MIRROR	CENTER OVER SINK	
T6	NOT USED			
T7	ASI 3801-36"	GRAB BAR	33" - 36" A.F.F.	
T8	ASI 3801-42"	GRAB BAR	33" - 36" A.F.F.	
T9	ASI 0751	HEAVY DUTY CLOTHES HOOK		

NOTES:
-REFER TO FLOOR PLAN FOR ADDITIONAL LOCATIONS.
-MODEL NUMBERS ARE BASED ON ASI (AMERICAN SPECIALTIES, INC.) WASHROOM ACCESSORIES. ACCEPTABLE PRODUCTS INCLUDE BOBRICK.
-SEE SHEET A001 FOR ADDITIONAL INFORMATION ON MOUNTING REQUIREMENTS.

REMARKS:
(1) MOUNT ADJACENT TO TOILET PAPER HOLDER

DIMENSIONING NOTE:
ALL DIMENSIONS ON THIS SHEET ARE "CLEAR" DIMENSIONS. COORDINATE WITH CENTERLINE DIMENSIONS SHOWN ELSEWHERE AND WITH WALL CONSTRUCTION DETAILS ON DRAWING A701 AND A.D.A. CLEARANCES ON DRAWING A001.

A.D.A. NOTE:
SEE DRAWING A001 FOR MOUNTING HEIGHTS, CLEARANCES AND OTHER INFORMATION REQUIRED FOR COMPLIANCE WITH A.D.A. AND THE FLORIDA BUILDING CODE - ACCESSIBILITY.

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SHEET TITLE
ENLARGED PLANS AND INTERIOR ELEVATIONS

SHEET NO.
A601

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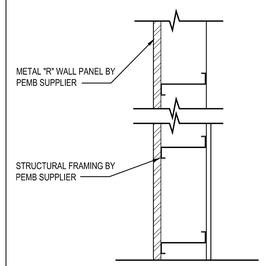
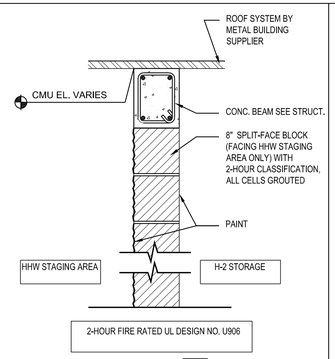


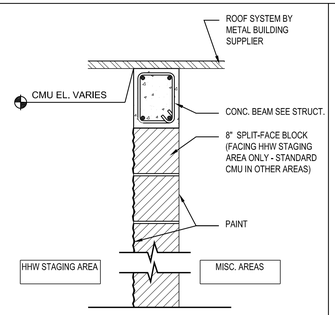
WALL TYPE A

METAL BUILDING EXTERIOR WALL



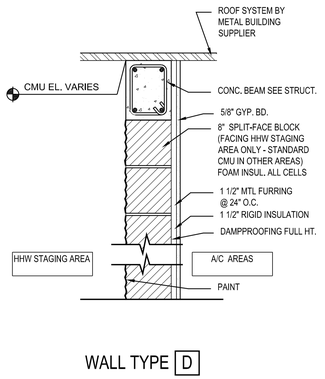
WALL TYPE B

2-HOUR FIRE SEPARATION WALL AT H-2 STORAGE



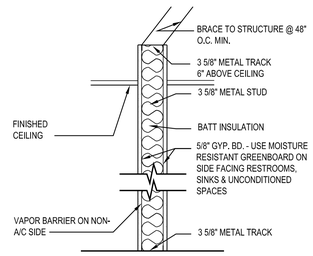
WALL TYPE C

CMU WALL



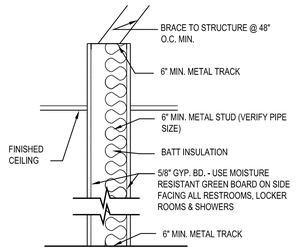
WALL TYPE D

CMU WALL AT A/C AREAS



WALL TYPE E

INTERIOR PARTITION



WALL TYPE F

WET WALL AT RESTROOMS

1 A701 WALL TYPES

SCALE: 1" = 1'-0"

DOOR SCHEDULE

ROOM NAME	ROOM NUM.	DOOR SYMB.	SIZE	TYPE	MAT.	FRAME	FINISH DOOR/ FRAME	DETAILS HEAD	DETAILS SILL	DETAILS JAMB	HDW GRP	FIRE LABEL	FLORIDA PRODUCT APPVL.	REMARKS
RE-USE AREA		101	3'-0" X 7'-0"	A	HM	A	P	5/A702	6/A702	5/A702	1		22211.2	
RE-USE AREA		102	PR. 3'-0" X 7'-0"	A	HM	A	P	5/A702	6/A702	5/A702	1A		22211.2	
M/W		103	3'-0" X 7'-0"	A	HM	A	P	5/A702	6/A702	5/A702	4		22211.2	
CONF		104	3'-0" X 7'-0"	A	HM	A	P	5/A702	6/A702	5/A702	1		22211.2	
STORAGE		105	3'-0" X 7'-0"	A	HM	A	P	5/A702	6/A702	5/A702	1		22211.2	
H-2 STORAGE		106	PR. 3'-0" X 7'-0"	A	HM	A	P	5/A702	6/A702	5/A702	1A	90-MIN"B"	22211.2	
M/W		107	3'-0" X 7'-0"	A	HM	A	P	3/A701	--	3/A701	4			
CONF		108	3'-0" X 7'-0"	A	HM	A	P	3/A701	--	3/A701	2			
OFFICE		109	3'-0" X 7'-0"	A	HM	A	P	3/A701	--	3/A701	2			
SINGLE STREAM		110	PR. 3'-0" X 7'-0"	A	HM	A	P	SEE P.E.M.B. DRAWINGS			1A		22211.2	
LOADING DOCK		111	3'-0" X 7'-0"	A	HM	A	P	SEE P.E.M.B. DRAWINGS			1		22211.2	
SINGLE STREAM		112	3'-0" X 7'-0"	A	HM	A	P	SEE P.E.M.B. DRAWINGS			1		22211.2	
LOAD-OUT WELL		113	3'-0" X 7'-0"	A	HM	A	P	SEE P.E.M.B. DRAWINGS			1		22211.2	
OVERHEAD DOORS														
STORAGE		OH1	8'-0" X 14'-0"										10706-R3	MOTOR OP.
SINGLE-STREAM		OH2	16'-0" X 16'-0"										10706-R3	MOTOR OP.
SINGLE-STREAM		OH3	16'-0" X 27'-0"										10706-R3	MOTOR OP.
SINGLE-STREAM		OH4	16'-0" X 27'-0"										10706-R3	MOTOR OP.
LOAD-OUT WELL		OH5	16'-0" X 18'-0"										10706-R3	MOTOR OP.

HARDWARE SCHEDULE

SET	DESCRIPTION	ITEMS
1	EXTERIOR LOCKSET	1 LEVER HANDLE EXTERIOR LOCKSET 1.5 PAIR BUTT HINGES 1 CLOSER 1 WALL STOP 1 A.D.A. THRESHOLD WEATHER-STRIP ALL JAMB EDGES
1A	EXTERIOR LOCKSET (DOUBLE DOORS)	2 LEVER HANDLE EXTERIOR LOCKSET 3 PAIR BUTT HINGES 2 CLOSER 2 WALL STOP 1 ASTRAGAL 1 A.D.A. THRESHOLD WEATHER-STRIP ALL JAMB EDGES
2	INTERIOR LOCKSET	1 LEVER HANDLE INTERIOR LOCKSET 1.5 PAIR BUTT HINGES 1 CLOSER 1 WALL STOP
3	NOT USED	
4	PRIVACY SET	1 LEVER HANDLE INTERIOR PRIVACY SET 1.5 PAIR BUTT HINGES 1 WALL STOP 1 CLOSER ACOUSTIC SWEEP & ACOUSTIC GASKETS

DOOR NOTES & LEGEND

MATERIAL
HM HOLLOW METAL, INSULATED

FINISH
P PAINTED

NOTES
1. ALL THRESHOLDS SHALL BE A.D.A. COMPLIANT WITH MAX ELEVATION CHANGE OF 1 / 2".
2. VERIFY ALL LOCKING REQUIREMENTS WITH OWNER.

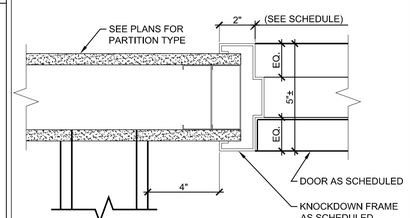
DOOR AND FRAME TYPES

DOOR TYPE A

1/4" = 1'-0"

FRAME TYPE

NO SCALE



FINISH NOTES:

1. FIELD CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO ORDERING MATERIALS.
2. FINISH SCHEDULE PROVIDED AS "BASIS OF DESIGN" AND FOR PRICING PURPOSES. PROVIDE SAMPLES OF ALL SELECTIONS TO OWNER FOR APPROVAL PRIOR TO PROCEEDING WITH THE WORK.
3. ADHERE TO ALL CURRENT MANUFACTURER WRITTEN SPECIFICATIONS FOR APPROVED INSTALLATION METHODS (INCLUDING, BUT NOT LIMITED TO, ADHESIVE TYPES, CUTTING METHODS, SEALERS AND PRIMERS)
4. ALL PAINT SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS FOR THE PARTICULAR SURFACE. TWO (2) FINISH COATS MINIMUM APPLICATION AFTER ONE PRIME COAT MINIMUM.
5. ALL CHANGES IN FLOOR FINISH MATERIALS OCCURRING AT DOORWAYS SHALL BE AT THE CENTERLINE OF THE DOORWAY. PROVIDE TRANSITION ACCESSORIES AS REQUIRED.
6. PATCH ALL HOLES IN SURFACES TO BE PAINTED PRIOR TO PRIMING.

FINISH SCHEDULE:

ALL AIR-CONDITIONED ROOMS:
- FLOORS: VINYL TILE TO BE SELECTED FROM STANDARD PRODUCTS SUBMITTED BY CONTRACTOR.
- TYPICAL WALLS: PAINT P-1
- RESTROOM WALLS: F.R.P. PANELING TO 48" A.F.F., PAINT P-1 ABOVE
- BASE: VINYL BASE
- DOORS AND DOOR FRAMES: PAINT P-1
- CEILINGS: SEE CEILING PLAN

HHW STAGING, H-2 STORAGE AND SINGLE-STREAM BUILDING:
- FLOORS: SEALED CONCRETE, LIGHT BROOM FINISH
- CMU WALLS: PAINT P-2
- METAL BUILDING WALLS: N/A
- BASE: N/A
- DOORS AND DOOR FRAMES: PAINT P-2
- CEILINGS: N/A

FINISH SCHEDULE BASIS OF DESIGN:

VINYL WALL BASE:
BURKE FLOORING 502 BROWN 4" COVE

PAINT P-1:
COLOR MATCH: BENJAMIN MOORE LINEN SAND 2151-60
EPOXY COATING

PAINT P-2:
EXTERIOR GRADE LATEX T.B.D. COLOR MATCH TO PEMB PANELS OR AS DIRECTED BY OWNER.

2 A701 DOOR SCHEDULE
SCALE: N/A

3 A701 DOOR JAMB/HEAD DETAIL
SCALE: 3" = 1'-0"

4 A701 FINISH SCHEDULE AND NOTES
SCALE: N/A

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MARCOS IBARGUEN
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Drawing Not Valid Unless Signed, Sealed & Dated By Registered Professional

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INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY
Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO.
2016

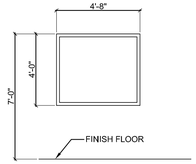
ISSUE DATE:
7/2/2021

DRAWN BY:
MI

SHEET TITLE
WALL TYPES, DOOR & FINISH SCHEDULE

SHEET NO.
A701

PERMIT SET



FIXED STOREFRONT
(DOUBLE-GLAZED)

WINDOW TYPE A

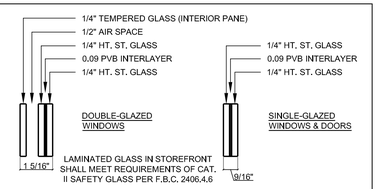
1/4" = 1'-0"

WINDOW NOTES & LEGEND

1. ALL EXTERIOR GLAZING SHALL BE IMPACT RESISTANT IN ACCORDANCE WITH FLORIDA BUILDING CODE AND PRODUCT APPROVALS. EXTERIOR GLAZING CHARACTERISTICS SHALL BE AS FOLLOWS (SEE ALSO GLAZING DIAGRAM ON THIS SHEET):
   a. DOUBLE-GLAZED WINDOWS: LAMINATED GLASS OUTER PANE W/P.V.B. INTERLAYER; TOTAL THICKNESS 1 5/16".
   b. ALL VISION GLAZING SHALL HAVE TINTED INTERLAYER.
   c. INTERLAYER TINT SHALL BE SELECTED FROM MANUFACTURER'S STANDARD COLORS.
2. BASIS OF DESIGN FOR STOREFRONT WINDOW SYSTEM IS KAWNEER IR501. SEE SHEET G000 FOR APPLICABLE FLORIDA PRODUCT APPROVAL NUMBERS. NO SUBSTITUTION OF ALTERNATE PRODUCTS WILL BE PERMITTED WITHOUT DOCUMENTATION OF EQUIVALENT PERFORMANCE AND SUBMISSION OF FLORIDA PRODUCT APPROVAL INFORMATION FOR THE PROPOSED ALTERNATE PRODUCTS.
3. ALL STOREFRONT FRAMES SHALL BE ALUMINUM WITH A POWDER-COAT FINISH; COLOR TO BE SELECTED FROM MANUFACTURER'S STANDARD COLORS.
4. SEE STRUCTURAL DRAWINGS FOR WIND LOAD INFORMATION.
5. DIMENSIONS SHOWN REFER TO MASONRY ROUGH OPENINGS. SUPPLIER SHALL VERIFY REQUIRED MEASUREMENTS AND SUBMIT FULL SHOP DRAWINGS FOR REVIEW PRIOR TO MANUFACTURING WINDOWS.

WINDOW SCHEDULE

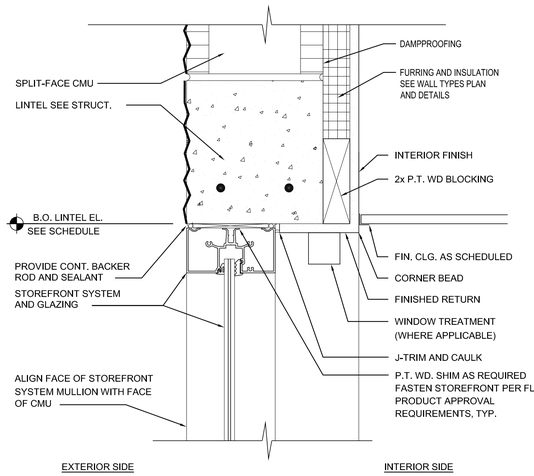
WINDOW TYPE	LOCATION ZONE	DESIGN PRESSURE	FLORIDA PRODUCT APPROVAL	APPROVAL DATE	NOA #	MANUFACTURER	MODEL #	OPENING SIZE	FRAME DETAILS		
									HEAD	SILL	JAMB
A	5	+ / - 65 psf	FL 8787.2	11 / 02 / 2017	11-0915.06	KAWNEER	IR501	5'-0" X 4'-0"	3/A702	4/A702	3/A702



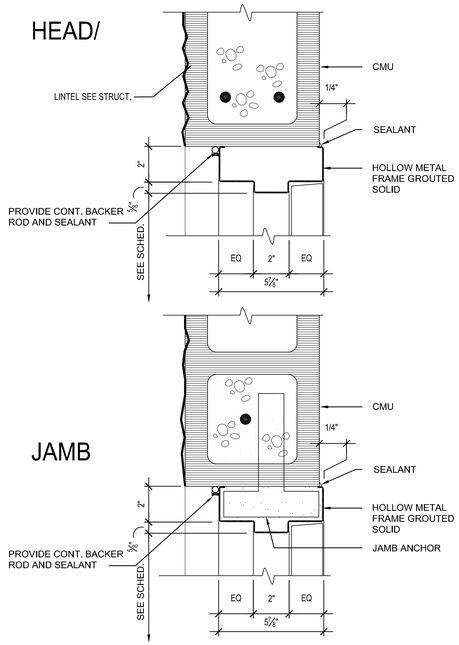
GLAZING CHARACTERISTICS

1 A702 WINDOW TYPES
SCALE: 1/4" = 1'-0"

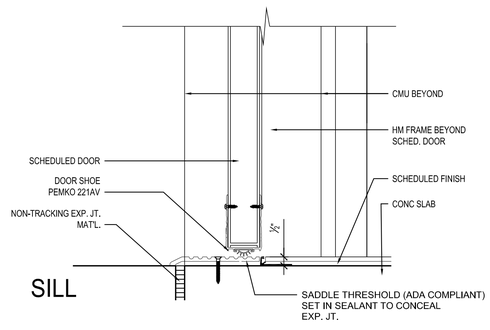
2 A702 WINDOW SCHEDULE
SCALE: N/A



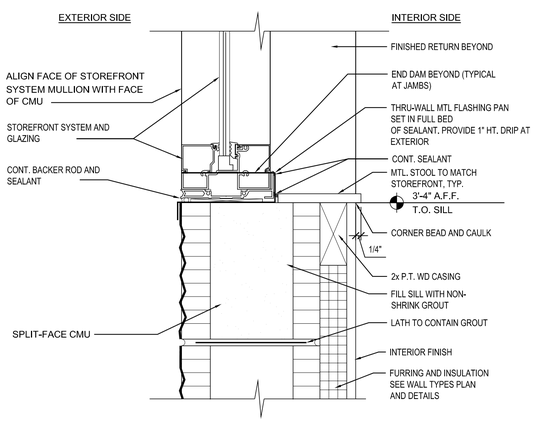
3 A702 STOREFRONT HEAD/JAMB
SCALE: 3" = 1'-0"



5 A702 DOOR HEAD/JAMB
SCALE: 3" = 1'-0"



6 A702 DOOR SILL
SCALE: 3" = 1'-0"



4 A702 STOREFRONT SILL
SCALE: 3" = 1'-0"

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INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE
AND RECYCLING FACILITY

Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO.
2016

ISSUE DATE:
7/2/2021

DRAWN BY:
MI

SHEET TITLE
WINDOW SCHEDULE AND DETAILS

SHEET NO.
A702

PERMIT SET

STRUCTURAL NOTES

GENERAL NOTES:

1. The Governing Code for this project is the Florida Buiding Code, Seventh Edition (2020). This Code prescribes which Edition of each referenced standard applies to this project.
2. To the best of our knowledge, the Structural drawings and specifications comply with the applicable requirements of the Governing Building Code.
3. Construction is to comply with the requirements of the Governing Building Code and all other applicable Federal, State, and local Codes, Standards, Regulations and Laws.
4. The Structural documents are to be used in conjunction with the Architectural documents. Use these notes in conjunction with the project specifications. If a conflict exist, notify the Architect.
5. Details labeled "Typical" apply to all situations that are the same or similar to those specifically referenced, whether or not they are keyed in at each location. Questions regarding the applicability of typical details shall be resolved by the Architect.
6. Openings shown on Structural drawings are only pictorial. See the Architectural and M.E.P. drawings for the size and location of openings in the structure.
7. Contractors who discover discrepancies, omissions or variations in the contract documents during bidding shall immediately notify the Architect. The Architect will resolve the condition and issue a written clarification.
8. The General Contractor shall coordinate all contract documents with field conditions and dimensions and project shop drawings prior to construction. Do not scale drawings; use only printed dimensions. Report any discrepancies in writing to the Architect prior to proceeding with work. Do not change size or location of Structural members without written instructions from the Structural Engineer of record.
9. The contractor shall protect adjacent property, his own work and the public from harm. The contractor is solely responsible for construction means and methods, and jobsite safety including all OSHA requirements.
10. The Structure is designed to be structurally sound when completed. Prior to completion, the Contractor is responsible for stability and temporary bracing, including, but not limited to, masonry walls. Wherever the Contractor is unsure of these requirements, the Contractor shall retain a Florida Licensed Engineer to design and inspect the temporary bracing and stability of the Structure.
11. DESIGN SUPERIMPOSED LOADS:

Occupancy	LIVE LOAD	LIVE LOAD RED	DEAD LOAD
Roof	20 PSF	12 PSF	5 PSF
Floor	100 PSF		20 PSF
Floor (Point Load)	8,000 lbs. over 20"x40" CONTACT AREA		

12. DESIGN WIND LOADS:

Governing Code	ASCE 7-16
Basic Wind Speed	Vult= 160 MPH/Vasd= 124 MPH
Risk Category	II
Building Enclosure	Partially Enclosed; Open
Directionality Factor	Kd = 0.85
Exposure	C
Mean Roof Height	34 FEET
Serviceability Wind Speed	Vasd= 124 MPH

13. FLOOD DESIGN:

Flood Design Class	2
Elevation of Proposed Lowest Floor	24'-6" NAVD 88

14. RAIN DESIGN:

Rain Load	0 PSF
Rain Intensity	4.5 in/hr

EXCAVATION, BACKFILL AND DEWATERING:

1. The Contractor is solely responsible for all excavation procedures including lagging, shoring, and protection of adjacent property, structures, streets and utilities in accordance with the requirements of the local Building Department and OSHA regulations. Do not excavate within one foot of the angle of repose of any soil bearing foundation unless the foundation is properly protected against settlement.
2. Do not backfill against walls until 7 days after the walls are braced by the Structure or are temporarily braced. Do not backfill cantilevered retaining walls until concrete is **14** days old. Do not backfill until after completion and inspection of any waterproofing.
3. The Contractor is responsible for the disposal of all accumulated water in a manner that does not inconvenience or damage the work.

SHALLOW FOUNDATIONS:

1. Foundation design, soil preparation and compaction are based on geotechnical investigation, data and recommendations in report **#21-109 by Andersen Andre Consulting Engineers, Inc., dated March 23, 2021.**
2. Footing sizes and reinforcing are based on an allowable soil bearing capacity of **2,500 psf.** All footings shall bear on compacted fill, natural soil or rock prepared per the geotechnical report.
3. Subgrade preparation shall be field controlled and tested by a licensed soils Engineer in accordance with the geotechnical report. At completion, that Engineer shall prepare and submit to the owner, Architect, contractor and Structural Engineer a signed and sealed letter indicating that the recommendations of the geotechnical report have been followed.
4. Center all footings under their respective columns or walls, u.o.n

SLABS ON GRADE:

1. Refer to geotechnical report for subgrade preparation more than 12" below bottom of slab.
2. Above subgrade, use fill containing not more than 10% passing #200 sieve and maximum 1 inch diameter. Compact to 95% of maximum dry density as determined by modified proctor ASTM D-1557. Each layer of fill shall not exceed 6" loose thickness. Compact prior to placement of the next layer.
3. Fill placement and compaction shall be monitored and accepted by the testing agency. Take a min. of one field density test (ASTM D-1556 or D-2922) for each 2,500 square feet of each layer. The testing agency shall randomly select test locations.
4. For interior slabs place 10 mil polyethylene sheeting between soil and bottom of slab. Do not use any sheeting below exterior concrete slabs.
5. In sidewalks and walkways, locate isolation joints at 20 ft. o.c. maximum score and tool between isolation joints in equal bays of 5 ft. or less.
6. See the Architectural drawings for slab on grade depressions and other requirements.

REINFORCED CONCRETE:

1. Comply with ACI 301 and 318.
2. Provide Structural Concrete with a minimum ultimate Compressive Design Strength of **4,000** psi in 28 days (max. w/cm=0.45).
3. Use normal weight concrete for all Structural Members. u.o.n.
4. Provide ASTM A-615 Grade 60 reinforcing steel. Weldable Rebar shall be ASTM-706, Grade 60 per AWS D.1. Reinforcing shall be accurately placed, rigidly supported and firmly tied in place, with appropriate bar supports and spacers. Lap bottom steel over supports and top steel at midspan (u.o.n.). Hook discontinuous ends of all top bars and all bars in walls, u.o.n. Provide cover over reinforcing as follows:

Element	bottom	top	sides
Footings	3"	2"	3"
Slabs on Grade	2"	1"	2"
Slabs Above Grade	3/4"	3/4"	1"
Slabs Exposed to Weather	1 1/2"	1 1/2"	1 1/2"
Walls Retaining Fill	–	–	2"
Walls Above Grade	–	–	1"

5. Tension Development Length and Lap Splice Lengths shall be per schedule.
6. Where specified, provide plain, cold-drawn electrically-welded wire reinforcement conforming to ASTM A-185. Supply in flat sheets only. Lap splice two cross wire spacing.
7. In addition to specified reinforcing, provide **1** tons of reinforcing bars to be detailed, fabricated, delivered to site and placed as directed by the Architect/Engineer to account for unforeseeable conditions.
8. Utilities shall not penetrate beams or columns but may pass through slabs and walls individually, u.o.n. For openings 24" long or less, cut reinforcing and replace alongside opening with splice bars of equivalent area with 48 bar dia. lap. Prepare and submit shop drawings for openings longer than 24". For rectangular openings 12" long or longer, add 1#5 x 6' mid depth diagonal at all 4 corners.
9. Where reinforcing steel congestion permits, conduit and pipes up to 1" diameter may be embedded in concrete per ACI 318, section 6.3. Space at 3 diameters o.c. Place between outer layers of reinforcing if conduits are significantly congested, additional reinforcing perpendicular to piping may be required. Requests to embed larger pipes shall be accompanied by a detailed description and be submitted to the Architect for evaluation.
10. Provide construction joints in accordance with ACI 318, section 6.4. Provide keyways and adequate dowels. Submit drawings showing location of construction joints and direction of pour for review.
11. Provide 3/4" chamfer for all exposed corners.
12. Provide reinforcing steel placer with a set of Structural Drawings for field reference. Inspect reinforcing steel placing from Structural Drawings.

MIN. LAP SPLICE LENGTH SCHEDULE

BAR TYPE	BAR SIZE								
	#3	#4	#5	#6	#7	#8	#9	#10	#11
48 BAR DIAMETER	18"	24"	30"	36"	42"	48"	54"	61"	68"
FOOTINGS	16"	16"	19"	23"	33"	37"	42"	47"	53"
COLUMNS	–	–	19"	23"	33"	39"	49"	60"	72"
WALLS	16"	16"	19"	23"	33"	39"	49"	60"	–
SLABS	16"	19"	28"	37"	60"	74"	–	–	–
BEAMS (TOP)	–	–	25"	29"	43"	51"	63"	78"	93"
BEAMS (MID. & BOTT.)	–	–	19"	23"	33"	39"	49"	60"	72"
STIRRUPS	16"	16"	19"	23"	–	–	–	–	–
MASONRY FILLED CELLS (f'm=2500)	–	–	24"	44"	60"	–	–	–	–

CONCRETE MASONRY:

1. Construct masonry in accordance ACI 530/ASCE 5, "Building Code Requirements for Masonry Structures"; and ACI 530.1/ASCE 6, "Specifications for Masonry Structures".
2. The structure is supported by **NON-LOAD bearing** walls, u.o.n. Erect masonry prior to casting concrete columns.

   Use 50% solid, nominal **8"x8"x16"**, concrete masonry units conforming to ASTM C90. block net area compressive strength shall be **3,750 psi.** Lay up units in running bond. Sawcut units which are not in multiples of 8". Units shall be at least 8" long. Bond corners by lapping ends 8" in successive vertical courses. Design of walls is based on a f'm of **2,500 psi.**
3. Use type S mortar in accordance with ASTM C270 except use type M mortar below grade. Head and bed joints shall be 3/8" for the thickness of the face shell. Webs are to be fully mortared in all courses of piers, columns and pilasters; in the starting course; and where an adjacent cell is to be grouted. Remove mortar protrusions extending 1/2" or more into cells to be grouted.
4. Use standard W1.7 horizontal ladder type joint reinforcing in every other course. Joint reinforcing and anchors in exterior walls shall conform to ASTM A153 Class B2, with a coating thickness of 1.50 oz/sf; and conform to ASTM A 641 in interior walls. Overlap discontinuous ends 6". Use prefabricated corners and tees. Extend joint reinforcing a minimum of 4" into tie columns.
5. Use fine grout conforming to ASTM C476, with a minimum compressive strength of **2,500 psi** in 28 days. Aggregate to conform to ASTM C404 for fine grout, with slump of 8" to 10". Grout all masonry containing reinforcing, All cells of 4 hour rated walls, and where indicated on the drawings. Allow mortar to cure 24 hours prior to grouting. Provide cleanout openings at the base of cells containing reinforcing steel to clean the cell and to tie the vertical bar to the dowel. In high-lift grouting, Use 4'-0" (max.) lifts, with 1/2 hour to 1 hour between lifts. Vibrate each lift and reconsolidate the previous lift.
6. Use ASTM A-615 grade 60 reinforcing steel. Reinforce walls where indicated on the drawings and at all intersections, each side of openings and at the ends of walls. Use bar spacers at 10 ft. o.c. where grout pour height exceeds 10 ft.
7. At bond/tie beam corners and intersections, place 1 #5 x 5'-0" T & B corner bar, with 30" legs each way, at the exterior face.
8. Beams not scheduled are min. 8" x 12" tie beams with 2 #5 bars top and bottom and #3 ties spaced at 48" o.c. typical and 4 ties at 12" o.c. at ends and intersections, u.o.n. Columns not scheduled are min. 8" x 12" tie columns with 4 #5 vertical bars and #2 ties at 12" o.c. use 30" lap splices. Hook all bars at discontinuous ends.
9. Reinforced masonry wall construction shall be inspected by an Engineer or Architect in accordance with ACI 530.1/ASCE 6.
10. Where anchor bolts, wedge anchors or anchors set in epoxy are set in a masonry wall, fill cells with grout for bolted course, one course above and two courses below.
11. Provide lintels or headers with min. 8" bearing over all masonry openings.
12. Use pressure-treated wood for wood in contact with masonry.

STRUCTURAL STEEL:

1. Fabricate and erect structural steel in conformance AISC "Specification for the design, fabrication and erection of structural steel for buildings", with commentary, and all OSHA requirements.
2. Structural steel shapes shall be fabricated from the following materials:
   a. Rolled W and WT shapes: ASTM A992, grade 50.
   b. Rolled M, S, C and MC shapes and Angles: ASTM A36, Fy=36 ksi.
   c. Plates and bars: ASTM A36, Fy=36 ksi.
   d. Cold-formed hollow structural sections (HSS):
      1. Round sections: ASTM A500, grade C, Fy=46 ksi.
      2. Square and rectangular sections: ASTM A500, grade B, Fy=46 ksi.
   e. Steel pipe: ASTM A53, type E or S, grade B, Fy=35 ksi.
3. All shop and field welding shall conform to the AWS D1.1 structural welding code by the American Welding Society. Use E70 series welding electrodes, u.o.n. where necessary, remove galvanizing or primer prior to welding. Use E80 Series for Weldable Rebar
4. A325 and A490 bolts shall comply with "Specification for structural joints using ASTM A325 or A490 bolts", including commentary.
   a. Typical bolts used in structural connections for this project are **5/8"** diameter and **3/4"** diameter A325N.
   b. Tighten bearing-type bolts (A-325N, A-325X, A-490N, and A-490X) to the snug tight condition as follows:
      1. Bolts shall be placed in all holes, with washers positioned as required and nuts threaded to complete the assembly.
      2. Compacting the joint to the snug-tight condition shall progress systematically from the most rigid part of the joint.
      3. The snug-tightened condition is the tightness that is attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench.
      4. More than one cycle through the bolt pattern may be required to achieve the snug-tightened joint.
   c. Provide hardened washers conforming to ASTM F436 and place under the part being turned.
   d. Do not reuse or retighten bolts which have been fully tightened. Use only non-galvanized nuts and bolts that are clean, rust-free, and well lubricated. Bolts and nuts shall be wax dipped by the bolt supplier or lubricated with Johnson's stick wax 140. Cleaning and lubrication of ASTM F1852 twist-off-type tension-control bolts is not permitted.
   e. Where slotted holes are used to accommodate thermal movement, notify the Architect if bolt is expected to hit the end of slot, based on temperature at time of installation.
   f. Store fastener components in sealed containers until ready for use. Reseal open containers to prevent contamination by moisture or other deleterious substances. Store closed containers from dirt and moisture in a protective shelter. Take from protective storage only as many fastener components as are anticipated to be installed during the work shift. Fastener components that are not incorporated into the work shall be returned to protective storage at the end of the work shift. Fasteners from open containers and fasteners that accumulate rust or dirt shall not be used and shall be immediately and permanently removed from the project site.
5. Use A-307 bolts for all erection bolts and bolts less than 3/4" diameter, u.o.n. Anchor rods shall be ASTM F1554 grade 55 with supplementary requirement S1, threaded with nuts and washers each end.
6. Cut, drill, or punch holes perpendicular to metal surfaces. Ream holes that must be enlarged to admit bolts as permitted by architect. Do not enlarge unfair holes by burning or using drift pins.
7. See Architectural and Mechanical drawings for miscellaneous steel not shown on the Structural drawings.
8. Refer to the Architectural drawings for painting and fireproofing of structural steel. Provide a minimum of one shop coat of paint for exposed structural steel U.N.O. Steel exposed to the atmosphere or elements shall receive a second shop coat of paint or be field painted in addition to the initial shop coat with lead, graphite or asphalt paint or other approved coating compatible with the shop coat. Do not paint steel surfaces in contact with fireproofing or embedded in concrete. Steel elements that are hot-dipped galvanized do not require shop and field painting.

COLD FORM STEEL FRAMING:

1. All field cutting of studs nust be done by sawing or shearing. Torch cutting of cold-formed members is unacceptable.
2. No notching or coping of studs is allowed, unless stated within this drawing package.
3. Ends of studs must seat firmly in runner track, which have full bearing on structure.
4. Framing fabricator is to ensure punch out alignment when assembling lateral bracing and field cutting studs to length. Lateral bracing must be installed at the time the wall is erected. Failure to install bracing at this time may compromise the structural integrity of the building.
5. Temporary bracing shall be provided and remain in place until work is completely stabilized.
6. Framing shall be galvanized G60 and conform to ASTM A653 with a minimum yield of 33 ksi for studs 20-18 gage; 50 ksi for 16-12 gage.

CHEMICAL ADHESIVE FOR ANCHORING REINFORCING BARS, THREADED BARS AND ANCHOR BOLTS:

1. Use an epoxy, acrylic or polyester resin adhesive system such as the Hilti Hit HY200, ITW Ramset/Red Head Epcon A7 or C6 injection system, Powers Rawl Power-Fast System, Simpson Strong-Tie AT or ET, Allied Fastener Allied Gold A-1000, or accepted equivalent. Follow manufacturer's specifications for use and installation.
2. Confirm the absence of reinforcing steel by drilling a 1/4" diameter pilot hole for each anchor. Do not cut reinforcing steel without approval of the Structural Engineer.
3. Refer to manufacturer's installation instructions for appropriate drill size. Thoroughly clean hole including removal of dust prior to filling with epoxy.
4. Provide anchor embedment, spacing and edge distance as shown on the drawings.
5. Threaded rods are A-36 galvanized steel, u.o.n.

SHOP DRAWINGS AND OTHER SUBMITTALS:

1. Submit specific components, such as columns, footings, etc., in a single package. Submit similar floors together.
2. On first submittal, clearly flag and cloud all differences from the contract documents. On resubmittals, flag and cloud all changes and additions to previous submittal; only clouded items will be reviewed.
3. Submittals for special structural, load-carrying items that are required by codes or standards to resist forces must be prepared by, or under the direct supervision of, a delegated engineer as follows:

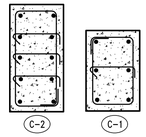
SHOP DRAWING SUBMITTAL REQUIREMENTS

COMPONENT	DRAWINGS/ MATERIAL SHEETS	PRODUCT APPROVALS	SIGNED & SEALED DRAWINGS	SIGNED & SEALED CALCULATIONS
REINFORCEMENT	X			
MASONRY	X			
PRECAST LINTELS	X	X		
CONCRETE MIXES	X			
CONCRETE ACCESSORIES	X			
EPOXY, EXPANSION, OR SCREW ANCHORS	X			
RAILINGS			X	X
DOORS/WINDOWS/LOUVERS		X	X	X
PREFABRICATED BUILDING			X	X

4. A delegated Engineer is defined as a Florida licensed Engineer who specializes in and undertakes the design of structural components or structural systems included in a specific submittal prepared for this project and is an employee or officer of, or consultant to, the contractor or fabricator responsible for the submittal. The delegated Engineer shall sign, seal and date the submittal, including calculations and drawings.
5. The trade contractor is responsible for confirming and correlating dimensions at the job sites, for tolerances, clearances, quantities, fabrication processes and techniques of construction, coordination of the work with other trades and full compliance with the contract documents.
6. The general contractor/construction manager shall review and approve submittals and shall sign and date each drawing prior to submitting to the Architect. This approval is to confirm that the submittal is complete, complies with the submittal requirements and is coordinated with field dimensions, other trades, erection sequencing and constructibility.
7. The structural Engineer reviews submittals to confirm that the submittal is in general conformance with the design concept presented in the contract documents. Quantities and dimensions are not checked. Notations on submittals do not authorize changes to the contract sum. Checking of the submittal by the Structural Engineer shall not relieve the contractor of responsibility for deviations from the contract documents and from errors or omissions in the submittal.
8. In addition to the above, the structural Engineer's review of delegated Engineer submittals is limited to verifying that the specified structural submittal has been furnished, signed and sealed by the delegated Engineer and that the delegated Engineer has understood the design intent and used the specified structural criteria. No detailed check of calculations will be made. The delegated Engineer is solely responsible for their design, including but not limited to the accuracy of their calculations and compliance with the applicable codes and standards.
9. CAD files of Structural Drawings may be used as an aid in preparing shop drawings only upon the contractor signing an agreement.

FOOTING SCHEDULE

MARK	SIZE WxLxD	REINFORCING				REMARKS
		BOTTOM		TOP		
		L.W.	S.W.	L.W.	S.W.	
TE-16	16"xCONT.x16"	2#5		#5	#4 AT 12"	THICKENED EDGE
MF-18	18"xCONT.x24"	2#5				MONOLITHIC FOOTING
MF-24	24"xCONT.x24"	3#5	#5 AT 6"	3#5	#4 AT 12"	MONOLITHIC FOOTING
WF-36	36"xCONT.x12"	4#5	#5 AT 12"			
WF-60	*	*	*	*	*	*REFER TO 2/S-302
F6.0	6'-0"x6'-0"x12"	6#5	6#5	6#5	6#5	
MF5.0	5'-0"x5'-0"x24"	5#5	5#5	5#5	5#5	MONOLITHIC FOOTING
MF6.0	6'-0"x6'-0"x24"	6#5	6#5	6#5	6#5	MONOLITHIC FOOTING
MF7.0	7'-0"x7'-0"x24"	7#5	7#5	7#5	7#5	MONOLITHIC FOOTING
MF11.0	11'-0"x11'-0"x24"	11#5	11#5	11#5	11#5	MONOLITHIC FOOTING
MF14.5	14'-6"x14'-6"x24"	15#5	15#5	15#5	15#5	MONOLITHIC FOOTING
MF18.0	18'-0"x18'-0"x24"	18#5	18#5	18#5	18#5	MONOLITHIC FOOTING
MF24.5	24'-6"x24'-6"x24"	25#5	25#5	25#5	25#5	MONOLITHIC FOOTING
MF17x24.5	17'-0"x24'-6"x24"	17#5	25#5	17#5	25#5	MONOLITHIC FOOTING



TIE COLUMN SCHEDULE

MARK	SIZE "B X D"	REINFORCING			REMARKS
		DOWELS	VERTICAL	TIES	
C-1	8"X16"	3#6	6#6	#3 AT 8" *	* + (1) HAIRPIN
C-2	8"X32"	5#6	10#6	#3 AT 8" *	* + (3) HAIRPIN

No.	REVISIONS	DATE	BY

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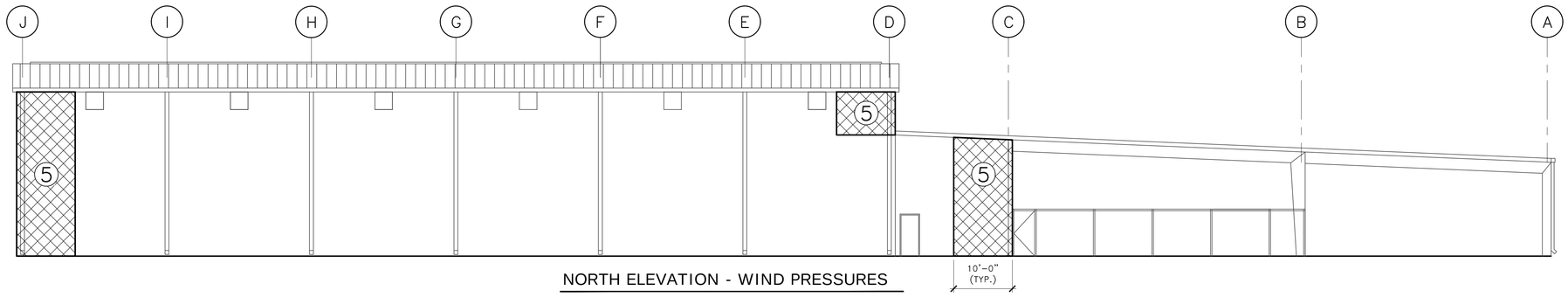
Juan J. Fuentes, PE, SE, LEED AP
Senior Vice President
Florida License No. 62426

DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY JF
DRAWN BY WR
CHECKED BY JF

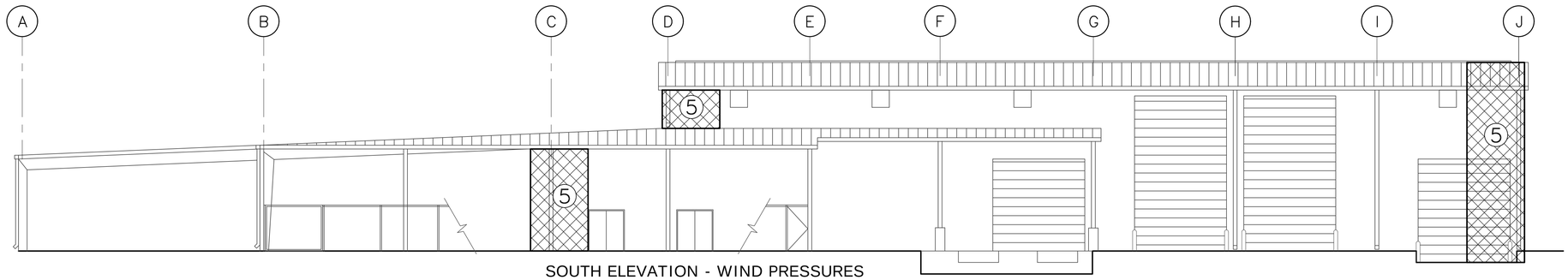
GENERAL NOTES

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

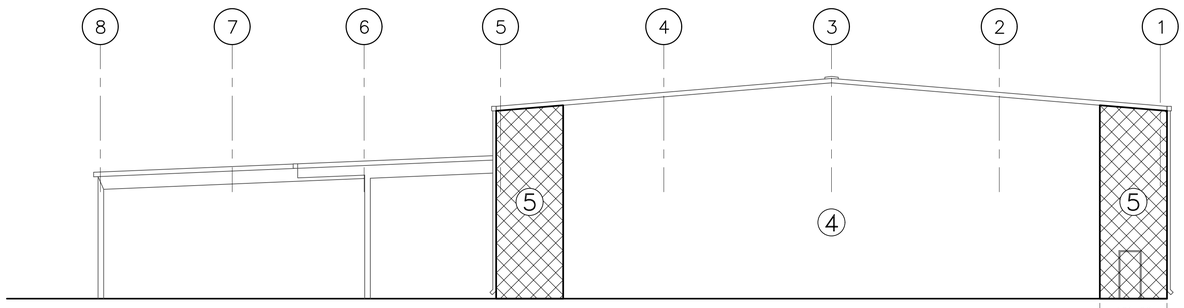
SHEET NUMBER
S-000



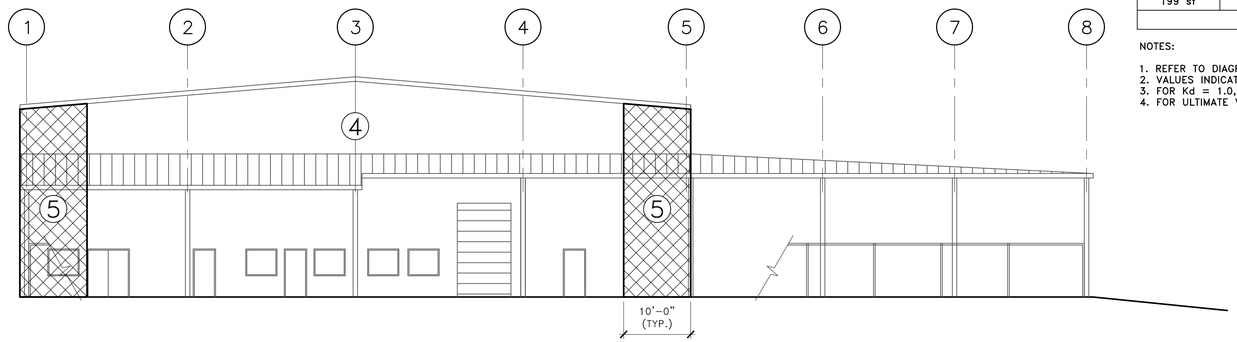
NORTH ELEVATION - WIND PRESSURES



SOUTH ELEVATION - WIND PRESSURES



EAST ELEVATION - WIND PRESSURES



WEST ELEVATION - WIND PRESSURES

ASD WIND LOAD WALL PRESSURES Kd=0.85

TRIBUTARY AREA	ZONE 4 (PSF)		ZONE 5 (PSF)	
	(+)	(-)	(+)	(-)
WINDOW	+46.9	-49.9	+46.9	-58.6
DOOR	+45.4	-48.3	+45.4	-55.5
0 sf to 19 sf	+46.9	-49.9	+46.9	-58.6
20 sf to 29 sf	+45.4	-48.3	+45.4	-55.5
30 sf to 49 sf	+44.5	-47.4	+44.5	-53.7
50 sf to 99 sf	+43.3	-46.3	+43.3	-51.4
100 sf to 199 sf	+41.8	-44.7	+41.8	-48.3

NOTES:

1. REFER TO DIAGRAM FOR LOCATION OF ZONE ④ AND ⑤ .
2. VALUES INDICATED CAN BE INTERPOLATED.
3. FOR Kd = 1.0, MULTIPLY VALUES BY 1.18.
4. FOR ULTIMATE VALUES, MULTIPLY VALUES IN TABLE BY 1.67.

