



**INVITATION FOR BID
IFB #13-1527CD
BLACKSTONE PARK EXPANSION SITE WORK AND
CONCESSION BUILDING**

Manatee County, a political subdivision of the State of Florida, (hereinafter the "County") will receive sealed Bids from individuals, corporations, partnerships, and other legal entities organized under the laws of the State of Florida or authorized to conduct business in the State of Florida.

NON-MANDATORY INFORMATION CONFERENCE

In order to insure that all prospective Bidders have sufficient information and understanding of the County's needs, an Information Conference will be held on: **Friday, August 30, 2013 at 10:00 AM** at the **Manatee County Administrative Center, 1112 Manatee Avenue West, 4th Floor Manatee Conference Room, Bradenton, FL 34205.** Attendance is not mandatory, but is highly encouraged.

NOTE: **Article B.05 Inspection of Site (page 00020-2)** – All potential Contractors, it is mandatory that a site visit be performed at the location to familiarize yourselves with the full scope of the construction site.

DEADLINE FOR CLARIFICATION REQUESTS: **September 9, 2013 at 3:00 PM**
(Reference Bid Article A.06)

TIME AND DATE DUE: **September 20, 2013 at 3:00 PM**

Important Note: Lobbying is prohibited (reference Bid Article A.08).

FOR INFORMATION CONTACT:

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(941) 749-3048, Fax (941) 749-3034
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Manatee County Financial Management Department
Purchasing Division

AUTHORIZED FOR RELEASE: WW

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SECTION 00010
INFORMATION TO BIDDERS

A.01 OPENING LOCATION

Sealed Bids will be **publicly opened** at **Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205** in the presence of County officials at the time and date stated, or soon thereafter. All Bidders or their representatives are invited to be present.

Any Bids received after the stated time and date will not be considered. It shall be the sole responsibility of the Bidder to have their Bid **delivered to the Manatee County Purchasing Division** for receipt on or before the stated time and date. If a Bid is sent by **U.S. Mail**, the Bidder shall be responsible for its timely delivery to the Purchasing Division. Bids delayed by mail shall not be considered, shall not be opened at the public opening, and arrangements shall be made for their return at the respondent's request and expense.

A.02 SEALED & MARKED

One original and two copies of your **signed Bid** shall be submitted in one **sealed** package, clearly marked on the outside **"Sealed Bid #13-1527CD- Blackstone Park Expansion Site Work and Concession Building"** with your company name.

Address package to: Manatee County Purchasing Division
1112 Manatee Avenue West, Suite 803
Bradenton, Florida 34205

A.03 SECURING OF DOCUMENTS

Complete individual copies of the Bidding documents for the project and/or products can be obtained, free of charge, at the Manatee County Property Management Department, 1112 Manatee Avenue West, Suite 868 , Bradenton, FL 34205; (941) 748-4501, extension 3097 or 3003. Documents may be obtained between the hours of 8:00 AM and 4:00 PM Monday through Friday, with the exception of holidays. Complete set of the Bidding document must be used in preparing Bids. The County assumes no responsibility for errors and misinterpretations resulting from the use of incomplete sets of Bidding documents.

A.04 BID DOCUMENTS

Bids on <http://www.mymanatee.org>, Bid documents and the Notices of Source Selection related to those Bids are available for download in a portable document format (.PDF) file on the Manatee County web page on the Purchasing tab under "Bids." You may view and print these files using Adobe Acrobat software. You may download a free copy of this software (Adobe) from the Owner's web page if you do not have it.

A.04 BID DOCUMENTS (Continued)

Manatee County collaborates with the Manatee Chamber of Commerce on distributing solicitations using the RFP Tool web page on the Chambers website: <http://www.Manateechamber.com> to post Bid documents in a portable document format (.PDF) file. This step is in addition to the posting on Manatee County Government web pages.

Manatee County may also use an internet service provider to distribute Bids. A link to that service, <http://www.DemandStar.com>, is provided on this web site under the Tab "DemandStar". Participation in the DemandStar system is not a requirement for doing business with Manatee County.