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KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY JF
DRAWN BY WR
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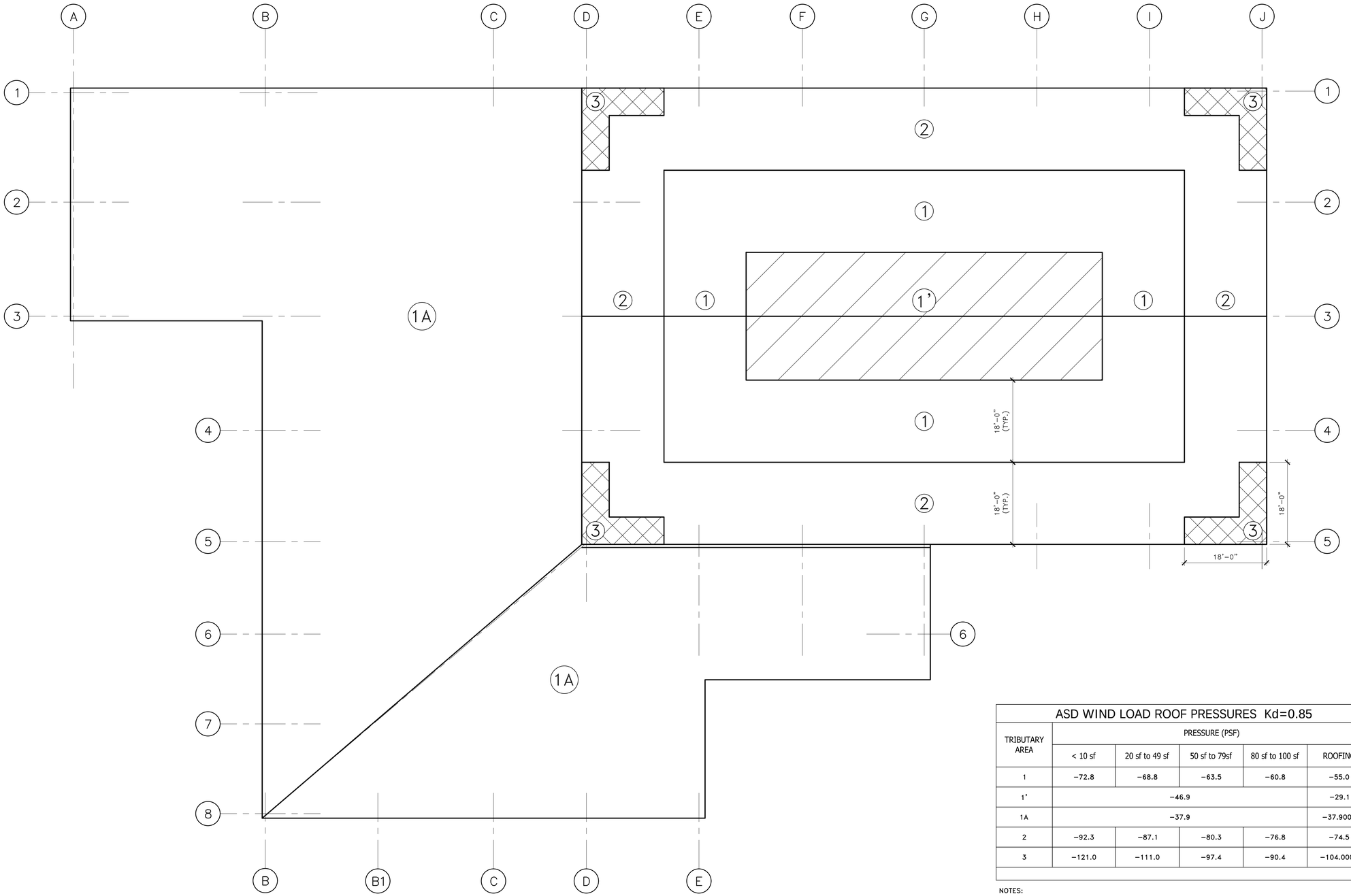
ELEVATIONS WIND PRESSURE DIAGRAMS

IRC LANDFILL

PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
S-101



ROOF WIND PRESSURE DIAGRAM

N

ASD WIND LOAD ROOF PRESSURES Kd=0.85					
TRIBUTARY AREA	PRESSURE (PSF)				
	< 10 sf	20 sf to 49 sf	50 sf to 79sf	80 sf to 100 sf	ROOFING
1	−72.8	−68.8	−63.5	−60.8	−55.0
1'	−46.9				−29.1
1A	−37.9				−37.9000
2	−92.3	−87.1	−80.3	−76.8	−74.5
3	−121.0	−111.0	−97.4	−90.4	−104.0000

NOTES:

1. FOR Kd = 1.0, MULTIPLY VALUES BY 1.18.
2. THE FIGURES SHOWN REPRESENT GROSS VALUES. TO OBTAIN NET UPLIFT VALUES ONLY 10 PSF OF DEAD LOAD SHALL BE DEDUCTED FROM THEM.
3. FOR ULTIMATE VALUES, MULTIPLY VALUES IN TABLE BY 1.67.

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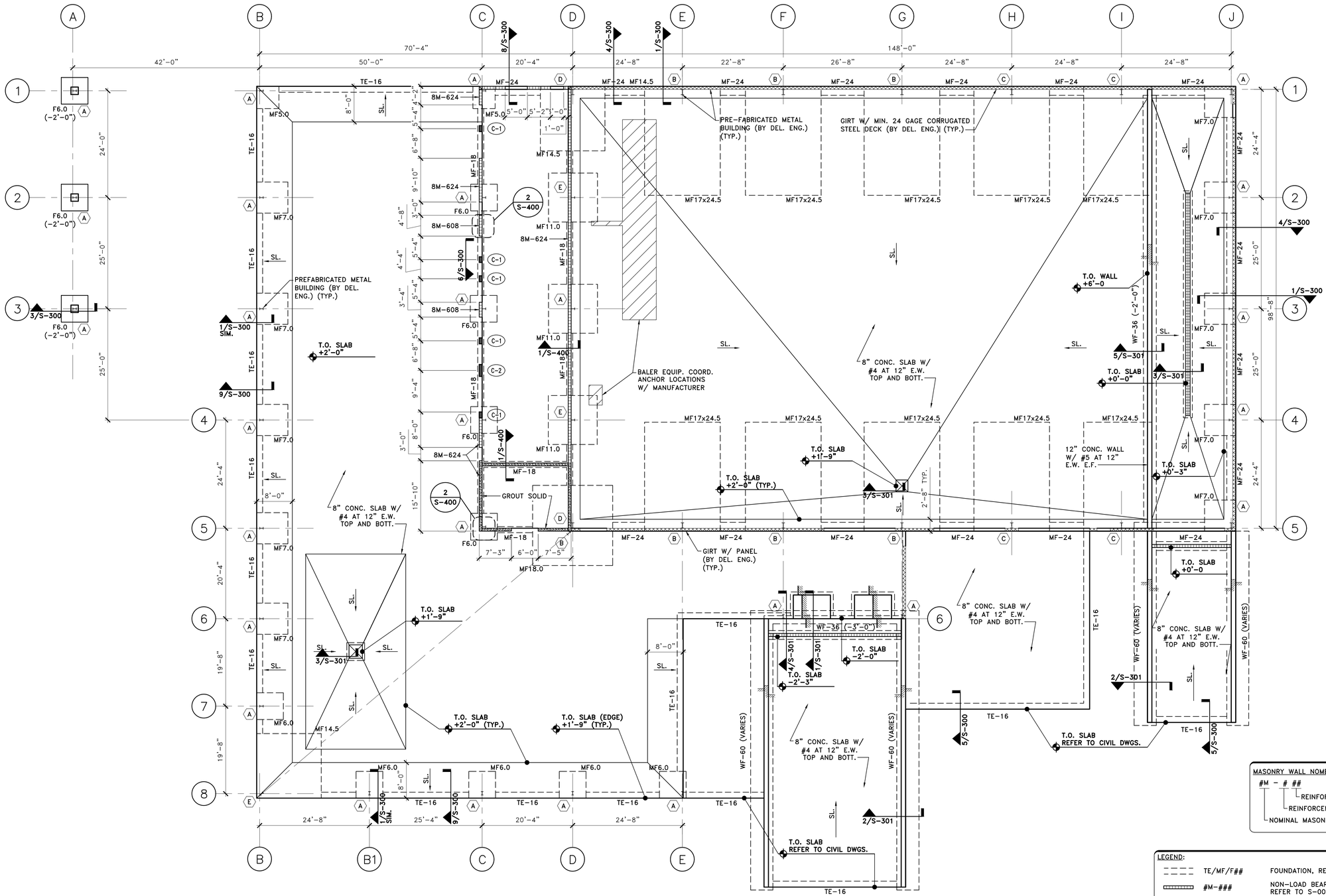
KHA PROJECT	
143228000	
DATE	
APRIL 2021	
SCALE	AS SHOWN
DESIGNED BY	JF
DRAWN BY	WR
CHECKED BY	JF

ROOF WIND PRESSURE DIAGRAM

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY
FL

SHEET NUMBER
S-102



FOUNDATION AND SLAB ON GRADE PLAN

SCALE: 3/32"=1'-0"

N

MASONRY WALL NOMENCLATURE:

#M - # ##
- REINFORCEMENT SPACING IN INCHES
- REINFORCEMENT SIZE
- NOMINAL MASONRY WIDTH

LEGEND:

TE/MF/F##	FOUNDATION, REFER TO S-000.
#M-###	NON-LOAD BEARING MASONRY WALL, REFER TO S-000.
C-X	CONC. TIE COLUMN, REFER TO S-000.
X	PREFABRICATED BLDG. COLUMN ANCHOR ROD, REFER TO 2/S-300.
	PREFABRICATED BLDG. WALL FRAMING
	ELEVATION CHANGE OR STEP
SL.	SLOPE, REFER TO ARCH. DWGS.

FOUNDATION/FLOOR PLAN NOTES:

1. ELEVATION +0'-0" = +24.5 NAVD 88
2. FOR GENERAL NOTES, SEE SHEET S-000.
3. FOR COLUMN/FOOTING SCHEDULE, SEE SHEET S-000.

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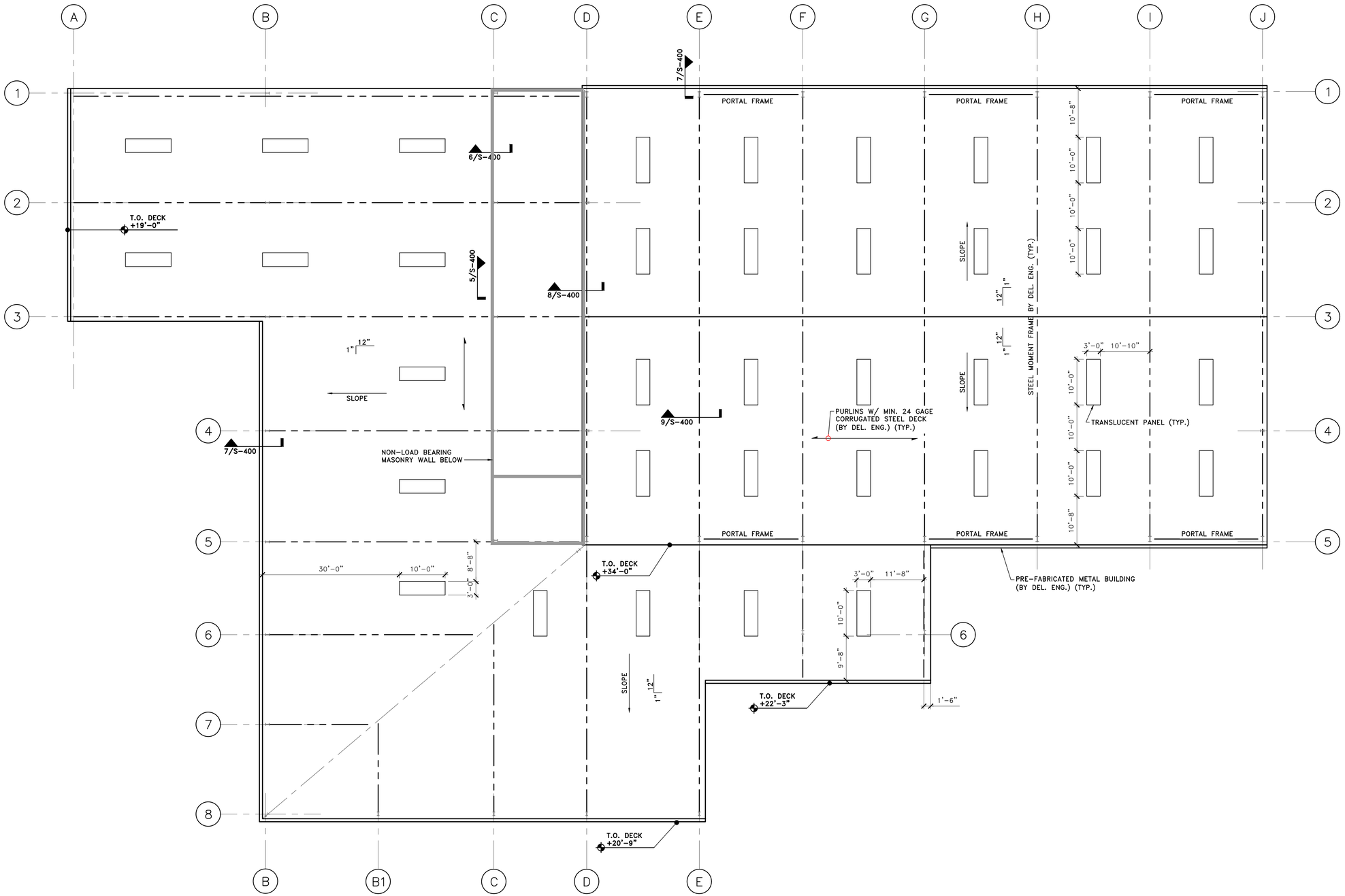
KHA PROJECT	143228000
DATE	APRIL 2021
SCALE	AS SHOWN
DESIGNED BY	JF
DRAWN BY	WR
CHECKED BY	JF

FOUNDATION AND SLAB-ON-GRADE PLAN

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY FL
INDIAN RIVER COUNTY

SHEET NUMBER
S-200



ROOF FRAMING PLAN

SCALE: 3/32"=1'-0"

N

ROOF PLAN NOTES:

1. ELEVATION +0'-0" = +24.5 NAVD 88
2. FOR GENERAL NOTES, SEE SHEET S-000.
3. COORD. ALL SLOPES AND ELEVATIONS W/ ARCH. DWGS.

LEGEND:

- PORTAL FRAME BEAM (BY DEL. ENG.)
- STEEL FRAME BEAM (BY DEL. ENG.)
- STEEL COLUMN (BY DEL. ENG.)
- NON-LOAD BEARING MASONRY WALL
- PURLING FRAMING (BY DEL. ENG.)
- 1" 12" ROOF SLOPE

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KHA PROJECT	143228000
DATE	APRIL 2021
SCALE	AS SHOWN
DESIGNED BY	JF
DRAWN BY	WR
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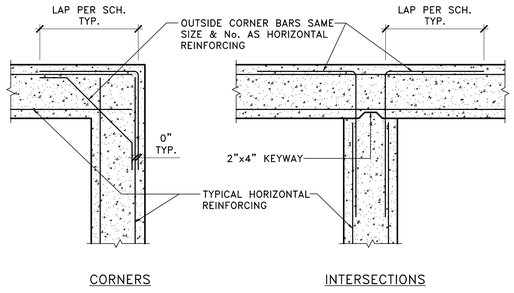
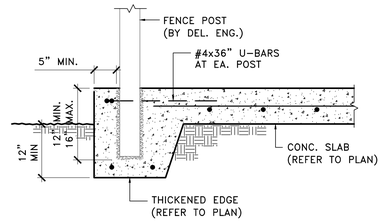
ROOF FRAMING PLAN

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY FL
INDIAN RIVER COUNTY

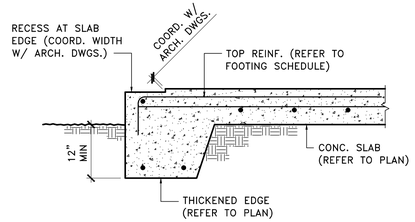
SHEET NUMBER
S-201



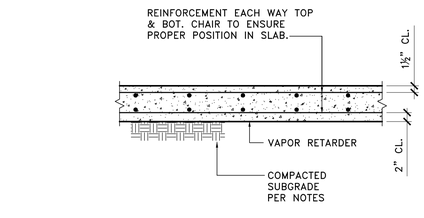
10 TYPICAL HORIZONTAL REINFORCING
CONCRETE TIE BEAMS, WALLS, AND FOOTINGS



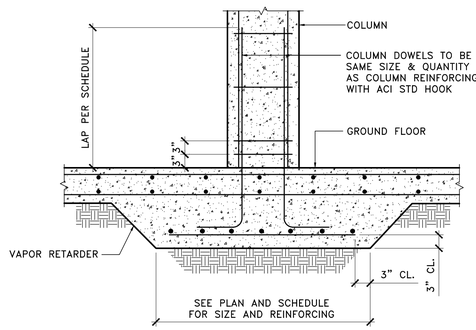
9 TYP. FENCE POST CONN.
SCALE: 3/4"=1'-0"



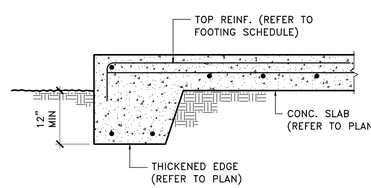
8 TYP. SLAB EDGE AT DOOR
SCALE: 3/4"=1'-0"



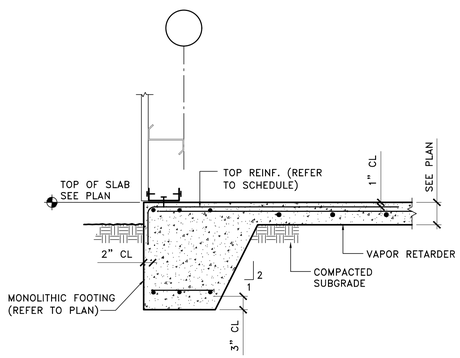
7 TYP. CONC. SLAB-ON-GRADE
NTS



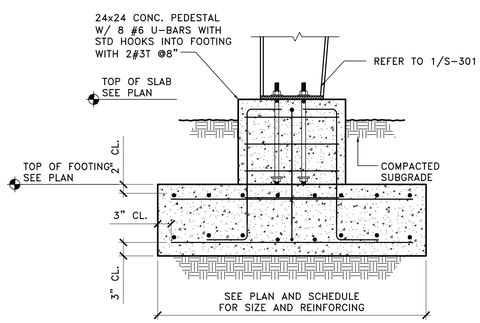
6 TYP. COL. TO FOOTING
SCALE: 3/4"=1'-0"



5 TYP. SLAB EDGE
SCALE: 3/4"=1'-0"



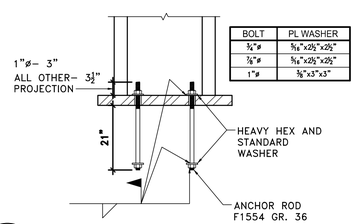
4 TYP. BLDG. SLAB EDGE
SCALE: 3/4"=1'-0"



3 TYP. COL. TO FOOTING
SCALE: 3/4"=1'-0"

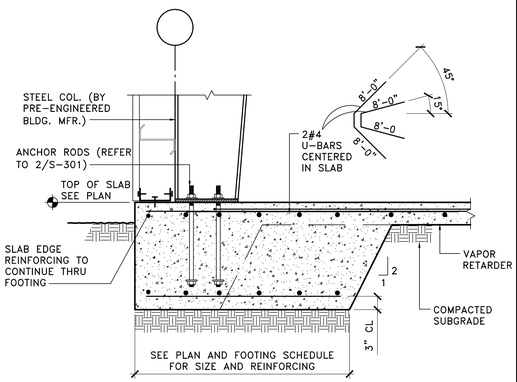
ANCHOR BOLT SCHEDULE

MARK	ANCHOR BOLT	BOLT PATTERN
A	4 – ¾"ø	2 x 2
B	6 – 1"ø	2 x 3
C	6 – ⅞"ø	2 x 3
D	6 – ¾"ø	2 x 3
E	8 – 1"ø	2 x 4



BOLT	PL WASHER
¾"ø	5/16"x2½"x2½"
⅞"ø	5/16"x2½"x2½"
1"ø	⅜"x3"x3"

2 TYP. ANCHOR RODS
NTS



1 TYP. FOOTING AT COL.
SCALE: 3/4"=1'-0"

No.	REVISIONS	DATE	BY

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LICENSED PROFESSIONAL

Juan J. Fuentes, PE, SE, SI, LEED AP
Senior Associate
Florida License No. 62426

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KHA PROJECT	
143228000	
DATE	APRIL 2021
SCALE	AS SHOWN
DESIGNED BY	JF
DRAWN BY	WR
CHECKED BY	JF

FOUNDATION SECTIONS

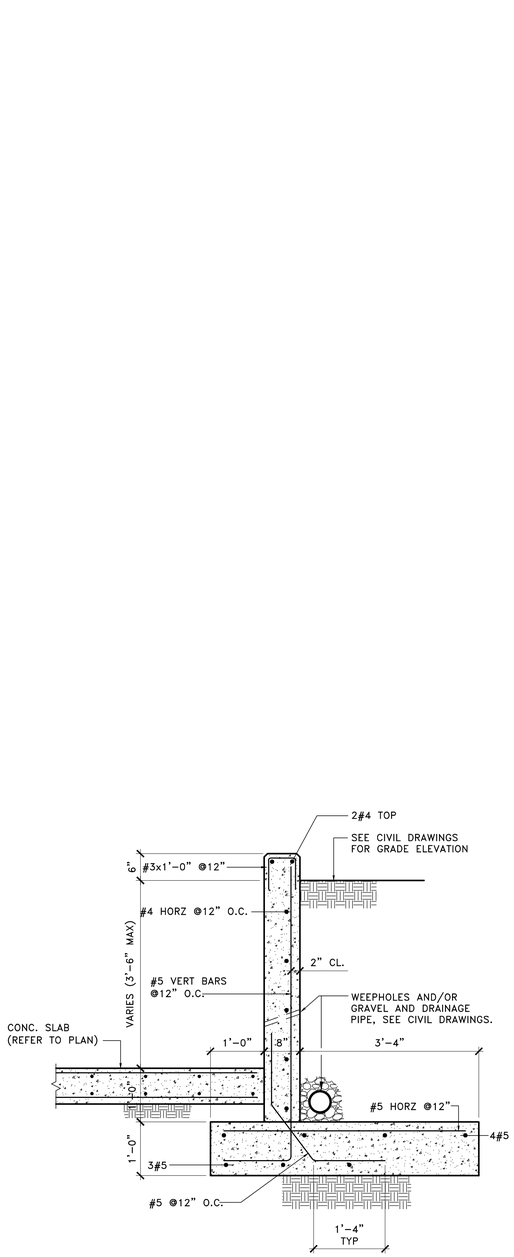
IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY FL

INDIAN RIVER COUNTY

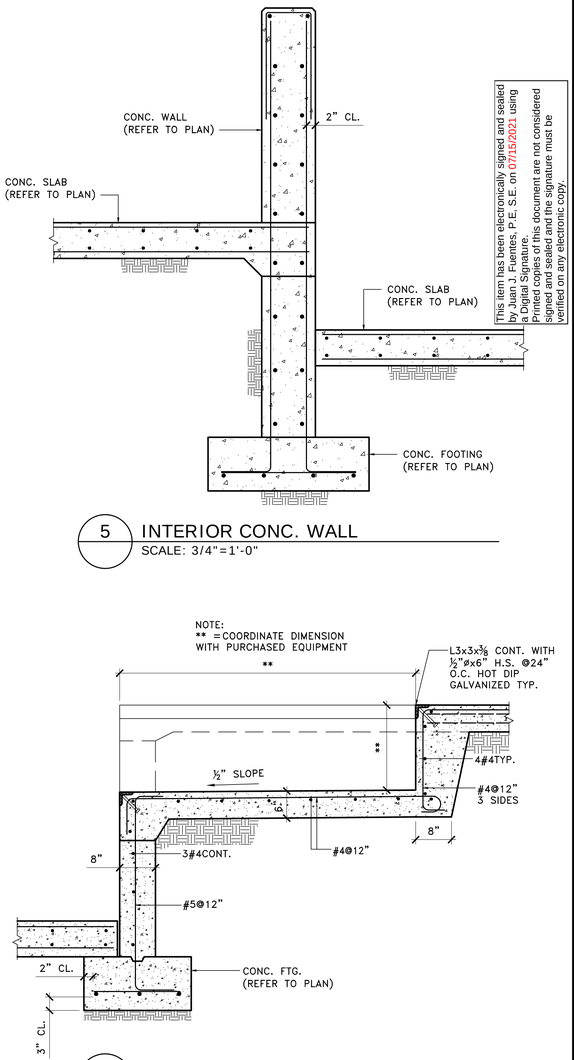
SHEET NUMBER
S-300

4 COLUMN AT LOADING DOCK
SCALE: 3/4"=1'-0"

3 TYP. TRENCH DRAIN
SCALE: 3/4"=1'-0"



2 TYP. RETAINING WALL
AT LOADING DOCK
SCALE: 3/4"=1'-0"



1 TYP. LOADING DOCK
SCALE: 3/4"=1'-0"

5 INTERIOR CONC. WALL
SCALE: 3/4"=1'-0"

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No.	REVISIONS	DATE	BY

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Structural Engineer
Florida License No. 62426

KHA PROJECT	143228000
DATE	APRIL 2021
SCALE	AS SHOWN
DESIGNED BY	JF
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CHECKED BY	JF

FOUNDATION SECTIONS

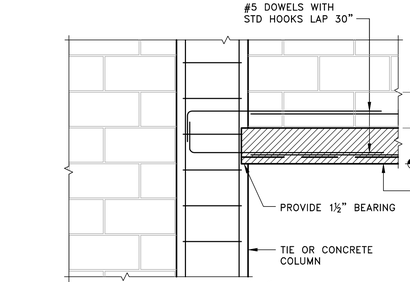
IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY FL
INDIAN RIVER COUNTY

SHEET NUMBER
S-301

4 TYP. MASONRY SILL
SCALE: 3/4"=1'-0"

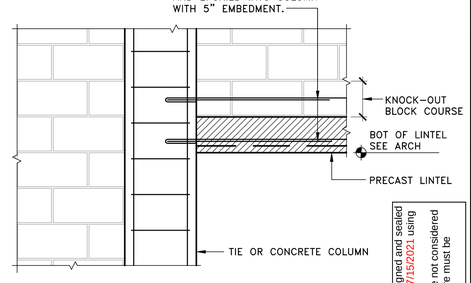
3 MASONRY WALL REINFORCING
SCALE: 3/4"=1'-0"

2 MASONRY WALL REINFORCING
SCALE: 3/4"=1'-0"

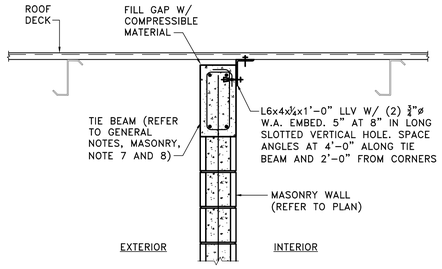


1 TYP. MASONRY WALL TO FOOTING
SCALE: 3/4"=1'-0"

OR



5 PRECAST LINTEL AT COL.
SCALE: 3/4"=1'-0"



6 PRECAST LINTEL AT COL.
SCALE: 3/4"=1'-0"

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KHA PROJECT 143228000
DATE APRIL 2021
SCALE AS SHOWN
DESIGNED BY JF
DRAWN BY WR
CHECKED BY JF

MASONRY AND ROOF SECTIONS

IRC LANDFILL
PREPARED FOR
INDIAN RIVER COUNTY
INDIAN RIVER COUNTY FL

SHEET NUMBER
S-400

GENERAL MECHANICAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH 2020 FLORIDA BUILDING CODE 7TH EDITION - MECHANICAL. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, ALL DRAWINGS AND SPECIFICATIONS COMPLY WITH MINIMUM EXISTING CODES.
2. CONTRACTOR SHALL PROVIDE ALL WORK CUSTOMARILY INCLUDED IF NOT SPECIFICALLY CALLED FOR ON THE PLANS. ALL WORK SHALL BE IN ACCORDANCE WITH BASE BUILDING PLANS AND SPECIFICATIONS.
3. CONTRACTOR TO CONSULT BUILDING OWNER FOR BUILDING STANDARDS AND CONTROL SEQUENCES.
4. CONTRACTOR SHALL CONFIRM THE EXISTENCE OF FIRE DAMPERS AS REQUIRED BY CODE IN ANY DUCT PENETRATING EXISTING FIRE RATED PARTITIONS.
5. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE THEMSELF WITH ALL DETAILS OF THE WORK AND EXISTING CONDITIONS. THE INTENT OF THESE NOTES AND MECHANICAL NOTES ON DRAWINGS IS TO CLARIFY THE SCOPE OF WORK AND ALERT CONTRACTOR OF EXISTING CONDITIONS. CONTRACTOR SHALL VERIFY ALL CLEARANCES BEFORE FABRICATION OF DUCTWORK AND PROVIDE ADDITIONAL OFFSET AND/OR CHANGES IN DUCT SIZES TO MEET FIELD CONDITIONS AND COORDINATE WITH ELECTRICAL AND PLUMBING SUBCONTRACTOR BEFORE ANY CONSTRUCTION WORK.
6. CONTRACTOR SHALL PROVIDE A COPY OF THE INDEPENDENT TEST AND BALANCE REPORT AT THE FINAL INSPECTION. CONTRACTOR SHALL ALSO PROVIDE ALL REPORTS AS REQUIRED BY THE SPECIFICATIONS.
7. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL TRADES INSTALLATION SCHEDULES. FIXED WORK SUCH AS DUCTWORK AND PLUMBING SHALL BE INSTALLED PRIOR TO ANY TRADE WORK THAT CAN BE EASILY RELOCATED OR OFFSET SUCH AS ELECTRICAL CONDUITS AND SMALL WATER LINES, ETC.
8. CONTRACTOR SHALL REVIEW STRUCTURAL DRAWINGS BEFORE INSTALLATION TO AVOID ANY BEAM CONFLICTS AND COORDINATE PIPING AND HVAC DUCTWORK ACCORDINGLY.
9. BALANCE AIR DISTRIBUTION SYSTEMS TO QUANTITIES AS INDICATED ON DRAWINGS.
10. ALL SUPPLY TAKE-OFFS ARE CONNECTED TO HARD TRUNK DUCT WITH SPIN-IN FITTING (WITH MANUAL DAMPER) OF SIZE EQUAL TO DIFFUSER INLET AND DUCT CONNECTION. FLEXIBLE DUCT SHALL BE STRAIGHT WITH NO SAGS OR EXCESS DUCT. TOTAL TURNS SHALL NOT EXCEED 135 DEGREES. FLEX CONNECTIONS ARE NOT TO EXCEED 8 FEET IN LENGTH. PROVIDE HARD DUCT FOR OVER 8 FEET OR AS SPECIFICALLY CALLED FOR ON THE PLANS. THERMA-FLEX OR EQUAL INSULATED FLEX DUCT CONFORMING TO NFPA-90A AND UL 181 FOR "AIR DUCT CONNECTOR."
11. ALL EXHAUST VENTS MUST BE AT LEAST 10' FROM ANY OUTSIDE AIR INTAKE. CONTRACTOR TO ADJUST VENTS ACCORDINGLY.
12. ALL DUCT SIZES INDICATED ON DRAWINGS ARE INSIDE CLEAR DIMENSIONS.
13. ALL DUCTWORK SHALL BE FIBERBOARD WITH 1.5" THICK INSULATION, EXCLUDING FLEX DUCT CONNECTIONS. ALL FLEXIBLE DUCT SHALL BE ATCO BRAND (CLASS 1) WITH AN INSULATION VALUE OF R6. ALL JOINTS MUST BE MECHANICALLY FASTENED AND SEALED TO 100% CLOSURE. METHODS FOR ATTACHMENT AND SEALING SHALL BE APPROVED METHOD AS STATED IN FBCM TABLE 603 AND SECTIONS 603.1 THRU 603.17. ALL DUCTWORK CONSTRUCTION SHALL MEET SECTION C403 OF THE FBC ENERGY CONSERVATION.
14. ALL CEILING MOUNTED DIFFUSERS SHALL BE 4-WAY THROW UNLESS OTHERWISE NOTED.
15. CONTRACTOR SHALL PROVIDE CONCEALED DAMPER REGULATOR OR ACCESS PANEL OF ALL MANUAL VOLUME DAMPERS/SPIN-IN DAMPERS ABOVE HARD CEILINGS OR OTHERWISE INACCESSIBLE AREAS ABOVE CEILING.
16. IN GENERAL, PLANS AND DIAGRAMS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED.
17. COORDINATE AIR DEVICE LOCATIONS WITH LIGHTING FIXTURES.
18. PROVIDE ADDITIONAL DUCTWORK AND PIPING SUPPORTS ON BOTH SIDES AND WITHIN 18" OF FIRE RATED WALL. DUCTWORK OR PIPING SHALL NOT BE SUPPORTED FROM ANY FIRE RATED WALL.
19. TURNING VANES SHALL BE PROVIDED IN ALL SUPPLY DUCT RECTANGULAR ELBOWS WITH ANGLES BETWEEN 15 DEGREES AND LESS THAN 90 DEGREES PER SMACNA.
20. DUCTWORK SHALL NOT BE SUPPORTED BY THE CEILING OR CEILING SUSPENSION SYSTEM.
21. ALL WALL MOUNTED THERMOSTATS AND/OR TEMPERATURE SENSORS SHALL BE INSTALLED AT AN ELEVATION OF 48" A.F.F. ALL THERMOSTATS NEED TO BE RECALIBRATED BY A MECHANICAL CONTRACTOR IF THEY ARE RELOCATED. THERMOSTATS SHALL BE FASTENED BY PLASTIC SHIELD AND SCREWS.
22. OUTSIDE AIR SUPPLY RATES CONFORM TO ASHRAE 62-2016 STANDARDS.
23. UNLESS OTHERWISE NOTED, INSTALL DUCTWORK AS HIGH AS POSSIBLE, TIGHT TO BOTTOM OF STRUCTURE. COORDINATE DUCT ELEVATION WITH WATER PIPING, SANITARY DRAINS AND MAJOR ELECTRICAL CONDUITS.
24. PROVIDE ALL SUPPLEMENTARY STEEL REQUIRED TO INSTALL MECHANICAL EQUIPMENT AND MATERIALS.
25. INSTALL AND INSULATE REFRIGERANT PIPING AS PER MANUFACTURER.
26. CONDENSATE PIPING SHALL BE COPPER. PROVIDE A TRAP IN ALL CONDENSATE PIPING LOCATED AT THE AIR HANDLING UNIT. INSULATE ALL CONDENSATE LINES WITH 1/2" THICK CLOSED CELL FOAM INSULATION. SLOPE CONDENSATE LINES AT 1/8" PER FOOT MINIMUM.
27. INSTALLATION OF MECHANICAL EQUIPMENT SHALL COMPLY WITH THE MANUFACTURER'S SPECIFICATIONS AND CLEARANCE REQUIREMENTS.
28. MATCH DIFFUSER MOUNTING FRAME WITH CEILING TYPE.
29. ALL DASHED LINED EQUIPMENT AND DUCTWORK ARE EXISTING. ALL SOLID LINED EQUIPMENT AND DUCTWORK ARE NEW UNDER TENANT WORK EXCEPT FOR DIFFUSERS.
30. FOR DUCTWORK PENETRATING ONE HOUR FIRE RATED WALL: THE ENTIRE DUCT SYSTEM TO BE CONSTRUCTED PER SMACNA STANDARDS WITH A MINIMUM OF 26 GAUGE STEEL DUCT AND SHALL CONTINUE IN THE HORIZONTAL DIRECTION WITHOUT ANY GRILLE OR OPENING FOR NOT LESS THAN 5'-0" FROM THE WALL AND DUCT SHALL NOT EXCEED SQUARE INCH REQUIREMENTS OF LOCAL CODE, OTHERWISE A FIRE DAMPER SHALL BE PROVIDED.
31. PENETRATIONS THROUGH SMOKE OR FIRE RATED ASSEMBLIES: PENETRATIONS FOR PIPES, CONDUITS OR OTHER PURPOSES THROUGH ASSEMBLIES (FLOORS, ROOF, WALLS PARTITIONS, ETC.) WITH A REQUIRED FIRE RESISTANCE RATING SHALL BE SEALED TO THE PENETRATING MEMBER IN AN APPROVED MANNER WHICH MAINTAINS THE REQUIRED FIRE RESISTANCE RATING OF THE ASSEMBLY.
32. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AND THE APPLICABLE FIRE SAFETY STANDARDS AS DETERMINED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH SECTION AND CHAPTER 633, FLORIDA STATUTES. FBC 110.8.4.4 2020.

FMC TABLE 403.3.1.1 VENTILATION REQUIREMENTS

REQUIRED OUTSIDE AIR

CONFERENCE: 12 PEOPLE X 5 CFM/PERSON + 329 SQ FT X 0.06 CFM/SQ FT = 80 CFM
OFFICE: 2 PEOPLE X 5 CFM/PERSON + 232 SQ FT X 0.06 CFM/SQ FT= = 24 CFM

AVAILABLE OUTSIDE AIR

NEW MAIN AIR HANDLER SERVING THE CONDITIONED SPACES ARE DESIGNED TO DELIVER A TOTAL OF 150 CFM OF OUTSIDE AIR.

AIR BALANCE

OUTSIDE AIR	
AHU-1	150 CFM
TOTAL OUTSIDE AIR	150 CFM

EXHAUST AIR	
EF-1	70 CFM
EF-2	70 CFM
TOTAL EXHAUST	140 CFM

TOTAL	
OUTSIDE AIR	+ 150 CFM
EXHAUST	- 140 CFM
TOTAL CONDITIONED AREA PRESSURE	+ 10 CFM

ADD ALTERNATE

1. CONTRACTOR TO PROVIDE SEPARATE PRICE TO PROVIDE AND INSTALL NEW 2 TON MINISPLIT, MITSUBISH PKA-A24HA4/PUY-A24NHA4 OR EQUIVALENT, IN RE-USE AREA. PRICE TO INCLUDE ALL PARTS AND LABOR NECESSARY TO PROVIDE A FULLY INSTALLED SYSTEM, INCLUDING CONDENSATE PUMP, REFRIGERANT LINE SETS, AND ANY OTHER REQUIRED COMPONENT.

MECHANICAL LEGEND

MVD	MANUAL VOLUME DAMPER
EXIST.	EXISTING
RA	RETURN AIR
OA	OUTSIDE AIR
	DUCT REDUCTION IN DIRECTION OF FLOW
SD	DUCT MOUNTED SMOKE DETECTOR
	MOTORIZED DAMPER
	RETURN (OR EXHAUST) GRILLE
	SUPPLY DIFFUSER
ETR	EXISTING TO REMAIN
RE	RELOCATE EXISTING
ER	EXISTING RELOCATED
	FIRE DAMPER
	EXISTING FIRE DAMPER
S	SMOKE TIGHT DUCT SEAL
SD	SMOKE DAMPER
SD	FIRE/SMOKE DAMPER
	NEW HARD DUCT
	EXISTING HARD DUCT
	NEW FLEXIBLE DUCT
	EXISTING FLEXIBLE DUCT
T	THERMOSTAT
	NEW CONNECTION
BD	BACKDRAFT DAMPER
RTS	REMOTE TEST STATION

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INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE
AND RECYCLING FACILITY
Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO.
2016

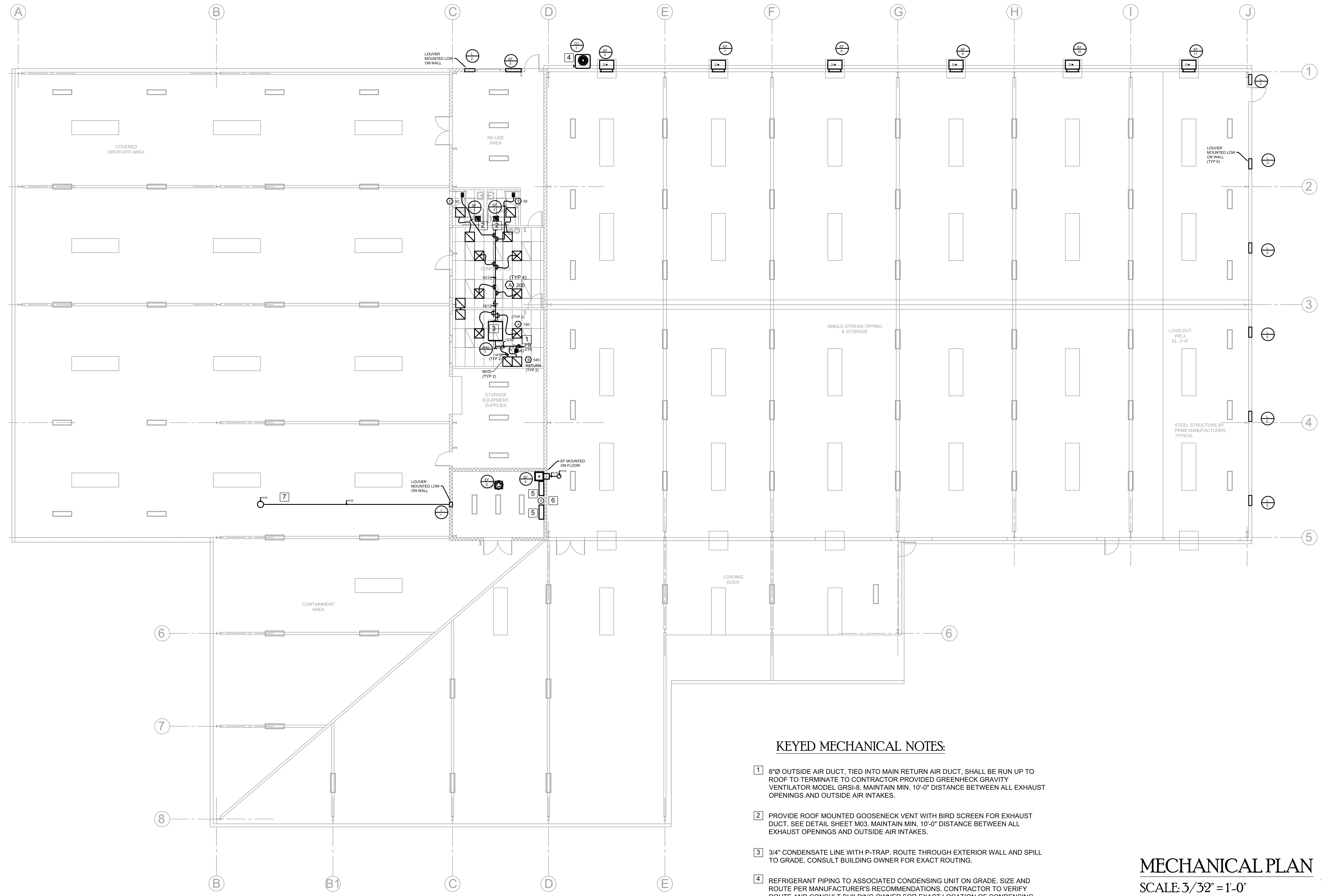
ISSUE DATE:
07/07/2021

DRAWN BY:
WG

PERMIT SET

SHEET TITLE
MECHANICAL NOTES

SHEET NO.
M101



KEYED MECHANICAL NOTES:

1. 8"Ø OUTSIDE AIR DUCT, TIED INTO MAIN RETURN AIR DUCT, SHALL BE RUN UP TO ROOF TO TERMINATE TO CONTRACTOR PROVIDED GREENHECK GRAVITY VENTILATOR MODEL GRSI-8. MAINTAIN MIN. 10'-0" DISTANCE BETWEEN ALL EXHAUST OPENINGS AND OUTSIDE AIR INTAKES.
2. PROVIDE ROOF MOUNTED GOOSENECK VENT WITH BIRD SCREEN FOR EXHAUST DUCT. SEE DETAIL SHEET M03. MAINTAIN MIN. 10'-0" DISTANCE BETWEEN ALL EXHAUST OPENINGS AND OUTSIDE AIR INTAKES.
3. 3/4" CONDENSATE LINE WITH P-TRAP. ROUTE THROUGH EXTERIOR WALL AND SPILL TO GRADE. CONSULT BUILDING OWNER FOR EXACT ROUTING.
4. REFRIGERANT PIPING TO ASSOCIATED CONDENSING UNIT ON GRADE. SIZE AND ROUTE PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO VERIFY ROUTE AND CONSULT BUILDING OWNER FOR EXACT LOCATION OF CONDENSING UNIT.
5. BULKING HOOD DRAWINGS TO BE VENDOR PROVIDED.
6. CONTRACTOR TO PROVIDE H2 SENSOR AND MONITORING SYSTEM. MOUNT SENSOR ABOVE BULKING HOODS' EXHAUST INTAKE.
7. CONTRACTOR TO PROVIDE INTAKE WITH 40 FEET MINIMUM FROM H2 STORAGE. CONTRACTOR TO RUN DUCTWORK TIGHT TO STRUCTURE BEFORE ROOF PENETRATION.

MECHANICAL PLAN

SCALE: 3/32" = 1'-0"

N

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SHEET TITLE: MECHANICAL PLAN

SHEET NO. M102

SPLIT SYSTEM AIR HANDLING UNIT SCHEDULE

REMARKS:

ALL AHUS TO UTILIZE R-410A REFRIGERANT AND TO HAVE MINIMUM 13.0 SEER RATING

MARK AHU NO.	MIN. O.A. CFM	MAX. O.A. CFM	FAN DATA			COOLING DATA				ACCESORY HEATER DATA					ELECTRICAL DATA			WEIGHT (LBS)	BASIS OF DESIGN	SEER	ACCESSORIES
			CFM	EXT. SP "WG	MOTOR HP	EDB °F	EWB °F	TOTAL CAP MBH	SENS. CAP MBH	V/Φ	(KW)	STEPS	MCA	MOCP	V/Φ	MCA	MOCP				
AHU-1	0	150	1200	0.5	0.5	80	67	34	27.4	460/3	10	1	19.3	20	208/1	5.1	15	163	CARRIER FV4CMB006L00	14.0	1 2 3 4 5 6 7 8

ACCESSORIES:

1. AUXILIARY DRAIN PAN WITH FLOAT SWITCH. UNIT TO SHUT DOWN UPON WATER DETECTION. CONDENSATE DRAIN SHALL BE FULL SIZE FROM UNIT. PROVIDE CONDENSATE PUMP AND ROUTE CONDENSATE TO NEAREST BASE BUILDING CONDENSATE RISER.
2. SINGLE POINT ELECTRICAL CONNECTION.
3. 1" DISPOSABLE FILTERS.
4. PROGRAMMABLE DIGITAL THERMOSTAT.
5. DISCONNECTS BY DIVISION 16.
6. VARIABLE SPEED FAN.
7. PROVIDE WITH ACCESSORY DUCT HEATER WARREN WKF1005A
8. PROVIDE RAWAL/APR DEIVICE FOR CAPACITY CONTROL

SPLIT SYSTEM CONDENSING UNIT SCHEDULE

REMARKS:

1. SIZE AND ROUTE REFERIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.
2. COORDINATE EXACT LOCATION OF UNIT WITH OWNER.
3. ALL AHUS TO UTILIZE R-410A REFRIGERANT.

MARK CU NO.	PAIR WITH	LOCATION	ELECTRICAL DATA			BASIS OF DESIGN	WEIGHT (LBS)	ACCESSORIES
			V/Φ	MCA	MFS (amps)			
CU-1	AHU-1	GRADE	460/3	21.5	30	CARRIER 24ABB336A006	170	1 2

ACCESSORIES: 1 DISCONNECTS BY DIVISION 16 2 PROVIDE WITH LOW AMBIENT CONTROLS

AIR DISTRIBUTION SCHEDULE

REMARKS:

1. COORDINATE FRAME & BORDER TYPE WITH CEILING TYPE. REFER TO ARCHITECTURAL PLANS.
2. COORDINATE WITH BLDG MGT FOR BLDG STANDARDS.

MARK	CFM	NECK SIZE (INCHES)	FACE SIZE (INCHES)	BASIS OF DESIGN	ACCESSORIES
A	0-120	6"Ø	24"x24"	SUPPLY DIFFUSER EQUAL TO TITUS MODEL PAS TO MATCH EXISTING. INSULATE BACK OF ALL DIFFUSERS.	
	121-250	8"Ø	24"x24"		
	251-350	10"Ø	24"x24"		
	351-450	12"Ø	24"x24"		
B	0-1600	22"x22"	24"x24"	PERFORATED RETURN/TRANSFER GRILLE EQUAL TO TITUS PAR TO MATCH EXISTING. INSULATE BACK OF ALL DIFFUSERS.	
C	0-120	6"Ø	11.75"x7.75"	SUPPLY GRILLE EQUAL TO PRICE MODEL 640.	

FAN SCHEDULE

MARK	SERVICE	LOCATION	CFM	EXT. SP "WG	MOTOR HP	MOTOR V/Φ	MAX RPM	DRIVE TYPE	WEIGHT	INTERLOCK	BASIS OF DESIGN	ACCESSORIES
EF-1	RESTROOM	CEILING	70	0.25	74.7 W	115/1	1400	DIRECT	26 lbs	LIGHTS	COOK GEMINI GC-146	1 2
EF-2	RESTROOM	CEILING	70	0.25	74.7 W	115/1	1400	DIRECT	26 lbs	LIGHTS	COOK GEMINI GC-146	1 2
EF-3	H-2 STORAGE	ROOF	1200	0.5	.25	460/3	1725	BELT	127 lbs	SWITCH	COOK ACRU-B	1 3 4 5 10 11 12
EF-4	H-2 STORAGE	WALL	400	0.25	0.25	460/3	1140	BELT	282 lbs	SWITCH	COOK SQI-HP	1 3 4
EF-5	RE-USE AREA	WALL	850	0.25	0.25	460/3	1140	BELT	64 lbs	SWITCH	COOK ACW-B	1 3 4
EF-6 EF-7 EF-8 EF-9 EF-10 EF-11	SINGLE STREAM TIPPING	WALL	6850	0.25	0.948	460/3	840	BELT	572	SWITCH	COOK AWB	1 13 14 15

ACCESSORIES:

1. SPEED CONTROLLER
2. MOTOR WITH THERMAL OVERLOAD
3. EXPLOSION PROOF MOTOR
4. BACKDRAFT DAMPER
5. EXPLOSION PROOF DISCONNECT
6. OSHA BELT GUARD
7. INLET SAFETY SCREEN
8. OSHA BELT GUARD
9. VIBRATION ISOLATORS
10. AMCA A CONSTRUCTION
11. MANUFACTURER'S ROOF CURB + BIRD SCREEN
12. MIAMI-DADE HURRICANE RATED CONSTRUCTION
13. PREMIUM EFFICIENCY MOTOR
14. GRAVITY SHUTTER
15. WALL COLLAR

LOUVER SCHEDULE

MARK	DESCRIPTION
L-1	12"x12" INTAKE LOUVER. COOK MODEL SG-10 FINISH TBD BY ARCH
L-2	26"x26" INTAKE LOUVER. COOK MODEL SG-24 FINISH TBD BY ARCH

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SHEET TITLE: MECHANICAL SCHEDULES

SHEET NO. M103

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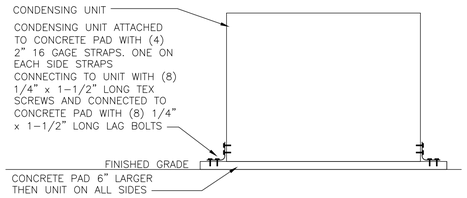
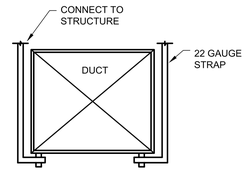


CONDENSING UNIT MOUNTED DETAIL

NTS



DUCT SUPPORT DETAIL

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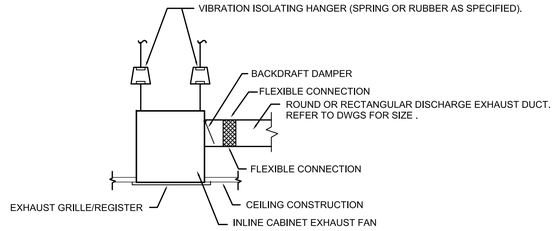
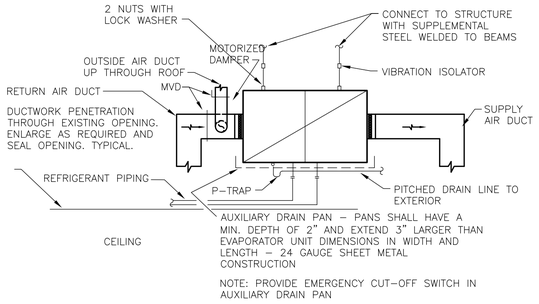


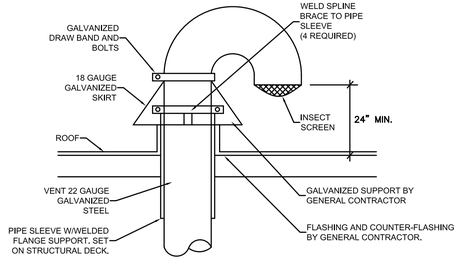
CABINET EXHAUST FAN DETAIL

NTS



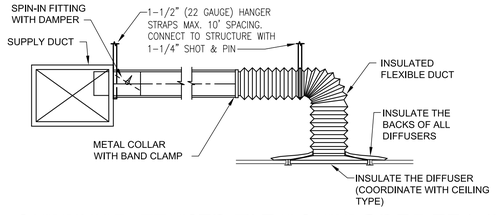
AIR HANDLING UNIT INSTALLATION DETAIL

NTS



DUCT GOOSENECK DETAIL

NTS



SUPPLY DIFFUSER FLEX SUPPORT DETAIL

NTS

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NO.	REVISIONS	DATE

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WG

PERMIT SET

SHEET TITLE
MECHANICAL DETAILS

SHEET NO.
M104

GENERAL PLUMBING SPECIFICATION

A. PIPE & PIPE FITTINGS

MATERIALS SHALL BE AS FOLLOWS:

1. SANITARY SEWER AND WASTE STORM WATER: PIPING SHALL BE CAST IRON (UNO).
2. VENT AND RE-VENT PIPING: PIPING SHALL BE CAST IRON (UNO).
3. DOMESTIC WATER: PIPING SHALL BE "L" COPPER ABOVE SLAB AND TYPE "K" BELOW SLAB.
4. ALL CLEANOUTS: FULL SIZE OF PIPE, BUT NEED NOT BE LARGER THAN 4", SMITH, WADE, ZURN OR EQUIVALENT.

B. PIPE SUPPORTS & COVER PLATES. PIPE HANGERS, SUPPORTS AND INSERTS SHALL BE AS FOLLOWS:

1. PIPING SHALL BE SUPPORTED INDEPENDENTLY OF ALL CONNECTIONS AND SLEEVES BY PIPE HANGERS AND PIPE SUPPORTS OF MODERN, GRINNELL, FEE & MASON, AUTO-GRIP OR CRANE MAKE AS FOLLOWS:

MAXIMUM DISTANCE FROM SLEEVE
IN WALL END OFFSET OR CORNER

PIPE SIZE	TO HANGER	MAXIMUM HANGER SPACING
UP TO 1-1/4"	2'-0"	8'-0"
1-1/2", 2"	3'-0"	10'-0"
2-1/2" AND UP	3'-0"	12'-0"

2. HANGERS AND SUPPORTS SHALL BE ARRANGED TO PERMIT FREE, UNRESTRAINED AND NOISELESS EXPANSION AND CONTRACTION OF PIPING AND MUST BE ADJUSTABLE.
3. UNLESS OTHERWISE NOTED, HANGERS, SUPPORTS, COLLARS, ASSOCIATED EQUIPMENT, ETC., SHALL BE OF ALL STEEL CONSTRUCTION WITH A HEAVY PRIME COAT, EXCEPT THAT PORTION IN CONTACT WITH NON-FERROUS PIPE SHALL BE SAME CONSTRUCTION AS PIPE, PLATED WITH SAME METAL AS PIPE, OR COVERED WITH SAME METAL AS PIPE, AND SECURELY FASTENED IN PLACE.
4. OVERHEAD HANGERS SHALL BE OF THE SOLID RING, SPLIT RING OR CLEVIS TYPE, WITH ADJUSTABLE STEEL RODS SECURELY SUPPORTED FROM INSERTS OR BOLTED TO STEEL CONSTRUCTION.
5. PIPING HUNG CLOSE TO WALLS SHALL BE SUPPORTED BY BRACKET TYPE SUPPORTS OR FROM BRACKETS WITH SUSPENSION RING HANGERS, ARRANGED TO POSITION PIPING AWAY FROM WALLS IN CENTER OF SLEEVES, SECURELY BOLTED TO MASONRY WALLS OR STEEL CONSTRUCTION. HANGERS AND SUPPORTS WITH 4'-0" OF FLOOR MUST BE FREE OF SHARP EDGES, CORNERS AND PROJECTIONS.

C. INSULATION

1. PIPE COVER: SHALL BE 1" THICK FIBERGLASS (K-0.23 AT 75 DEGREES F.) WITH FACTORY APPLIED WHITE, FLAME RESISTANT, VAPOR BARRIER JACKET TYPE ASJ, AS MANUFACTURED BY OWENS-CORNING, GUSTIN-BACON, OR PPG.
2. VALVES AND FITTINGS: SHALL BE COVERED WITH 3-1/2# DENSITY 1/2" THICK FIBERGLASS PROTECTED WITH A 6 OZ. FLAME RETARDANT TREATED, CANVAS JACKET.

D. INSTALLATION

1. PIPING SHALL RUN TRUE, STRAIGHT, PLUMB, AND PARALLEL WITH WALLS; HAVE UNIFORM PITCH; BE CENTERED IN HANGERS OR SUPPORTS INDEPENDENT OF CONNECTIONS AND SLEEVES; BE ANCHORED AS REQUIRED TO CONTROL MOVEMENT; BE PROVIDED WITH EXPANSION JOINTS, EXPANSION LEGS, EXPANSION LOOPS, AND EXPANSION CONNECTORS WITH FLEXIBLE PIPE AND FITTINGS ARRANGED AS REQUIRED TO PERMIT FREE, UNRESTRAINED, NOISELESS EXPANSION AND CONTRACTION, AND FREEDOM FROM STRAIN ON EQUIPMENT.
2. ACCESSIBLE UNIONS OR FLANGE UNIONS SHALL BE PROVIDED IN EACH BRANCH, ADJACENT TO EACH EQUIPMENT CONNECTION, EACH VALVE, OR DEVICE, OR GROUP OF VALVES OR DEVICES, AND AT LEAST EVERY 75'-0" IN MAINS.
3. CONNECTIONS TO SOIL, WASTE AND DRAIN STACKS SHALL BE AT 45 DEGREES; THOSE TO VENT STACKS MAY BE AT 45 DEGREES OR 90 DEGREES.
4. UNLESS OTHERWISE NOTED, SOIL, WASTE, DRAIN AND VENT STACKS SHALL BE CONCEALED IN WALLS, PIPE CHASES, OR SHAFTS WITH CLEANOUTS EXTENDED TO ACCESSIBLE LOCATIONS.
5. ALL PLUMBING FIXTURES SHALL BE PROPERLY VENTED TO PREVENT SIPHONING OF TRAPS. USE LEAD JACKETS FOR ROOF VENTS ONLY.
6. CONTRACTOR SHALL INSTALL AIR CHAMBERS OR SHOCK ABSORBERS IN PIPING SYSTEM TO PREVENT NOISE AND DAMAGE DUE TO WATER HAMMER. ALL BRANCH PIPING SHALL HAVE ACCESSIBLE SERVICE VALVES.
7. ALL HOT WATER PIPING INCLUDING ALL PIPING IN PIPE CHASES SHALL BE COVERED WITH SPECIFIED INSULATION. INSULATE ALL VALVES AND FITTINGS, EXCEPT UNIONS AND TAPER, SEAL AND COVER ALL INSULATION ENDINGS. ALL HORIZONTAL RUNS (EXCEPT UNDERGROUND SANITARY STORM AND WASTE SEWERS) AND ALL FITTINGS SHALL BE COVERED THE SAME AS WATER PIPING.
8. THE DOMESTIC WATER PIPING SYSTEM SHALL BE FILLED WITH A SOLUTION CONTAINING 50 PARTS PER MILLION OF CHLORINE AND ALLOWED TO STAND FOR NOT LESS THAN SIX (6) HOURS BEFORE FLUSHING. CHLORINATION SHALL BE PERFORMED AFTER ALL PIPING AND FINAL CONNECTIONS AND PRESSURE TESTS HAVE BEEN COMPLETED.

PLUMBING LEGEND

————	WASTE PIPING
– – – – –	VENT PIPING
——— – ———	COLD WATER PIPING
——— – – ———	HOT WATER PIPING HW- 140°
——— – – ———	TEPID WATER PIPING TW - 110°
——— SD ———	STORM PIPING
——— C ———	CONDENSATE PIPING
W	WASTE
V	VENT
VTR	VENT THRU ROOF
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
WH	WALL HYDRANT
HB	HOSE BIBB
RD	ROOF DRAIN
RL	RAIN LEADER
SA	SHOCK ARRESTOR
TP	TRAP PRIMER
CO	CLEAN OUT
	GAS COCK
	BALL VALVE

PLUMBING GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH 2020 FLORIDA BUILDING CODE PLUMBING 7TH EDITION AND APPLICABLE CODES. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AND THE APPLICABLE FIRE SAFETY STANDARDS AS DETERMINED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH SECTION AND CHAPTER 633, FLORIDA STATUTES. FBC 110.8.4.4 2020. ALL DRAWINGS AND SPECIFICATIONS COMPLY WITH MINIMUM EXISTING CODES.
2. CONTRACTOR SHALL PROVIDE ALL WORK CUSTOMARILY INCLUDED IF NOT SPECIFICALLY CALLED FOR ON THE PLANS. ALL WORK SHALL BE IN ACCORDANCE WITH BASE BUILDING PLANS AND SPECIFICATIONS.
3. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL DETAILS OF THE WORK AND EXISTING CONDITIONS. THE INTENT OF THESE NOTES AND MECHANICAL NOTES ON DRAWINGS IS TO CLARIFY THE SCOPE OF WORK AND ALERT CONTRACTOR OF EXISTING CONDITIONS.
4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL TRADES INSTALLATION SCHEDULES. FIXED WORK SUCH AS PLUMBING SHALL BE INSTALLED PRIOR TO ANY TRADE WORK THAT CAN BE EASILY RELOCATED OR OFFSET SUCH AS ELECTRICAL CONDUITS AND SMALL WATER LINES, ETC.
5. CONTRACTOR SHALL REVIEW STRUCTURAL DRAWINGS BEFORE INSTALLATION TO AVOID ANY BEAM CONFLICTS AND COORDINATE PIPING ACCORDINGLY.
6. ROUTE ALL PIPING CONCEALED ABOVE CEILING, WITHIN WALLS OR IN CHASES EXCEPT AS SPECIFICALLY NOTED. PATCH ALL EXISTING SURFACES AFFECTED TO MATCH ADJACENT SURFACES.
7. SEE ARCHITECTURAL DRAWINGS FOR FIXTURE LOCATIONS AND MOUNTING HEIGHTS.
8. SLEEVE AND FIRE STOP ALL PENETRATIONS OF RATED WALLS, CEILINGS, ETC., INCLUDING ROOF. FLASH AND COUNTERFLASH ROOF PENETRATIONS.
9. FIELD VERIFY EXISTING INSTALLATIONS OF ALL TRADES. MODIFY EXISTING PLUMBING SYSTEMS, WHICH ARE TO REMAIN ACTIVE, TO FACILITATE RECONNECTION AND EXTENSION UNDER THE NEW WORK.
10. UTILITIES AND SERVICES INDICATED ARE TAKEN FROM VARIOUS OLD AND NEW SURVEYS, AS-BUILT RECORDS, AND FIELD INVESTIGATION. IT IS TO BE UNDERSTOOD THAT UNFORESEEN CONDITIONS PROBABLY EXIST AND NEW WORK MAY NOT BE FIELD LOCATED EXACTLY AS SHOWN ON DRAWINGS.
11. PIPE ROUTING IS SCHEMATIC AND IS NOT INTENDED TO INDICATE EXACT ROUTING OR ANY ADDITIONAL OFFSETS OR FITTINGS REQUIRED FOR PROPER INSTALLATION AND CLEARANCES. CONTRACTOR TO VERIFY STRUCTURAL, MECHANICAL, ELECTRICAL INSTALLATIONS AND OBSTRUCTIONS OF ALL TRADES AND ROUTE PIPING TO AVOID ANY INTERFERENCES.
12. DOMESTIC WATER PIPING SHALL BE "L" COPPER ABOVE SLAB AND TYPE "K" BELOW SLAB.
13. ALL SANITARY AND VENT PIPING SHALL BE SERVICE WEIGHT CAST IRON WITH NO-HUB FITTINGS. (UNO).
14. NO PLASTIC PIPING FOR ANY PLUMBING. ALL WATER PIPING MUST BE COPPER.
15. WATER HAMMER ARRESTORS SHALL BE INSTALLED WHERE QUICK-CLOSING VALVES ARE UTILIZED.
16. HOT WATER PIPING PIPE INSULATION: SHALL BE 1" THICK FIBERGLASS (K-0.23 AT 75 DEGREES F.) WITH FACTORY APPLIED WHITE, FLAME RESISTANT, VAPOR BARRIER JACKET TYPE ASJ, AS MANUFACTURED BY OWENS-CORNING, GUSTIN-BACON, OR PPG. INSULATE ALL HOT WATER PIPING, HWRC PIPING, HORIZONTAL STORM PIPING AND BOTTOM OF ROOF DRAIN BOWLS AND SHALL BE INSULATED PER 2020 FLORIDA BUILDING CODE ENERGY CONSERVATION SECTION C-404.4 AND TABLE C403.2.10.

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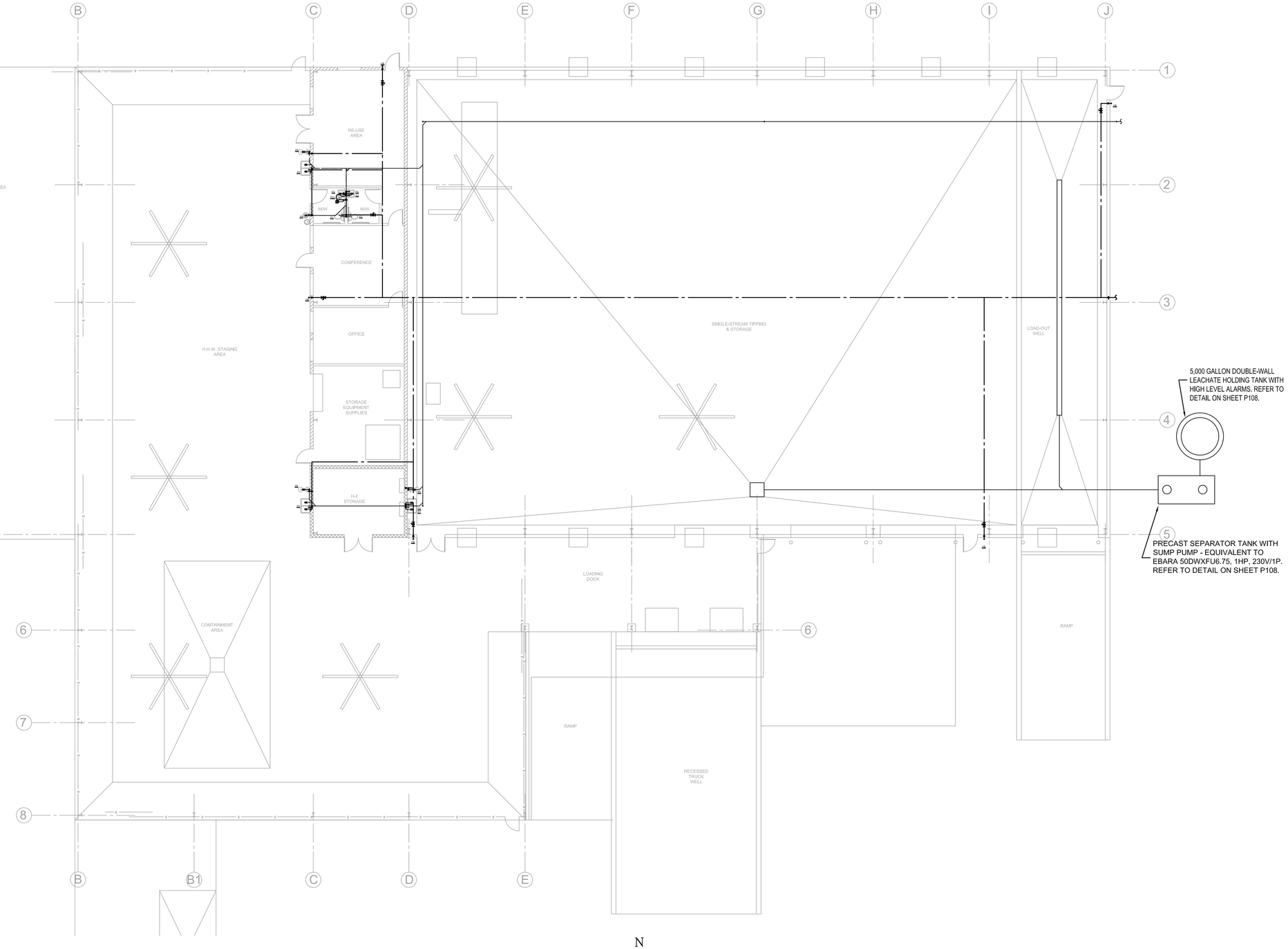
SHEET TITLE
PLUMBING LEGEND AND NOTES

SHEET NO.
P101

PERMIT SET



OVERALL PLUMBING PLAN

SCALE: 3/32" = 1'-0"

N

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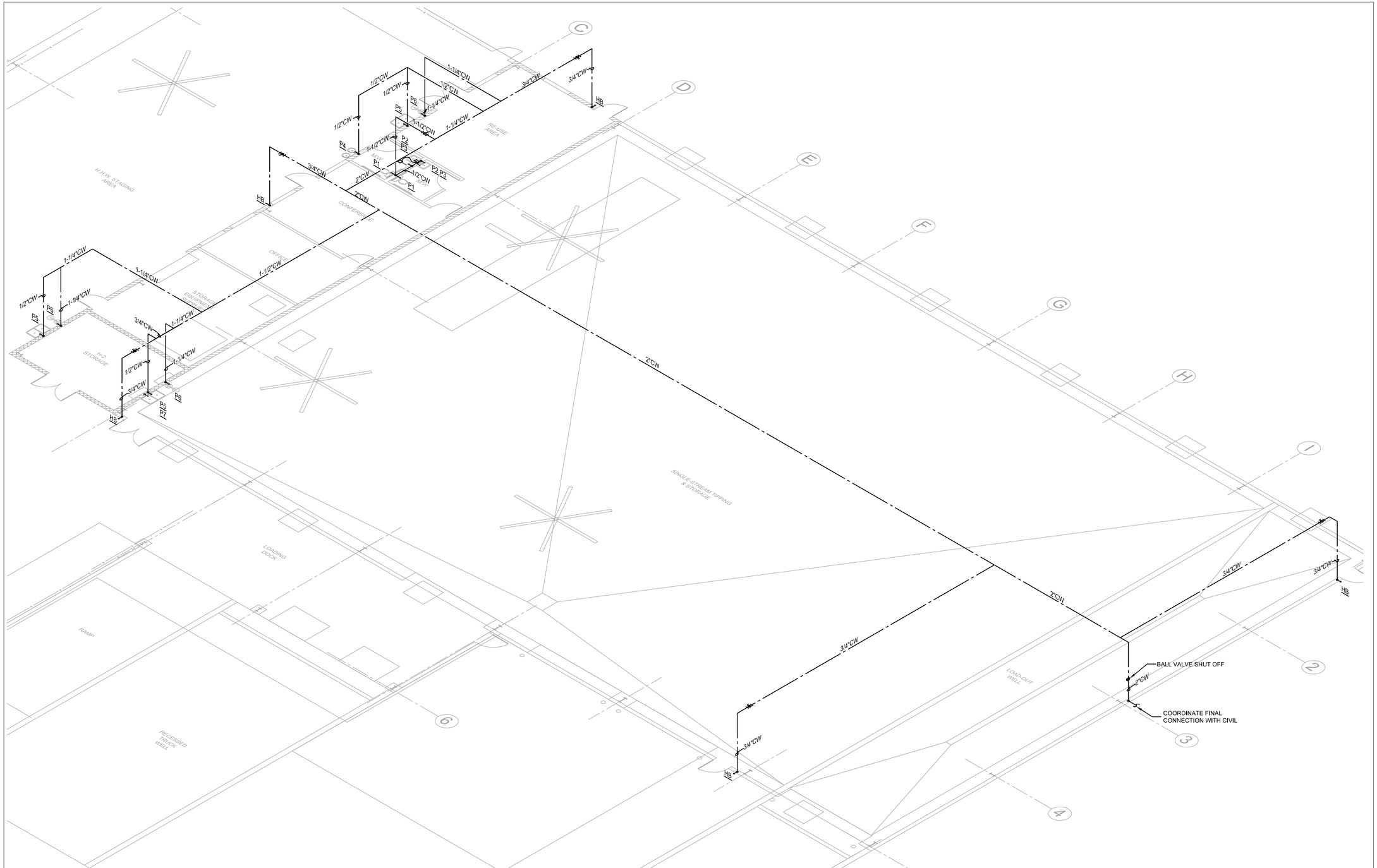
SHEET TITLE
OVER ALL PLUMBING PLAN

SHEET NO.
P102



OVER ALL SUPPLY RISER

SCALE: NTS

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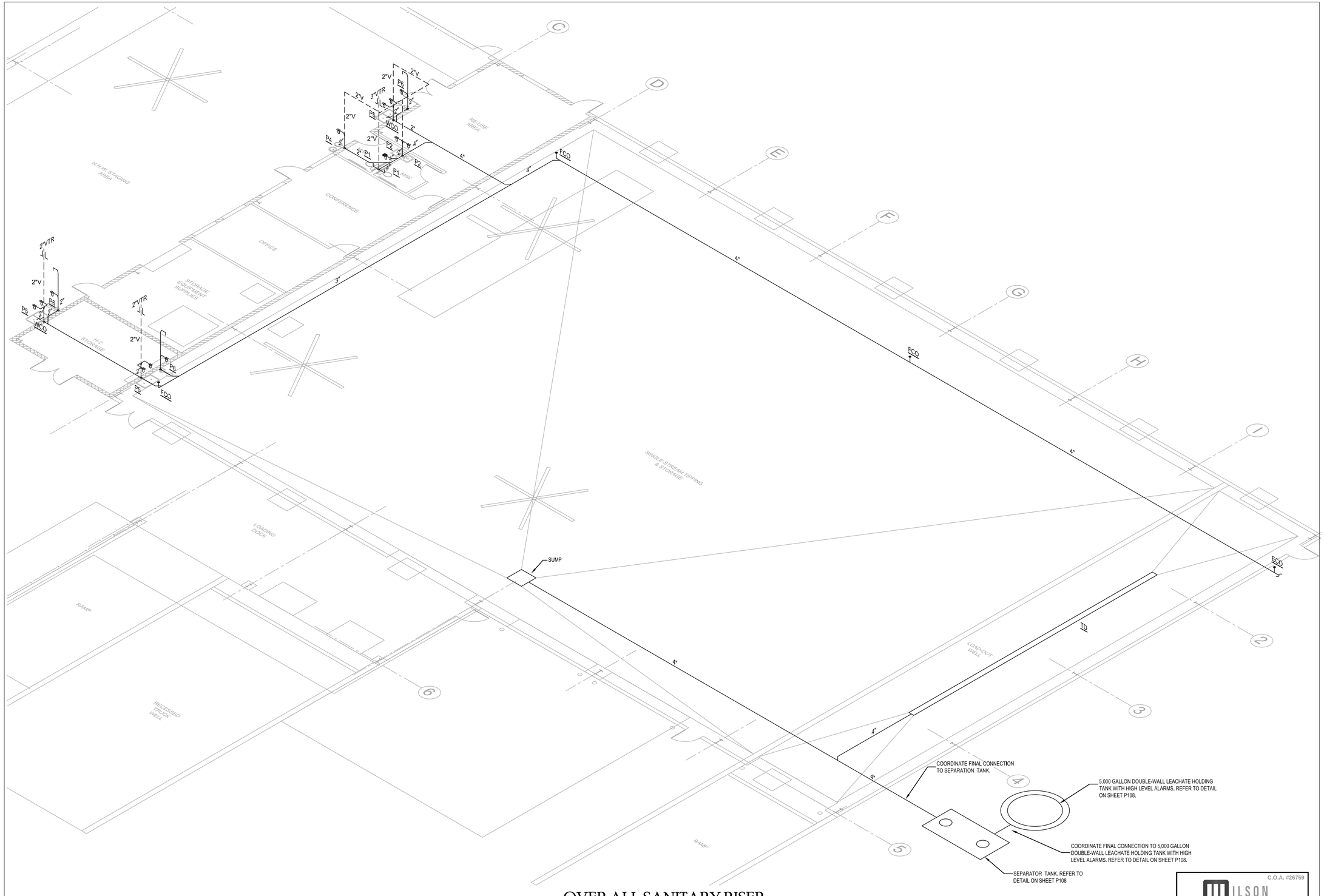
SHEET TITLE
OVER ALL SUPPLY RISER

SHEET NO.
P103



OVER ALL SANITARY RISER

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OVER ALL SANITARY RISER

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P104

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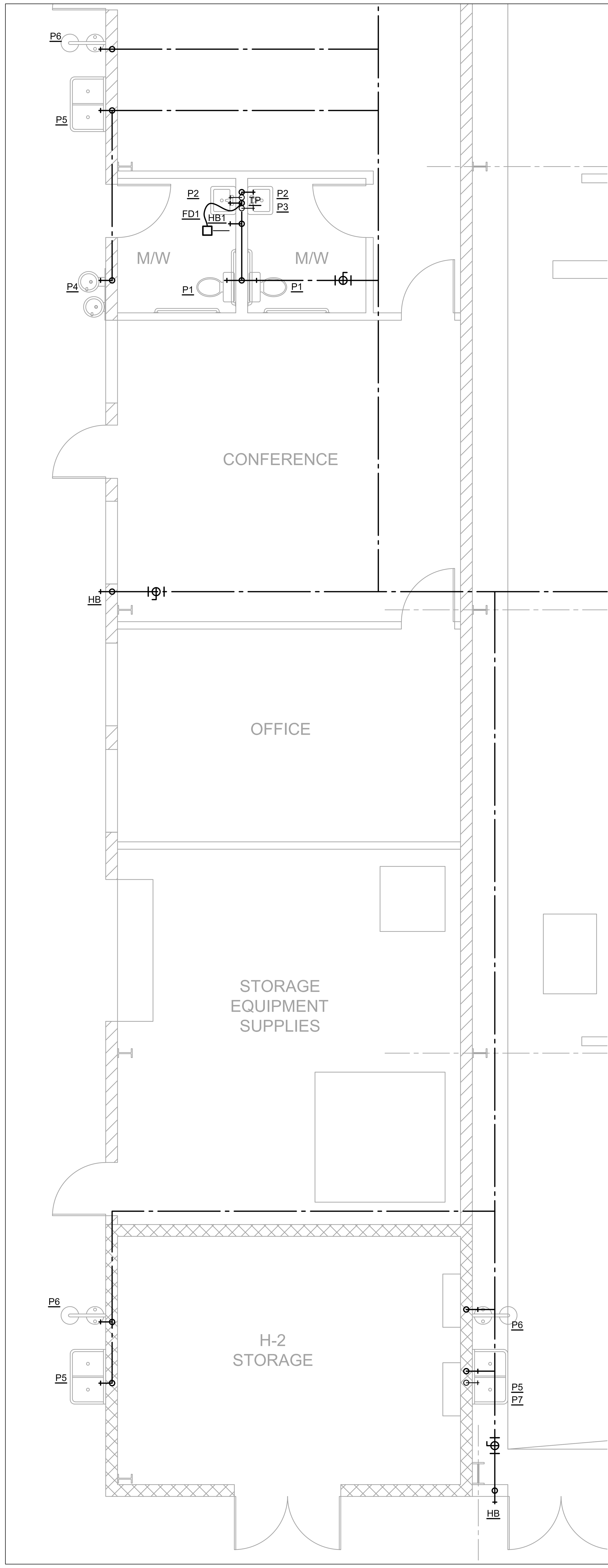
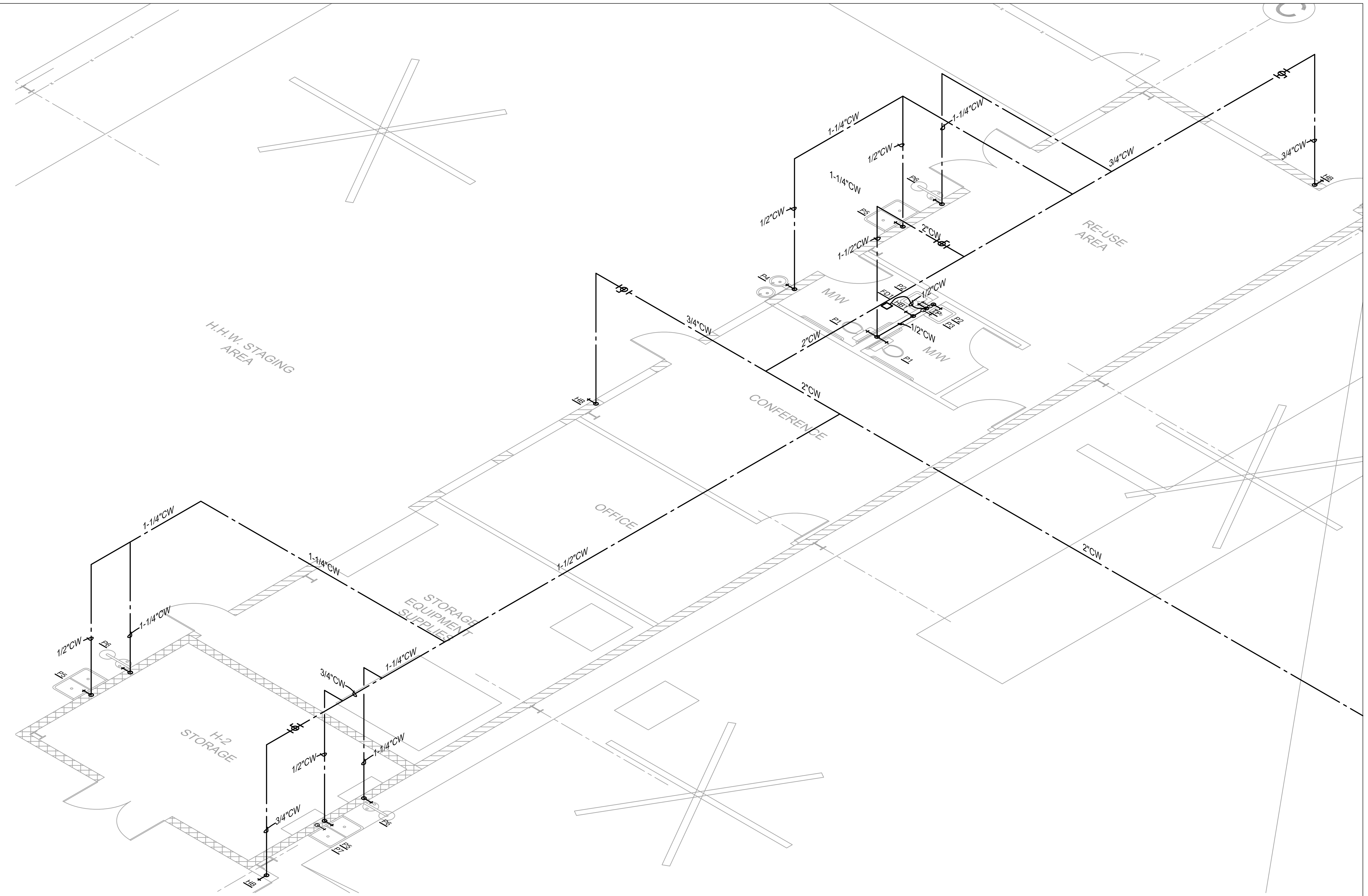


PARTIAL PLUMBING SUPPLY PLAN

SCALE: 1/4" = 1'-0"