Note: The County posts the Notice of Source Selection seven (7) calendar days prior to the effective date of the Award.

IT IS THE RESPONSIBILITY OF EACH CONTRACTOR, PRIOR TO SUBMITTING THEIR BID, TO CONTACT THE MANATEE COUNTY PURCHASING DIVISION (see contact information on page one of this document) TO DETERMINE IF ADDENDA WERE ISSUED AND TO MAKE SUCH ADDENDA A PART OF THEIR BID .

A.05 MODIFICATION OF BID SPECIFICATIONS

If a Bidder wishes to recommend changes to the Bid specifications, the Bidder shall furnish in writing, data and information necessary to aid the Owner in evaluating the request to modify the specifications. The Owner is not obligated to make any changes to the Bid specifications. Unless an addendum is issued, the Bid specifications shall remain unaltered. **Bidders must fully comply with the Bid specifications, terms, and conditions.**

A.06 DEADLINE FOR CLARIFICATION REQUESTS

September 9, 2013 at 3:00 PM shall be the deadline to submit all inquiries, suggestions, or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids to the Manatee County Purchasing Division.

This deadline has been established to maintain fair treatment for all potential Bidders, while maintaining the expedited nature of the Economic Stimulus that the contracting of this Work may achieve.

A.07 CLARIFICATION & ADDENDA

Each Bidder shall examine all Invitation for Bid documents and shall judge all matters relating to the adequacy and accuracy of such documents. Any inquiries, suggestions or requests concerning interpretation, clarification or additional information pertaining to the Invitation for Bids shall be made through the Manatee County Purchasing Division. The County shall not be responsible for oral interpretations given by any County employee, representative, or others. The

A.07 CLARIFICATION & ADDENDA (Continued)

issuance of a written addendum is the only official method whereby interpretation, clarification or additional information can be given.

If any addenda are issued to this Invitation for Bid, the County will broadcast the addenda on the DemandStar distribution system to "Planholders" on this web service, and post the documents on the Purchasing Division's web page at <http://www.mymanatee.org> which can be accessed by clicking on the "Purchasing" button and then clicking on the "Bids" button. It shall be the responsibility of each Bidder, prior to submitting their Bid, to contact Manatee County Purchasing (see contact on page 1) to determine if addenda were issued and to make such addenda a part of their Bid.

A.08 LOBBYING

After the issuance of any Invitation for Bid, prospective Bidders, or any agent, representative or person acting at the request of such Bidder shall not contact, communicate with or discuss any matter relating in any way to the Invitation for Bid with any officer, agent or employee of Manatee County other than the Purchasing Official or as directed in the Invitation for Bid. This prohibition includes the act of carbon copying officers, agents or employees of Manatee County on email correspondence. This requirement begins with the issuance of an Invitation for Bid, and ends upon execution of the final Contract or when the invitation has been canceled. Violators of this prohibition shall be subject to sanctions as provided in the Manatee County Purchasing Code of Law Chapter 2-26.

A.09 UNBALANCED BIDDING PROHIBITED

Manatee County recognizes that large and/or complex projects will often result in a variety of methods, sources, and prices. However, where in the opinion of the County such variation does not appear to be justified, given Bid specifications and industry and market conditions, the Bid will be presumed to be unbalanced. Examples of unbalanced Bids will include:

1. Bids showing omissions, alterations of form, additions not specified or required conditional or unauthorized alternate Bids.
2. Bids quoting prices that substantially deviate, either higher or lower, from those included in the Bids of competitive Bidders for the same line item unit costs.
3. Bids where the unit costs offered are in excess of or below reasonable cost analysis values.

A.09 UNBALANCED BIDDING PROHIBITED (Continued)

In the event the County determines that a Bid is presumed unbalanced, it will request the opportunity to, and reserves the right to, review all source quotes, Bids, price lists, letters of intent, etc., which the Bidder obtained and upon which the Bidder relied upon to develop the Bid. The County reserves the right to reject as non-responsive any presumptive unbalanced Bids where the Bidder is unable to demonstrate the validity and/or necessity of the unbalanced unit costs.