SUPPLY RISER

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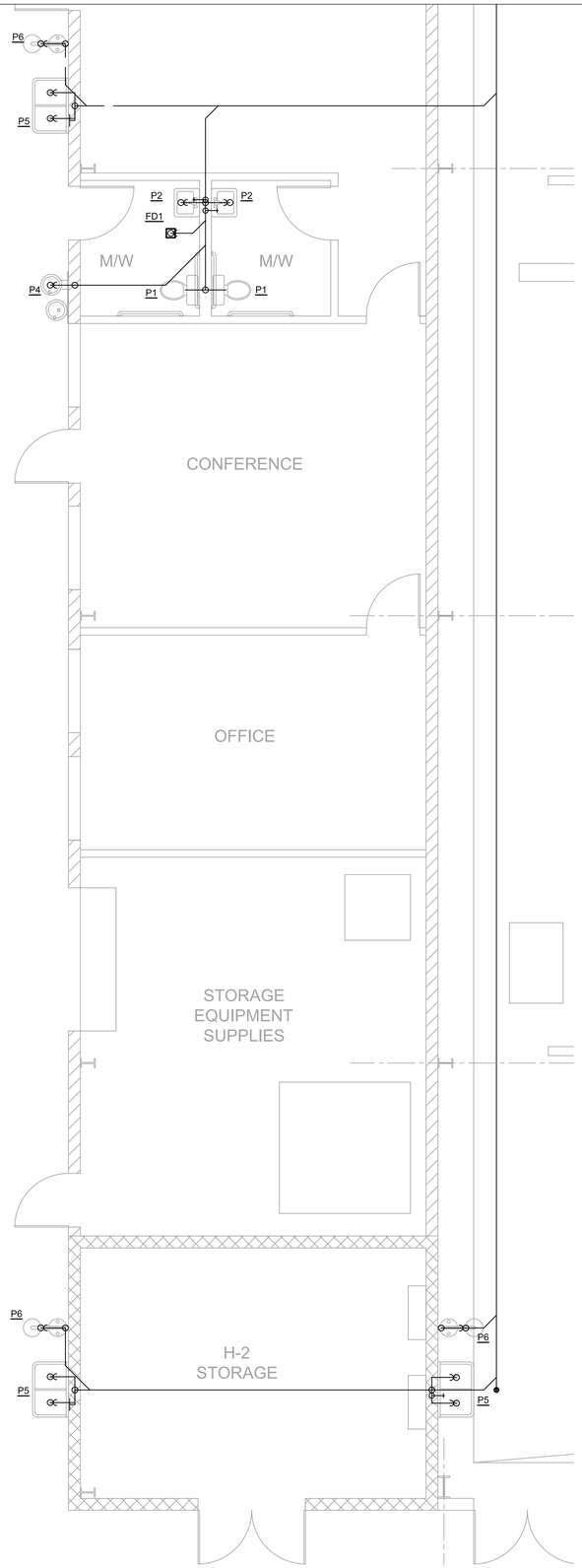
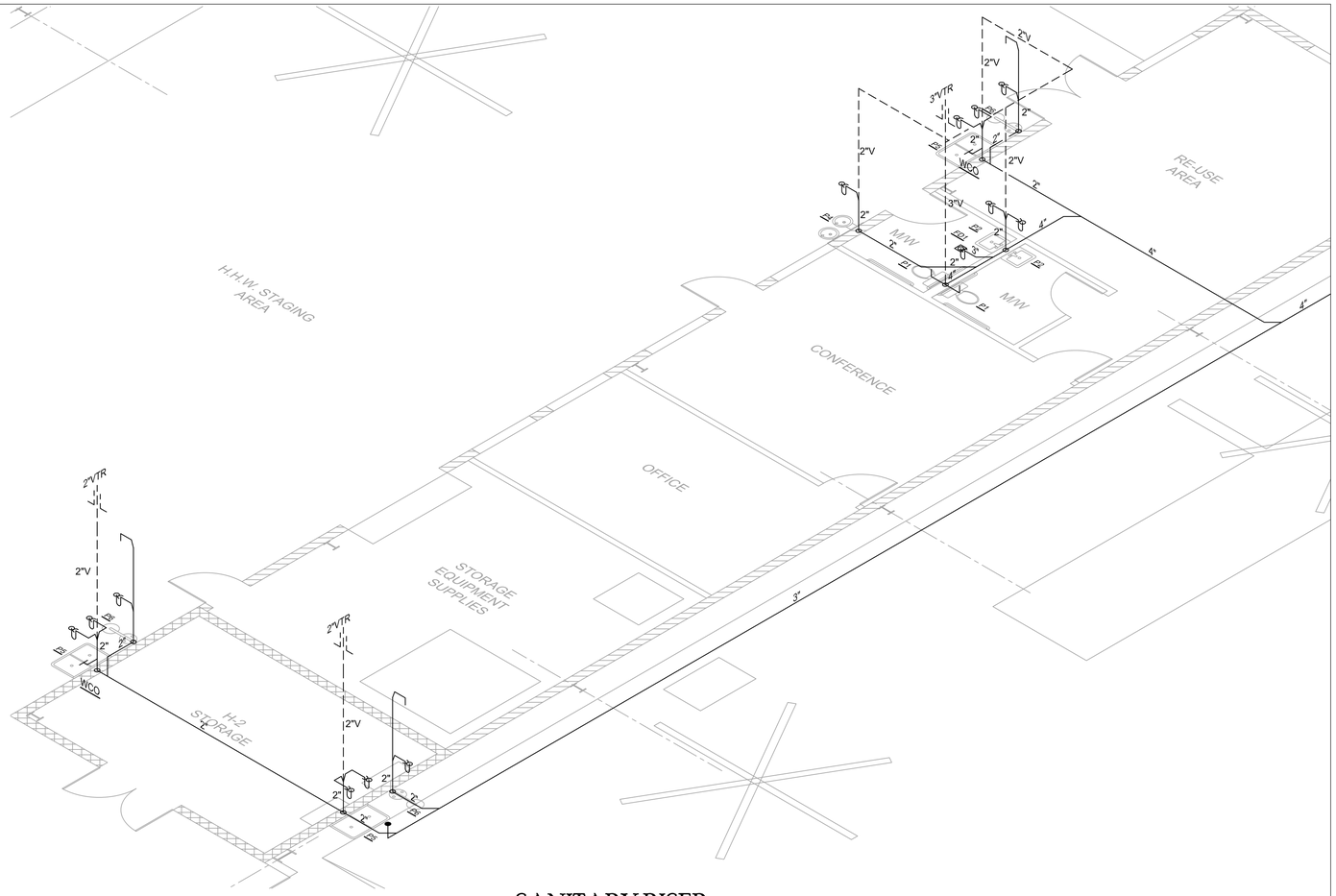
SHEET TITLE
PARTIAL PLUMBING SUPPLY PLAN

SHEET NO.
P105





SANITARY RISER

SCALE: NTS

PARTIAL PLUMBING SANITARY PLAN

SCALE: 1/4" = 1'-0"

N

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PARTIAL PLUMBING SANITARY PLAN

SHEET NO.
P106

PERMIT SET

PLUMBING FIXTURE AND CONNECTION SCHEDULE

PNO	FIXTURE DESCRIPTION	MOUNTING HEIGHT	MIN. CONNECTIONS			SPECIFICATION						NOTES
			WASTE	CW	HW	MANUFACTURER	FIXTURE	TRIM	WASTE	MCGUIRE TRAP	SUPPLY	
P2	ADA WATER CLOSET FLOOR MOUNTED FLUSH VALVE 1.28 GAL/FLUSH	FLOOR TO RIM 17 1/8"	4"	1"	---	AMERICAN-STANDARD	3461.001	6065.761	---	---	-	SEAT - OLSONITE 95 OR EQUIVALENT BY BENEKE OR BEMIS PROVIDE FLUSH HANDLE ON LAV SIDE. BATTERY OPERATED.
						ZURN	EQUIVALENT	EQUIVALENT	---	---	-	
						KOHLER	EQUIVALENT	EQUIVALENT	---	---	-	
P4	LAVATORY WALL HUNG 21"X18" SINGLE CENTER HOLES SENSOR FAUCET	FLOOR TO BOTTOM OF APRON MIN. 29"	1 1/4"	1/2"	1/2"	AMERICAN STANDARD	0356.041	---	2411015.002	MCGUIRE 8872C	MCGUIRE LFST07	PROVIDE FLOOR MOUNTED CARRIER BY JOSAM, WADE, OR ZURN PROVIDE PRE-MOLDED PRE-INSULATED COVER FOR TRAP & SUPPLIES PROVIDE DRAIN OFFSET TO PROVIDE HANDICAP CLEARANCE PROVIDE P-TRAP AND ANGLE STOPS. VERIFY BATTERY OPERATED 590-PLGHDF. OR 590-PLGHDFHW FOR HARDWIRE
						ZURN	EQUIVALENT	---	EQUIVALENT	EQUIVALENT	EQUIVALENT	
						KOHLER	EQUIVALENT	---	EQUIVALENT	EQUIVALENT	EQUIVALENT	
						DELTA FAUCET	---	590-PLGHDE	---	---	---	
						CHICAGO FAUCET	---	EQUIVALENT	---	---	---	
P3	POINT OF USE WATER HEATER	UNDER LAV /COUNTER	-	1/2"	1/2"	EEMAX	AM005240T	---	---	---	---	PROVIDE 0.5 GPM FLOW RATE. FACTORY SET TO 105 DEGREES F. 3.6 KW, 17A, 208V/1PH. PROVIDE WITH 3/8" CONNECTOR HEATER SHALL BE ASSE-1070 COMPLAINT WITH INTEGRAL MIXING VALVE. PROVIDE WITH FLOW RESTRICTER. WATER HEATER SHALL BE SHARED BETWEEN THE MAXIMUM TWO RESTROOM LAVATORIES.
						CHRONOMITE	EQUIVALENT	---	---	---	---	
						RHEEM	EQUIVALENT	---	---	---	---	
P4	ELECTRIC WATER COOLER - WALL HUNG - BI-LEVEL	FLOOR TO RIM OF HIGH UNIT 40"	1 1/4"	1/2"	---	ELKAY	HVR8BL-ADA	---	---	MCGUIRE 8912C	MCGUIRE LFST07	WALL MOUNT BI-LEVEL ADA, 8 GPH LIGHT GRAY GRANITE. PROVIDE 1 1/4" P-TRAPS AND 3/8" SUPPLY STOP
						OASIS	EQUIVALENT	---	---	EQUIVALENT	EQUIVALENT	
						HALSEY-TAYLOR	EQUIVALENT			---	---	
P5	SERVICE SINK 40"X24" TWO COMPARTMENT	FLOOR	1 1/2"	1/2"	1/2"	FIAT	FLTDII	---	-	-	-	PROVIDE 1 1/2" P-TRAP AND 3/8" SUPPLY STOPS. METAL LEGS AND BLADE FAUCET HANDLES.
						MUSTEE	EQUIVALENT	---	---	-	-	
						FIAT	---	A1	---	---	---	
						MUSTEE	---	EQUIVALENT	---	---	---	
P6	FACE WASH, EYE WASH AND SAFETY SHOWER	FLOOR	-	1-1/4"	---	BRADLEY	S19314AC	---	---	---	---	
						GUARDIAN	EQUIVLENT	---	---	---	---	
						---	---	---	---	---	---	
P7	POINT OF USE WATER HEATER	UNDER COUNTER	-	1/2"	1/2"	EEMAX	SPEX80T	---	---	---	---	PROVIDE WITH 8.0 KW-277V-1PH-60HZ. 55° TEMPERATURE RISE. 1.0 GPM WITH FLOW RESTRICTOR.
						CHRONOMITE	EQUIVALENT	---	---	---	---	
						RHEEM	EQUIVALENT	---	---	---	---	

TRENCH SCHEDULE

MARK	OUTLET SIZE	STRAINER SIZE	MANUFACTURER'S NUMBERS			NOTES
			DURA TRENCH	WADE	ZURN	
TD1	SEE PLANS	---	12B24DI	EQUIVALENT	EQUIVALENT	DUCTILE IRON SLOTTED GRATE CLASS "D". FRAME TO CONFORM TO ASTM -A536-84 WITH STRAINER

DRAIN AND CLEANOUT SCHEDULE

MARK	OUTLET SIZE	STRAINER SIZE	MANUFACTURER'S NUMBERS			NOTES
			JOSAM	WADE	ZURN	
FD1	3"	6" ROUND	A-6A-2-VP	EQUIVALENT	EQUIVALENT	SATIN FINISH BRONZE TOP PROVIDE W/PRECISION PLUMBING "OREGON #1" TRAP PRIMER.
ECO	SEE PLANS	---	58680/ 58490-20	EQUIVALENT	EQUIVALENT	MOUNT IN 12"X12"X4" CONC. PAD IF LOCATED IN UNPAVED AREA
FCO	SEE PLANS	---	58363	EQUIVALENT	EQUIVALENT	
WCO	SEE PLANS	---	58912	EQUIVALENT	EQUIVALENT	STAINLESS STEEL WALL ACCESS COVER
TP	PRECISION PLUMBING "OREGON #1" TRAP PRIMER WITH 1/2" CW ROUTED BELOW SLAB TO FLOOR DRAIN/SINK.					

HOSEBIBB SCHEDULE

MARK	OUTLET SIZE	MANUFACTURER'S NUMBERS			NOTES
		ZURN	WADE	JOSAM	
HB	3/4"	Z1320-C	EQUIVALENT	EQUIVALENT	LEAD FREE ENCASED NON-FREEZE, ANTI-SIPHON, AUTOMATIC DRAINING WALL HYDRANT
HB1	3/4"	Z1341-BFD	EQUIVALENT	EQUIVALENT	WALL HYDRANT WITH BACKFLOW PREVENTER WITH REMOVABLE HANDLE

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WILSON IRGENTI ENGINEERING
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STE. 506 TAMPA, FL 33607
WORKWITHWG.COM
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Drawing Not Valid Unless Signed, Sealed & Dated By Registered Professional

INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE
AND RECYCLING FACILITY
Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO.
2016

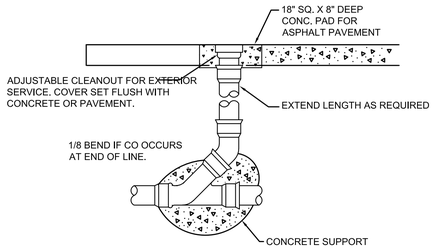
ISSUE DATE:
07/07/2021

DRAWN BY:
WG

SHEET TITLE
PLUMBING
SCHEDULES

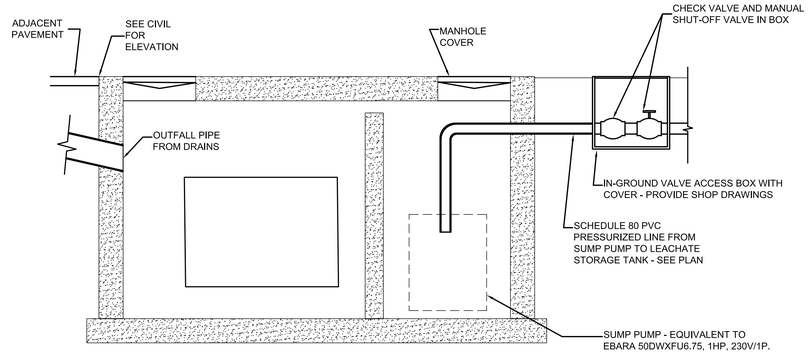
SHEET NO.
P107

PERMIT SET



EXTERIOR CLEANOUT DETAIL

PAVED/CONCRETE AREAS, NTS



NEW UNDERGROUND PRECAST 2-COMPARTMENT, 2100 GALLON SEPARATOR TANK FOR LEACHATE COLLECTION SYSTEM - ALL DIMENSIONS T.B.D. BY TANK SUPPLIER; COORDINATE ALL PENETRATIONS AND INSTALLATION REQUIREMENTS WITH PUMP SUPPLIER

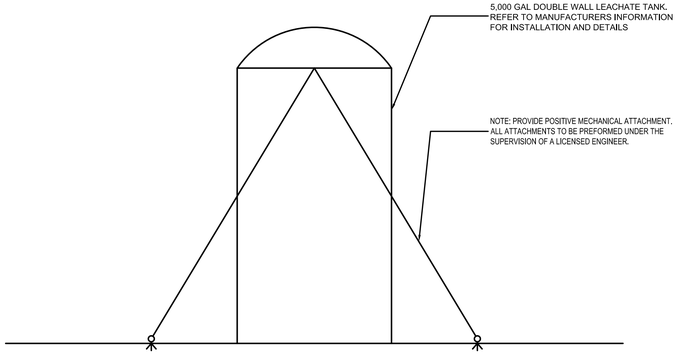
PRECAST SUMP SHALL BE DESIGNED FOR H20 LOADING AND THE WEIGHT OF THE CAST-IN-PLACE SLAB ABOVE. THE LOADS FROM FLUCTUATION IN GROUNDWATER LEVELS SHALL BE CONSIDERED WITH MAXIMUM LEVEL BEING AT THE BOTTOM OF FLOOR SLAB. INSTALLATION SHALL BE UNDER THE SUPERVISION OF A LICENSED ENGINEER.

PRECAST SEPARATOR TANK DETAIL

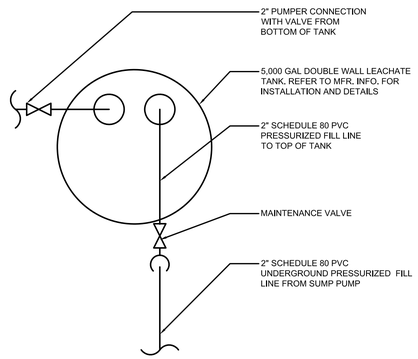
NTS

HOLDING TANK NOTES

1. PROVIDE 5,000 GALLON DOUBLE WALL H.D.P. LEACHATE HOLDING TANK. SUBMIT SHOP DRAWINGS AND CUT SHEETS FOR APPROVAL. BASIS OF DESIGN IS SNYDER PN 56700000N, OR EQUIVALENT.
2. TANK SHALL BE TRANSLUCENT TO ALLOW FOR VISUAL MONITORING OF CONTENTS.
3. INSTALL TANK ON MINIMUM 8" FIBER-MESH REINFORCED CONCRETE PAD, AND/OR AS DIRECTED BY TANK SUPPLIER.
4. TANK SHALL HAVE A HIGH WATER ALARM SWITCH AND WARNING HORN/LIGHT.
5. PROVIDE SUMP PUMP WITH MANUAL DISCONNECT AS REQUIRED.
6. PROVIDE CONTROL INTERLOCK BETWEEN HIGH WATER ALARM AND SUMP PUMP DISCONNECT TO CUT OFF POWER IN THE EVENT OF A HIGH WATER ALARM.
7. REGULATORY NOTE: CONTENTS OF HOLDING TANK SHALL BE PUMPED OUT ON A REGULAR BASIS AND TRANSPORTED BY A LICENSED WASTEWATER HAULER TO A LICENSED WASTEWATER TREATMENT FACILITY.

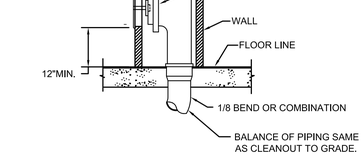


ELEVATION



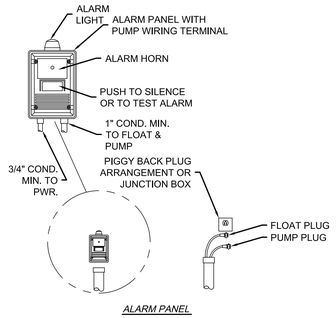
LEACHATE TANK BY OTHER

NTS FOR REFERENCE ONLY

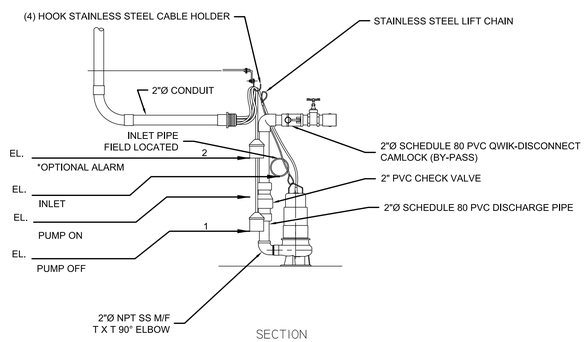


WALL CLEANOUT DETAIL

NTS

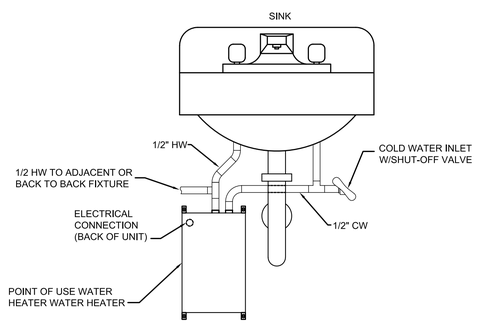


ALARM PANEL



SUMP PUMP DETAIL

NTS



POINT OF USE WATER HEATER DETAIL

NTS

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INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE
AND RECYCLING FACILITY
Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO. 2016

ISSUE DATE: 07/07/2021

DRAWN BY: WG

SHEET TITLE
PLUMBING
DETAILS

SHEET NO.
P108

PERMIT SET

GENERAL ELECTRICAL NOTES

1. CONTRACTOR SHALL VERIFY JOB SITE CONDITIONS DURING THE BIDDING PERIOD TO OBTAIN THE SCOPE OF ELECTRICAL WORK INVOLVED. THE SCOPE OF WORK SHALL INCLUDE MATERIALS, AND LABOR.

2. CONTRACTOR MAY COMBINE WIRES IN ONE CONDUIT FOR CONVENIENCE OF INSTALLATION, PROVIDED ALL THE REQUIREMENTS OF THE N.E.C. ARE OBSERVED.

4. ALL ELECTRICAL EQUIPMENT IS SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS ARE TO BE DETERMINED IN THE FIELD AVOIDING INTERFERENCES.

5. THE INSTALLATION SHALL COMPLY WITH SPECIFICATIONS AND ALL REQUIREMENTS OF THE LATEST EDITION OF THE N.E.C., OSHA, STATE AND LOCAL CODES.

- FLORIDA BUILDING CODE 2020, 7TH EDITION
- FLORIDA FIRE PREVENTION CODE 2020, 7TH EDITION
- NFPA 70 NATIONAL ELECTRIC CODE 2017
- NFPA 72 NATIONAL FIRE ALARM CODE 2016
- NFPA 101 LIFE SAFETY CODE 2018

6. ALL WIRE SHALL BE COPPER. ALL WIRE, CONDUIT AND BREAKERS SHALL BE #12 COPPER WIRE (THHN OR THWN), 1/2" CONDUIT AND 20 AMP SINGLE POLE BREAKERS UNLESS OTHERWISE NOTED. (TYPICAL)

7. WHEN BRANCH CIRCUIT LENGTH EXCEEDS 75 FEET FROM PANEL, WIRING SHALL BE INCREASED TO #10 AWG WITH #10 AWG GROUND. WHEN BRANCH CIRCUIT LENGTH EXCEEDS 150 FEET FROM PANEL, BRANCH WIRING SHALL BE INCREASED TO #8 AWG WITH #8 AWG GROUND.

8. PROVIDE GROUND CONDUCTOR IN ALL RACEWAYS.

9. CONTRACTOR SHALL CREATE PANEL DIRECTORY AS PER WIRING IN FIELD.

10. ALL CIRCUIT BREAKERS FOR MECHANICAL EQUIPMENT SHALL BE HACR RATED.

11. VOLTAGE DROP HAS BEEN CALCULATED IN COMPLIANCE WITH FBC ENERGY CONSERVATION C405.7.3 AND NEC 210.19(A)(1)FPN#4. VOLTAGE DROP IN FEEDER CONDUCTORS TO BE MAXIMUM OF 2% AT DESIGN LOAD. VOLTAGE DROP IN BRACH CIRCUITS TO BE MAXIMUM OF 3% AT DESIGN LOAD.

12. BREAKERS FOR ALL MULTIPLE CIRCUIT HOMERUNS WHICH SHARE A COMMON NEUTRAL SHALL BE CONNECTED WITH BREAKER TIES.

13. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AND THE APPLICABLE FIRE SAFETY STANDARDS AS DETERMINED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH SECTION AND CHAPTER 633, FLORIDA STATUTES. FBC 110.8.4.4 2017.

14. NEW OUTLETS ON OPPOSITE SIDE OF WALL SHALL BE STAGGERED BY A MINIMUM OF ONE STUD FOR SOUND ATTENUATION.

15. MC CABLE IS ACCEPTABLE FOR 20A AND 30A CIRCUITS IN WALLS AND ABOVE CEILING. THE INSTALLATION SHALL COMPLY WITH ALL OF THE REQUIREMENTS IN NEC ARTICLE 330

16. THE INSTALLATION OF WIRING, RACEWAY AND DEVICES FOR THE FIRE ALARM SHALL BE IN ACCORDANCE WITH ALL APPLICABLE CITY CODES, NFPA CODES AND UNIFORM RULE 4A-48, RULES AND REGULATIONS OF THE STATE FIRE MARSHAL'S OFFICE F.S. 633.01 AND 633.701.

17. THE FIRE ALARM CONTRACTOR SHALL PERFORM A SITE VISIT PRIOR TO BID.

18. FIRE ALARM PERMIT DRAWINGS SHALL BE PREPARED AND SUBMITTED BY THE FIRE ALARM SYSTEM CONTRACTOR.

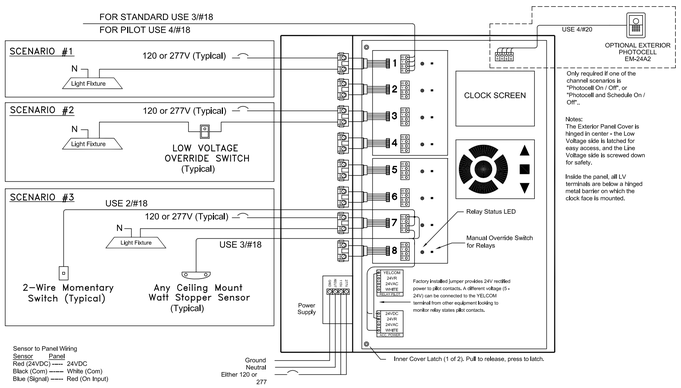
19. ANY NEW FIRE ALARM VISUAL DEVICES SHALL HAVE A CANDELA RATING OF 75 UNLESS NOTED OTHERWISE. ANY NEW FIRE ALARM AUDIO DEVICE SHALL HAVE A MINIMUM 85 DECIBEL OUTPUT.

ELECTRICAL SYMBOLS LEGEND

SYMBOLS	LEGEND	SYMBOLS	LEGEND
	LIGHTING FIXTURE	T	TRANSFORMER - AS NOTED
	WALLWASHER LIGHT FIXTURE		WALL COMMUNICATION OUTLET, PROVIDE MIN. 1" CONDUIT WITH PULL WIRES TO ABOVE CEILING.(TELE/DATA/CABLE TV)
	FLUORESCENT LIGHTING FIXTURE		
	FLUORESCENT STRIP LIGHTING FIXTURE		FLOOR TELE/DATA BOX
	EXIT SIGN FIXTURE - ARROWS AS INDICATED	F	FIREMANS PHONE JACK
	FIXTURES ON EMERGENCY CIRCUIT OR FURNISHED W/ BATTERY PACK	CR	CARD READER
			PLUGMOLD
	REMOTE EMERGENCY LIGHT W/BATTERY PACK	M	MAGNETIC DOOR HOLDER (REF. HARDWARE SPEC'S)
	S.P.S.T. TOGGLE SWITCH	D	FIRE ALARM SMOKE DETECTOR - CEILING/WALL MOUNTED
	THREE-WAY TOGGLE SWITCH / FOUR-WAY TOGGLE SWITCH	H	FIRE ALARM HEAT DETECTOR
	SWITCH WITH PILOT LIGHT	F	FIRE ALARM SIGNAL LIGHT, MTD. 82"A.F.F.
	DIMMER SWITCH	F	FIRE ALARM SPRINKLER FLOW SWITCH
	DUPLEX RECEPTACLE OUTLET	V	FIRE ALARM SPRINKLER VALVE TAMPER SWITCH
	DUPLEX RECEPTACLE OUTLET - MTD. ABOVE COUNTER	D	FIRE ALARM SMOKE DETECTOR - DUCT MOUNTED
	QUADRAPLEX RECEPTACLE OUTLET	FB	FIRE ALARM SPEAKER, CLG. MTD.
	SINGLE RECEPTACLE OUTLET MTD. AS NOTED	FB	FIRE ALARM COMBINATION AUDIO/VISUAL DEVICE WALL MTD. 82"A.F.F.
	FLOOR OUTLET WITH RECEPTACLE	(OR S)	"F" INDICATES HORN. "S" INDICATES SPEAKER
D	DEDICATED DUPLEX OUTLET	F	MANUAL STATION 48"A.F.F.
	SPECIAL PURPOSE OUTLET - AS NOTED	R	RELAY
	JUNCTION BOX - CEILING MOUNTED		"DO NOT USE ELEVATOR" WARNING LIGHT(F,B, F.A, CONTRACTOR)
	JUNCTION BOX - WALL MOUNTED		MOTORIZED DAMPER
	FLOOR JUNCTION BOX	SD	SMOKE DAMPER
R	FURNITURE SYSTEM POWER POLE	A	ABANDONED
	FURNITURE SYSTEM WALL POWER FEED	AFF	ABOVE FINISHED FLOOR OR GRADE
	FURNITURE SYSTEM WALL TELE/DATA	CLG	CEILING
	DISCONNECT SWITCH - 30A/3/NF U.O.N.	E	EXISTING
F	FUSED DISCONNECT SWITCH	EDF	ELECTRIC DRINKING FOUNTAIN
B	ENCLOSED CIRCUIT BREAKER	GFI	GROUND FAULT INTERRUPTING
	277/480 VOLT PANELBOARD	IG	ISOLATED GROUND
	120/208 VOLT PANELBOARD	LTG	LIGHTING
	MOTOR	NF	NON-FUSED
	CONDUIT CONCEALED IN WALL OR OVERHEAD	OC	ON CENTER
	CONDUIT CONCEALED IN FLOOR OR UNDERGROUND	R	RELOCATED
	CONDUIT RUN EXPOSED	REC	RECEPTACLE
	CONDUIT WHIP UNDER RAISED FLOOR	SPR	SPARE
	TICK MARKS INDICATE #12 CONDUCTORS OR AS NOTED	UON	UNLESS OTHERWISE NOTED
	GROUND CONNECTION AS NOTED	WP	INDICATES WEATHERPROOF DEVICE OR PLATE
	CONDUIT STUB-UP LOCATION	FACP	FIRE ALARM CONTROL PANEL
	CONDUIT STUB-DOWN LOCATION	FARA	FIRE ALARM ANNUNCIATOR PANEL
*	SPECIAL PURPOSE CONDUIT SEE PLANS FOR NOTES	SLC	SIGNALING LINE CIRCUIT
SM	MOTOR STARTER - MANUAL	NAC	NOTIFICATION APPLIANCE CIRCUIT
⊠	MOTOR STARTER - MAGNETIC	K	FIRE ALARM KNOX BOX

NOTE: NOT ALL SYMBOLS ARE USED.

8-RELAY CAPACITY
LP-8 RELAY PANEL



Wattstopper LP-8 Relay Panel

NOTE: (8) RELAYS SHOWN. SEE DRAWINGS FOR TOTAL RELAY REQUIREMENT.

Specifications:
Provide a single relay panel with up to 8 relays. Each relay to be indivlidually scheduled through an easy to use integral clock with a backlit 8-line LCD display. Relays are to be SPST 20 Amp rated, mechanically held contactors capable of switchling either 120 or 277VAC loads. Mounted next to each relay should be a LED to annunciate status and a pushbutton to toggle the relay's state. Panel shall have a multitap transfromer and accept either 120V or 277V for power.

Panel enclosure to be NEMA 1, rated for environments from 32 - 139'F, 5 - 95% RH non-condensing. Panel to come with a split cover hinged in the center such that the high voltage side must be unscrewed to access the relays, but the low voltage side can be opened via a locking latch. Surface or flush covers shall be available.

Each relay can be controlled remotely by external switches or motion detectors. Switches can be 2- or 3-wire, momentary or maintained low voltage devices. Motion detectors must provide a 24VDC pilot signal to control the relays. Panel must be able to interlock time based schedules with the occupancy sensor input, so that lights scheduled on during the day are not affected by the motion detector, but after hours the occupancy sensor has control or the relay. Panel shall be capable of blink warning before "OFF" and true after hours time delay.

All programming to be entered via a simple keypad. Each relay can be programmed independently, or relays can be grouped together in firmware to follow the same channel schedule. On a daily 7-day repeating basis, relays can be assigned to follow any of the following scenarios:

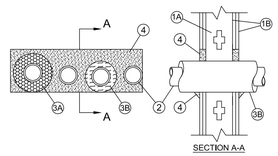
(1) Manual On / Sched Off
(2) Scheduled On/Off
(3) Manual ON / AS Switch Off (for use with AS-100 switches)
(4) Photocell On/Off
(5) Photo & Sched On/Off
(6) Astronomic On/Off
(7) Astro and Sched On/Off

The LCD screen should normally show the current time and date, as well as sunrise and sunset times for that day. Relay channels can also be monitored from the display to see their status - either ON, OFF, or MIXED. Additionally the relay groups can be overriden from the screen. Context sensitive help shall be available for each screen.

Panel to be The Watt Stopper's (800-852-2778) LP8 panel and must be UL Listed 916, meet local energy codes (California CEC), and have a 1 year warranty.

RATED THRU WALL PIPE PENETRATION
NTS

System No.W-L-8010
May 19, 2005
F Ratings - 1 & 2 Hr (See Item 1)
T Ratings - 1/4, 3/4, 1, 1-1/2 and 1-3/4 Hr (See Items 2 & 3)



SECTION A-A

1. Wall Assembly - The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the Individual U300, U400 or V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 in. by 4 in. (51 mm to max 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC.
B. Gypsum Board* - Nom 5/8 in. (16 mm) thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max area of opening is 65-1/4 sq in. (421 cm2) with max dimension of 14-1/2 In. (368 mm).

The hourly F Ratng of the firestop system is equal to the hourly fire ratng of the wall assembly.

2. Through Penetrants - A max of four pipes, conduits or tubing to be installed within the opening. The space between pipes, conduits or tubing shall be min 1/2 in to max 1-5/16 in. (13 mm to max 33 mm). The space between pipes, conduits or tubing and periphery of opening shall be min 1-3/16 in. (30 mm) for uninsulated copper tubes and copper pipes (Items 2C and 2D) and 0 in. (point contact) for insulated copper tubes and copper pipes and uninsulated steel pipes and conduit (Item 2B). The space between pipes, conduits or tubing and periphery of opening shall be max 1-5/16 in. (33 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom 2 in. (51 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe.
B. Conduit - Nom 2 in. (51 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.
C. Copper Tubing - Nom 2 in. (51 mm) diam (or smaller) Type L (or heavier) copper tubing.
D. Copper Pipe - Nom 2 in. (51 mm) diam (or smaller) Regular (or heavier) copper pipe.

When uninsulated steel pipe or conduit is used,T Rating is 3/4 hr and 1-1/2 hr for 1 and 2 hr rated assemblies, respectively.
When uninsulated copper tubing or pipe is used,T Rating is 1/4 hr for both 1 and 2 hr rated assemblies.

3A. Pipe Covering* (Optional) - Nom 1 in. (25 mm) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product.

See **Pipe and Equipment Covering - Materials*** (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

When pipe covering is used on all through penetrants,T Rating is 1 hr and 1-3/4 hr for 1 and 2 hr rated assemblies, respectively.

3B. Tube Insulation - Plastics# (Optional) - Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing.

See **Plastics** (QMFZ2) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-5VA may be used.

When tube Insulation is used on all through penetrants, T Rating is 3/4 hr and 1-1/2 hr for 1 and 2 hr rated assemblies, respectively.

4. Fill,Void or Cavity Material* - Caulk or Sealant - Min 5/8 in. or 1-1/4 in. (16 mm or 32 mm) thickness of fill material, for 1 or 2 hr walls, respectively, applied within the annulus, flush with both surfaces of wall. At point contact locations, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the wall/pipe and wall/pipe insulation interface on both surfaces of wall.

3M COMPANY- CP 25WB+, IC 15WB+ caulk or FB-3000 WT sealant

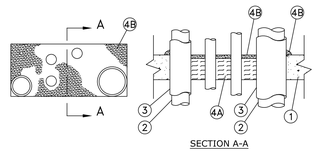
5. Fill,Void or Cavity Materials* - Wrap Strip (Not Shown) - Min one layer of 2 in. (51 mm) wide, nom 1/4 in. (6 mm) thick intumescent elastomeric material faced on one side with aluminum foil, required only when tube insulation (Item 3B) is used in 2 hr rated assemblies. Wrap strip tightly wrapped around tube insulation (foil side exposed) within the opening on both sides of the wall, flush with both surfaces of the wall assembly.

3M COMPANY - FS-195+

#Bearing the UL Recognized Component Mark
*Bearing the UL Classification Marking

RATED FLOOR PIPE PENETRATION
NTS

System No. C-AJ-8072
September 07, 2004
F Rating - 2 Hr
T Ratings - 0, 1/4, 1/2, & 1 Hr (See Item 2)



SECTION A-A

1. Floor or Wall Assembly - Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf)concrete floor or min 5 in. thick reinforced lightweight or normal weight concrete wall. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max area of opening 84 square in. with max dimension of 14 in.

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Through Penetrants - Multiple metallic pipes, conduits, tubings or cables to be installed within the firestop system. Min 1/2 in. clearance between penetrants. Min clearance between uninsulated penetrants or cables and wall of through opening 0 in. (point contact). Penetrants rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits, tubings or cables may be used:

A. **Steel Pipe** - Nom 2 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
B. **Iron Pipe** - Nom 2 in. diam (or smaller) cast or ductile iron pipe.
C. **Conduit** - Nom 2 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
D. **Copper Tubing** - Nom 2 in. diam (or smaller) Type L (or heavier) copper tube.
E. **Copper Pipe** - Nom 2 in. diam (or smaller) Regular (or heavier) copper pipe.
F. **Cable** - Max 7/C No. 12 AWG (or smaller) copper conductor cable with PVC insulation and jacket.
The hourly T Rating is 1/4 hr when penetrants A, B and C are used, 0 hr when penetrants D and E are used and 1/2 hr when penetrant F is used.
The hourly T Rating is 1 hr when penetrants A, B, C, D and E are used with pipe insulation (Item 3).

3. Pipe Insulation (Optional) - The following types of pipe insulation may be used:

A. **Pipe Covering*** - Nom 1-1/2 in. thick (or thinner) hollow cylindrical heavy density glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated pipe and the edge of the through opening shall be min 0 in. (point contact). See Pipe and Equipment Covering - Materials* (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.
B. **Tube Insulation - Plastics++** - Nom 3/4 in. thick (or thinner) acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing. The annular space between the insulated pipe and the edge of the through opening shall be min 0 in. (point contact).

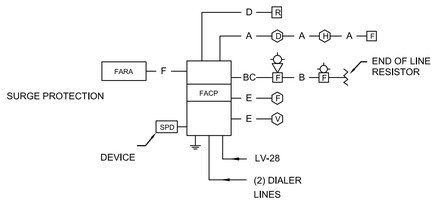
See **Plastics** (QMFZ2) category in the Plastics Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL 94 Flammability Classification of 94-5VA may be used.

4. Firestop System - The details of the firestop system shall be as follows:

A. **Packing Material** - Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
B. **Fill,Void or Cavity Materials* - Caulk or Sealant** - Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. Min 1/2 in. diam bead of caulk or sealant applied to the concrete/penetrant interface at the point contact location on the top surface of floor or both surfaces of wall.

3M COMPANY - CP-25WB+ caulk or FB-3000 WT sealant.

*Bearing the UL Classification Marking
++Bearing the UL Recognized Component Marking



FIRE ALARM RISER
NTS

FIRE ALARM GENERAL NOTES:

1. FIRE ALARM SYSTEM EQUIPMENT SHALL BE AN ANALOG ADDRESSABLE SYSTEM WITH THE CAPABILITY OF EXPANSION.

2. FIRE ALARM PERMIT DRAWINGS SHALL BE PREPARED AND SUBMITTED BY THE FIRE ALARM SYSTEM CONTRACTOR.

3. ELECTRICAL CONTRACTOR SHALL PLACE FIRESTOPPING MATERIALS AROUND ALL CONDUIT PENETRATIONS THRU ANY FIRE RATED WALLS AND FLOORS.

4. FIRE ALARM CONTRACTOR TO WIRE AND MAKE FINAL CONNECTIONS TO ALL DEVICES.

5. PROVIDE SURGE SUPPRESSION ON ALL FIRE ALARM SIGNAL CIRCUITS AND INLINE LIGHTNING/SURGE SUPPRESSOR ON FIRE ALARM CABLE ENTERING BUILDING.

6. VERIFY DEVICE QUANTITY ON FLOOR PLANS.

7. FIRE ALARM SYSTEM SHALL BE POWER LIMITED.

8. SECOND POWER SUPPLY CAPACITY SHALL BE 24 HOURS STANDBY WITH 15 MINUTES ALARM.

FIRE ALARM SYSTEM - WIRING SCHEDULE		
	CONDUCTORS	DESCRIPTION
A	2C #18 SHIELDED TWISTED PAIR	ADDRESSABLE INITIATION DEVICES
B	(2) #14 AWG THHN	SIGNAL DEVICES
C	(2) #14 AWG THHN	AUDIO DEVICES
D	(2) #14 AWG THHN	AHU & FAN SHUTDOWN RELAY
E	2C #18 SHIELDED TWISTED PAIR	FLOW & TAMPER ZONES
F	2C #16 SHIELDED TWISTED PAIR (2) #16 AWG THHN	FIRE ALARM REMOTE ANNUNCIATOR & ANSUL SYSTEM

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INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE
AND RECYCLING FACILITY
Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO.
2016
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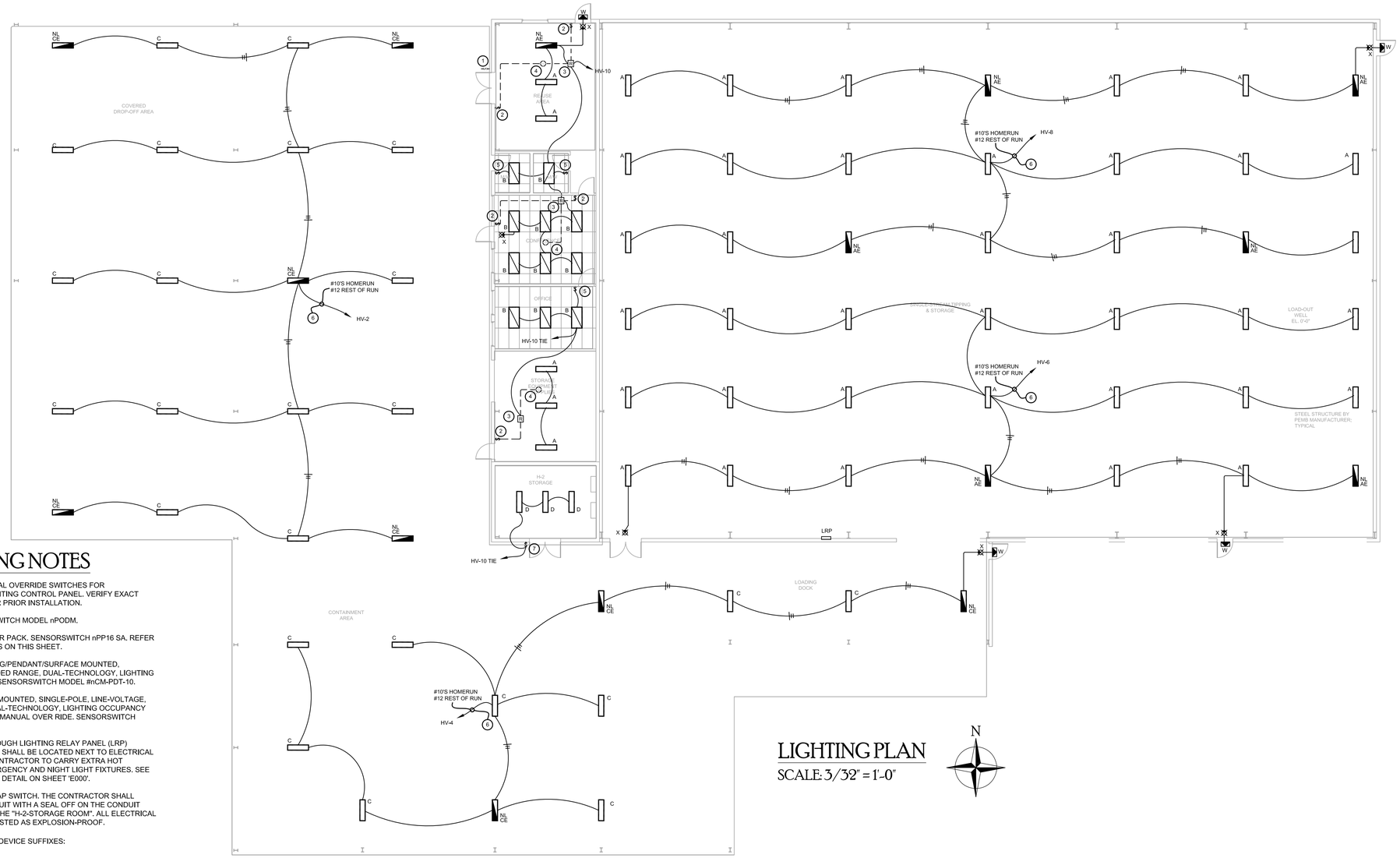
DRAWN BY:
WG

SHEET TITLE
ELECTRICAL
NOTES & DETAILS
SHEET NO.
E000



LIGHTING NOTES

1. LOW VOLTAGE MANUAL OVERRIDE SWITCHES FOR WATTSTOPER LP-8 LIGHTING CONTROL PANEL. VERIFY EXACT LOCATION WITH OWNER PRIOR INSTALLATION.

2. ON/OFF OVERRIDE SWITCH MODEL nPODM.

3. LOW VOLTAGE POWER PACK. SENSORSWITCH nPP16 SA. REFER TO CONTROL DIAGRAMS ON THIS SHEET.

4. PROVIDE NEW CEILING/PENDANT/SURFACE MOUNTED, LOW-VOLTAGE, EXTENDED RANGE, DUAL-TECHNOLOGY, LIGHTING OCCUPANCY SENSOR. SENSORSWITCH MODEL #nCM-PDT-10.

5. PROVIDE NEW WALL MOUNTED, SINGLE-POLE, LINE-VOLTAGE, STANDARD RANGE, DUAL-TECHNOLOGY, LIGHTING OCCUPANCY SENSOR WITH BUILT-IN MANUAL OVER RIDE. SENSORSWITCH MODEL #WSX-PDT.

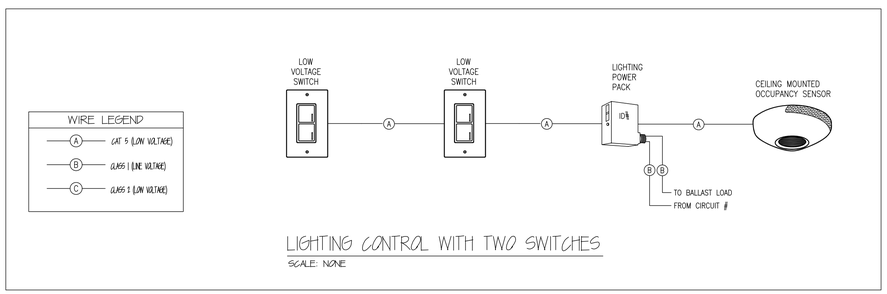
6. ROUTE CIRCUIT THROUGH LIGHTING RELAY PANEL (LRP) LIGHTING RELAY PANEL SHALL BE LOCATED NEXT TO ELECTRICAL PANELS AS SHOWN. CONTRACTOR TO CARRY EXTRA HOT CONDUCTOR FOR EMERGENCY AND NIGHT LIGHT FIXTURES. SEE LIGHTING RELAY PANEL DETAIL ON SHEET 'E000'.

7. PROVIDE 120V/1P SNAP SWITCH. THE CONTRACTOR SHALL PROVIDE A RIGID CONDUIT WITH A SEAL OFF ON THE CONDUIT THAT IS DUCTED INTO THE "H-2-STORAGE ROOM". ALL ELECTRICAL EQUIPMENT MUST BE LISTED AS EXPLOSION-PROOF.

FIXTURE, SWITCHING & DEVICE SUFFIXES:
E = EXISTING
R = RELOCATED
RE= RELOCATE EXISTING
N = NEW
3 = 3-WAY SWITCHES
D = DIMMER. PROVIDE FIXTURE COMPATIBLE DIMMER SWITCH.
a,b...etc.= LOWER CASE LETTERS INDICATE CONTROL GROUPS.
NL- NIGHT LIGHT

NOTES: ALL DEVICES ARE NEW UNLESS INDICATED OTHERWISE.

LIGHTING PLAN
SCALE: 3/32" = 1'-0"



LIGHTING CONTROL WITH TWO SWITCHES
SCALE: NONE

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NO.	MOUNTING	VOLT	LAMP	REMARKS	SELECTION
A	COLUMBIA LIGHTING	CHB2-40MH-FA-EDU	SUSPENDED AT 16' AFF	277	LED 170W 4000K	COLUMBIA LED HIGHBAY LIGHT FIXTURE	
AE						SAME AS 'A' FIXTURE. PROVIDE NEW 90-MIN BATTERY BACKUP IN FIXTURE.	
B	COLUMBIA LIGHTING	CBT24-LS40-4400L	LAY-IN GRID	277	LED 50W 4000K	2x4 LED LIGHT FIXTURE	
BE						SAME AS 'B' FIXTURE. PROVIDE NEW 90-MIN BATTERY BACKUP IN FIXTURE.	
C	COLUMBIA LIGHTING	CHB2-40MH-FA-EDU-DAMP LISTED	SUSPENDED AT 16' AFF	277	LED 170W 4000K	COLUMBIA LED HIGHBAY LIGHT FIXTURE (DAMP LISTED)	
CE						SAME AS 'C' FIXTURE. PROVIDE NEW 90-MIN BATTERY BACKUP IN FIXTURE.	
D	SOLAS RAY LIGHTING	HJIL41-060-40-U-4JSPM	SUSPENDED AT 16' AFF	277	LED 60W 4000K	EXPLOSION PROOF LIGHT FIXTURE	
W	MCGRAW-EDISON	TO BE SELECTED BY OWNER	SURFACE	120	67W MAX	LARGE EXTERIOR WALL PACK FIXTURE WITH BUILT IN 90-MIN BATTERY BACKUP AND PHOTOCELL CONTROL.	
X			SURFACE CEILING	277	11W LED	EXIT SIGN WITH 90-MIN BATTERY BACKUP IN FIXTURE.	

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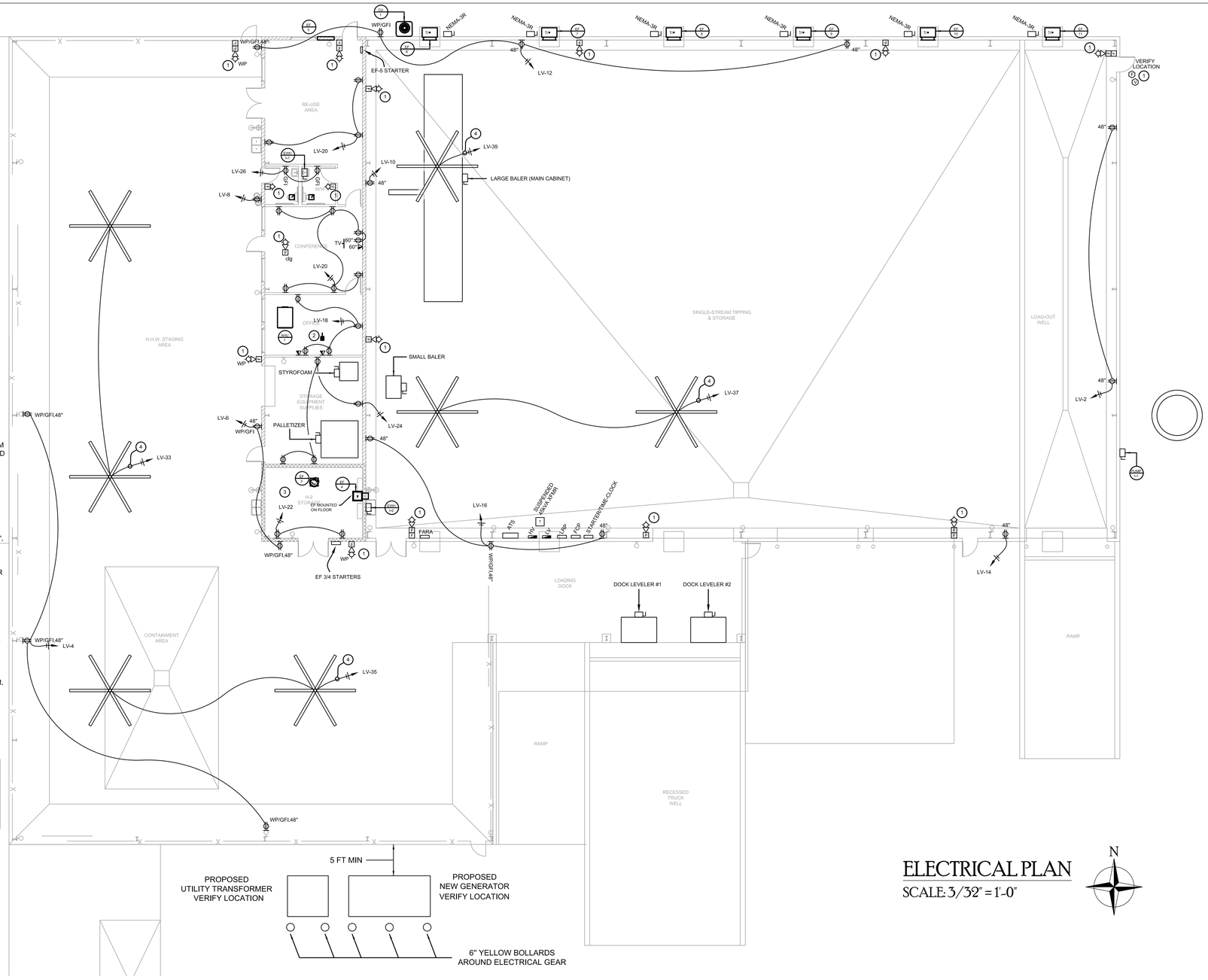
SHEET NO. E101



ELECTRICAL NOTES

1. NEW FIRE ALARM SYSTEM. CONTRACTOR SHALL VERIFY NEW SYSTEM HAS THE CAPACITY TO ADD ADDITIONAL DEVICES AS SHOWN OR TO ADD ADDITIONAL SIGNAL AND ZONE EXPANDERS TO PROVIDE A PROPERLY FUNCTIONING FIRE ALARM SYSTEM. VERIFY EXACT LOCATION OF FIRE ALARM DEVICES WITH OWNER PRIOR INSTALLATION.

2. MOTORIZED DAMPER. PROVIDED AND INSTALLED BY MECHANICAL. CONNECTED BY ELECTRICAL. PROVIDE 120V POWER FROM NEAREST RECEPTACLE CIRCUIT.

3. THE CONTRACTOR SHALL PROVIDE A RIGID CONDUIT WITH A SEAL OFF ON THE CONDUIT THAT IS DUCTED INTO THE "H-2-STORAGE ROOM". ALL ELECTRICAL EQUIPMENT MUST BE LISTED AS EXPLOSION-PROOF.

4. BIG ASS FANS. PROVIDE 120V POWER AS SHOWN AND WIRE WITH (2) #10, #12 EG IN 1/2"C. VERIFY EXACT LOCATION WITH ARCHITECT/OWNER PRIOR INSTALLATION. PROVIDE CAT5 CONDUCTOR FROM FAN TO DESIGNATED LOCATION FOR CONTROLLER. VERIFY CONTROLLER LOCATION WITH OWNER/ARCHITECT PRIOR INSTALLATION.

GENERAL NOTES:

1. FOR 120V CIRCUITS WHEN BRANCH CIRCUIT LENGTH EXCEEDS 75 FEET FROM PANEL, WIRING SHALL BE INCREASED TO #10 AWG. WHEN BRANCH CIRCUIT LENGTH EXCEEDS 150 FEET FROM PANEL, BRANCH WIRING SHALL BE INCREASED TO #8 AWG WITH #10 AWG GROUND.

2. ADDITIONAL POWER MAY BE REQUIRED FOR FIRE ALARM SYSTEM.

ELECTRICAL DEVICE SUFFIXES:
E = EXISTING
R = RELOCATED
N = NEW

SPECIAL ELECTRICAL NOTE:

UPON PROJECT COMPLETION, CONTRACTOR SHALL VERIFY FIRE DEPARTMENT RADIO SIGNAL STRENGTH, PROVIDE A BI-DIRECTIONAL ANTENNA SYSTEM IF REQUIRED DUE TO LOW RF SIGNAL.

ELECTRICAL PLAN

SCALE: 3/32" = 1'-0"

N

EQUIPMENT SCHEDULE

DESCRIPTION	ELECTRICAL CHARACTERISTICS VOLTS	PHASE	KW	HP	MCA	CIRCUIT DESIGNATION	BREAKER AMPS	BREAKER POLES	FEEDER	EQUIP. GROUND	CONDUIT	DISCONNECT SWITCH	REMARKS
LARGE BALER	480	3		75	96.0	HV-1,3,5	125	3	(3) #4	#6	1"	DIRECT CONNECTION	SEE NOTE 1,2
SMALL BALER	480	3		10	17.5	HV-7,9,11	25	3	(3) #12	#12	1/2"	DIRECT CONNECTION	SEE NOTE 1,2
STYROFOAM MACHINE	208	3			48.0	LV-1,3,5	50	3	(3) #6	#10	3/4"	60A/2P/NF/NEMA-1	SEE NOTE 1
PALLETIZER	120	1			15.0	LV-7	20	1	(2) #12	#12	1/2"C	30A/2P/NF/NEMA-1	SEE NOTE 1
DOCK LEVELER #1	208	3			50.0	LV-9,11,13	60	3	(3) #6	#10	3/4"	60A/3P/NF/NEMA-1	SEE NOTE 1
DOCK LEVELER #2	208	3			50.0	LV-15,17,19	60	3	(3) #6	#10	3/4"	60A/3P/NF/NEMA-1	SEE NOTE 1

NOTES:
1. VERIFY EXACT LOCATION AND REQUIREMENTS WITH OWNER PRIOR INSTALLATION. EQUIPMENT TO BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR.
2. VERIFY BALER MAIN CABINET AND CONNECT TO NEW DISCONNECT IN THE SUPPLY SIDE. VERIFY REQUIREMENTS WITH THE MACHINE VENDOR PRIOR INSTALLATION.

MECHANICAL EQUIPMENT SCHEDULE

DESCRIPTION	ELECTRICAL CHARACTERISTICS VOLTS	PHASE	KW	HP	MCA	CIRCUIT DESIGNATION	BREAKER AMPS	BREAKER POLES	FEEDER	EQUIP. GROUND	CONDUIT	DISCONNECT SWITCH	REMARKS
AHU-1	480	3	10		19.3	HV-25,27,29	20	3	(3) #12	#12	1/2"	30A/3P/NF/NEMA-1	SEE NOTE 1,3,4
CU-1	480	3			21.5	HV-13,15,17	30	3	(3) #10	#12	1/2"	30A/3P/NF/NEMA-3R	SEE NOTE 3
EF-3, EF-4, EF-5	480	3			5.0	HV-19,21,23	20	3	(3) #12	#12	1/2"	30A/3P/NF/NEMA-3R	SEE NOTE 1,2,3,5
EF-6 & EF-7 & EF-8	480	3		1	2.6	HV-37,39,41	15	3	(3) #12	#12	1/2"	30A/3P/NF/NEMA-3R	SEE NOTE 1,3,4
EF-9 & EF-10 & EF-11	480	3		1	2.6	HV-32,34,36	15	3	(3) #12	#12	1/2"	30A/3P/NF/NEMA-3R	SEE NOTE 1,3,4
PUMP 1-1	208	1		1	8.0	LV-29,31	20	2	(2) #12	#12	1/2"	30A/2P/NF/NEMA-3R	
EWH 1-1	208	1	3.6		17.3	LV-25,27	20	2	(2) #12	#12	1/2"	30A/2P/NF/NEMA-1	
EWH 1-2	277	1	8		28.8	HV-12	30	1	(2) #10	#10	3/4"	30A/2P/NF/NEMA-1	

NOTES:
1. SEE MECHANICAL PLANS FOR CONTROL INFORMATION.
2. PROVIDE EXPLOSION PROOF DISCONNECT TO EF-3, EF-4.
3. PROVIDE WP/GFI 120V, 20A GENERAL MAINTENANCE RECEPTACLE WITH-IN 25' OF UNIT AS REQUIRED. PROVIDE POWER FROM NEAREST GENERAL RECEPTACLE CIRCUIT. CONTRACTOR TO VERIFY BRANCH CIRCUIT CONTAINS NO MORE THAN (8) RECEPTACLES.
4. CONTRACTOR TO FURNISH AND INSTALL A SIZE "0" STARTER WITH OVERLOADS, 120V COIL, HOA SWITCH IN COVER, IN A NEMA 1 ENCLOSURE. CONTRACTOR TO FURNISH AND INSTALL A 24 HOUR TIME CLOCK TO CONTROL ALL FANS. TIME CLOCK TO CONTOL ALL FOUR FANS TOGETHER
5. CONTRACTOR TO FURNISH AND INSTALL A SIZE "0" COMBINATION NON FUSED STARTER WITH OVERLOADS, 480V COIL, IN A NEMA 1 ENCLOSURE. STARTER TO BE IN ON AT ALL TIMES.

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Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO. 2016

ISSUE DATE: 07/07/2021

DRAWN BY: WG

SHEET TITLE: ELECTRICAL PLAN

SHEET NO. E201

NEW PANEL LV VOLTAGE 120 / 208 V SIZE 250A MCB CABINET SURFACE NEMA-1
SQD OR EQUAL PHASE 3 PH 250A BUS RATING 10,000 AIC RATED
4 W

NOTES	REMARKS	CKT.BKR. AMPS	P	VA PHASE LOAD A	B	C	CKT.#	BUS A	B	C	CKT.#	VA PHASE LOAD A	B	C	CKT.BKR. AMPS	P	REMARKS	NOTES
	STYROFOAM MACHINE	50	3	4621			1	X			2	360			20	1	GENERAL REC	
					4621		3		X		4		1080		20	1	GENERAL REC	
						4621	5			X	6			1080	20	1	GENERAL REC	
	PALLETIZER	20	1	1800			7	X			8	360			20	1	DRINKING FTN	
	DOCK LEVELER #1	60	3		6017		9		X		10		1080		20	1	GENERAL REC	
						6017	11			X	12			1080	20	1	GENERAL REC	
				6017			13	X			14	1080			20	1	GENERAL REC	
	DOCK LEVELER #2	60	3		6017		15		X		16		1080		20	1	GENERAL REC	
						6017	17			X	18			1080	20	1	CONF RM REC	
				6017			19	X			20	1080			20	1	OFFICE RM REC	
	SPARE	20	1				21		X		22		360		20	1	H-2 STORAGE REC	
	SPARE	20	1				23			X	24			1080	20	1	STORAGE REC	
	EWH 1-1	20	2	1800			25	X			26	360			20	1	RESTROOM REC	
					1800		27		X		28		1080		20	1	FACP	
	PUMP 1-1	20	2			832	29			X	30			1080	20	1	EF TC/STARTERS	
				832			31	X			32				20	1	SPARE	
	BIG ASS FANS	20	1		1500		33		X		34				20	1	SPARE	
	BIG ASS FANS	20	1			1500	35			X	36				20	1	SPARE	
	BIG ASS FANS	20	1	1500			37	X			38				20	1	SPARE	
	BIG ASS FANS	20	1		750		39		X		40				20	1	SPARE	
	SPARE	20	1				41			X	42				20	1	SPARE	
		TOTAL		22586	20704	18986						3240	4680	5400	TOTAL			

TABULATION	TOTAL LOAD	DEMAND FACTOR	DEMAND LOAD
MEASURED			
LIGHTING			
COOLING			
HEATING			
RECEPTACLE	49420	0.60	29710
MISCELLANEOUS	26176	1.00	26176
KITCHEN EQUIP			
LARGEST MOTOR			
TOTAL DEMAND LOAD		55886	VA
TOTAL DEMAND AMPS		155.1	A

NOTE:
CONTRACTOR IS RESPONSIBLE FOR UPDATING ALL PANEL SCHEDULES WITH CURRENT DESCRIPTIONS OF ALL BRANCH CIRCUIT DESIGNATIONS.

NEW PANEL HV VOLTAGE 277 / 480 V SIZE 400A MLO CABINET SURFACE NEMA-1
SQD OR EQUAL PHASE 3 PH 400A BUS RATING 33,000 AIC RATED
4 W

NOTES	REMARKS	CKT.BKR. AMPS	P	VA PHASE LOAD A	B	C	CKT.#	BUS A	B	C	CKT.#	VA PHASE LOAD A	B	C	CKT.BKR. AMPS	P	REMARKS	NOTES
				21274			1	X			2	3000			20	1	LIGHTS	
	LARGE BALER	125	3		21274		3		X		4		3000		20	1	LIGHTS	
						21274	5			X	6			3000	20	1	LIGHTS	
				3324			7	X			8	3000			20	1	LIGHTS	
	SMALL BALER	25	3		3324		9		X		10		1500		20	1	LIGHTS	
						3324	11			X	12			8000	20	1	EWH 1-2	
				4764			13	X			14	1385						
	CU-1	20	3		4764		15		X		16		1385		20	3	HOOD	
						4764	17			X	18			1385				
				4155			19	X			20	1200			20	1	GEN BLCK HEAT	
	EF-3, EF-4, EF-5	20	3		4155		21		X		22		1200		20	1	GEN BATT CHR	
						4155	23			X	24				20	1	SPARE	
				3333			25	X			26				20	1	SPARE	
	AHU-1	20	3		3333		27		X		28				20	1	SPARE	
						3333	29			X	30				20	1	SPARE	
							31	X			32	1385						
	SPARE	20	3				33		X		34		1385		20	3	EF-9 & EF-10 & EF-11	
							35			X	36			1385				
				1385			37	X			38				20	1	SPARE	
	EF-6 & EF-7 & EF-8	20	3		1385		39		X		40				20	1	SPARE	
						1385	41			X	42				20	1	SPARE	
								SUB				25826						
							1	FEED			2		25384		125	3	PANEL 'LV' VIA 75kVA XFMR	
								BRKR						24386				
		TOTAL		38235	38235	38235						9970	8470	13770	TOTAL			

TABULATION	TOTAL LOAD	DEMAND FACTOR	DEMAND LOAD
MEASURED			
LIGHTING	13500	1.25	16875
COOLING	24292	1.00	24292
HEATING			
RECEPTACLE	2400	1.00	2400
MISCELLANEOUS	106723	1.00	106723
KITCHEN EQUIP			
LARGEST MOTOR			
TOTAL DEMAND LOAD		150290	VA
TOTAL DEMAND AMPS		180.8	A

NOTE:
CONTRACTOR IS RESPONSIBLE FOR UPDATING ALL PANEL SCHEDULES WITH CURRENT DESCRIPTIONS OF ALL BRANCH CIRCUIT DESIGNATIONS.

GENERATOR FUEL TANK CALCULATION:

GENERATOR SIZE: 250kW/313kVA
FUEL CONSUMPTION AT 100% LOAD: 18.5 GAL/HR
18.5 GAL/HR X 8HR = 148 GAL.
TANK SIZE = 372 GAL.

SPECIAL ELECTRICAL NOTE:

UPON PROJECT COMPLETION, CONTRACTOR SHALL VERIFY FIRE DEPARTMENT RADIO SIGNAL STRENGTH, PROVIDE A BI-DIRECTIONAL ANTENNA SYSTEM IF REQUIRED DUE TO LOW RF SIGNAL.

RISER NOTES

1. NEW 277/480/3Ø CT METER. COORDINATE WITH LOCAL UTILITY. PROVIDE LIGHTING ARRESTOR AND GROUND PER LOCAL UTILITY REQUIREMENTS. CT METER ENCLOSURE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR. MOUNT CT METER ENCLOSURE ON A 4X4 CONCRETE PEDESTAL ADJACENT TO THE ENCLOSURE.

2. PROVIDE (4) #500 MCM IN 3" CONDUIT.

3. PROVIDE NEW 400A, 277/480V/3Ø SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH WITH A 400A MAIN CIRCUIT BREAKER ON UTILITY SOURCE. SWITCH SHALL BE 3-POLE, IN NEMA-3R ENCLOSURE. ATS SHALL SERVE AS THE NEW MAIN DISCONNECT FOR THE BUILDING. BOND NEUTRAL AND GROUND AT ATS.

4. PROVIDE #1/0 GROUNDING ELECTRODE CONDUCTOR TO 5/8" X 10' COPPER CLAD GROUND ROD. BOND NEUTRAL AND GROUND IN ATS.

5. PROVIDE (4) #500 MCM, #3 EG IN 3" CONDUIT.

6. PROVIDE (3) #1, #6 EG IN 1-1/2"C.

7. PROVIDE (4) #250, #2 GEC IN 2-1/2"C.

8. 277/480V/3Ø, 250kW DIESEL GENERATOR WITH NEMA-3R SOUND ENCLOSURE AND SUB-BASE FUEL TANK AND 400A 80% RATED OUTPUT BREAKER. COORDINATE EXACT LOCATION WITH OWNER. GENERATOR SHALL COMPLY WITH NEC ARTICLE 702 (OPTIONAL STANDBY SYSTEMS). CONTRACTOR SHALL PROVIDE GENERATOR PAD.

9. PROVIDE (4) #500 MCM, #3 EG IN 3" CONDUIT.

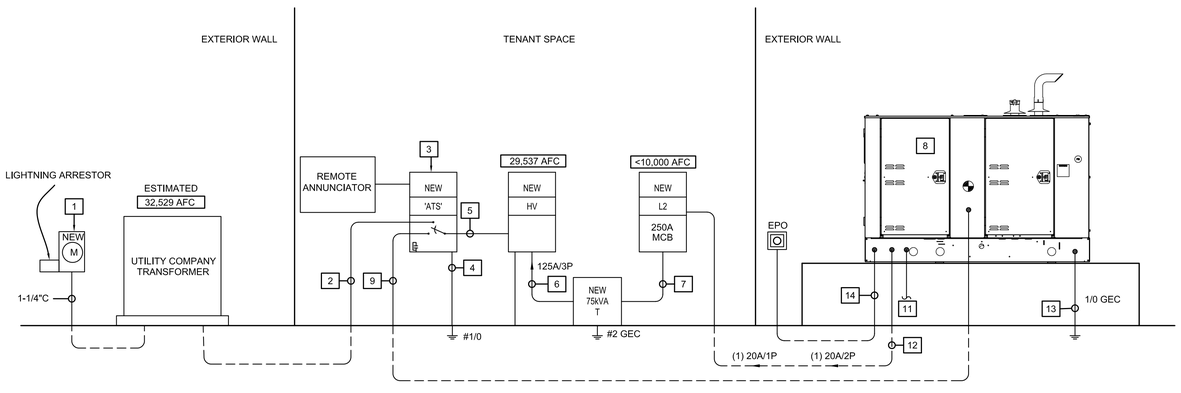
10. NOT USED.

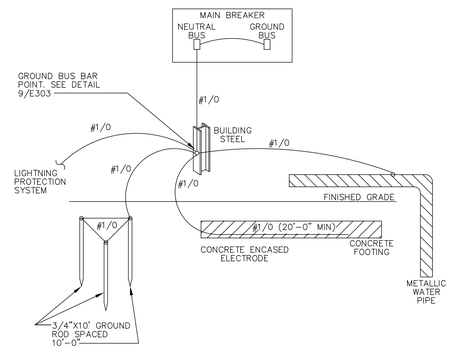
11. PROVIDE 1"C FOR NEW GENERATOR START CIRCUIT. USE (2) #12, #12 EG WITH TWO STRANDED TWISTED PAIRS FOR GENERATOR ANNUNCIATION AND GENERATOR EPO, SIZE AS REQUIRED PER MANUFACTURER. ANNUNCIATOR AND EPO SHALL BE LOCATED BY OWNER IN A LOCATION EASILY MONITORED. VERIFY EXACT LOCATIONS WITH TENANT.

12. PROVIDE A 120V, 20A/1P CIRCUIT FOR BATTERY CHARGER, PROVIDE A 208V, 20A/2P CIRCUIT FOR BLOCK HEATER. WIRE EACH WITH (2) #12, #12 EG IN 3/4"C.

13. (2) 5/8"X10' COPPER CLAD GROUND RODS. BOND GENERATOR ENCLOSURE TO GROUND RODS. GENERATOR IS NOT A SEPARATELY DERIVED SOURCE.

14. PROVIDE 3/4" CONDUIT FOR GENERATOR EPO BUTTON. SIZE PER MANUFACTURER REQUIREMENTS. EPO BUTTON SHALL BE LOCATED WITHIN GENERATOR REACH. VERIFY LOCATION WITH OWNER PRIOR TO INSTALLATION.





SERVICE GROUNDING DIAGRAM

SCALE: NONE

REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

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INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY
Indian River County, Florida

NO.	REVISIONS	DATE

JOB NO. 2016
ISSUE DATE: 07/07/2021
DRAWN BY: WG

SHEET TITLE
RISER DIAGRAM & PANEL SCHEDULES

SHEET NO.
E300

FIRE PROTECTION GENERAL NOTES

1. THESE FIRE PROTECTION SYSTEM ENGINEERING DOCUMENTS PROVIDE THE ENGINEERING REQUIREMENTS TO BE USED IN THE PREPARATION OF THE FIRE PROTECTION SYSTEM LAYOUT DOCUMENTS AND INDICATE THE OVER ALL NATURE OF THE PROJECT SCOPE OF WORK.
2. THE PROPOSED TYPE II 33,487 SQUARE FEET BUILDING SHALL BE PROTECTED BY AN WET AUTOMATIC SPRINKLER SYSTEM THROUGHOUT. THE PROPOSED CONSTRUCTION AREAS SHALL BE INSTALLED IN ACCORDANCE WITH THE 2016 EDITION OF NFPA 13, 2020 SEVENTH EDITION OF THE FLORIDA FIRE PREVENTION CODE, 2020 FLORIDA BUILDING CODE, CHAPTER 9 AND APPLICABLE LOCAL AND STATE REQUIREMENTS ADOPTED AT TIME OF PERMITTING.
3. THE OCCUPANCY CLASSIFICATION OF THIS FACILITY PER NFPA 13, 2016 EDITION SHALL BE:

   OFFICES, RESTROOMS AND LIKE AREAS SHALL BE DESIGNED PER LIGHT HAZARD OCCUPANCY, WITH A MINIMUM DENSITY OF 0.10 GPM OVER THE HYDRAULICALLY MOST DEMANDING OPERATING AREA PER NFPA 13 2016 11.2.3. TEMPERATURE RATING OF THE SPRINKLERS SHALL BE 155° OR AS INDICATED ON DRAWINGS. SPACING BETWEEN SPRINKLERS SHALL BE A MINIMUM OF 6' AND A MAXIMUM OF 15', AREA OF COVERAGE PER SPRINKLER SHALL BE 225 SQUARE FEET MAXIMUM FOR STANDARD SPACING AND MANUFACTURERS LISTING REQUIREMENTS FOR EXTENDED COVERAGE SPACING.

   ELECTRICAL/MECHANICAL EQUIPMENT ROOMS AND LIKE AREAS AREAS SHALL BE DESIGNED PER ORDINARY HAZARD GROUP I OCCUPANCY, WITH A MINIMUM DENSITY OF 0.15 GPM OVER THE HYDRAULICALLY MOST DEMANDING OPERATING AREA PER NFPA 13 2016 11.2.3. TEMPERATURE RATING OF THE SPRINKLERS SHALL BE 155° OR AS INDICATED ON DRAWINGS. SPACING BETWEEN SPRINKLERS SHALL BE A MINIMUM OF 6' AND A MAXIMUM OF 15', AREA OF COVERAGE PER SPRINKLER SHALL BE 130 SQUARE FEET MAXIMUM FOR STANDARD SPACING AND MANUFACTURERS LISTING REQUIREMENTS FOR EXTENDED COVERAGE SPACING.

   TIPPING, DROP OFF, STORAGE AND LIKE AREAS SHALL BE DESIGNED PER ORDINARY HAZARD GROUP II OCCUPANCY, WITH A MINIMUM DENSITY OF 0.20 GPM OVER THE HYDRAULICALLY MOST DEMANDING OPERATING AREA PER NFPA 13 2016 11.2.3. TEMPERATURE RATING OF THE SPRINKLERS SHALL BE 155° OR AS INDICATED ON DRAWINGS. SPACING BETWEEN SPRINKLERS SHALL BE A MINIMUM OF 6" AND A MAXIMUM OF 15', AREA OF COVERAGE PER SPRINKLER SHALL BE 130 SQUARE FEET MAXIMUM FOR STANDARD SPACING AND MANUFACTURERS LISTING REQUIREMENTS FOR EXTENDED COVERAGE SPACING. THESE AREAS SHALL NOT EXCEED 12 FEET HEIGHT OF MODERATE COMBUSTIBILITY CONTENTS PER NFPA 13 2016 5.3.2.1.

   H-2 STORAGE SHALL BE DESIGNED PER EXTRA HAZARD GROUP II OCCUPANCY, WITH A MINIMUM DENSITY OF 0.40 GPM OVER THE ENTIRE AREA AS THE OPERATING AREA PER NFPA 13 2016 11.2.3. TEMPERATURE RATING OF THE SPRINKLERS SHALL BE 175° STANDARD RESPONSE TYPE AS INDICATED ON DRAWINGS. SPACING BETWEEN SPRINKLERS SHALL BE A MINIMUM OF 6" AND A MAXIMUM OF 12', AREA OF COVERAGE PER SPRINKLER SHALL BE 120 SQUARE FEET MAXIMUM FOR STANDARD SPACING AND MANUFACTURERS LISTING REQUIREMENTS FOR EXTENDED COVERAGE SPACING. WALLS SURROUNDING H-2 STORAGE AREA SHALL EXTEND TO THE DECK.

4. THE SUPPORT SYSTEMS OF THE BUILDING HAVE ADEQUATE LOAD CARRYING CAPACITY FOR A 5 PSF DEAD LOAD WHICH WILL BE CONTRIBUTED BY THE FIRE SPRINKLER, MECHANICAL & ELECTRICAL SYSTEMS. THERE ARE NO SIGNIFICANT STRUCTURAL OPENINGS THAT WILL BE REQUIRED BY THE FIRE SPRINKLER SYSTEM. REFER TO STRUCTURAL DRAWINGS.
5. THE NEW FLOW SWITCH, LOCATED ON THE RISER CONTROL VALVE ASSEMBLY, SHALL BE CONNECTED TO THE EXTERIOR ELECTRIC BELL AND TO THE BUILDING FIRE ALARM SYSTEM. THE NEW TAMPER SWITCH, LOCATED ON THE RISER CONTROL VALVE ASSEMBLY, SHALL BE CONNECTED TO THE BUILDING FIRE ALARM SYSTEM.
6. THIS PROPOSED BUILDING IS TO BE PROTECTED BY A WET PIPE AUTOMATIC SPRINKLER SYSTEM. THE FIRE PROTECTION CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE THE PREPARATION OF THE FIRE PROTECTION SYSTEM LAYOUT DOCUMENTS, AND THE INSTALLATION OF ALL NECESSARY COMPONENTS, SYSTEMS, MATERIALS, ASSEMBLIES, EQUIPMENT AND SUPPORT SYSTEMS REQUIRED FOR A COMPLETE AND FUNCTIONAL SYSTEM.
7. THE ACCEPTANCE TESTING OF ALL FIRE PROTECTION SYSTEMS AND COMPONENTS SHALL BE IN ACCORDANCE WITH NFPA 13, 2016 EDITION FOR THE INSIDE (ABOVE GROUND) FIRE SPRINKLER SYSTEM AND NFPA 24, 2016 EDITION FOR THE OUTSIDE (UNDERGROUND) FIRE SPRINKLER SYSTEM.
8. THE FIRE SPRINKLER POINT OF SERVICE FOR THIS NEW PROJECT SHALL BE PER F.S. 633.021(18) AT THE DISCHARGE SIDE OF THE PROPOSED BACKFLOW PREVENTOR.
9. FIRE FLOW TEST:
   PROVIDED BY: INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES
   DATE: 04/29/21
   STATIC: 55 PSI
   RESIDUAL: 42 PSI
   FLOWING: 993 GPM
   THE AWARDED CONTRACTOR SHALL OBTAIN AN AHJ PURVEYOR APPROVED HYDRANT FLOW TEST PER NFPA 13 2016 23.2.1.1. HYDRAULIC CALCULATIONS, LAYOUT DRAWINGS AND MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER AND FIRE MARSHALL AND SHALL BE APPROVED PRIOR TO ANY FABRICATION OR INSTALLATION INVOLVED WITH THIS PROJECT
10. THERE ARE NO KNOWN CONDITIONS THAT WOULD INDICATE MICROBIAL INDUCED CORROSION IS PRESENT IN THE WATER SYSTEMS OF THIS JURISDICTION AS UNUSUAL PIPE FAILURES HAVE NOT BEEN KNOWN TO OCCUR.
11. THE QUALITY AND PERFORMANCE SPECIFICATIONS OF THE INTERIOR FIRE PROTECTION COMPONENTS SHALL BE GROOVED SCHEDULE 10 PIPE WITH GROOVED FITTINGS. AND OR SCHEDULE 40 WITH THREADED CAST IRON FITTINGS OR GROOVED SCHEDULE 10 PIPE WITH GROOVED FITTINGS.
12. ALL FIRE PROTECTION SYSTEM COMPONENTS SHALL BE UL LISTED FOR INTENDED USE.
13. TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES AND THE APPLICABLE FIRE SAFETY STANDARDS AS DETERMINED BY THE LOCAL AUTHORITY IN ACCORDANCE WITH CHAPTER 61G15-32 OF THE FLORIDA ADMINISTRATIVE CODE.
14. ALL FIRE PROTECTION WORK SHALL BE IN STRICT ACCORDANCE WITH ALL RELATED NFPA STANDARDS, THE OWNER'S INSURANCE UNDERWRITER, UNDERWRITERS LABORATORY, THE FLORIDA STATE FIRE PREVENTION CODE 2020 AND ALL LOCAL CODES AND AMENDMENTS.
15. FINAL INSPECTION AND APPROVAL OF AUTOMATIC SPRINKLER SYSTEM SHALL BE BY THE LOCAL FIRE MARSHAL (AHJ) AND ARCHITECT/ENGINEER
16. THE CONTRACTOR SHALL FOLLOW THE DRAWINGS, NOTES AND SPECIFICATIONS AS CLOSE AS POSSIBLE. HOWEVER, THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION(S) OF SPRINKLERS, PIPING, VALVES, ETC. TO ACCOMMODATE EXISTING CONDITIONS WHICH MAY ARISE DURING THE SYSTEM INSTALLATION WITHOUT ADDITIONAL COMPENSATION TO THE CONTRACTOR FOR SUCH CHANGES, PROVIDED SUCH CHANGES ARE REQUESTED PRIOR TO THE INSTALLATION OF THE CONTRACTOR'S WORK. COORDINATE WITH ALL OTHER TRADES.
17. THE BIDDER IS REQUIRED, BEFORE SUBMITTING HIS PROPOSAL, TO VISIT THE SITE OF THE PROPOSED WORK AND FAMILIARIZE HIMSELF WITH THE NATURE AND EXTENT OF THE WORK AND ANY EXISTING CONDITIONS THAT MAY IN ANY MANNER AFFECT THE WORK TO BE DONE AND THE EQUIPMENT, MATERIALS AND LABOR REQUIRED. THE BIDDER IS ALSO REQUIRED TO EXAMINE CAREFULLY THE PLANS AND SPECIFICATIONS AND TO INFORM HIMSELF THOROUGHLY REGARDING ANY AND ALL CONDITIONS AND REQUIREMENTS THAT MAY IN ANY MANNER AFFECT THE WORK TO BE PERFORMED UNDER THIS CONTRACT.
18. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING DESCRIPTIONS AND HEIGHTS.
19. SPRINKLERS SHALL BE COORDINATED WITH ALL DIFFUSERS, SPEAKERS, LIGHTING FIXTURES, FIRE ALARM DEVICES, AND CEILING SYSTEMS. SPACING OF SPRINKLERS SHALL BE IN ACCORDANCE WITH NFPA 13 AND THE LISTING OF THE SPRINKLER.
20. SPRINKLERS SHALL BE CENTERED IN THE CEILING TILE AS INDICATED ON THE DRAWINGS. PROVIDE RETURN BENDS OR SWING JOINTS AS REQUIRED.
21. SLEEVE AND/OR FIRESTOP ALL PENETRATIONS THROUGH RATED WALLS, CEILINGS, AND FLOORS WITH UL LISTED ASSEMBLIES. FIRESTOP ASSEMBLIES SHALL BE EQUAL TO OR EXCEED THE RATING OF THE WALL, CEILING OR FLOOR. SEE ARCHITECTURAL DRAWINGS FOR FINAL FINISHES.
22. PROVIDE A PERMANENTLY ATTACHED NAME TAG ATTACHED TO THE RISER STATING THE REQUIRED OR MODIFIED DESIGN CRITERIA FOR EACH HYDRAULICALLY DESIGNED SYSTEM.
23. PROVIDE SPRINKLERS CAGES ON ALL SPRINKLERS IN ELECTRIC ROOMS, TELEPHONE ROOMS, MECHANICAL ROOMS, GYMNASIUMS, AND ON ANY SPRINKLER LESS THAN 7'-0" ABOVE FLOOR.
24. COORDINATE SPRINKLER PIPING WITH ALL ELECTRICAL EQUIPMENT (PANELS, TRANSFORMERS, ETC.) PRIOR TO ANY INSTALLATION. DO NOT ROUTE ANY SPRINKLER PIPING OVER ANY ELECTRICAL PANELS UNDER ANY CIRCUMSTANCES. ANY SPRINKLER PIPING RUN OVER NEW PROPOSED ELECTRICAL PANELS/EQUIPMENT SHALL BE REROUTED AT ADDITIONAL COST AS APPROVED IN RFI PROCESS THROUGH GC TO ARCHITECT.
25. THE CONTRACTOR SHALL INFORM THE OWNER (A MINIMUM OF ONE WEEK IN ADVANCE) OF ANY DISRUPTION OF SERVICES TO THE BUILDING AND SHALL NOT PROCEED TO WORK WITHOUT WRITTEN APPROVAL FROM THE OWNER. THE CONTRACTOR SHALL MAKE REPAIRS TO ANY SERVICES (ABOVE OR BELOW GROUND) DAMAGED BY WORK PERFORMED BY HIM. IF FOR ANY REASON OVERNIGHT SHUTDOWN IS REQUIRED, A "FIRE WATCH" CONDITION SHALL BE REQUEST AND APPROVED IN RFI PROCESS THROUGH GC TO ARCHITECT.