A.10 FRONT END LOADING OF BID PRICING PROHIBITED

Prices offered for performance and/or acquisition activities to occur early in the project schedule, such as mobilization; clearing and grubbing; or maintenance of traffic; that are substantially higher than pricing of competitive Bidders within the same portion of the project schedule, will be presumed to be front end loaded. Front end loaded Bids could reasonably appear to be an attempt to obtain unjustified early payments creating a risk of insufficient incentive for the Contractor to complete the Work or otherwise creating an appearance of an under-capitalized Bidder.

In the event the County determines that a Bid is presumed to be front end loaded, it will request the opportunity to, and reserves the right to, review all source quotes, Bids, price lists, letters of intent, etc., which the Bidder obtained and upon which the Bidder relied upon to develop the pricing or acquisition timing for these Bid items. The County reserves the right to reject as non-responsive any presumptive front end loaded Bids where the Bidder is unable to demonstrate the validity and/or necessity of the front end loaded costs.

A.11 WITHDRAWAL OF OFFERS

Contractors may withdraw offers as follows: a) Mistakes discovered before the opening of a solicitation may be withdrawn by written notice from the Bidder submitting the offer. This request must be received in the office designated for receipt of offers in the solicitation document prior to the time set for delivery and opening of the offers. A copy of the request shall be retained and the unopened offer returned to that Contractor. b) After the responses to a solicitation are opened or a selection has been determined, but before a Contract is signed, a Contractor alleging a material mistake of fact may be permitted to withdraw their offer if: (1) the mistake is clearly evident on the solicitation document; or (2) the Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made. Request to withdraw an offer must be in writing and approved by the Purchasing Official.

A.12 IRREVOCABLE OFFER

Any Bid may be withdrawn up until the date and time set for opening of the Bid. Any Bid not so withdrawn shall, upon opening, constitute an irrevocable offer for a period of ninety (90) days to sell to Manatee County the goods or services set forth in the attached specifications until one or more of the Bids have been duly accepted by the County.

A.13 BID EXPENSES

All expenses for making Bids to the County are to be borne by the Bidder.

A.14 RESERVED RIGHTS

The County reserves the right to accept or reject any and/or all Bids, to waive irregularities and technicalities, and to request resubmission. Also, the County reserves the right to accept all or any part of the Bid and to increase or decrease quantities to meet additional or reduced requirements of the County. Any sole response received by the first submission date may or may not be rejected by the County depending on available competition and current needs of the County. For all items combined, the Bid of the lowest responsive, responsible Bidder will be accepted, unless all Bids are rejected. The lowest responsible Bidder shall mean **that Bidder who makes the lowest Bid to sell goods and/or services of a quality which** meets or exceeds the quality of goods and/or services set forth in the attached specifications or otherwise required by the County, and who is fit and capable to perform the Bid as made.

To be responsive, a Bidder shall submit a Bid which conforms in all material respects to the requirements set forth in the Invitation for Bid. To be a responsible Bidder, the Bidder shall have the capability in all respects to perform fully the Contract requirements, and the tenacity, perseverance, experience, integrity, reliability, capacity, facilities, equipment, and credit which will assure good faith performance. Also, the County reserves the right to make such investigation as it deems necessary to determine the ability of any Bidder to furnish the service requested. Information the County deems necessary to make this determination shall be provided by the Bidder. Such information may include, but shall not be limited to current financial statements, verification of availability of equipment and personnel, and past performance records.

A.15 APPLICABLE LAWS

Bidder must be authorized to transact business in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Manatee County will apply to any resulting Agreement. Any involvement with any Manatee County procurement shall be in accordance with Manatee County Purchasing Ordinance as amended. Any actual or prospective Bidder who is aggrieved in connection with the solicitation or award of a Contract may protest to the Board of County Commissioners of Manatee County as required in Manatee County Code of Laws.

A.16 COLLUSION

By offering a submission to this Invitation for Bid, the Bidder certifies that he has not divulged, discussed or compared their Bid with other Bidder, and has not colluded with any other Bidder or parties to this Bid whatsoever. Also, Bidder certifies, and in the case of a joint Bid each party thereto certifies as to their own organization, that in connection with this Bid:

A.16 COLLUSION (Continued)

- a. any prices and/or cost data submitted have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices and/or cost data, with any other Bidder or with any competitor;
- b. any prices and/or cost data quoted for this Bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder, prior to the scheduled opening, directly or indirectly to any other Bidder or to any competitor;
- c. no attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a Bid for the purpose of restricting competition;
- d. the only person or persons interested in this Bid, principal or principals is/are named therein and that no person other than therein mentioned has any interest in this Bid or in the Contract to be entered into; and
- e. no person or agency has been employed or retained to solicit or secure this Contract upon an agreement or understanding or a commission, percentage, brokerage, or contingent fee excepting bona fide employees or established commercial agencies maintained by Bidder for purpose of doing business.

A.17 CODE OF ETHICS

With respect to this Bid, if any Bidder violates, directly or indirectly, the ethics provisions of the Manatee County Purchasing Ordinance and/or Florida criminal or civil laws related to public procurement, including but not limited to Florida Statutes Chapter 112, Part II, Code of Ethics for Public Officers and Employees, such Bidder will be disqualified from eligibility to perform the Work described in this Invitation for Bid, and may also be disqualified from furnishing future goods or services to, and from submitting any future Bids to supply goods or services to, Manatee County.

By submitting a Bid, the Bidder represents to the County that all statements made and materials submitted are truthful, with no relevant facts withheld. If a Bidder is determined to have been untruthful in its Bid or any related presentation, such Bidder will be disqualified from eligibility to perform the Work described in this Invitation for Bid, and may also be disqualified from furnishing future goods or services to, and from submitting any future Bids to supply goods or services to, Manatee County.

A.18 BID FORMS

Bids must be submitted on attached County forms, although additional pages may be attached. **Bidders must fully complete all pages of the Bid Forms. Bid Forms must be executed by an authorized signatory who has the legal authority to make the offer and bind the company. Bidders must fully comply with all Bid specifications, terms and conditions.** Failure to comply shall result in Contract default, whereupon, the defaulting Contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

A.19 LEGAL NAME

Bids shall clearly indicate the legal name, address and telephone number of the Bidder. Bids shall be signed above the typed or printed name and title of the signer. The signer must have the authority to bind the Bidder to the submitted Bid.

A.20 PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES

A person or affiliate who has been placed on the State's convicted vendor list following a conviction for a public entity crime, as that term is defined in Florida Statute (F.S.) § 287.133, may not submit a Bid, Proposal, or reply on a Contract to provide any goods or services to a public entity; 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 F.S. § 287.017 for CATEGORY TWO for a period of thirty-six (36) months following the date of being placed on the convicted list.

In addition, the Manatee County Code of Laws prohibits the award of any Contract to any person or entity who/which has, within the past five (5) years, been convicted of, or admitted to in court or sworn to under oath, a public entity crime or of any environmental law that, in the reasonable opinion of the Purchasing Official, establishes reasonable grounds to believe the person or business entity will not conduct business in a responsible matter. To insure compliance with the foregoing, the Code requires all persons or entities desiring to Contract with the County to execute and file with the Purchasing Official an affidavit, executed under the pain and penalties of perjury, confirming that person, entity and any person(s) affiliated with the entity, does not have such a record and is therefore eligible to seek and be awarded business with the County. In the case of a business entity other than a partnership or a corporation, such affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, such affidavit shall be executed by the general partner(s). A Public Contracting and Environmental Crimes Certification form is attached for this purpose.

A.21 DISCOUNTS

Any and all discounts must be incorporated in the prices contained in the Bid and not shown separately. The prices as shown on the Bid Form shall be the price used in determining Award.

A.22 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Exempt Cert. No. 59-78-0089K; FL Sales Tax Exempt Cert. No. 85-8012622206C-6); therefore, the Contractor is prohibited from delineating a separate line item in his Bid for any sales or service taxes. Nothing herein shall affect the Contractor's normal tax liability.