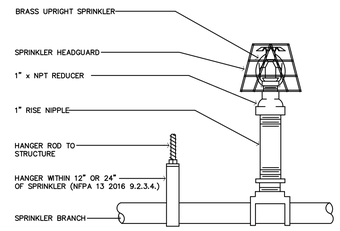
FIRE PROTECTION CODE CRITERIA

THE FOLLOWING IS A LIST OF ALL CODES AND STANDARDS ADOPTED DECEMBER 31, 2020 BY THE STATE FIRE MARSHAL'S RULE 69A3.012 F.A.C.:

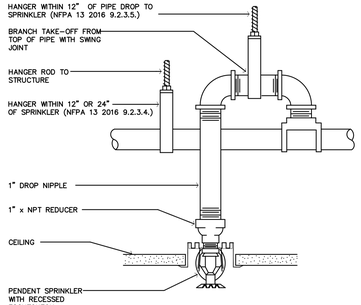
FLORIDA BUILDING CODE, SEVENTH EDITION (2020) – ALL SECTIONS
FLORIDA FIRE PREVENTION CODE, SEVENTH EDITION (2020)
FLORIDA BUILDING CODE (FBC), SEVENTH EDITION (2020) ENERGY CONSERVATION SOFTWARE: ENERGY GAUGE SUMMIT VERSION 6.10
FLORIDA BUILDING CODE (FBC), SEVENTH EDITION (2020) ACCESSIBILITY – 2012 FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION

(1) EXCEPT AS SPECIFICALLY MODIFIED BY STATUTE OR BY THE STATE FIRE MARSHAL'S RULES, THE "FLORIDA FIRE PREVENTION CODE, 7TH EDITION (2020)," WHICH IS COMPRISED OF THE FLORIDA SPECIFIC EDITION OF NFPA 101, THE LIFE SAFETY CODE (2018 EDITION) AND THE FLORIDA SPECIFIC EDITION OF NFPA 1, THE FIRE CODE (2018 EDITION), ARE HEREBY ADOPTED AND INCORPORATED BY REFERENCE AND ARE APPLICABLE TO THOSE BUILDINGS AND STRUCTURES SPECIFIED IN PARAGRAPHS (A) AND (B), OF SUBSECTION (1), OF SECTION 633.206, F.S. IN ADDITION, THE FOLLOWING STANDARDS, EXCEPT AS SPECIFICALLY MODIFIED IN THE RULE CHAPTERS IN RULE TITLE 69A, ARE HEREBY ADOPTED AND INCORPORATED BY REFERENCE AND SHALL TAKE EFFECT ON THE EFFECTIVE DATE OF THIS RULE, AS A PART OF THE UNIFORM FIRE SAFETY STANDARDS ADOPTED BY RULE BY THE STATE FIRE MARSHAL AND ARE APPLICABLE TO THOSE BUILDINGS AND STRUCTURES SPECIFIED IN SECTIONS 633.206(1)(A) AND (B), F.S.:

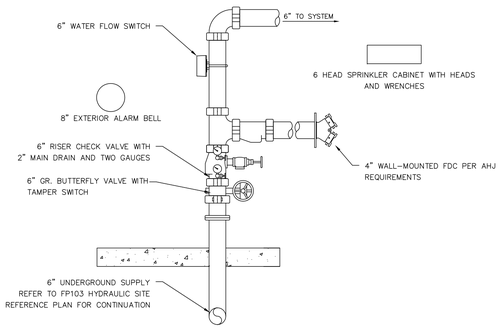
NFPA 13–2016	STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS
NFPA 24–2016	STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES
NFPA 25–2017	STANDARD FOR THE INSPECTION, TESTING, AND MAINTENANCE OF WATER-BASED FIRE PROTECTION SYSTEMS, EXCEPT THAT QUARTERLY FLOW TESTS SHALL BE REQUIRED FOR THOSE SYSTEMS SUPPLIED BY A MUNICIPAL WATER SUPPLY.
NFPA 70–2017,	NATIONAL ELECTRIC CODE
NFPA 72–2016,	NATIONAL FIRE ALARM CODE
NFPA 241–2013,	STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION AND DEMOLITION OPERATIONS



TYPICAL UPRIGHT SPRINKLER HEAD

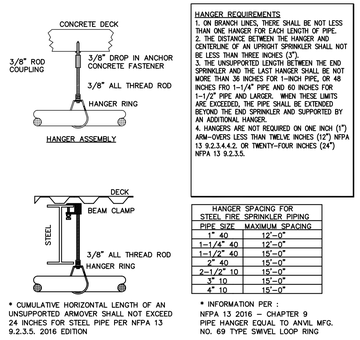


TYPICAL RECESSED PENDENT SPRINKLER HEAD



INTERIOR ISOLATION RISER ASSEMBLY

NO SCALE



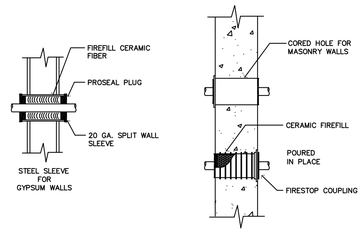
* CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARMOVER SHALL NOT EXCEED 24 INCHES FOR STEEL PIPE PER NFPA 13 9.2.3.5. 2016 EDITION

HANGER REQUIREMENTS
1. ON BRANCH LINES, THERE SHALL BE NOT LESS THAN ONE HANGER FOR EACH LENGTH OF PIPE.
2. THE DISTANCE BETWEEN THE HANGER AND CENTERLINE OF AN UPRIGHT SPRINKLER SHALL NOT BE LESS THAN THREE INCHES (3").
3. THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER AND THE LAST HANGER SHALL BE NOT MORE THAN 36 INCHES FOR 1-INCH PIPE, OR 48 INCHES FRO 1-1/4" PIPE AND 60 INCHES FOR 1-1/2" PIPE AND LARGER. WHEN THESE LIMITS ARE EXCEEDED, THE PIPE SHALL BE EXTENDED BEYOND THE END SPRINKLER AND SUPPORTED BY AN ADDITIONAL HANGER.
4. HANGERS ARE NOT REQUIRED ON ONE INCH (1") ARM-OVERS LESS THAN TWELVE INCHES (12") NFPA 13 9.2.3.4.4.2. OR TWENTY-FOUR INCHES (24") NFPA 13 9.2.3.5.

HANGER SPACING FOR STEEL FIRE SPRINKLER PIPING	
PIPE SIZE	MAXIMUM SPACING
1" 40	12'-0"
1-1/4" 40	12'-0"
1-1/2" 40	15'-0"
2" 40	15'-0"
2-1/2" 10	15'-0"
3" 10	15'-0"
4" 10	15'-0"

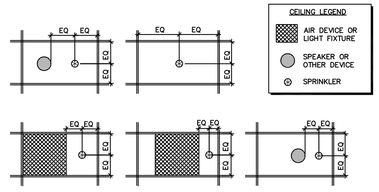
* INFORMATION PER : NFPA 13 2016 – CHAPTER 9 PIPE HANGER EQUAL TO ANVIL MFG. NO. 69 TYPE SWIVEL LOOP RING

TYPICAL NEW HANGER ASSEMBLY FOR SYSTEM



SLEEVES & FIRESTOPPING
USE PROSET "FIRESTOP PENETRATORS." U.L. CLASSIFIED IN THE BUILDING MATERIALS DIRECTORY, TESTED BY ASTM E814. USE ALL APPLICABLE PIPE PENETRATIONS THROUGH FIRE RATED WALLS OR FLOOR CEILING ASSEMBLIES IN ACCORDANCE WITH THE MANU-FACTURERS INSTRUCTIONS.

FIRE RATED WALL SLEEVING SYSTEM



SPRINKLERS IN GRID CEILING SYSTEMS SHALL BE LOCATED AT THE MIDPOINT OR QUARTERPOINT OF THE FOUR FOOT (4') DIMENSION AND THE MIDPOINT OF THE TWO FOOT (2') DIMENSION. WHERE A CONFLICT OCCURS SYMMETRY ABOUT THE AXIS SHALL BE MAINTAINED.

TYPICAL SPRINKLER MOUNTING IN ACT

DRAWING INDEX

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ISSUE DATE: 07/07/2021
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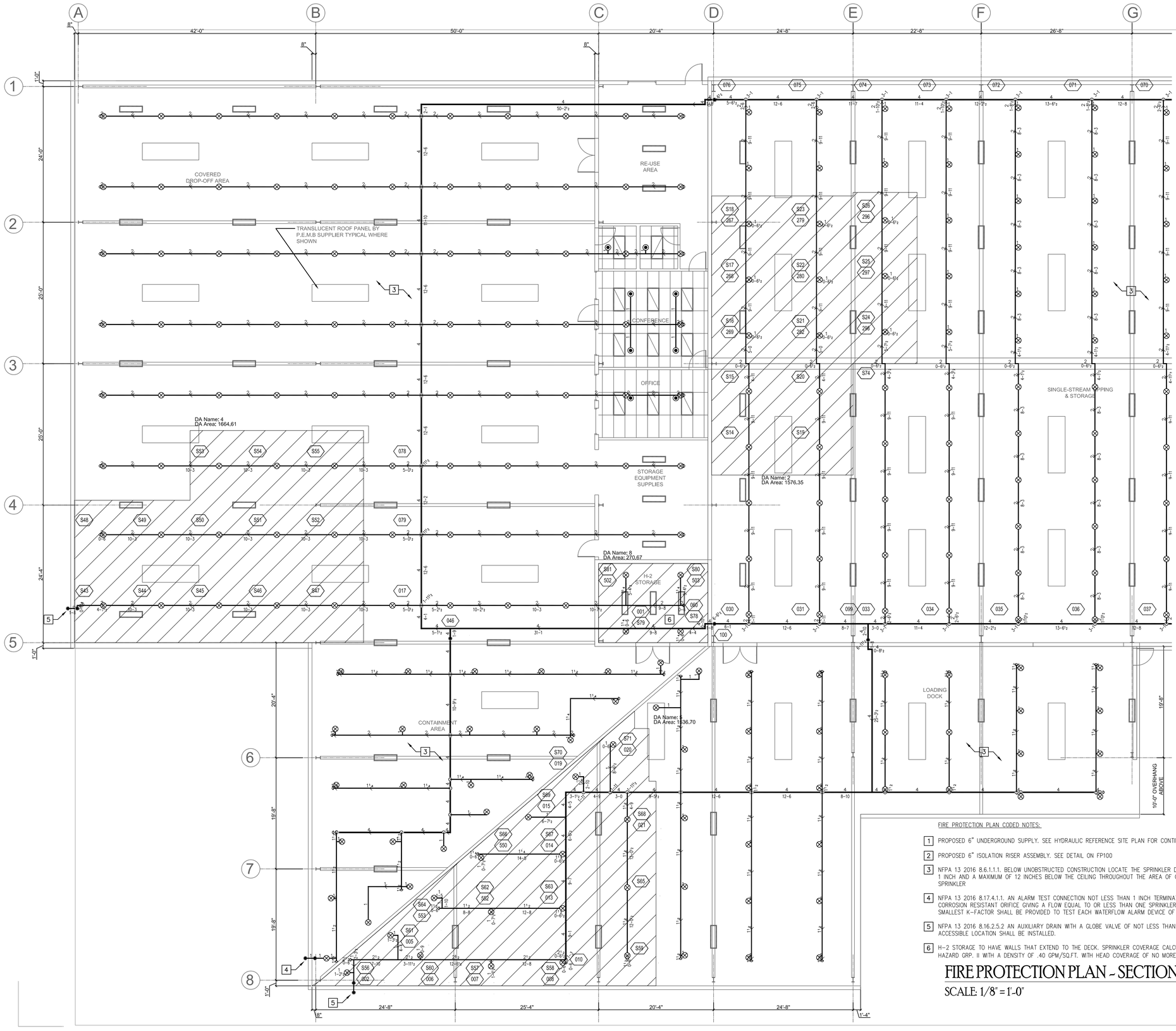
SHEET TITLE
DETAILS & NOTES

SHEET NO.
FP100



BASE BUILDING CALCULATION – TIPPING STORAGE

CALC AREA – RMA 2
OCCUPANCY CLASSIFICATION – OH-2
DENSITY– 0.20 GPM/SQ FT
AREA OF APPLICATION – 1576.35 SQ FT
CALCULATED SPRINKLER COVERAGE – 130 SQ FT
NFPA 13 2013 11.2.3.2.3. NO QR REDUCTION
20'0" MAXIMUM CEILING HEIGHT EXCEEDED
NUMBER OF SPRINKLERS CALCULATED – (13)
HOSE STREAM ALLOWANCE – 250
SYSTEM DEMAND @ SOURCE
602.5 GPM @ 34.3 PSI
SAFETY MARGIN 15.5 PSI OF SUPPLY

BASE BUILDING CALCULATION – DROP OFF AREA

CALC AREA – RMA 4
OCCUPANCY CLASSIFICATION – OH-2
DENSITY– 0.20 GPM/SQ FT
AREA OF APPLICATION – 1500.0 SQ FT
CALCULATED SPRINKLER COVERAGE – 130 SQ FT
NFPA 13 2013 11.2.3.2.3. NO QR REDUCTION
20'0" MAXIMUM CEILING HEIGHT EXCEEDED
NUMBER OF SPRINKLERS CALCULATED – (13)
HOSE STREAM ALLOWANCE – 250
SYSTEM DEMAND @ SOURCE
604.30 GPM @ 33.1 PSI
SAFETY MARGIN 16.8 PSI OF SUPPLY

BASE BUILDING CALCULATION – CONTAINMENT AREA

CALC AREA – RMA 5
OCCUPANCY CLASSIFICATION – OH-2
DENSITY– 0.20 GPM/SQ FT
AREA OF APPLICATION – 1536.7 SQ FT
CALCULATED SPRINKLER COVERAGE – 130 SQ FT
NFPA 13 2013 11.2.3.2.3. NO QR REDUCTION
20'0" MAXIMUM CEILING HEIGHT EXCEEDED
NUMBER OF SPRINKLERS CALCULATED – (16)
HOSE STREAM ALLOWANCE – 250
SYSTEM DEMAND @ SOURCE
694.00 GPM @ 41.7 PSI
SAFETY MARGIN 6.6 PSI OF SUPPLY

BASE BUILDING CALCULATION – H-2 STORAGE

CALC AREA – RMA 8
OCCUPANCY CLASSIFICATION – EH-2
DENSITY– 0.40 GPM/SQ FT
AREA OF APPLICATION – 400.0 SQ FT
CALCULATED SPRINKLER COVERAGE – 100 SQ FT
NFPA 13 2013 11.2.3.2.3. NO QR REDUCTION
20'0" MAXIMUM CEILING HEIGHT EXCEEDED
NUMBER OF SPRINKLERS CALCULATED – (4)
HOSE STREAM ALLOWANCE – 500
SYSTEM DEMAND @ SOURCE
667.50 GPM @ 44.4 PSI
SAFETY MARGIN 4.3 PSI OF SUPPLY

SYM	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#
◉	PEND	WHITE	155	5.60	1/2"	TY3231	TYCO	TY-FRB
⊗	UPR	BRASS	200	8.00	3/4"	TY4131	TYCO	TY-FRB

FIRE PROTECTION PLAN CODED NOTES:

1. PROPOSED 6" UNDERGROUND SUPPLY. SEE HYDRAULIC REFERENCE SITE PLAN FOR CONTINUATION
2. PROPOSED 6" ISOLATION RISER ASSEMBLY. SEE DETAIL ON FP100
3. NFPA 13 2016 8.6.1.1.1. BELOW UNOBSTRUCTED CONSTRUCTION LOCATE THE SPRINKLER DEFLECTOR A MINIMUM OF 1 INCH AND A MAXIMUM OF 12 INCHES BELOW THE CEILING THROUGHOUT THE AREA OF COVERAGE OF THE SPRINKLER
4. NFPA 13 2016 8.17.4.1.1. AN ALARM TEST CONNECTION NOT LESS THAN 1 INCH TERMINATING IN A SMOOTH BORE CORROSION RESISTANT ORIFICE GIVING A FLOW EQUAL TO OR LESS THAN ONE SPRINKLER OF A TYPE HAVING THE SMALLEST K-FACTOR SHALL BE PROVIDED TO TEST EACH WATERFLOW ALARM DEVICE OF EACH SYSTEM
5. NFPA 13 2016 8.16.2.5.2 AN AUXILIARY DRAIN WITH A GLOBE VALVE OF NOT LESS THAN 1 INCH, PIPED TO AN ACCESSIBLE LOCATION SHALL BE INSTALLED.
6. H-2 STORAGE TO HAVE WALLS THAT EXTEND TO THE DECK. SPRINKLER COVERAGE CALCULATED AT EXTRA HAZARD GRP. II WITH A DENSITY OF .40 GPM/SQ.FT. WITH HEAD COVERAGE OF NO MORE THAN 100 SQ. FT.

FIRE PROTECTION PLAN - SECTION A

SCALE: 1/8" = 1'-0"

N

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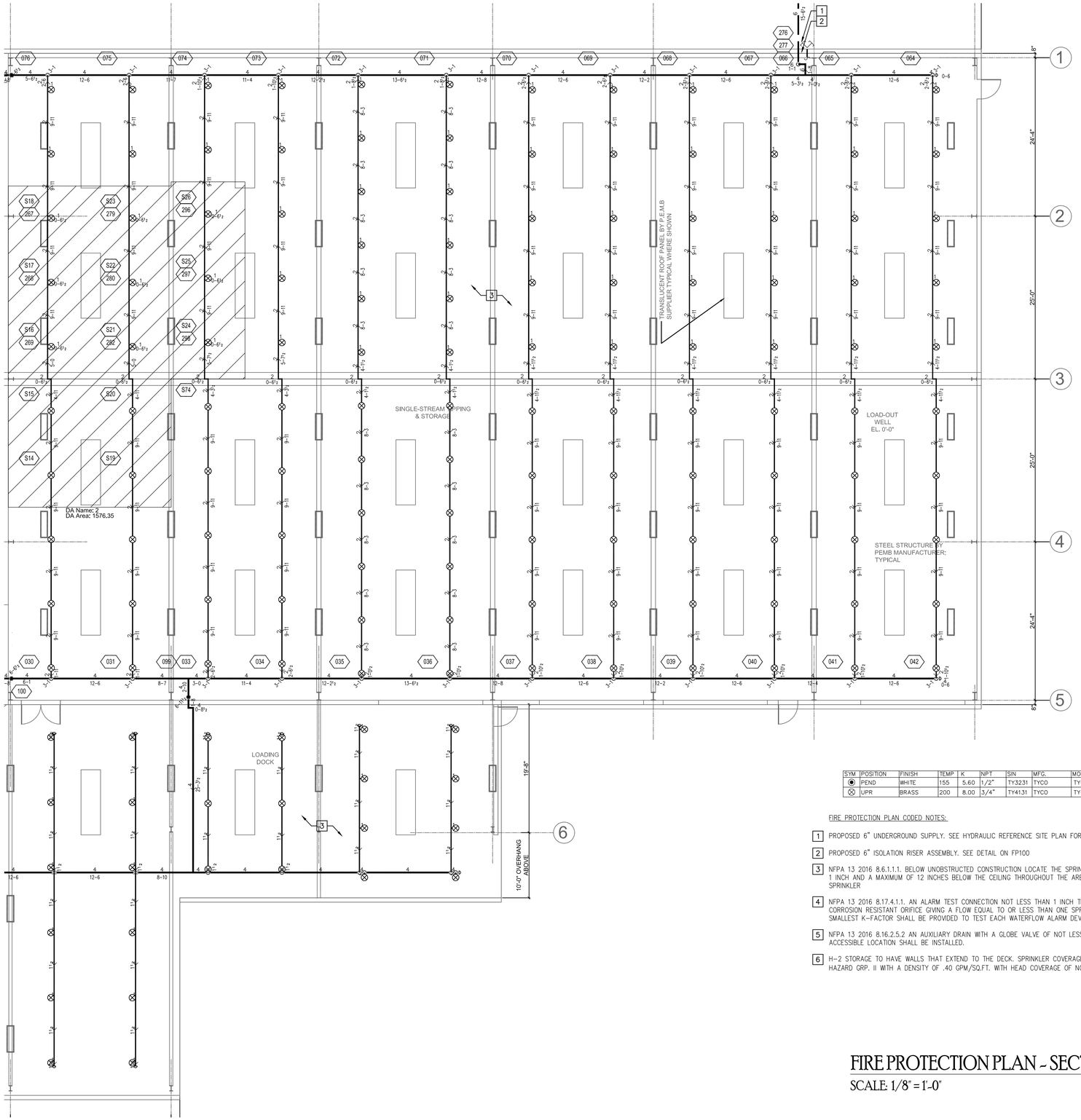
SHEET TITLE
FIRE PROTECTION PLAN - SECTION A

SHEET NO.
FP101



SYM	POSITION	FINISH	TEMP	K	NPT	SIN	MFG.	MODEL#
⦿	PEND	WHITE	155	5.60	1/2"	TY3231	TYCO	TY-FRB
⊗	UPR	BRASS	200	8.00	3/4"	TY4131	TYCO	TY-FRB

FIRE PROTECTION PLAN CODED NOTES:

1. PROPOSED 6" UNDERGROUND SUPPLY. SEE HYDRAULIC REFERENCE SITE PLAN FOR CONTINUATION
2. PROPOSED 6" ISOLATION RISER ASSEMBLY. SEE DETAIL ON FP100
3. NFPA 13 2016 8.6.1.1.1. BELOW UNOBSTRUCTED CONSTRUCTION LOCATE THE SPRINKLER DEFLECTOR A MINIMUM OF 1 INCH AND A MAXIMUM OF 12 INCHES BELOW THE CEILING THROUGHOUT THE AREA OF COVERAGE OF THE SPRINKLER
4. NFPA 13 2016 8.17.4.1.1. AN ALARM TEST CONNECTION NOT LESS THAN 1 INCH TERMINATING IN A SMOOTH BORE CORROSION RESISTANT ORIFICE GIVING A FLOW EQUAL TO OR LESS THAN ONE SPRINKLER OF A TYPE HAVING THE SMALLEST K-FACTOR SHALL BE PROVIDED TO TEST EACH WATERFLOW ALARM DEVICE OF EACH SYSTEM
5. NFPA 13 2016 8.16.2.5.2 AN AUXILIARY DRAIN WITH A GLOBE VALVE OF NOT LESS THAN 1 INCH, PIPED TO AN ACCESSIBLE LOCATION SHALL BE INSTALLED.
6. H-2 STORAGE TO HAVE WALLS THAT EXTEND TO THE DECK. SPRINKLER COVERAGE CALCULATED AT EXTRA HAZARD GRP. II WITH A DENSITY OF .40 GPM/SQ.FT. WITH HEAD COVERAGE OF NO MORE THAN 100 SQ. FT.

FIRE PROTECTION PLAN - SECTION B

SCALE: 1/8" = 1'-0"

N

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WILSON IRGENTI ENGINEERING
1408 N WESTSHORE BLVD,
STE. 506 TAMPA, FL 33607
WORKWITHWG.COM
813.855.3330

PERMIT SET

CMK Design Studio, Inc.
Planning & Design of the Built Environment
6822 22nd Ave. N. #148
St. Petersburg, Florida 33710
Ph: 813.362.6381
FL. LIC. NO.: AA26002603
marcos@cmkdesignstudio.com

INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY

Indian River County, Florida

NO.	REVISIONS	DATE

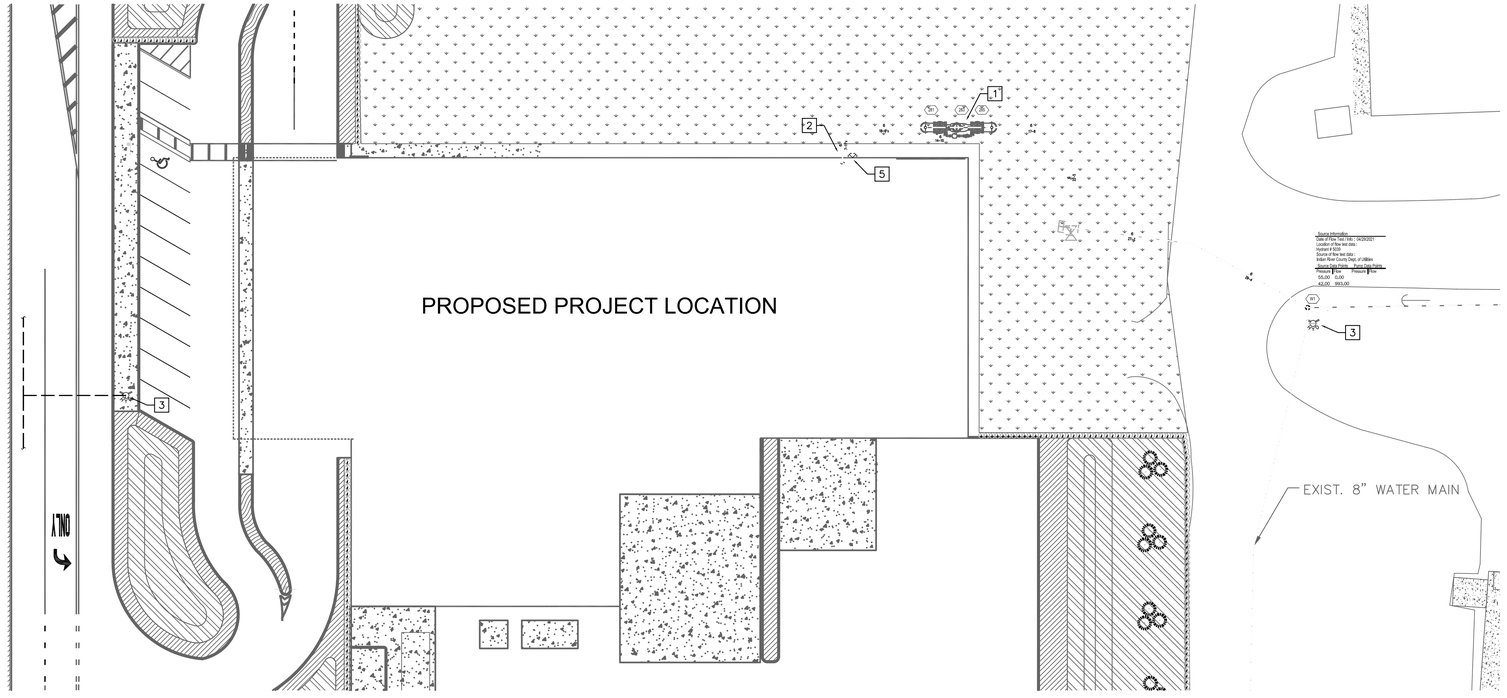
JOB NO.
2016

ISSUE DATE:
07/07/2021

DRAWN BY:
WG

SHEET TITLE
FIRE PROTECTION PLAN - SECTION B

SHEET NO.
FP102



FIRE PROTECTION PLAN CODED NOTES:

1. PROPOSED 6" DDCVA WITH BOLLARDS. SEE CIVIL ENGINEERING DRAWINGS FOR DETAILS
2. FOR CONTINUATION OF SYSTEM PIPE INTO BUILDING, SEE FP101-FP102
3. EXISTING FIRE HYDRANT. SEE CIVIL ENGINEERING DRAWINGS FOR DETAILS
4. PROPOSED FIRE HYDRANT. SEE CIVIL ENGINEERING DRAWINGS FOR DETAILS
4. WALL-MOUNTED FDC. SEE RISER DETAIL ON FP100

DRAWING NOTE:
THE UNDERGROUND SITE WATER PIPING IS SHOWN IN ACCORDANCE WITH FAC 61G15-32 TO REFERENCE THE FIRE PROTECTION SYSTEM IN ITS ENTIRETY, INCLUDING HYDRAULIC NOTE POINT LOCATIONS. IT IS THE RESPONSIBILITY OF THE CIVIL ENGINEER OF RECORD TO DESIGN THE UNDERGROUND SITE WATER PIPING AND TO LOCATE WITH DETAIL ALL UNDERGROUND APPURTENANCES PER LOCAL AUTHORITY HAVING JURISDICTION REQUIREMENTS.

HYDRAULIC SITE REFERENCE PLAN

SCALE: 1/32" = 1'-0"

N

C.O.A. #26759
WILSON IRGENTI ENGINEERING
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STE. 506 TAMPA, FL 33607
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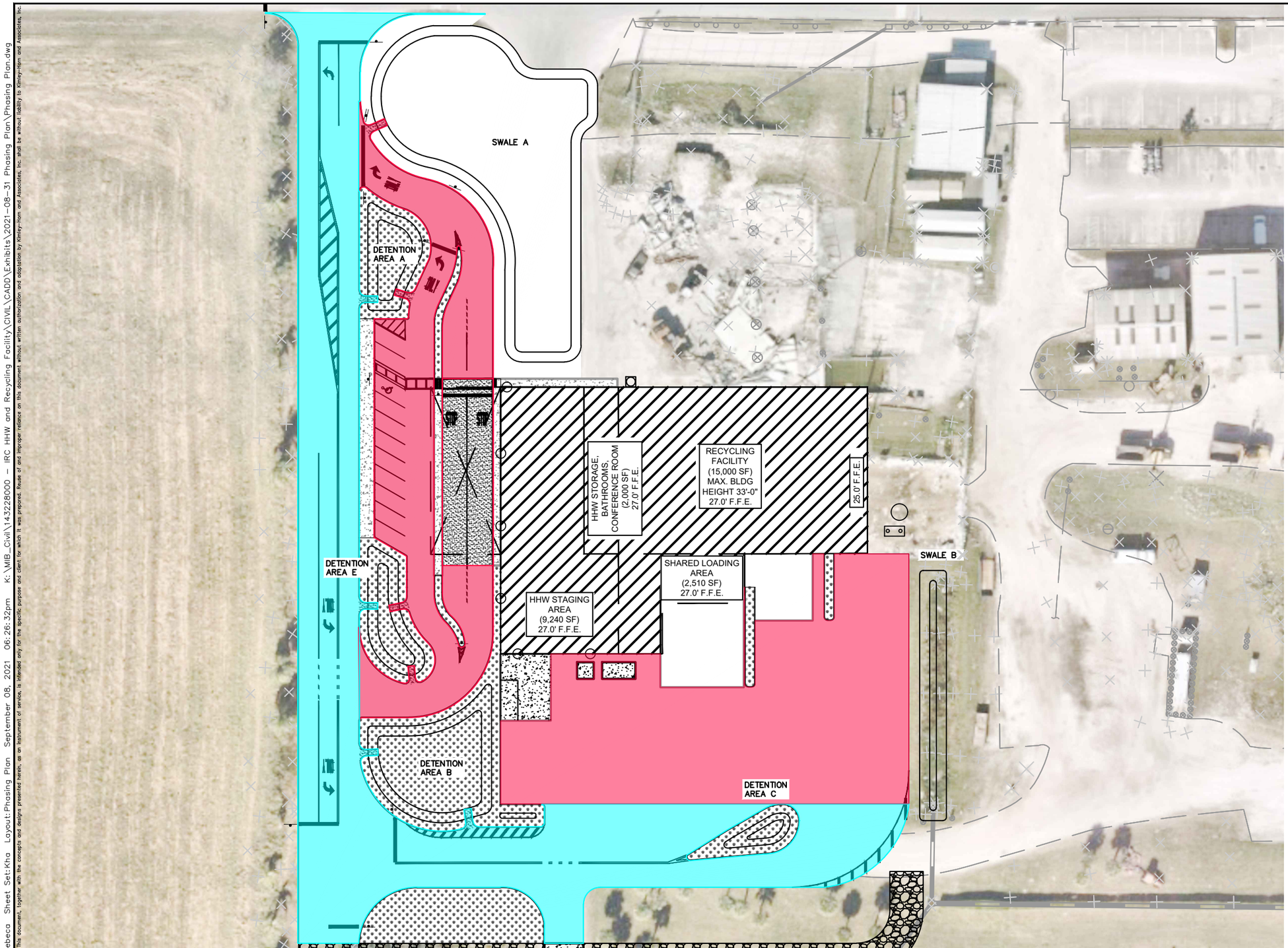
07/07/2021

DRAWN BY:
WG

SHEET TITLE
HYDRAULIC SITE REFERENCE PLAN

SHEET NO.
FP103



NORTH

GRAPHIC SCALE IN FEET
0 30 60 120

LEGEND

- PHASE I
- GRAVEL
- PHASE II

NOTES

1. PHASE I CONSISTS OF LAYING ONE (1) LIFT OF ASPHALT FOR THE PAVEMENT AREA IN BLUE AND THE INSTALLATION OF THE GRAVEL ROAD.

2. PHASE II CONSISTS OF LAYING BOTH LIFTS OF ASPHALT FOR THE PAVEMENT AREA IN RED AND THE SECOND LIFT OF ASPHALT FOR THE PAVEMENT AREA IN BLUE.

Kimley»Horn

IRC HHW & RECYCLING FACILITY

PHASING PLAN

SHEET NUMBER

A-1

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

LEGEND

- PHASE I
- GRAVEL
- PHASE II

NOTES

1. PHASE I CONSISTS OF LAYING ONE (1) LIFT OF ASPHALT FOR THE PAVEMENT AREA IN BLUE AND THE INSTALLATION OF THE GRAVEL ROAD.

2. PHASE II CONSISTS OF LAYING BOTH LIFTS OF ASPHALT FOR THE PAVEMENT AREA IN RED AND THE SECOND LIFT OF ASPHALT FOR THE PAVEMENT AREA IN BLUE.

Kimley»Horn

IRC HHW & RECYCLING FACILITY

PHASING PLAN

SHEET NUMBER

A-2

Map of Survey Performed For Indian River County Landfill

ABBREVIATIONS AND SYMBOLS

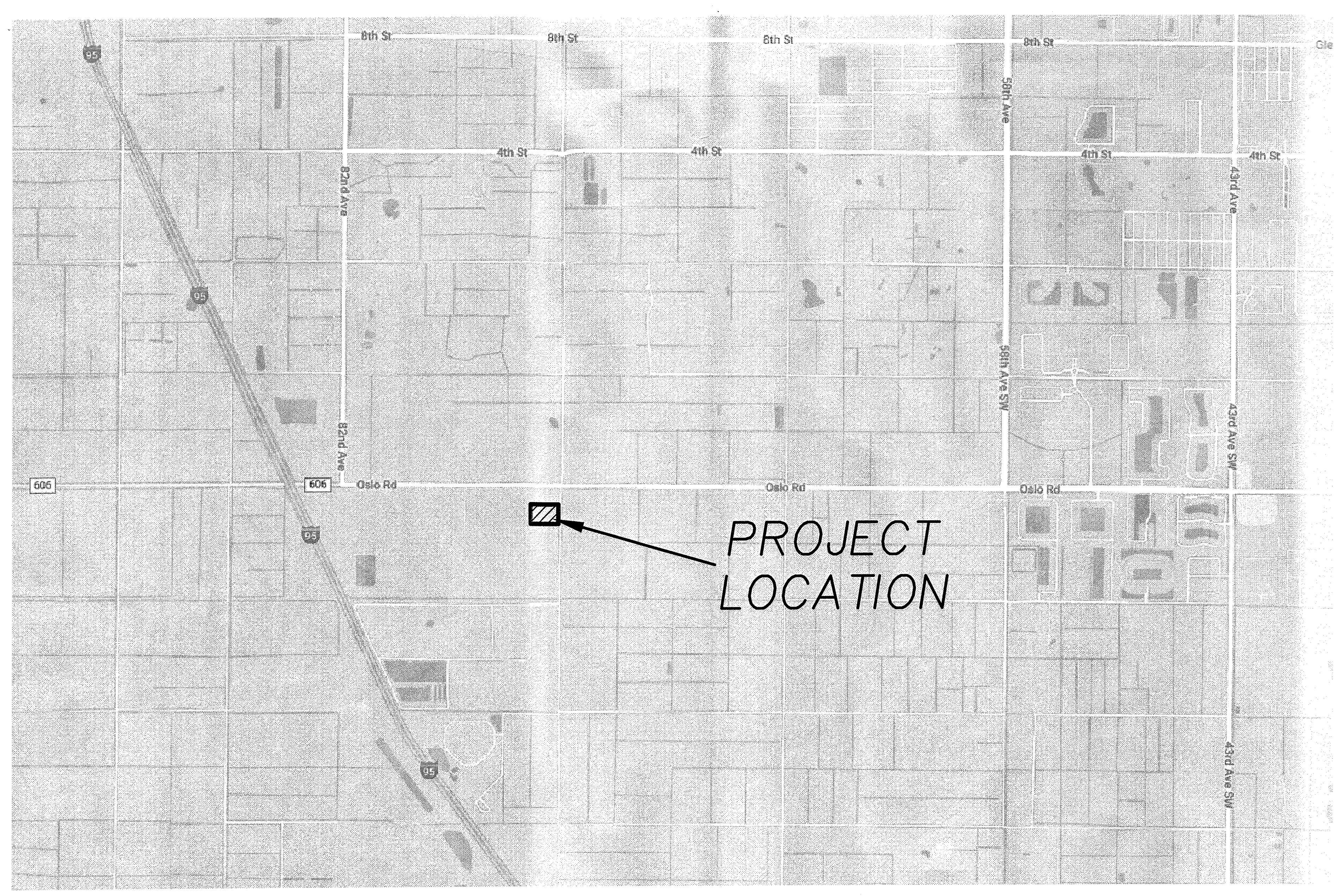
LB	LICENSED BUSINESS
NO.	NUMBER
R/W	RIGHT OF WAY
CM	4X4 CONCRETE MONUMENT
P.U.D.E.	PUBLIC UTILITY AND DRAINAGE EASEMENT
FD.	FOUND
O.R.B.	OFFICIAL RECORD BOOK
P.R.M.	PERMANENT REFERENCE MONUMENT
P.C.P.	PERMANENT CONTROL POINT
BM	BENCHMARK
F.F.	FINISH FLOOR
ELEV.	ELEVATION
R	RADIUS
Δ	DELTA
L	LENGTH
I.D.	IDENTIFICATION
SEC.	SECTION
TWP.	TOWNSHIP
RGE.	RANGE
CH.	CHORD
CHB.	CHORD BEARING
(C)	CALCULATED
(M)	MEASURED
(P)	PLAT
(D)	DEED
IR	1/2" IRON ROD
IRC	1/2" IRON ROD AND CAP
IP	3/4" IRON PIPE
EP	EDGE OF PAVEMENT
P.R.D.	PLANNED RESIDENTIAL DEVELOPMENT
N.D.	NAIL & DISK
A/C	AIR CONDITIONING PAD
P/E	SWIMMING POOL EQUIPMENT PAD
P.L.S.	PROFESSIONAL LICENSED SURVEYOR
P.S.M.	PROFESSIONAL SURVEYOR & MAPPER
R.L.S.	REGISTERED LAND SURVEYOR

OAK
PINE
PALM
SHRUB
MAPLE
CITRUS
ELM
MISC. TREE
BLOW-OFF
P PULL BOX
GV GAS VALVE
SEPTIC TANK SEPTIC TANK
TILE SURFACE
SOIL BORING
ELECTRIC METER

SANITARY MANHOLE
DRAINAGE MANHOLE
WELL
HYDRANT
WV WATER VALVE
WATER METER
CLEANOUT
CATCH BASIN
CURB INLET
RUV REUSE WATER VALVE
IRV IRRIGATION VALVE
YARD DRAIN
PROPOSED DRAINAGE
FIRE DEPARTMENT CONNECTION
STOP LIGHT
REUSE WATER METER
9.9' PROPOSED ELEVATION
x9.9' EXISTING ELEVATION

SIGN
LIGHT POLE
MAIL OR PAPER BOX
COMMUNICATIONS BOX
CABLE TV BOX
POWER POLE
ELECTRIC BOX
UGW UTILITIES SIGN
MW MONITORING WELL
SV SANITARY VALVE
TELEPHONE MANHOLE
POST WOOD OR STEEL
CONCRETE POWER POLE
E TRANSFORMER PAD
BACK FLOW PREVENTER
SPRINKLER HEAD
CONCRETE SURFACE
BRICK PAVER SURFACE

--FM-- UNDERGROUND FORCEMAIN
— FIB OP — UNDERGROUND FIBER OPTIC/TELEPHONE
--WL-- UNDERGROUND WATER LINE
--SS-- UNDERGROUND SANITARY SEWER



REPORT OF SURVEY

- TYPE OF SURVEY: TOPOGRAPHIC
- SURVEY USE: PERMITTING
- MASTELLER, MOLER & TAYLOR INC. CERTIFICATE OF AUTHORIZATION L.B. 4644
  1655 27TH STREET, SUITE 2, VERO BEACH, FLORIDA 32960
  PHONE (772) 564-8050 FAX (772) 794-0647
- THIS SURVEY AND REPORT IS NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER. ADDITIONS OR DELETIONS TO THE SURVEY MAP AND/OR REPORT OF SURVEY BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
- THE HORIZONTAL ACCURACY OF THE MEASUREMENTS OBTAINED MEETS OR EXCEEDS THE REQUIREMENTS FOR THE TYPE AND EXPECTED USE OF THIS SURVEY.
- HORIZONTAL FEATURE ACCURACY: TOPOGRAPHIC LAND FEATURES (SIGNS, INLETS, VALVES, MAILBOXES, POWER POLES, DRIVEWAYS, CULVERTS AND SIMILAR FEATURES) HAVE A HORIZONTAL FEATURE ACCURACY OF PLUS OR MINUS 0.25 FEET.
- ELEVATIONS OF WELL-IDENTIFIED FEATURES CONTAINED IN THIS SURVEY AND MAP HAVE BEEN MEASURED TO AN ESTIMATED VERTICAL POSITION ACCURACY OF PLUS OR MINUS 0.10 FEET.
- DATA ACQUISITION WAS COMPLETED ON THE FOLLOWING DATE: 8/19/2020
- NO INSTRUMENTS OF RECORD REFLECTING EASEMENTS, RIGHTS-OF-WAY AND/OR OWNERSHIP WERE FURNISHED TO THIS SURVEYOR EXCEPT AS SHOWN. NO TITLE OPINION IS EXPRESSED OR IMPLIED.
- THIS SURVEY DOES NOT CERTIFY TO THE EXISTENCE OR LOCATION OF ANY FOUNDATIONS, UTILITIES, UNDERGROUND ENCROACHMENTS OR IMPROVEMENTS EXCEPT AS SHOWN.
- THE PARCEL OF LAND SHOWN HEREON IS LOCATED IN FLOOD ZONE X PER FLOOD INSURANCE RATE MAP 12061C0355H, DATED DECEMBER 4TH, 2012.
- UNLESS A COMPARISON IS SHOWN, PLAT VALUES & MEASURED VALUES ARE THE SAME.
- ALL MEASUREMENTS ARE IN FEET AND DECIMAL PARTS THEREOF AND ARE IN ACCORDANCE WITH THE STANDARDS OF THE UNITED STATES.
- THIS MAP IS INTENDED TO BE DISPLAYED AT A SCALE OF 1"=30' OR SMALLER.
- UNDERGROUND UTILITIES SHOWN HEREON BASED ON GPR SURVEY PERFORMED BY BLOOD HOUND UTILITY LOCATORS ON 8/17/2020-8/18/2020 (PROJECT #00152510)

BENCHMARK NOTE:

THE ELEVATIONS AS SHOWN ON THIS SURVEY ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988. THE PRIMARY BENCHMARK UTILIZED FOR THIS SURVEY IS IRC BM267009, ELEVATION 20.50'. SITE BENCHMARKS ARE AS SHOWN.