A.23 DESCRIPTIVE INFORMATION

Unless otherwise specifically provided in the specifications, all equipment, materials and articles incorporated in the Work covered by this Contract shall be new and of the most suitable grade for the purpose intended. Unless otherwise specifically provided in the specifications, reference to any equipment, material, article or patented process, by trade name, brand name, make or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition.

A.24 AMERICANS WITH DISABILITIES ACT

The Board of County Commissioners of Manatee County, Florida, does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of the County's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring reasonable accommodation for an **Information Conference** or **Bid Opening** should contact the person named on the first page of this Bid document at least twenty-four (24) hours in advance of either activity.

A.25 EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

In accordance with the provisions of Title VI of the Civil Rights Act of 1964 and Title 15, Part 8 of the Code of Federal Regulations, Manatee County hereby notifies all prospective offerors that they will affirmatively ensure minority business enterprises will be afforded full opportunity to participate in response to this advertisement and will not be discriminated against on the grounds of race, color or national origin in consideration for an Award of Contract.

A.26 MBE/WBE

The State of Florida, **Office of Supplier Diversity** provides the certification process and the database for identifying certified MBE/WBE firms. This service may be directly accessed at: <http://www.osd.dms.state.fl.us/iframe.htm>

If you have any questions regarding this State service, please contact their office at (850) 487-0915.

A.27 MATHEMATICAL ERRORS

In the event of multiplication/extension error(s), the unit price shall prevail. In the event of addition error(s) the extension totals will prevail. All Bids shall be reviewed mathematically and corrected, if necessary, using these standards, prior to additional evaluation.

A.28 DISCLOSURE

Upon receipt, all inquiries and responses to inquiries related to this Invitation for Bid becomes "Public Records", and shall be subject to public disclosure consistent with Chapter 119, Florida Statutes.

Bids become subject to disclosure thirty (30) days after the opening or if a notice of intended Award decision is made earlier than this time as provided by F.S. 119.071(1)(b). No announcement or review of the offer shall be conducted at the public opening.

Based on the above, the County will receive Bids at the date and time stated, and will make public at the opening the names of the business entities of all that submitted an offer and any amount presented as a total offer without any verification of the mathematics or the completeness of the offer.

If the County rejects all Bids and concurrently notices its intent to reissue the solicitation, the rejected Bids are exempt from public disclosure until such time as the County provides notice of an intended decision concerning the reissued solicitation or until the County withdraws the reissued solicitation. A Bid is not exempt for longer than 12 months after the initial notice rejecting all Bids.

NOTE: ANY OR ALL STATEMENTS CONTAINED IN THE FOLLOWING SECTIONS: BASIS OF AWARD, TERMS AND CONDITIONS OF THE CONTRACT, OR SPECIFICATIONS, WHICH VARY FROM THE INFORMATION TO BIDDERS, SHALL HAVE PRECEDENCE.

END OF SECTION A

SECTION 00020
BASIS OF AWARD

B.01 BASIS OF AWARD

Award shall be to the lowest, responsive, responsible Bidder meeting specifications and having the lowest Total Bid Price for **Bid "A"** for the requirements listed on the Bid Form for the Work as set forth in this Invitation for Bid. Bid prices shall include costs for furnishing all labor, equipment and/or materials for the completion of the Work in accordance with and in the manner set forth and described in the Contract documents to the County's satisfaction within the prescribed time.

Should the County choose to award any or all of the alternate items for the Concession Building, the award shall be made to the lowest, responsive, and responsible bidder including any alternate bid items chosen.

Only one schedule for Completion of the Work shall be considered. Only one Award shall be made.

NOTE: Inspection of the site is a pre-requisite to be considered for award of this Bid.

In evaluating Bids, the County shall consider the qualifications of the Bidders; and if required, may also consider the qualifications of the Subcontractors, Suppliers, and other persons and organizations proposed. County may also consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work.

Whenever two or more Bids are equal with respect to price, the Bid received from a local business shall be given preference in Award. Whenever two or more Bids which are equal with respect to price are received, and neither of these Bids are from a local business, the Award shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public.

B.02 SUBCONTRACTORS

Subcontractors shall be bound by the terms and conditions of this Contract insofar as it applies to their work, but this shall not relieve the prime Contractor from the full responsibility of the County for the proper completion of all Work to be executed under this Contract.

The employment of unauthorized aliens by any Contractor is considered a violation of Section 274 (e) of the Immigration and Employment Act. If the Contractor knowingly employs unauthorized aliens, such violation shall be cause for unilateral cancellation of this Agreement.

B.03 QUALIFICATIONS OF BIDDERS

No person who is not certified or registered as a General Contractor pursuant to Florida Statutes, Chapter 489 on the day the Bid is submitted, and who has continuously held that certification or registration for a period of at least three (3) consecutive years immediately prior to the day the Bid is submitted, may be qualified to bid on this project. In the event that a Bidder is a business organization, including a partnership, corporation, business trust or other legal entity as set forth in F.S. 489.119(2), then the Bidder shall only be qualified to bid on this project if: 1) the Bidder (the business organization) is on the day the Bid is submitted, and for at least three (3) consecutive years immediately prior to the day the Bid is submitted has been, in continuous existence, properly licensed and registered as required by Florida law; and 2) the Bidder, on the day the Bid is submitted, has a certified or registered Qualifying Agent, as required by F.S. 489.119, and that Qualifying Agent has been the same Qualifying Agent of the Bidder for a period of at least three (3) consecutive years immediately prior to the day the Bid is submitted.

A complete list of all Subcontractors proposed for any portion of the Work may be requested of any Bidder deemed necessary by the County. Subcontracts shall be awarded only to those Subcontractors considered satisfactory by the County.

B.04 PREPARATION OF CONTRACT

A written notice confirming Award or recommendation thereof will be forwarded to the successful Bidder accompanied by the required number of unsigned counterparts of the Agreement. Within ten (10) days thereafter, successful Bidder shall sign and deliver the required number of counterparts of the Agreement with any other required documents to County. (Note: Contract must be approved in accordance with the Manatee County Code of Laws, Chapter 2-26, and the Administrative Standards and Procedures Manual approved by the County Administrator).

B.05 INSPECTION OF SITE

Inspection of the site is a requirement to be considered for award of this Bid. Prior to submitting a Bid, each Bidder shall examine the site and all conditions thereon fully familiarizing themselves with the full scope of the project. Failure to become familiar with site conditions will in no way relieve the successful Bidder from the necessity of furnishing any materials or performing any Work that is required to complete the project in accordance with the plans and specifications. Site visit (s) shall be acknowledged in Section 00300, Bid Form page # 00300-1.

END OF SECTION B

SECTION 00030
GENERAL TERMS AND CONDITIONS OF THE CONTRACT

C.01 CONTRACT FORMS

The Agreement resulting from the acceptance of a Bid shall be in the form of the Agreement stated in this Bid.

C.02 ASSIGNMENT OF CONTRACT

Contractor shall not assign, transfer, convey, sublet or otherwise dispose of this Contract or of his right, title, or interest therein, or his power to execute such Contract, or to assign any monies due or to become due there under to any other person, firm or corporation unless first obtaining the written consent of the County. The giving of such consent to a particular Subcontractor assignment shall not dispense with the necessity of such consent to any further or other assignment.

C.03 COMPLETION OF WORK

The Work will be completed and ready for final inspection within the specified calendar days from the date the Contract time commences to run. Only one Bid shall be considered based on **210 calendar days**. Only one Award shall be made.

C.04 LIQUIDATED DAMAGES

If the Contractor refuses or fails to prosecute the Work, or any separable part thereof, with such diligence as will hinder its completion within the time specified, the County may seek damages. The actual damages for delay will be impossible to determine and in lieu thereof, the Contractor shall pay to the County the sum of **\$1148** as fixed, agreed, and liquidated damages for each calendar day of the delay until the Work is finally accepted by the County and the Contractor and his Surety shall be liable for the amount thereof.