CERTIFIED TO

1) INDIAN RIVER COUNTY SOLID WASTE DISTRICT DISPOSAL DISTRICT
2) KIMLEY HORN AND ASSOCIATES

TREE TABLE

TREE #	TYPE	DBH	HEIGHT	CANOPY	CONDITION
195	PINE	12IN	40FT	14FT	GOOD
196	PINE	14IN	45FT	15FT	GOOD
197	PINE	16IN	49FT	21FT	GOOD
198	PINE	12IN	41FT	15FT	GOOD
199	PINE	18IN	48FT	18FT	GOOD
200	PINE	12IN	40FT	16FT	GOOD
201	PINE	12IN	43FT	17FT	GOOD
202	PINE	10IN	37FT	11FT	GOOD
203	PINE	12IN	40FT	15FT	GOOD
204	PINE	14IN	45FT	18FT	GOOD
205	PINE	14IN	45FT	18FT	GOOD
206	PINE	6IN	30FT	10FT	GOOD
207	PINE	6IN	27FT	9FT	GOOD
208	PINE	5IN	26FT	9FT	GOOD
209	PINE	10IN	37FT	11FT	GOOD
210	PINE	12IN	41FT	12FT	GOOD
211	PINE	8IN	33FT	11FT	GOOD
212	PINE	18IN	53FT	26FT	GOOD
213	PINE	18IN	54FT	23FT	GOOD
214	PINE	12IN	40FT	21FT	GOOD
215	PINE	14IN	46FT	22FT	GOOD
216	PALM	16IN	49FT	25FT	GOOD
217	PINE	12IN	40FT	14FT	GOOD
218	PINE	12IN	37FT	12FT	GOOD
219	PINE	8IN	26FT	10FT	GOOD
220	PINE	14IN	44FT	14FT	GOOD
221	PINE	4IN	18FT	8FT	GOOD
222	PINE	6IN	30FT	15FT	GOOD
223	PINE	8IN	34FT	16FT	GOOD
224	PINE	10IN	38FT	18FT	GOOD
225	PINE	5IN	26FT	12FT	GOOD
226	PINE	14IN	45FT	18FT	GOOD
227	PINE	12IN	34FT	14FT	GOOD
228	PINE	4IN	18FT	6FT	GOOD
229	PINE	7IN	32FT	9FT	GOOD
230	PINE	5IN	27FT	9FT	GOOD
231	BANYAN	70IN	38FT	30FT	GOOD
232	PALM	12IN	20FT	9FT	GOOD
233	PINE	14IN	47FT	25FT	GOOD
234	PINE	14IN	33FT	18FT	GOOD
235	PINE	14IN	46FT	20FT	GOOD
236	PINE	12IN	40FT	14FT	GOOD
237	PALM	12IN	17FT	9FT	GOOD
238	PALM	12IN	21FT	9FT	GOOD
239	PINE	12IN	35FT	15FT	GOOD
240	OAK	8IN	25FT	19FT	GOOD
241	OAK	12IN	29FT	20FT	GOOD
242	PINE	12IN	44FT	16FT	GOOD
243	PALM	12IN	21FT	8FT	GOOD
244	OAK	14IN	34FT	24FT	GOOD
245	OAK	6IN	17FT	6FT	GOOD
246	PINE	14IN	40FT	22FT	GOOD
247	OAK	6IN	19FT	8FT	GOOD
248	PALM	10IN	10FT	8FT	GOOD
249	PALM	14IN	10FT	8FT	GOOD
250	PALM	12IN	20FT	12FT	GOOD
251	OAK	6IN	20FT	9FT	GOOD
252	OAK	6IN	28FT	12FT	GOOD
253	OAK	30IN	35FT	45FT	GOOD
254	OAK	24IN	33FT	22FT	GOOD
255	OAK	12IN	30FT	18FT	GOOD
256	OAK	18IN	31FT	29FT	GOOD
257	OAK	8IN	27FT	14FT	GOOD
258	PINE	10IN	45FT	9FT	GOOD
259	PINE	10IN	30FT	12FT	GOOD
260	PINE	14IN	54FT	22FT	GOOD
261	PINE	18IN	53FT	28FT	GOOD
262	PALM	12IN	19FT	8FT	GOOD
263	PALM	12IN	18FT	8FT	GOOD
264	PINE	20IN	49FT	33FT	GOOD
265	PINE	20IN	44FT	26FT	GOOD
266	PALM	14IN	26FT	10FT	GOOD
267	PALM	10IN	18FT	8FT	GOOD
268	PALM	10IN	17FT	8FT	GOOD
269	PALM	15IN	21FT	9FT	GOOD
270	PINE	18IN	43FT	25FT	GOOD
271	PALM	12IN	23FT	11FT	GOOD
272	PINE	12IN	45FT	12FT	GOOD
273	PINE	15IN	43FT	12FT	POOR
274	PINE	12IN	47FT	18FT	MODERATE
275	PALM	12IN	20FT	10FT	GOOD
276	PALM	12IN	21FT	10FT	GOOD
277	PALM	12IN	21FT	11FT	GOOD
278	PALM	12IN	19.5FT	10FT	GOOD
279	PALM	12IN	18FT	10FT	GOOD
280	PALM	12IN	27FT	12FT	GOOD
281	PALM	12IN	19FT	10FT	GOOD
282	PALM	12IN	25FT	12FT	GOOD
283	PALM	18IN	19FT	9FT	GOOD
284	OAK	14IN	38FT	12FT	GOOD
285	OAK	14IN	39FT	13FT	GOOD
286	OAK	14IN	39FT	10FT	GOOD
287	OAK	10IN	36FT	9FT	GOOD
288	OAK	6IN	18FT	8FT	MODERATE
289	OAK	5IN	28FT	18FT	GOOD

TREE #	TYPE	DBH	HEIGHT	CANOPY	CONDITION
100	PINE	12IN	34FT	11FT	GOOD
101	PINE	12IN	39FT	23FT	GOOD
102	PALM	10IN	21FT	11FT	GOOD
103	PALM	14IN	18.5FT	10FT	GOOD
104	PALM	14IN	19FT	11FT	GOOD
105	PALM	16IN	22FT	11FT	GOOD
106	PALM	14IN	17FT	9FT	GOOD
107	PALM	14IN	21FT	10FT	GOOD
108	PALM	14IN	21FT	10FT	GOOD
109	PALM	14IN	20FT	10FT	GOOD
110	PALM	8IN	25FT	9FT	GOOD
111	PALM	10IN	24FT	10FT	GOOD
112	PALM	10IN	18FT	13FT	MODERATE
113	PALM	8IN	20FT	11FT	GOOD
114	PALM	6IN	16FT	9FT	MODERATE
115	PALM	12IN	20FT	13FT	GOOD
116	PALM	6IN	17FT	9FT	GOOD
117	PALM	8IN	21FT	12FT	GOOD
118	PALM	10IN	20FT	13FT	GOOD
119	PALM	10IN	26FT	16FT	GOOD
120	PALM	8IN	19FT	10FT	GOOD
121	PALM	12IN	19FT	13FT	GOOD
122	PALM	10IN	27FT	18FT	GOOD
123	PALM	14IN	19FT	13FT	GOOD
124	PALM	12IN	20FT	13FT	GOOD
125	PALM	10IN	21FT	11FT	GOOD
126	PALM	8IN	17FT	11FT	GOOD
127	PALM	10IN	18FT	9FT	GOOD
128	PALM	10IN	16FT	8FT	GOOD
129	PALM	10IN	18FT	7FT	GOOD
130	PALM	8IN	24FT	14FT	GOOD
131	PALM	10IN	22FT	18FT	GOOD
132	PALM	10IN	18FT	8FT	MODERATE
133	PALM	8IN	22FT	20FT	GOOD
134	PALM	8IN	18FT	8FT	GOOD
135	PALM	8IN	22FT	17FT	GOOD
136	PALM	8IN	17FT	10FT	GOOD
137	OAK	10IN	21FT	16FT	GOOD
138	PALM	12IN	12FT	8FT	GOOD
139	PALM	10IN	16.5FT	8FT	GOOD
140	PALM	16IN	16.5FT	10FT	GOOD
141	PINE	4IN	20FT	6FT	GOOD
142	OAK	8IN	25FT	20FT	GOOD
143	PINE	4IN	16FT	8FT	GOOD
144	PINE	4IN	21FT	6FT	GOOD
145	PALM	16IN	27FT	12FT	GOOD
146	PINE	16IN	39FT	14FT	GOOD
147	PALM	10IN	12FT	10FT	GOOD
148	PINE	12IN	48FT	24FT	GOOD
149	PALM	14IN	10FT	8FT	GOOD
150	PINE	8IN	48FT	22FT	GOOD
151	PALM	14IN	20FT	10FT	GOOD
152	PINE	8IN	30FT	12FT	GOOD
153	PINE	8IN	32FT	12FT	GOOD
154	PINE	16IN	36FT	15FT	GOOD
155	PINE	6IN	28FT	13FT	GOOD
156	OAK	7IN	24FT	18FT	GOOD
157	PINE	12IN	38FT	12FT	GOOD
158	PALM	10IN	14FT	11FT	GOOD
159	PALM	11IN	20FT	11FT	GOOD
160	PINE	12IN	35FT	21FT	GOOD
161	PINE	12IN	31FT	11FT	GOOD
162	PINE	14IN	30FT	10FT	GOOD
163	PINE	16IN	27FT	10FT	GOOD
164	PALM	14IN	20FT	11FT	GOOD
165	PINE	12IN	33FT	10FT	GOOD
166	PINE	12IN	32FT	10FT	GOOD
167	OAK	10IN	32FT	13FT	GOOD
168	PINE	16IN	32FT	14FT	GOOD
169	PINE	7IN	25FT	10FT	GOOD
170	PALM	16IN	27FT	14FT	GOOD
171	PINE	14IN	40FT	12FT	GOOD
172	PALM	12IN	12FT	12FT	GOOD
173	PINE	14IN	41FT	12FT	GOOD
174	PINE	12IN	37FT	10FT	GOOD
175	PINE	6IN	27FT	12FT	GOOD
176	PINE	14IN	24FT	10FT	GOOD
177	PINE	12IN	37FT	10FT	GOOD
178	PINE	12IN	36FT	11FT	GOOD
179	OAK	5IN	28FT	18FT	GOOD
180	PINE	12IN	41FT	18FT	GOOD
181	PINE	10IN	37FT	13FT	GOOD
182	PALM	10IN	15FT	11FT	GOOD
183	PINE	6IN	29FT	8FT	GOOD
184	PINE	12IN	41FT	13FT	GOOD
185	PINE	6IN	29FT	11FT	GOOD
186	PINE	12IN	40FT	15FT	GOOD
187	PINE	10IN	37FT	12FT	GOOD
188	PINE	12IN	41FT	14FT	GOOD
189	PINE	8IN	33FT	11FT	GOOD
190	PINE	12IN	43FT	13FT	GOOD
191	PINE	12IN	42FT	14FT	GOOD
192	PINE	12IN	43FT	14FT	GOOD
193	PINE	10IN	38FT	11FT	GOOD
194	PINE	6IN	30FT	11FT	GOOD

SURVEY MAP AND REPORT OR THE COPIES THEREOF ARE NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER
DAVID M. TAYLOR P.S.M. 5243 STATE OF FLORIDA REGISTERED LAND SURVEYOR

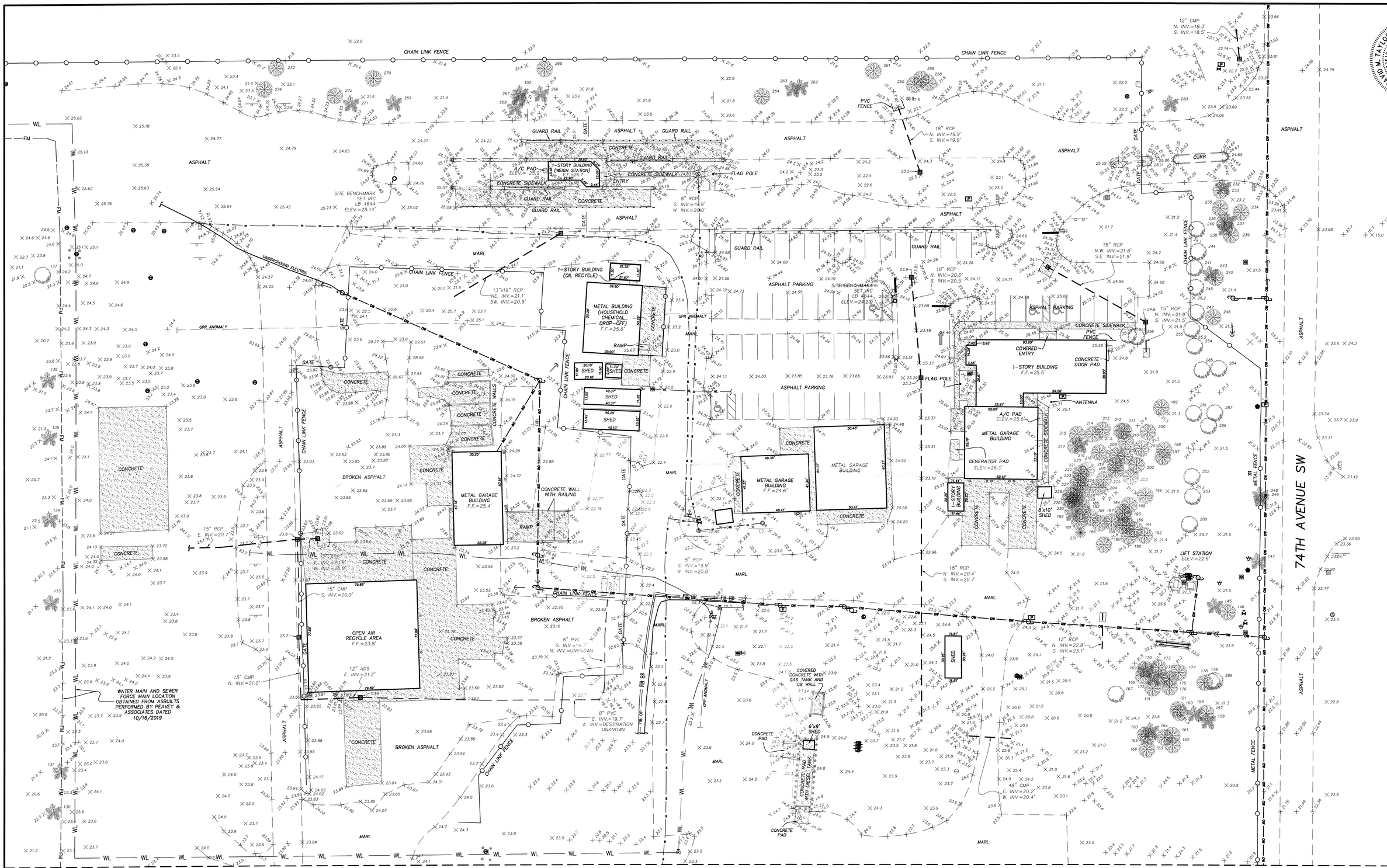
PREPARED FOR
Indian River County Landfill

DATE	REVISION	BY
8/21/20	ADDED UNDERGROUND UTILITIES AND TREE TABLE	JWP
6/1/20	REVISED PER COMMENTS	BMM

Masteller, Moler & Taylor, Inc.
Professional Surveyors and Mappers
Land Surveying Business LB 4644
1655 27th Street, Suite 2, Vero Beach, Florida 32960
Phone: (772) 564-8050 Fax: (772) 794-0647
admin@mmtsurveying.com

DATE 5/15/2020
SCALE N/A
SHEET NO. 1 OF 3
FILE NO. 6366.11A
DRAWN BY JWP/BMM
APPROVED BY DMT
DRAWING NAME 6366-11A-2k9.dwg

IMAGE REFERENCE 6366-11A-2k9.pdf



MATCHLINE – SEE SHEET 3

BENCHMARK NOTE:

THE ELEVATIONS AS SHOWN ON THIS SURVEY ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988. THE PRIMARY BENCHMARK UTILIZED FOR THIS SURVEY IS IRC BM267009, ELEVATION 20.50'. SITE BENCHMARKS ARE AS SHOWN.

IMAGE REFERENCE: 6366-11A-2k9.pdf

DAVID M. TAYLOR JR. STATE OF FLORIDA PROFESSIONAL SURVEYOR & MAPPER LS 6243

SURVEY DRAWING NOT VALID WITHOUT ORIGINAL SIGNATURE AND RAISED SEAL OF FLORIDA LICENSED SURVEYOR AND MAPPER

PREPARED FOR

Indian River County Landfill

DATE	BY
8/21/20	ADDED UNDERGROUND UTILITIES AND TREE TABLE	JWP
6/1/20	REVISED PER COMMENTS	BMM
DATE	REVISION	BY

Masteller, Moler & Taylor, Inc.
Professional Surveyors and Mappers
Land Surveying Business LB 4644
1655 27th Street, Suite 2, Vero Beach, Florida 32960
Phone: (772) 564-8650 Fax: (772) 794-0647
generalmail@mmtsurveying.com

DATE	5/15/2020
SCALE	1"=30'
SHEET NO.	2 OF 3
FILE NO.	6366.11A
DRAWN BY	JWP/BMM
APPROVED BY	DMT
DRAWING NAME	6366-11A-2k9.dwg

MATCHLINE – SEE SHEET 2

MATCHLINE – SEE LEFT THIS SHEET

MATCHLINE – SEE RIGHT THIS SHEET

SEWER FORCE MAIN LOCATION OBTAINED FROM ASBUILTS PERFORMED BY PEAVEY & ASSOCIATES DATED 10/16/2019

24" CMP
N. INV.=20.5'
S. INV.=20.3'

30" CMP
E. INV.=20.6'
W. INV.=20.0'

18"X 30" ERCP
N. INV.=20.6'
S. INV.=20.8'

24"X 36" ERCP
N.E. INV.=20.6'
S.W. INV.=19.5'

24"X 36" ERCP
N.E. INV.=19.4'
S.W. INV.=19.2'

24"X 36" ERCP
N. INV.=19.2'
S. INV.=18.6'

74TH AVENUE SW

ASPHALT

MARL

HEDGE

METAL FENCE

BENCHMARK NOTE:

THE ELEVATIONS AS SHOWN ON THIS SURVEY ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988. THE PRIMARY BENCHMARK UTILIZED FOR THIS SURVEY IS IRC BM267009, ELEVATION 20.50'. SITE BENCHMARKS ARE AS SHOWN.

IMAGE REFERENCE
6366-11A-2k9.pdf

DAVID M. TAYLOR, JR.
REGISTERED FLORIDA SURVEYOR AND MAPPER
NO. 5263
STATE OF FLORIDA

SURVEYOR'S NOTES:
THERE ARE NO VISIBLE ENCROACHMENTS UNLESS SHOWN. NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

PREPARED FOR
Indian River County Landfill

DATE	BY
8/21/20	JWP
6/1/20	BMM

ADDED UNDERGROUND UTILITIES AND TREE TABLE
REVISED PER COMMENTS
REVISION

Masteller, Moler & Taylor, Inc.
Professional Surveyors and Mappers
Land Surveying Business LB 4644
1655 27th Street, Suite 2, Vero Beach, Florida 32960
Phone: (772) 564-8050 Fax: (772) 794-0647
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DATE	5/15/2020
SCALE	1"=30'
SHEET NO.	3 OF 3
FILE NO.	6366.11A
DRAWN BY	JWP/BMM
APPROVED BY	DMT
DRAWING NAME	6366-11A-2k9.dwg

SUBSURFACE SOIL EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION INDIAN RIVER COUNTY LANDFILL HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY INDIAN RIVER COUNTY, FLORIDA

AACE FILE NO. 21-109

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

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SUBSURFACE SOIL EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION INDIAN RIVER COUNTY LANDFILL HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY INDIAN RIVER COUNTY, FLORIDA

AACE FILE NO. 21-109

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.
Geotechnical Engineering
Construction Materials Testing
Environmental Consulting

AACE File No. 21-109
March 23, 2021

Indian River County
Solid Waste Disposal District
1325 74th Avenue SW
Vero Beach, FL 32968

Attention: Mr. Himanshu H. Mehta, P.E.
Managing Director

SUBSURFACE SOIL EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY
INDIAN RIVER COUNTY, FLORIDA

1.0 INTRODUCTION

In accordance with your request and authorization, Andersen Andre Consulting Engineers, Inc. (AACE) has completed a subsurface exploration and geotechnical engineering analyses for the above referenced project. The purpose of performing this exploration was to explore shallow soil types and groundwater levels as they relate to the proposed single-story building construction, and restrictions which these soil and groundwater conditions may place on the proposed site development. Our work included Standard Penetration Test (SPT) borings, field permeability and infiltration testing, laboratory testing, and engineering analyses. This report documents our explorations and tests, presents our findings, and summarizes our conclusions and recommendations.

2.0 EXECUTIVE SUMMARY

The following summary is intended to provide a brief overview of our findings and recommendations; however, the report should be read in its entirety by the project design team members.

- The proposed building site, at the locations explored, was found to be underlain by soils which are generally satisfactory to support the proposed single-story building construction on conventional spread foundations. A maximum design foundation bearing pressure of 2,500 pounds per square foot (psf) is recommended for the proposed structure.

- Typical pavement sections consisting of an asphaltic or rigid concrete wearing surface atop a calcareous base, followed by a stabilized subgrade on compacted natural soils is considered appropriate for the project.

- Site preparation procedures will include clearing, stripping and grubbing of all surface vegetation, organic topsoil, and other surface materials (debris, concrete, etc.), followed by proofrolling of building and pavement areas.

- The groundwater table was encountered at depths of about 3.3 to 4.5 feet below the existing grades, with some seasonal variations expected.

3.0 SITE INFORMATION AND PROJECT UNDERSTANDING

3.1 Site Location and Description

The subject site is located within the Indian River County Landfill off 74th Avenue SW in Vero Beach, Indian River County, Florida (within Section 25, Township 33 South, Range 38 East). The location of the subject site is graphically depicted on the Site Vicinity Map (2019 aerial photograph) as well as on a reproduction of the 1983 USGS Quadrangle Map of "Oslo, Florida", both presented on our Figure No. 1.

At the time of our site visits, the site was undergoing demolition of the existing structural features and, in general, being cleared and prepared for the proposed construction activities.

3.2 Review of USDA Soil Survey

According to the USDA NRCS Web Soil Survey, the predominant surficial soil types in the area where the site is located are as follows:

3) EauGallie fine sand [minor presence east of site]
"...sandy and loamy marine deposits (fine sands, sandy clay loam, loamy sands) from within flatwoods on historic marine terraces..."

6) Oldsmar fine sand [minor presence, southwest of site]
"...sandy and loamy marine deposits (fine sands, sandy clay loam, loamy sands) from within flatwoods on historic marine terraces..."

23) Arents, 0 to 5 percent slopes [predominant presence throughout site]
"...altered marine deposits from within rises on historic marine terraces..."

53) Manatee mucky loamy fine sand, depressional [minor presence west portion of site]
"...sandy and loamy marine deposits (mucky loamy fine sand, fine sandy loam, sandy loam, loamy fine sand) from within depressions on historic marine terraces..."

The location of the subject site is superimposed on an aerial photograph obtained from the USDA NCRS Web Soil Survey and is shown on Figure No. 1. Further, excerpts from the USDA Web Soil Survey summary report are included in Appendix I.

3.3 Project Understanding

Based on our conversations and review of the forwarded site plan and project-related information prepared by Kimley Horn and Associates, we understand that the project includes the construction of a ±29,000SF single-story, prefabricated metal building with a column spacing of about 75'x40', maximum column loads of 45 kips (gravity) and 60 kips (uplift), and maximum wall loads of 1 KLF.

Additional site development will include asphalt drive aisles and surface parking, concrete paved areas, a gravel road, and shallow stormwater pond and swale areas.

4.0 FIELD EXPLORATION PROGRAM

To explore subsurface soil conditions at the site, the exploration program described in the following was completed.

Utility Locates

A private utility locate company (GeoTek Services, LLC) was retained to complete underground utility locates at the proposed field work locations, using Ground Penetrating Radar and Electromagnetic Induction techniques.

Soil Borings

The structural field exploration program consisted of performing eight (8) Standard Penetration Test (SPT) borings at the approximate locations shown on Figure No. 2. These SPT borings (ASTM D1586) were advanced to depths of 30 feet below grade.

Field Permeability and Infiltration Testing

Field permeability and infiltration testing was performed in the vicinity of the proposed shallow stormwater pond and swale areas.

- Field permeability tests were performed by installing a perforated 6-inch diameter screened PVC casing snugly into a 6-ft deep augered borehole. The pipe was then filled to the top with water, stabilized for 10 minutes, followed by constant-head testing.

- Infiltration testing was performed through Double-Ring Infiltrometer testing (ASTM D3385).

General Notes

Our site visits and field exploration program were completed in the period March 2-15, 2021. The field work locations shown on Figure No. 2 were determined in the field by our field crew using the provided site plan, aerial photographs, existing site features, and a hand-held GPS instrument. The locations should be considered accurate only to the degree implied by the method of measurement used. We preliminarily anticipate that the actual locations are within 15 feet of those shown on Figure No. 2.

Summaries of AACE's field procedures are presented in Appendix II and the individual soil boring profiles are presented on the attached Sheets No. 1 and 2. Samples obtained 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 for further classification. The soil samples recovered from our explorations will be kept in our laboratory for 60 days, then discarded unless you specifically request otherwise.

5.0 OBSERVED SUBSURFACE CONDITIONS

5.1 General Soil Conditions

Detailed subsurface conditions are illustrated on the soil boring profiles presented on the attached Sheets No. 1 and 2. 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.

In general, at the locations and depths explored, the soil borings encountered loose to moderately dense fine sands (SP) to depths of about 6-7 feet, followed by medium dense slightly clayey fine sands (SP-SC) and clayey fine sands (SC) to depths of about 9-13 feet, in turn followed by very loose, loose and medium dense fine sands (SP) reaching the termination depths of our borings. The lower reaches of most borings encountered varying amounts of shell and occasionally cemented fragments.

The above soil profile is outlined in general terms only. Please refer to the attached Sheets No. 1 and 2 for individual soil profile details.

5.2 Measured Groundwater Level

The groundwater table depth as encountered in the borings during the field investigations is shown adjacent to the soil profiles on the attached Sheets No. 1 and 2. As can be seen, the groundwater table was generally encountered at depths ranging from about 3.3 feet to about 4.5 feet below the existing ground surface. Fluctuations in groundwater level on this site should be anticipated throughout the year due to a variety of factors, the most important of which is recharge from rainfall. Groundwater levels somewhat above the present levels should be expected after periods of heavy rains.

5.3 Estimated Normal Seasonal High Groundwater Table

The groundwater table will fluctuate seasonally, primarily based on rainfall. The normal seasonal high groundwater level is likely during the rainy season in Southeast Florida, typically between June and September of each year. The water table elevations associated with a 100-year flood level (or during an extreme storm event) would be much higher than the normal seasonal high water table elevation. The normal seasonal high groundwater table can also be influenced by the presence of relief points such as canals, lakes, ponds, swamps, etc., as well as by the drainage characteristics of the in-situ soils.

Based upon our field exploration, our observation of recovered soil samples and on review of the soil survey, we estimate that the normal seasonal high groundwater level at the boring locations is about 1-2 feet above the levels encountered in the borings.

The estimated normal seasonal high groundwater levels do not provide any assurance that the groundwater levels will not exceed these estimated levels during any given year in the future. Drainage impediments, storm events or other such occurrences may result in groundwater levels exceeding our estimates.

If a more accurate determination of the seasonal groundwater level variations on this site is prudent for the design of the project, we would recommend installing a number of piezometers and performing periodic monitoring of the ambient groundwater levels.

5.4 Field Permeability Testing

Two (2) field permeability tests were completed at the locations shown on Figure No. 2 using the test methodology previously described. The results from the permeability testing are summarized in Table 1 below.

Table 1 - Field Permeability Test Results

Test No.	Groundwater Depth (ft-bls)	Flow Rate, Q (gpm)	Horizontal Permeability Rate, K_H (ft/day)	K_H/K_V Ratio
PT-1	3.5	1.5	12.0	1
PT-2	4.3	1.0	7.2	1

We recommend utilizing a factor of safety of 2 when using the permeability rates presented above in the design of stormwater retention/detention features.

5.5 Double-Ring Infiltrometer Testing

Two (2) double-ring infiltrometer (DRI) tests were performed at the locations shown on Figure No. 2. These tests were completed in general accordance with the procedures recommended in ASTM D3385. Below is the general information of the DRI tests.

Inner Ring (IR):
- Diameter = 12 inches
- Area = 113.1 in^2

Outer Ring (OR):
- Diameter = 24 inches
- Area = 452.4 in^2

Annular Space (A):
- Area = 339.3 in^2

Height of ring = 24 inches
(seated 6 inches into ground following removal of topsoil).

In brief, a constant head of approximately 6 inches of water was maintained in the rings throughout the duration of the tests. The volume infiltrated during timed intervals was converted to an incremental infiltration rate, and the following equations were then used to calculate the average incremental infiltration velocity, equivalent to the vertical infiltration rate.

1) $V_{IR} = \Delta V_{IR} / (A_{IR} \times \Delta t)$
2) $V_A = \Delta V_A / (A_A \times \Delta t)$

where: V = incremental velocity of inner ring or annular space [inches/hour]
ΔV = volume of liquid used during time interval to maintain constant head in either the inner ring or the annular space [in^3]
A = internal area of inner ring or annular space [in^2]
Δt = time interval [hours]
($_{[IR]}$ denotes inner ring; $_{[A]}$ denotes annular space)

The results of the DRI tests are summarized in Table 2 below, and the individual test reports are included in Appendix III.

Table 2 - DRI Test Results

Test No.	Inner Ring Infiltration Rate, V_{IR} [in/hr]	Annular Space Infiltration Rate, V_A [in/hr]
DRI-1	6.2	6.5
DRI-2	3.2	4.8

6.0 LABORATORY TESTING PROGRAM

Our drillers observed the soil recovered from the SPT sampler, placed the recovered soil samples in moisture proof containers, and maintained a log for each boring. The recovered soil samples, along with the field boring logs, were transported to our Port St. Lucie soils laboratory where they were visually examined by AACE's project engineer to determine their engineering classification. The visual classification of the samples was performed in accordance with the Unified Soil Classification System, USCS. Further, representative samples were selected for index laboratory testing consisting of moisture content [ASTM D2216] and percent fines [ASTM D1140] to further aid in classifying the soils and to help evaluate the general engineering characteristics of the site soils.

The results of our classifications and laboratory examinations and tests are presented on the soil boring profiles on Sheets No. 1 and 2.

7.0 GEOTECHNICAL ENGINEERING EVALUATION

7.1 General

Based on the findings of our site exploration, our evaluation of subsurface conditions, and judgment based on our experience with similar projects, we conclude that the soils underlying this site are generally satisfactory to support the proposed single-story municipal building construction on conventional spread foundations. However, in our opinion, the bearing capacity of the loose near-surface soils should be improved in order to reduce the risk of unsatisfactory foundation performance. The general soil improvement we recommend includes proofrolling the individual building sites site with a heavy vibratory roller.

Following are specific recommendations for site preparation procedures, foundation design, and pavement systems for the project.

7.2 Site Preparation Recommendations

7.2.1 Clearing

The building area and the areas to be paved should be cleared, grubbed and stripped of all vegetation, topsoil, trash and debris (including existing asphalt, concrete, etc). Former building foundations and utility/drainage installations should be removed entirely, and their excavations backfilled with clean granular soils, compacted to the specifications noted below.

7.2.2 Compaction Procedures

Following clearing, the proposed building and pavement areas should be proofrolled with a 10 ton (minimum) vibratory roller; any soft, yielding soils detected should be excavated and replaced with clean, compacted backfill that conforms with the recommendations below. Sufficient passes should be made during the proofrolling operations to produce dry densities not less than 95 percent of the modified Proctor (ASTM D1557) maximum dry density of the compacted material to depths of 2 feet below the compacted surface, or 2 feet below the bottom of footings, whichever is lower. In any case, the building and pavement areas should receive not less than 10 overlapping passes, half of them in each of two perpendicular directions.

After the exposed surface has been proofrolled and tested to verify that the desired dry density has been obtained, the building and pavement areas may be filled to the desired grades. All fill material should conform to the recommendations below. It should be placed in uniform layers not exceeding 12 inches in loose thickness. Each layer should be compacted to a dry density not less than 95 percent of its modified Proctor (ASTM D1557) maximum value.

After completion of the general site preparations discussed above, the bottom of foundation excavations dug through the compacted natural ground, fill or backfill, should be compacted so as to densify soils loosened during or after the excavation process, or washed or sloughed into the excavation prior to the placement of forms. A vibratory, walk-behind plate compactor can be used for this final densification immediately prior to the placement of reinforcing steel, with previously described density requirements to be maintained below the foundation level.

Following removal of foundation forms, backfill around foundations should be placed in lifts six inches or less in thickness, with each lift individually compacted with a plate tamper. The backfill should be compacted to a dry density of at least 95 percent of the modified Proctor (ASTM D-1557) maximum dry density.

7.2.3 Structural Fill

All fill material under the building and pavement areas should consist of clean sands, free of organics and other deleterious materials. The fill material should have not more than 12 percent by dry weight passing the U.S. No. 200 sieve, and no particle larger than 3 inches in diameter. Backfill behind walls, if any, should be particularly pervious, with not more than 4 percent by dry weight passing the U.S. No. 200 sieve.

7.3 Building Foundation and Slab Design

After the foundation soils have been prepared as recommended above, the site should be suitable for supporting the proposed single-story building construction on conventional shallow foundations proportioned for an allowable bearing stress of 2,500 pounds per square foot [psf], or less. To provide an adequate factor of safety against a shearing failure in the subsoils, all continuous foundations should be at least 18 inches wide, and all individual column footings should have a minimum width of 24 inches. Exterior foundations should bear at least 18 inches below adjacent outside final grades.

Foundation concrete should not be cast over a foundation surface containing topsoil or organic soils, trash of any kind, surface made muddy by rainfall runoff, or groundwater rise, or loose soil caused by excavation or other construction work. Reinforcing steel should also be clean at the time of concrete casting. If such conditions develop during construction, the reinforcing steel grill must be lifted out and the foundation surface reconditioned and approved by the Foundation Engineer.

7.3.1 Bearing Capacity and Settlements

Based upon the boring information and the assumed loading conditions, we estimate that the recommended allowable bearing stress will provide a minimum factor of safety in excess of two against bearing capacity failure. With the site prepared and the foundations designed and constructed as recommended, we anticipate total settlements of one inch or less, and differential settlement between adjacent similarly loaded footings less than one-quarter of an inch. Because of the granular nature of the subsurface soils, the majority of the settlements should occur during construction; post-construction settlement should be minimal.

We recommend that AACE inspect all footing excavations in order to verify that footing bearing conditions are consistent with expectations.

7.3.2 Slab-On-Grade

After the ground surface is proofrolled and filled, as recommended in this report, the floor slab can be placed directly on the prepared subgrade. In our opinion, a highly porous base material is not necessary. We recommend to use a minimum of 10 mil polyolefin film as the main component of a vapor barrier system. For the design of ground floor slabs a modulus of subgrade reaction of 150 pounds per cubic inch can be used provided that the slabs are underlain by at least 18 inches of well-compacted granular materials.

Care must be exercised in installing control joints shortly after placing the concrete, and in placing and maintaining the steel reinforcement at its designated elevation within the floor slab.

8.0 PAVEMENT RECOMMENDATIONS

8.1 General

Actual pavement section thickness should be provided by the design civil engineer based on traffic loads, volume, and the owners design life requirements. The following sections represent minimum thicknesses representative of typical load and construction practices and as such periodic maintenance should be anticipated. In addition, recommendations for a rigid pavement design are presented for use in delivery areas, dumpster pads, and potentially for apparatus travel lanes. All pavement materials and construction procedures should conform to Indian River County requirements.

We recommend that the pavement sections be installed late in construction when most heavy construction traffic has ceased. If base material is placed during construction to provide a working surface it should be proofrolled, leveled, and thickened as required prior to paving at the end of construction.

8.2 Flexible Pavement Sections

We recommend a pavement section consisting of an asphaltic concrete wearing surface on a calcareous base course supported on stabilized subbase over well-compacted subgrade.

After clearing and proofrolling the site surface as previously recommended, the surficial soils should be suitable to support the pavement sections. The embankment material should be compacted to a dry density of 98 percent of the modified Proctor (ASTM D1557/AASHTO T-180) maximum dry density of the compacted soil to a depth of one foot below the surface.

8.2.1 Stabilized Subgrade

The subbase material to a depth of 12 inches should have a minimum Limerock Bearing Ratio (LBR) value (FDOT FM 5-515) of 40 and it should be compacted to at least 98 percent of its modified Proctor (ASTM D1557 or AASHTO T-180) maximum dry density.

8.2.2 Base Course

The base course may consist of crushed limerock or coquina and should have a minimum Limerock Bearing Ratio (LBR) value (FDOT FM 5-515) of 100 and a minimum carbonate content (FDOT FM 5-514) of 70 percent (limerock) or 50 percent (coquina). We recommend a base course at least 6 inches thick for standard pavements and a base course of 10 inches for heavy-duty pavements. The 6-inch base course may be placed and compacted in a single layer, however, the 10-inch base course should be placed and compacted in two layers. All base course material should be compacted to at least 98 percent of its modified Proctor maximum dry density.

8.2.3 Asphalt Surface

We recommend an FDOT Type SP-9.5 or SP-12.5 asphaltic wearing surface. We recommend a wearing surface 1.5 inches thick on standard pavement and 2.5 inches thick on heavy-duty pavement. The 2.5-inch wearing surface should be placed and compacted in two layers. Care must be exercised to place the asphalt over dry, well primed base material.

8.2.4 Flexible Pavement Summary

The above recommendations should provide high quality pavement. If greater risk of more frequent pavement maintenance and repair is acceptable, then the above recommendations could be relaxed somewhat. Table 3 summarizes the recommended flexible pavement sections.

Table 3 - Flexible Pavement Summary

Traffic Group	Thickness [inches]			Structural Number
	Stabilized Subgrade	Base Course	Asphalt Surface	
Light Duty (interior roads): Auto parking area, light panel and pickup trucks; average gross vehicle weight of 4,000 lbs.	12	6	1.5	2.7
Heavy Duty: Bus drop-off areas, delivery trucks; average gross vehicle weight of 25,000 lbs	12	10	2.5	3.8

8.3 Rigid Pavement Sections

After clearing and proofrolling the site surface as previously recommended, the surficial soils should be suitable to support the pavement sections. The subgrade material should be compacted to a dry density of 98 percent of the modified Proctor (ASTM D1557 or AASHTO T-180) maximum dry density of the compacted soil to a depth of two feet below the surface. The subgrade surface should be saturated immediately prior to concrete placement to provide adequate moisture for curing of the concrete.

We recommend a six-inch thick pavement section of Portland cement concrete. The concrete should have a minimum 28-day compressive strength of 4,000 psi. Construction control joints should be placed no more than 15 feet apart in either direction and should be at least one-quarter of the thickness of the concrete. They should be cut as soon as the concrete will support the crew and equipment (8 to 12 hours). The concrete should be cured by moist curing or by application of a liquid curing compound. The steel reinforcement within the concrete pavement should be designed by the project civil or structural engineer.

8.4 Stabilized (Gravel) Roadway

For the proposed unpaved, stabilized driveway near the lift station within the northeast portion of the site, we recommend the following minimum section:

- Clear the site surface as needed and compact the sands to a dry density of 98 percent of the modified Proctor (ASTM D1557/AASHTO T-180) maximum dry density of the compacted soil to a depth of one foot below the surface.

- Place and compact 10 inches of crushed limerock, coquina or shell rock (LBR $\geq$ 100) in two even layers with each layer compacted to dry density of 98 percent of the modified Proctor (ASTM D1557/AASHTO T-180).

8.5 Curbing

The curbing around landscaped areas adjacent to pavement should be constructed with full-depth curb sections. Use of extruded curb sections that lie directly above the final asphalt surface, or omission of the curbing, can allow migration of irrigation water from the landscaped areas. The excess water often causes separation of the asphalt wearing surface from the base and softening of the base material, resulting in early deterioration of the pavement.

9.0 QUALITY CONTROL PROGRAM

We recommend establishing a comprehensive quality control program to verify that all site preparation and foundation and pavement construction is conducted in accordance with the appropriate plans and specifications. Materials testing and inspection services should be provided by Andersen Andre Consulting Engineers, Inc.

An experienced engineering technician should monitor all stripping and grubbing operations on a full-time basis to verify that deleterious materials have been removed. The technician should observe the proof-rolling operation to verify that the appropriate number of passes are applied to the subgrade and that the subgrade soils exhibit an appropriate response to the compaction efforts. In-situ density tests should be conducted during filling activities and below all footings, floor slabs and pavement areas 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.

Representative samples of the various natural ground and fill soils, as well as stabilized subgrade (where applicable) and base materials 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.

Finally, we recommend inspecting and testing the construction materials for the foundations and other structural components.

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10.0 CLOSURE

The geotechnical evaluation submitted herein is based on the data obtained from the soil boring and test profiles presented on Sheets No. 1 and 2, and our understanding of the project as previously described. Limitations and conditions to this report are presented in Appendix IV.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices for the exclusive use of Indian River County Solid Waste Disposal District. No other warranty, expressed or implied, is made.

We are pleased to be of assistance to you on this phase of your project. When we may be of further service to you or should you have any questions, please contact us.

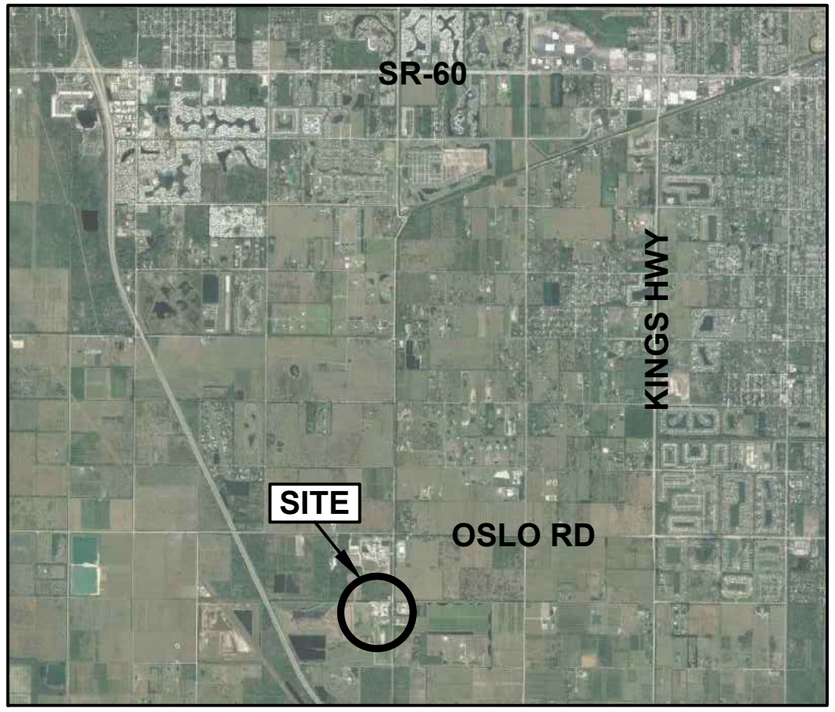
Sincerely,
ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

PETER G. ANDERSEN LICENSE No. 57956 STATE OF FLORIDA PROFESSIONAL ENGINEER 3-23-21

Peter G. Andersen, P.E.
Principal Engineer
Fla. Reg. No. 57956

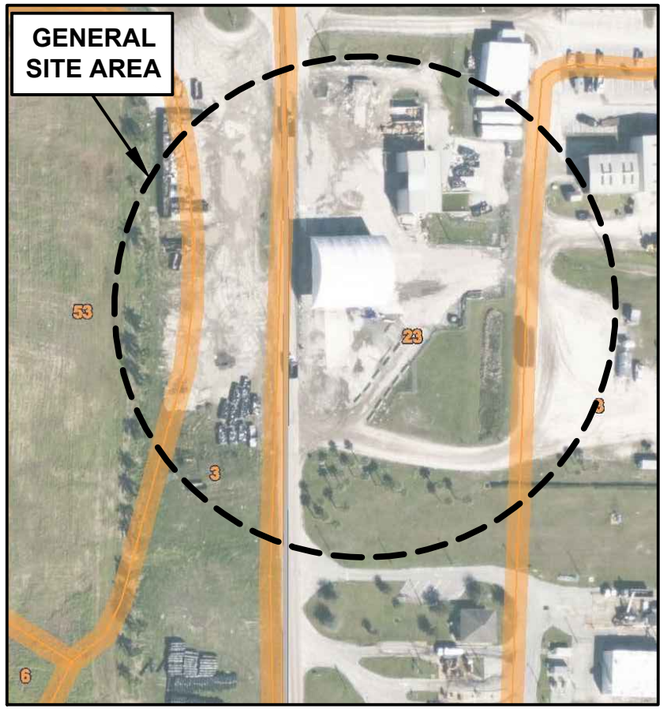
David P. Andre, P.E.
Principal Engineer
Fla. Reg. No. 53969
3/23/21

2019 AERIAL PHOTOGRAPH



1983 USGS TOPOGRAPHIC QUADRANGLE MAP OF "OSLO, FL"

SOIL SURVEY MAP



PUBLIC LAND SURVEY SYSTEM

Section 25
Township 33 South
Range 38 East

USDA NRCS SOIL TYPES WITHIN SITE BOUNDARY

3: EauGallie fine sand
6: Oldsmar fine sand
23: Arents, 0 to 5 percent slope
53: Manatee mucky loamy fine sand, depressional

NORTH

NOT TO SCALE

Graphical sources:
- Google Earth Pro
- QUADS/Earth Survey
- USDA NRCS Web Soil Survey

AACE

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

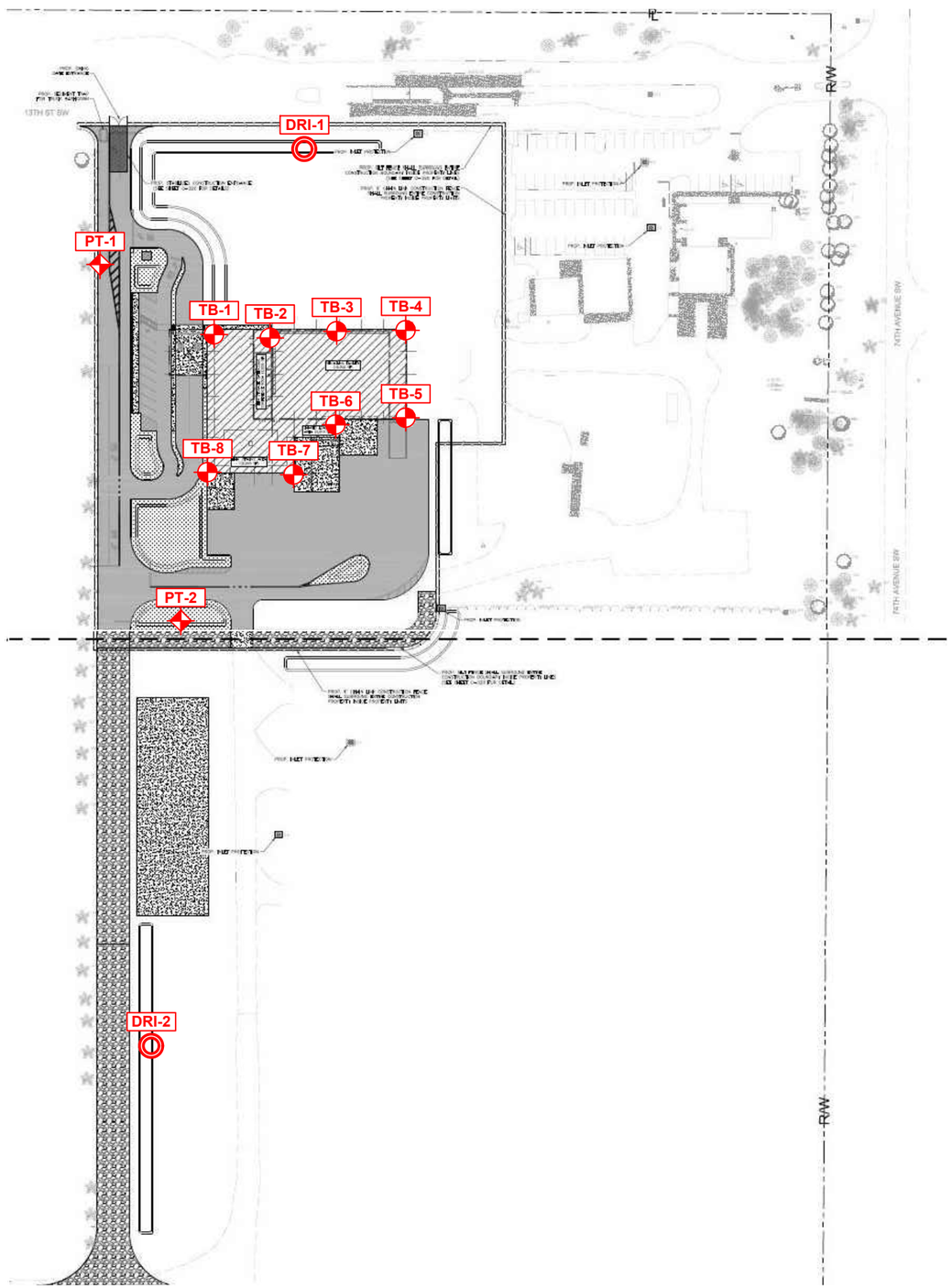
834 SW Swan Avenue, Port St. Lucie, FL 34983 772-807-9191 www.AACEinc.com

SITE VICINITY MAPS

SUBSURFACE SOIL EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY
INDIAN RIVER COUNTY, FLORIDA

Drawn by: PGA	Date: March 2021
Checked by: DPA	Date: March 2021
AACE File No: 21-109	**Figure No. 1**

Source: - Google Earth Pro



Source: - Site Plan by Kimley-Horn

LEGEND

- TB-# — Standard Penetration Test Boring
- PT-# — Field Permeability Test
- DRI-# — Double-Ring Infiltrometer Test

NOTES

Shown field work locations are approximate and were determined using the provided site plan, aerial photographs, existing site features, and a hand-held GPS instrument. Atmospheric disturbances and local weather conditions may affect the accuracy of the GPS instrument readings. The shown field work locations should be considered accurate only to the degree implied by the method of measurement used.

NORTH

NOT TO SCALE

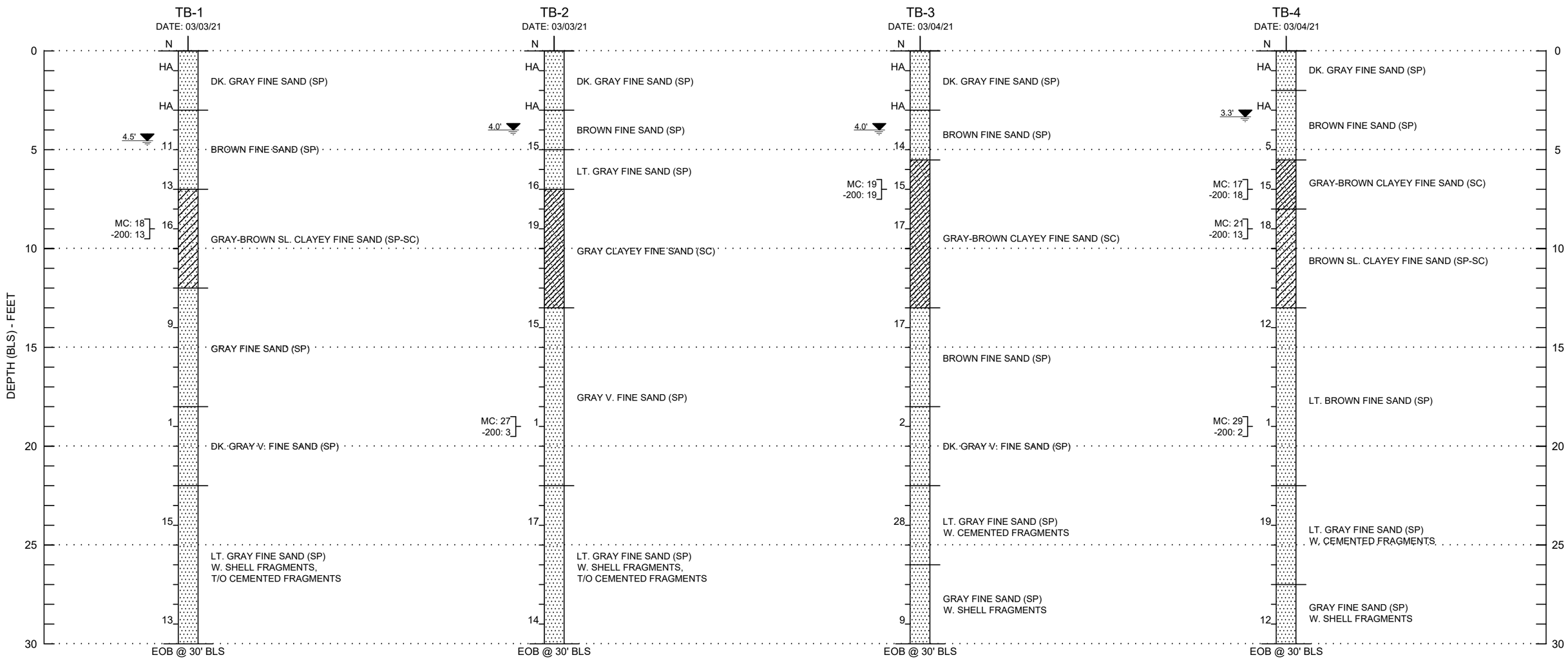
ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

834 SW Swan Avenue, Port St. Lucie, FL 34983 772-807-9191 www.AACEinc.com

FIELD WORK LOCATION PLAN

SUBSURFACE SOIL EXPLORATION AND
GEOTECHNICAL ENGINEERING EVALUATION
INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY
INDIAN RIVER COUNTY, FLORIDA

Drawn by: PGA	Date: March 2021
Checked by: DPA	Date: March 2021
AACE File No: 21-109	**Figure No. 2**



SOIL GRAPHICAL LEGEND:

- PAVEMENT SECTION (AS NOTED)
- FINE SAND (SP)
- SLIGHTLY CLAYEY FINE SAND (SP-SC)
- CLAYEY FINE SAND (SC)

NOTE: 3"-6" of topsoil encountered in some borings
(not shown on boring profiles)

PROJECT NOTES:

TB-#	STANDARD PENETRATION TEST [SPT] BORING [ASTM D1586]
PT-#	PERMEABILITY TEST
DRI-#	DOUBLE-RING INFILTROMETER TEST [ASTM D3385]
N	SPT RESISTANCE IN BLOWS PER FOOT
X.X' ▼	GROUNDWATER TABLE AT TIME DRILLED (FT BELOW EXIST. GRADE)
EOB	END OF BORING
BLS	BELOW LAND SURFACE
HA	HAND AUGER FOR UTILITY CLEARANCE
SP, SP-SC, SC:	UNIFIED SOIL CLASSIFICATION SYSTEM [USCS] USCS GROUPS DETERMINED BY VISUAL CLASSIFICATION EXCEPT FOR NOTED LABORATORY TESTS
MC	NATURAL MOISTURE CONTENT IN PERCENT [ASTM D2216]
-200	PERCENT PASSING NO. 200 SIEVE SIZE [PERCENT FINES] [ASTM D1140]

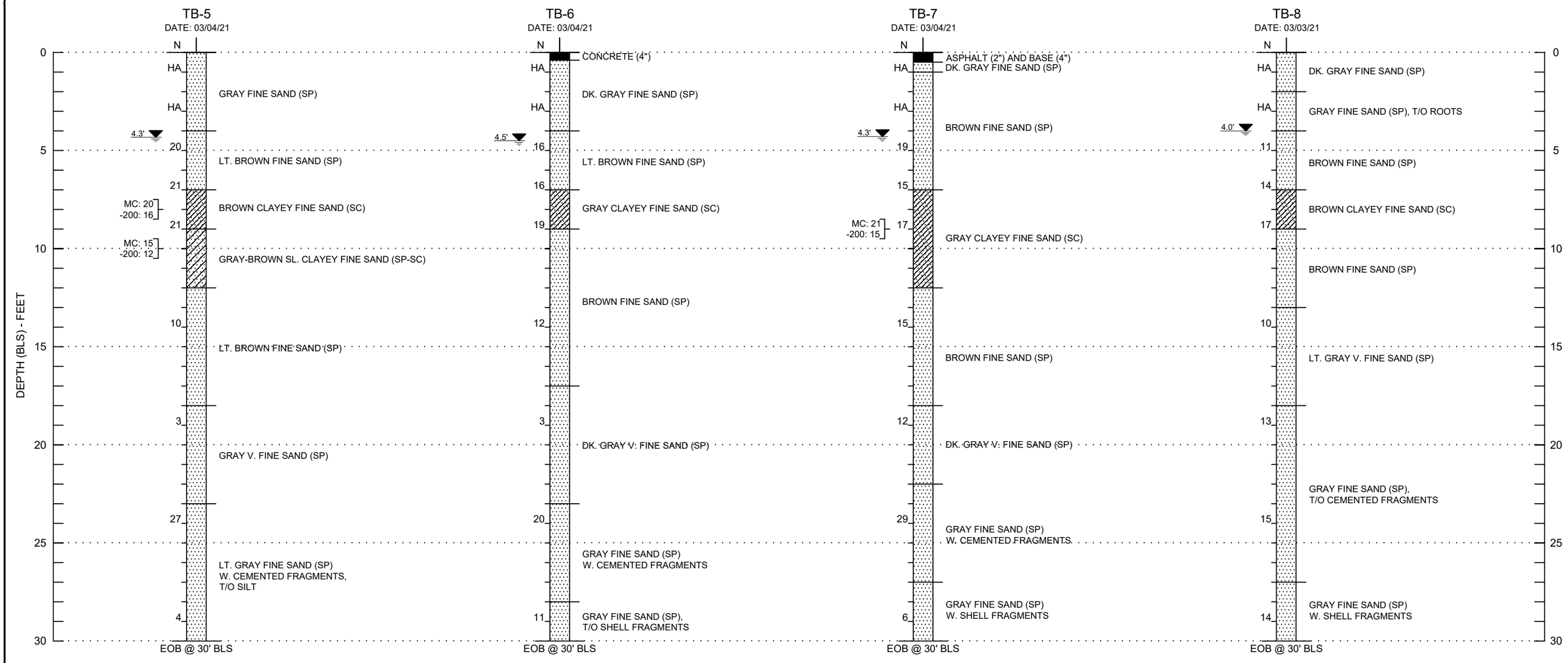
DRILL CREW: DTH
DRILL RIGS: CME-45
DRILL METHOD: ROTARY-WASH W. BENTONITE DRILLING SLURRY
CASING: NOT NEEDED
SPLIT SPOON SAMPLER:
LENGTH: 24"
O.D: 2.0"
HAMMER:
AVERAGE DROP: 30"
WEIGHT: 140 lbs.
TYPE: MANUAL/SAFETY

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.
834 SW Swan Avenue, Port St. Lucie, FL 34983 772-807-9191 www.AACEinc.com

SOIL BORING PROFILES

**SUBSURFACE SOIL EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION
INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY
INDIAN RIVER COUNTY, FLORIDA**

Drawn by: PGA	Date: March 2021
Checked by: DPA	Date: March 2021
AACE File No: 21-109	**Sheet No. 1**



SOIL GRAPHICAL LEGEND:

- PAVEMENT SECTION (AS NOTED)
- FINE SAND (SP)
- SLIGHTLY CLAYEY FINE SAND (SP-SC)
- CLAYEY FINE SAND (SC)

NOTE: 3"-6" of topsoil encountered in some borings
(not shown on boring profiles)

PROJECT NOTES:

TB-#	STANDARD PENETRATION TEST [SPT] BORING [ASTM D1586]
PT-#	PERMEABILITY TEST
DRI-#	DOUBLE-RING INFILTROMETER TEST [ASTM D3385]
N	SPT RESISTANCE IN BLOWS PER FOOT
X.X' ▽	GROUNDWATER TABLE AT TIME DRILLED (FT BELOW EXIST. GRADE)
EOB	END OF BORING
BLS	BELOW LAND SURFACE
HA	HAND AUGER FOR UTILITY CLEARANCE
SP, SP-SC, SC:	UNIFIED SOIL CLASSIFICATION SYSTEM [USCS] USCS GROUPS DETERMINED BY VISUAL CLASSIFICATION EXCEPT FOR NOTED LABORATORY TESTS
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CASING: NOT NEEDED
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SOIL BORING PROFILES

**SUBSURFACE SOIL EXPLORATION AND GEOTECHNICAL ENGINEERING EVALUATION
INDIAN RIVER COUNTY LANDFILL
HOUSEHOLD HAZARDOUS WASTE AND RECYCLING FACILITY
INDIAN RIVER COUNTY, FLORIDA**

Drawn by: PGA	Date: March 2021
Checked by: DPA	Date: March 2021
AACE File No: 21-109	**Sheet No. 2**

APPENDIX I

USDA Soil Survey Information

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

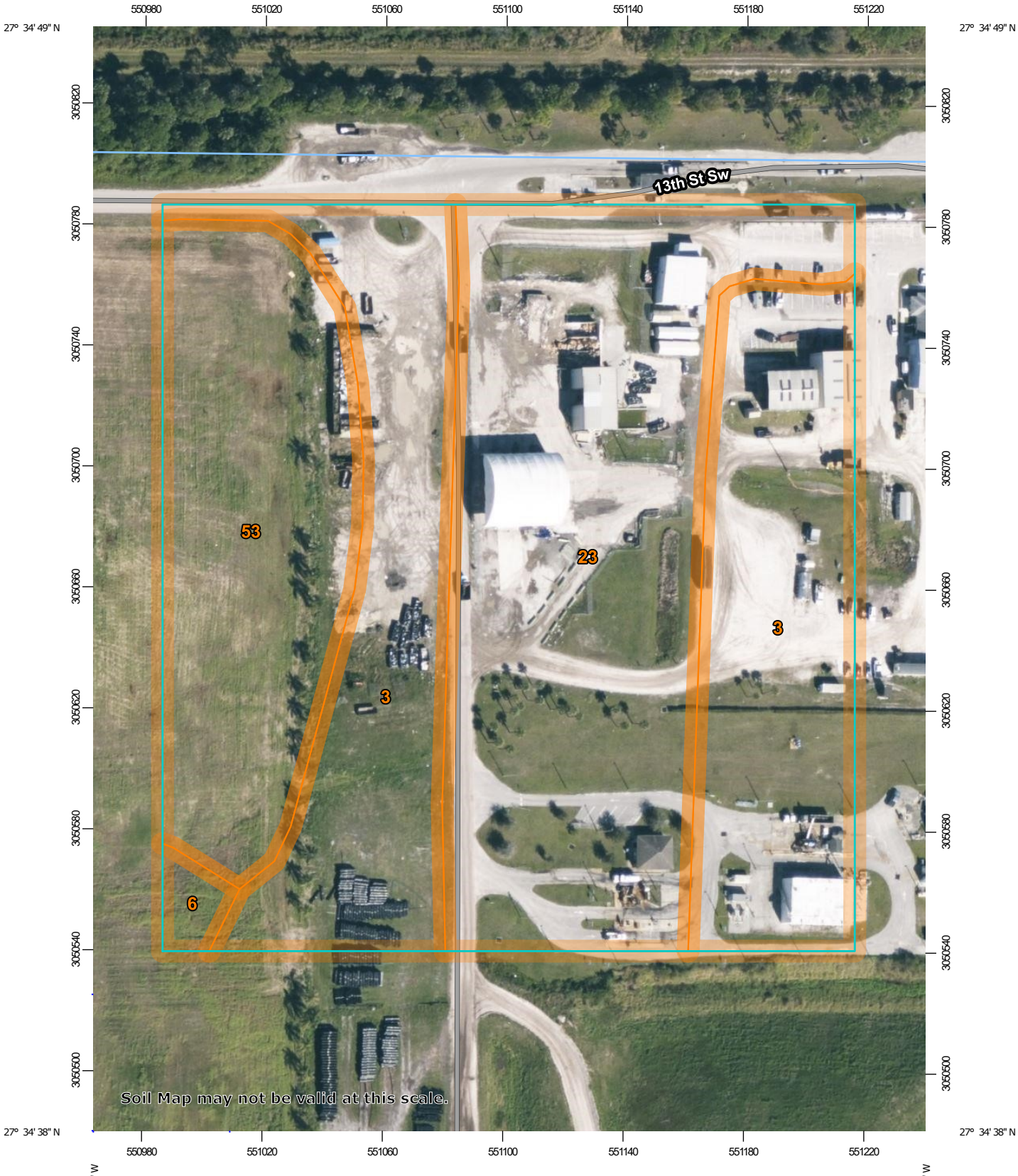
A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Indian River County, Florida

IRC Landfill - Proposed Household Hazardous Waste Facility

March 4, 2021

Custom Soil Resource Report
Soil Map (IRC Landfill - Proposed Household Hazardous Waste Facility)



Map Scale: 1:1,780 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Indian River County, Florida
Survey Area Data: Version 19, Jun 8, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 25, 2019—Jan 29, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (IRC Landfill - Proposed Household Hazardous Waste Facility)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	EauGallie fine sand	5.5	38.7%
6	Oldsmar fine sand	0.2	1.1%
23	Arents, 0 to 5 percent slopes	5.4	38.6%
53	Manatee mucky loamy fine sand, depressional	3.0	21.5%
Totals for Area of Interest		**14.1**	**100.0%**

Map Unit Descriptions (IRC Landfill - Proposed Household Hazardous Waste Facility)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Indian River County, Florida

3—EauGallie fine sand

Map Unit Setting

National map unit symbol: tdfl
Elevation: 20 to 200 feet
Mean annual precipitation: 52 to 60 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Eaugallie, non-hydric, and similar soils: 80 percent
Eaugallie, hydric, and similar soils: 10 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Eaugallie, Non-hydric

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 26 inches: fine sand
Bh - 26 to 42 inches: fine sand
BE - 42 to 47 inches: fine sand
Btg - 47 to 62 inches: sandy clay loam
Cg - 62 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)

Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Description of Eaugallie, Hydric

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 26 inches: fine sand
Bh - 26 to 42 inches: fine sand
BE - 42 to 47 inches: fine sand
Btg - 47 to 62 inches: sandy clay loam
Cg - 62 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Minor Components

Oldsmar, non-hydric

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Myakka, non-hydric

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Pepper, non-hydric

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Wabasso, non-hydric

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

6—Oldsmar fine sand

Map Unit Setting

National map unit symbol: tdfp
Elevation: 20 to 200 feet
Mean annual precipitation: 52 to 60 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Oldsmar, non-hydric, and similar soils: 80 percent
Oldsmar, hydric, and similar soils: 10 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Oldsmar, Non-hydric

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 32 inches: fine sand
Bh - 32 to 50 inches: fine sand
Btg - 50 to 62 inches: sandy clay loam
Cg - 62 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Description of Oldsmar, Hydric

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 32 inches: fine sand
Bh - 32 to 50 inches: fine sand
Btg - 50 to 62 inches: sandy clay loam
Cg - 62 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL)
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Minor Components

Eaugallie, non-hydric

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Holopaw

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), Slough (R155XY011FL)
Hydric soil rating: Yes

Wabasso, non-hydric

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Malabar, non-hydric

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), Cabbage Palm Flatwoods (R155XY005FL)
Hydric soil rating: No

23—Arents, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: tdg6
Elevation: 0 to 200 feet
Mean annual precipitation: 52 to 60 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Arents and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile

C1 - 0 to 10 inches: sand
C2 - 10 to 32 inches: sand
C3 - 32 to 60 inches: sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G156BC999FL)
Other vegetative classification: Forage suitability group not assigned (G156BC999FL)
Hydric soil rating: No

Minor Components

Urban land

Percent of map unit: 5 percent
Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156BC999FL)
Hydric soil rating: Unranked

Quartzipsamments

Percent of map unit: 5 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G156BC999FL)
Hydric soil rating: No

53—Manatee mucky loamy fine sand, depressional

Map Unit Setting

National map unit symbol: tdh1
Elevation: 10 to 200 feet
Mean annual precipitation: 52 to 60 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Manatee and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Manatee

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 8 inches: mucky loamy fine sand
Btg - 8 to 24 inches: fine sandy loam
BCg - 24 to 42 inches: sandy loam
Cg - 42 to 80 inches: loamy fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water capacity: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B/D
Forage suitability group: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G156BC345FL)
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G156BC345FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Minor Components

Riviera, depressional

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G156BC245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Malabar, hydric

Percent of map unit: 2 percent

Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G156BC141FL), Cabbage Palm Flatwoods (R155XY005FL)
Hydric soil rating: Yes

Pineda, depressional

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G156BC245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Chobee, depressional

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Loamy and clayey soils on stream terraces, flood plains, or in depressions (G156BC345FL)
Hydric soil rating: Yes

Floridana, depressional

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G156BC245FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Holopaw, depressional

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G156BC145FL), Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Samsula

Percent of map unit: 1 percent
Landform: Marshes on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave

Other vegetative classification: Organic soils in depressions and on flood plains (G156BC645FL)
Hydric soil rating: Yes

Winder

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Other vegetative classification: Loamy and clayey soils on flats of hydric or mesic lowlands (G156BC341FL), Wetland Hardwood Hammock (R155XY012FL)
Hydric soil rating: Yes

APPENDIX II

General Notes
(Soil Borings, Sampling and Testing Methods)

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

SOIL BORING, SAMPLING AND TESTING METHODS

GENERAL

Andersen Andre Consulting Engineers, Inc. (AACE) borings describe subsurface conditions only at the locations drilled and at the time drilled. They provide no information about subsurface conditions below the bottom of the boreholes. At locations not explored, surface conditions that differ from those observed in the borings may exist and should be anticipated.

The information reported on our boring logs is based on our drillers' logs and on visual examination in our laboratory of disturbed soil samples recovered from the borings. The distinction shown on the logs between soil types is approximate only. The actual transition from one soil to another may be gradual and indistinct.

The groundwater depth shown on our boring logs is the water level the driller observed in the borehole when it was drilled. These water levels may have been influenced by the drilling procedures, especially in borings made by rotary drilling with bentonitic drilling mud. An accurate determination of groundwater level requires long-term observation of suitable monitoring wells. Fluctuations in groundwater levels throughout the year should be anticipated.

The absence of a groundwater level on certain logs indicates that no groundwater data is available. It does not mean that groundwater will not be encountered at that boring location at some other point in time.

STANDARD PENETRATION TEST

The Standard Penetration Test (SPT) is a widely accepted method of in situ testing of foundation soils (ASTM D-1586). A 2-foot (0.6m) long, 2-inch (50mm) O.D. split-barrell sampler attached to the end of a string of drilling rods is driven 24 inches (0.60m) into the ground by successive blows of a 140-pound (63.5 Kg) hammer freely dropping 30 inches (0.76m). The number of blows needed for each 6 inches (0.15m) increments penetration is recorded. The sum of the blows required for penetration of the middle two 6-inch (0.15m) increments of penetration constitutes the test result of N-value. After the test, the sampler is extracted from the ground and opened to allow visual description 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 following tables relate N-values to a qualitative description of soil density and, for cohesive soils, an approximate unconfined compressive strength (Qu):

Cohesionless Soils:	**N-Value**	**Description**
	0 to 4	Very loose
	4 to 10	Loose
	10 to 30	Medium dense
	30 to 50	Dense
	Above 50	Very dense

Cohesive Soils:	N-Value	Description	Qu
	0 to 2	Very soft	Below 0.25 tsf (25 kPa)
	2 to 4	Soft	0.25 to 0.50 tsf (25 to 50 kPa)
	4 to 8	Medium stiff	0.50 to 1.0 tsf (50 to 100 kPa)
	8 to 15	Stiff	1.0 to 2.0 tsf (100 to 200 kPa)
	15 to 30	Very stiff	2.0 to 4.0 tsf (200 to 400 kPa)
	Above 30	Hard	Above 4.0 tsf (400 kPa)

The tests are usually performed at 5 foot (1.5m) intervals. However, more frequent or continuous testing is done by AACE 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 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, 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. After completion of a test borings, the hole is kept open until a steady state groundwater level is recorded. The hole is then sealed by backfilling, either with accumulated cuttings or lean cement.

Representative split-spoon samples from each sampling interval and from different strata are brought to our laboratory in air-tight jars for classification and testing, if necessary. Afterwards, the samples are discarded unless prior arrangement have been made.

POWER AUGER BORINGS

Auger borings (ASTM D-1452) are used when a relatively large, continuous sampling of soil strata close to the ground surface is desired. A 4-inch (100 mm) diameter, continuous flight, helical auger with a cutting head at its end is screwed into the ground in 5-foot (1.5m) sections. It is powered by the rotary drill rig. The sample is recovered by withdrawing the auger our of the ground without rotating it. The soil sample so obtained, is classified in the field and representative samples placed in bags or jars and returned to the AACE soils laboratory for classification and testing, if necessary.

HAND AUGER BORINGS

Hand auger borings are used, if soil conditions are favorable, when the soil strata are to be determined within a shallow (approximately 5-foot [1.5m]) depth or when access is not available to power drilling equipment. A 3-inch (75mm) diameter hand bucket auger with a cutting head is simultaneously turned and pressed into the ground. The bucket auger is retrieved at approximately 6-inch (0.15m) interval and its contents emptied for inspection. On occasion post-hole diggers are used, especially in the upper 3 feet (1m) or so. Penetrometer probings can be used in the upper 5 feet (1.5m) to determine the relative density of the soils. The soil sample obtained is described and representative samples put in bags or jars and transported to the AACE soils laboratory for classification and testing, if necessary.

UNDISTURBED SAMPLING

Undisturbed sampling (ASTM D-1587) implies the recovery of soil samples in a state as close to their natural condition as possible. Complete preservation of in situ conditions cannot be realized; however, with careful handling and proper sampling techniques, disturbance during sampling can be minimized for most geotechnical engineering purposes. Testing of undisturbed samples gives a more accurate estimate of in situ behavior than is possible with disturbed samples.

Normally, we obtain undisturbed samples by pushing a 2.875-inch (73 mm) I.D., thin wall seamless steel tube 24 inches (0.6 m) into the soil with a single stoke of a hydraulic ram. The sampler, which is a Shelby tube, is 30 (0.8 m) inches long. After the sampler is retrieved, the ends are sealed in the field and it is transported to our laboratory for visual description and testing, as needed.

ROCK CORING

In case rock strata is encountered and rock strength/continuity/composition information is needed for foundation or mining purposes, the rock can be cored (ASTM D-2113) and 2-inch to 4-inch diameter rock core samples be obtained for further laboratory analyses. The rock coring is performed through flush-joint steel casing temporarily installed through the overburden soils above the rock formation and also installed into the rock. The double- or triple-tube core barrels are advanced into the rock typically in 5-foot intervals and then retrieved to the surface. The barrel is then opened so that the core sample can be extruded. Preliminary field measurements of the recovered rock cores include percent recovery and Rock Quality Designation (RQD) values. The rock cores are placed in secure core boxes and then transported to our laboratory for further inspection and testing, as needed.

SFWMD EXFILTRATION TESTS

In order to estimate the hydraulic conductivity of the upper soils, constant head or falling head exfiltration tests can be performed. These tests are performed in accordance with methods described in the South Florida Water Management District (SFWMD) Permit Information Manual, Volume IV. In brief, a 6 to 9 inch diameter hole is augered to depths of about 5 to 7 feet; the bottom one foot is filled with 57-stone; and a 6-foot long slotted PVC pipe is lowered into the hole. The distance from the groundwater table and to the ground surface is recordedand the hole is then saturated for 10 minutes with the water level maintained at the ground surface.

If a constant head test is performed, the rate of pumping will be recorded at fixed intervals of 1 minute for a total of 10 minutes, following the saturation period.

LABORATORY TEST METHODS

Soil samples returned to the AACE soils laboratory are visually observed by a geotechnical engineer or a trained technician to obtain more accurate description of the soil strata. Laboratory testing is performed on selected samples as deemed necessary to aid in soil classification and to help define engineering properties of the soils. The test results are presented on the soil boring logs at the depths at which the respective sample was recovered, except that grain size distributions or selected other test results may be presented on separate tables, figures or plates as discussed in this report.

THE PROJECT SOIL DESCRIPTION PROCEDURE FOR SOUTHEAST FLORIDA

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

The soil descriptions shown on the logs are based upon visual-manual procedures in accordance with local practice. Soil classification is performed in general accordance with the United Soil Classification System and is also based on visual-manual procedures.

BOULDERS (>12" [300 MM]) and COBBLES (3" [75 MM] TO 12" [300 MM]):

GRAVEL: Coarse Gravel: 3/4" (19 mm) to 3" (75 mm)
Fine Gravel: No. 4 (4.75 mm) Sieve to 3/4" (19 mm)

Descriptive adjectives:

0 - 5%	– no mention of gravel in description
5 - 15%	– trace
15 - 29%	– some
30 - 49%	– gravelly (shell, limerock, cemented sands)

SANDS:

COARSE SAND: No. 10 (2 mm) Sieve to No. 4 (4.75 mm) Sieve
MEDIUM SAND: No. 40 (425 µm) Sieve to No. 10 (2 mm) Sieve
FINE SAND: No. 200 (75 µm) Sieve to No. 40 (425 µm) Sieve

Descriptive adjectives:

0 - 5%	– no mention of sand in description
5 - 15%	– trace
15 - 29%	– some
30 - 49%	– sandy

SILT/CLAY: < #200 (75µM) Sieve

SILTY OR SILT: $PI < 4$
SILTY CLAYEY OR SILTY CLAY: $4 \leq PI \leq 7$
CLAYEY OR CLAY: $PI > 7$

Descriptive adjectives:

< - 5%	– clean (no mention of silt or clay in description)
5 - 15%	– slightly
16 - 35%	– clayey, silty, or silty clayey
36 - 49%	– very

ORGANIC SOILS:

Organic Content	**Descriptive Adjectives**	**Classification**
0 - 2.5%	Usually no mention of organics in description	See Above
2.6 - 5%	slightly organic	add “with organic fines” to group name
5 - 30%	organic	SM with organic fines
		Organic Silt (OL)
		Organic Clay (OL)
		Organic Silt (OH)

THE PROJECT SOIL DESCRIPTION PROCEDURE FOR SOUTHEAST FLORIDA

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

Organic Clay (OH)

HIGHLY ORGANIC SOILS AND MATTER:

Organic Content	**Descriptive Adjectives**	**Classification**
30 - 75%	sandy peat	Peat (PT)
	silty peat	Peat (PT)
> 75%	amorphous peat	Peat (PT)
	fibrous peat	Peat (PT)

STRATIFICATION AND STRUCTURE:

Descriptive Term		**Thickness**
with interbedded		
seam	--	less than ½ inch (13 mm) thick
layer	--	½ to 12-inches (300 mm) thick
stratum	--	more than 12-inches (300 mm) thick
pocket	--	small, erratic deposit, usually less than 1-foot
lens	--	lenticular deposits
occasional	--	one or less per foot of thickness
frequent	--	more than one per foot of thickness
calcareous	--	containing calcium carbonate (reaction to diluted HCL)
hardpan	--	spodic horizon usually medium dense
marl	--	mixture of carbonate clays, silts, shells and sands

ROCK CLASSIFICATION (FLORIDA) CHART:

Symbol	Typical Description
LS	Hard Bedded Limestone or Caprock
WLS	Fractured or Weathered Limestone
LR	Limerock (gravel, sand, silt and clay mixture)
SLS	Stratified Limestone and Soils

THE PROJECT SOIL DESCRIPTION PROCEDURE FOR SOUTHEAST FLORIDA

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

LEGEND FOR BORING LOGS

N:	Number of blows to drive a 2-inch OD split spoon sampler 12 inches using a 140-pound hammer dropped 30 inches
R:	Refusal (less than six inches advance of the split spoon after 50 hammer blows)
MC:	Moisture content (percent of dry weight)
OC:	Organic content (percent of dry weight)
PL:	Moisture content at the plastic limit
LL:	Moisture content at the liquid limit
PI:	Plasticity index (LL-PL)
qu:	Unconfined compressive strength (tons per square foot, unless otherwise noted)
-200:	Percent passing a No. 200 sieve (200 wash)
+40:	Percent retained above a No. 40 sieve
US:	Undisturbed sample obtained with a thin-wall Shelby tube
k:	Permeability (feet per minute, unless otherwise noted)
DD:	Dry density (pounds per cubic foot)
TW:	Total unit weight (pounds per cubic foot)

APPENDIX III

DRI Test Reports

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

Double-Ring Infiltrometer Test Report (ASTM D3385)

Test Number	**DRI-1**	**Technician**	RL/MM
Project Name	IRC Landfill	**Engineer**	PA
Project Number	21-109	**Weather Conditions**	Clear
Test Location	Refer to Figure No. 2	**Temperature**	76
Date	03/13/2021	**Testing Liquid**	Water

SOIL PROFILE	
Depth (in-bls)	**Description**
0-8	Topsoil (REMOVED)
8-38	Dark brown fine sand (SP)
38-48	Brown/dark brown fine sand (SP) with hardpan
Groundwater not encountered	

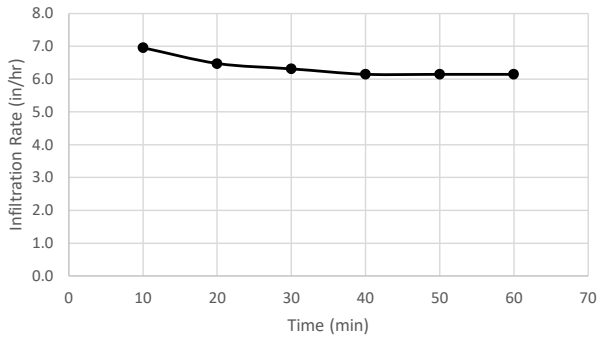
Area of Inner Ring (in^2):	113.1	**Test Depth (in):**	12	**Depth of Water - Inner Ring (in):**	6
Area of Annular Space (in^2):	339.3	**Ring Seating (in):**	6	**Depth of Water - Annular Space (in):**	6

Cycle No.	**Incremental Test Time (min)**	**INNER RING**			**ANNULAR SPACE**		
		Incremental Flow (ml)	**Incremental Flow** (in^3)	**Infiltration Rate** (in/hr)	**Incremental Flow** (ml)	**Incremental Flow** (in^3)	**Infiltration Rate** (in/hr)
1 (10 min)	1	215	13.1	6.96	675	41.2	7.28
2 (20 min)	1	200	12.2	6.47	635	38.8	6.85
3 (30 min)	1	195	11.9	6.31	615	37.5	6.64
4 (40 min)	1	190	11.6	6.15	600	36.6	6.47
5 (50 min)	1	190	11.6	6.15	600	36.6	6.47
6 (60 min)	1	190	11.6	6.15	600	36.6	6.47

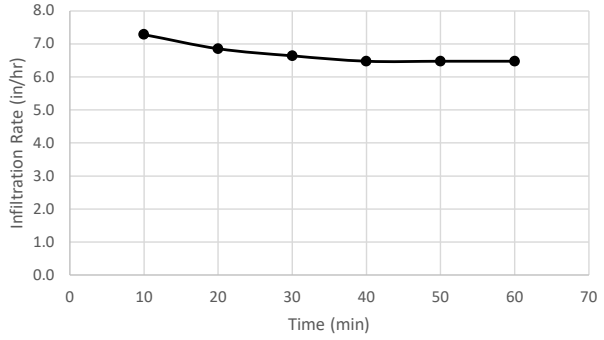
NOTES:
ASTM D3385 recommends using the rate of the inner ring as the vertical infiltration rate if the rates for the inner ring and the annular space differ, since such difference in rates is likely due to divergent flow.

The designer should include an appopriate factor of safety when using the presented infiltration rates in the design of drainage improvements.

Stabilized Infiltration Rate (in /hr): 6.2



Stabilized Infiltration Rate (in /hr): 6.5



ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

Double-Ring Infiltrometer Test Report (ASTM D3385)

Test Number	**DRI-2**	**Technician**	RL/MM
Project Name	IRC Landfill	**Engineer**	PA
Project Number	21-109	**Weather Conditions**	Clear
Test Location	Refer to Figure No. 2	**Temperature**	77
Date	03/13/2021	**Testing Liquid**	Water

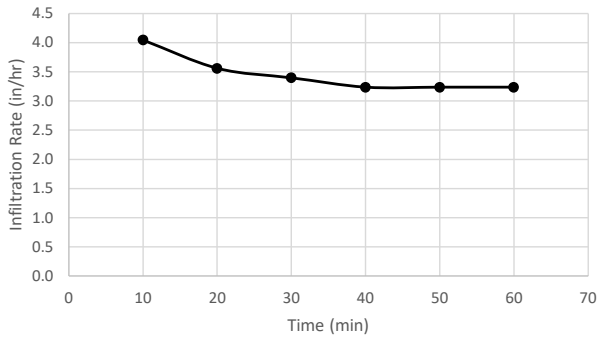
SOIL PROFILE	
Depth (in-bls)	**Description**
0-22	Gray-brown fine sand (SP) w. rock fragments
22-36	Gray fine sand (SP), t/o clay
36-48	Brown/dark brown fine sand (SP) with hardpan
Groundwater not encountered	

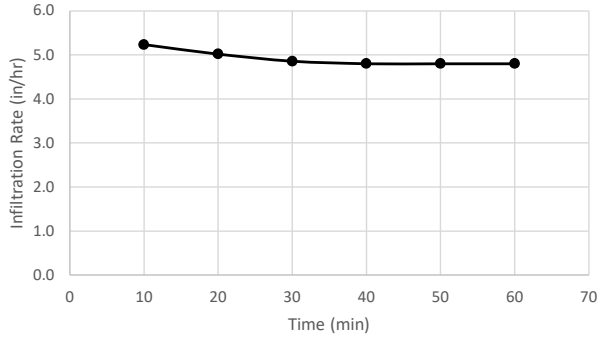
Area of Inner Ring (in^2):	113.1	**Test Depth (in):**	12	**Depth of Water - Inner Ring (in):**	6
Area of Annular Space (in^2):	339.3	**Ring Seating (in):**	6	**Depth of Water - Annular Space (in):**	6

Cycle No.	**Incremental Test Time (min)**	**INNER RING**			**ANNULAR SPACE**		
		Incremental Flow (ml)	**Incremental Flow** (in^3)	**Infiltration Rate** (in/hr)	**Incremental Flow** (ml)	**Incremental Flow** (in^3)	**Infiltration Rate** (in/hr)
1 (10 min)	1	125	7.6	4.05	485	29.6	5.23
2 (20 min)	1	110	6.7	3.56	465	28.4	5.02
3 (30 min)	1	105	6.4	3.40	450	27.5	4.86
4 (40 min)	1	100	6.1	3.24	445	27.2	4.80
5 (50 min)	1	100	6.1	3.24	445	27.2	4.80
6 (60 min)	1	100	6.1	3.24	445	27.2	4.80
		Stabilized Infiltration Rate (in /hr):		**3.2**	**Stabilized Infiltration Rate (in /hr):**		**4.8**

NOTES:
ASTM D3385 recommends using the rate of the inner ring as the vertical infiltration rate if the rates for the inner ring and the annular space differ, since such difference in rates is likely due to divergent flow.

The designer should include an appopriate factor of safety when using the presented infiltration rates in the design of drainage improvements.





APPENDIX IV

AACE Project Limitations and Conditions

ANDERSEN ANDRE CONSULTING ENGINEERS, INC.

Project Limitations and Conditions

Andersen Andre Consulting Engineers, Inc. has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made herein. Further, the report, in all cases, is subject to the following limitations and conditions:

VARIABLE/UNANTICIPATED SUBSURFACE CONDITIONS

The engineering analysis, evaluation and subsequent recommendations presented herein are based on the data obtained from our field explorations, at the specific locations explored on the dates indicated in the report. This report does not reflect any subsurface variations (e.g. soil types, groundwater levels, etc.) which may occur adjacent or between borings.

The nature and extent of any such variations may not become evident until construction/excavation commences. In the event such variations are encountered, Andersen Andre Consulting Engineers, Inc. may find it necessary to (1) perform additional subsurface explorations, (2) conduct in-the-field observations of encountered variations, and/or re-evaluate the conclusions and recommendations presented herein.

We at Andersen Andre Consulting Engineers, Inc. recommend that the project specifications necessitate the contractor immediately notifying Andersen Andre Consulting Engineers, Inc., the owner and the design engineer (if applicable) if subsurface conditions are encountered that are different from those presented in this report.

No claim by the contractor for any conditions differing from those expected in the plans and specifications, or presented in this report, should be allowed unless the contractor notifies the owner and Andersen Andre Consulting Engineers, Inc. of such differing site conditions. Additionally, we recommend that all foundation work and site improvements be observed by an Andersen Andre Consulting Engineers, Inc. representative.

SOIL STRATA CHANGES

Soil strata changes are indicated by a horizontal line on the soil boring profiles (boring logs) presented within this report. However, the actual strata's changes may be more gradual and indistinct. Where changes occur between soil samples, the locations of the changes must be estimated using the available information and may not be at the exact depth indicated.

SINKHOLE POTENTIAL

Unless specifically requested in writing, a subsurface exploration performed by Andersen Andre Consulting Engineers, Inc. is not intended to be an evaluation for sinkhole potential.

MISINTERPRETATION OF SUBSURFACE SOIL EXPLORATION REPORT

Andersen Andre Consulting Engineers, Inc. is responsible for the conclusions and recommendations presented herein, based upon the subsurface data obtained during this project. If others render conclusions or opinions, or make recommendations based upon the data presented in this report, those conclusions, opinions and/or recommendations are not the responsibility of Andersen Andre Consulting Engineers, Inc.

CHANGED STRUCTURE OR LOCATION

This report was prepared to assist the owner, architect and/or civil engineer in the design of the subject project. If any changes in the construction, design and/or location of the structures as discussed in this report are planned, or if any structures are included or added that are not discussed in this report, the conclusions and recommendations contained in this report may not be valid. All such changes in the project plans should be made known to Andersen Andre Consulting Engineers, Inc. for our subsequent re-evaluation.

USE OF REPORT BY BIDDERS

Bidders who are reviewing this report prior to submission of a bid are cautioned that this report was prepared to assist the owners and project designers. Bidders should coordinate their own subsurface explorations (e.g.; soil borings, test pits, etc.) for the purpose of determining any conditions that may affect construction operations. Andersen Andre Consulting Engineers, Inc. cannot be held responsible for any interpretations made using this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which may affect construction operations.

IN-THE-FIELD OBSERVATIONS

Andersen Andre Consulting Engineers, Inc. attempts to identify subsurface conditions, including soil stratigraphy, water levels, zones of lost circulation, “hard” or “soft” drilling, subsurface obstructions, etc. However, lack of mention in the report does not preclude the presence of such conditions.

LOCATION OF BURIED OBJECTS

Users of this report are cautioned that there was no requirement for Andersen Andre Consulting Engineers, Inc. to attempt to locate any man-made, underground objects during the course of this exploration, and that no attempts to locate any such objects were performed. Andersen Andre Consulting Engineers, Inc. cannot be responsible for any buried man-made objects which are subsequently encountered during construction.

PASSAGE OF TIME

This report reflects subsurface conditions that were encountered at the time/date indicated in the report. Significant changes can occur at the site during the passage of time. The user of the report recognizes the inherent risk in using the information presented herein after a reasonable amount of time has passed. We recommend the user of the report contact Andersen Andre Consulting Engineers, Inc. with any questions or concerns regarding this issue.

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

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