C.05 PAYMENT

Contractor may apply for partial payment on monthly estimates, based on the amount of work done or completed in compliance with the provisions of the Contract. Contractor shall submit an application, on a standard pay application form provided or approved by the County, of an approximate estimate of the proportionate value of the Work done, items and locations of the Work performed up to and including the last day of the period then ending. The County will then review said estimate and make any necessary revisions so that the estimate can receive approval for payment. If the Contractor and the County do not agree on the approximate estimate of the proportionate value of the Work done for any pay period, the determination of the County will be binding. The amount of said estimate after deducting any required retainage and all previous payments shall be due and payable to the Contractor, twenty (20) business days if County is its own Engineer of Record (EOR) or twenty-five (25) business days if outside agent

C.05 PAYMENT (Continued)

approval is required after the pay estimate has been approved by the agent for the County.

In accordance with the Prompt Payment Act, F.S. § 218.735(7), a Punch List shall be formulated.

Time allowed for development of punch list:

1. Awarded Contracts with an estimated cost of less than \$10 million will be within thirty (30) calendar days after reaching substantial completion. Substantial completion is defined as reaching beneficial occupancy or use.
2. Awarded Contracts with a cost of \$10 million dollars or more will be within thirty (30) calendar days OR if extended by Contract, up to sixty (60) calendar days after reaching substantial completion. Substantial completion is defined as reaching beneficial occupancy or use.

The final Contract completion date must be at least thirty (30) days after delivery of the list of items. If the list is not provided to the awarded Contractor by the agreed upon date, the Contract completion time must be extended by the number of days the County exceeds the delivery date.

It is the Contractor's responsibility for the care of the materials. Any damage to or loss of said materials is the full responsibility of the Contractor. Any periodical pay estimate signed by the Contractor shall be final as to the Contractor for any or all Work covered by the periodical pay estimate.

Any requests for payment of materials stored on site must be accompanied with a paid receipt. The 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 the County at the time of payment free and clear of all liens, claims, security interests and encumbrances (hereafter referred to as "Liens").

The Contractor agrees to furnish an affidavit stating that all laborers, material men, and Subcontractors have been paid on the project for Work covered by the application for payment and that a partial or complete release of lien, as may be necessary, be properly executed by the material men, laborers, Subcontractors on the project for Work covered by the application for payment, sufficient to secure the County from any claim whatsoever arising out of the aforesaid Work.

When the Contractor has completed the Work in compliance with the terms of the Contract documents, he shall notify the County in writing that the project is ready for final inspection. The County will then advise the Contractor as to the arrangements for final inspection and what Work, if any, is required to prepare the project or a portion thereof for final inspection. When the County determines the project or portion thereof is ready for final inspection, the County shall perform same. Upon completion of final inspection, the County will notify Contractor of all particulars in

C.05 PAYMENT (Continued)

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. When all such errors have been corrected, a final re-inspection will be made. The process will be repeated until, in the opinion of the County, the project has been completed in compliance with the terms of the Contract documents.

When final acceptance has been made by the County, the County will make final payment of the Contract amount, plus all approved additions, less approved deductions and previous payments made. The Contract will be considered complete when all Work has been finished, the final inspection made, approved as-builts received, and the project finally accepted in writing by the County. The Contractor's responsibility shall then terminate except as otherwise stated.

C.06 RETAINAGE

A retainage of 10% of the total Work in place shall be withheld until 50% complete. After 50% completion, the retainage shall be reduced to 5% of the total Work in place until final completion and acceptance of the Work by the County. Upon final acceptance, the remaining retainage shall be included in the final payment.

C.07 WARRANTY AND GUARANTEE PROVISIONS

All work, materials, and equipment furnished as defined herein shall be guaranteed and warranted by the Contractor for a minimum period of three (3) years, unless otherwise specified, from final acceptance by the County to be free from defects due either to faulty materials or equipment or faulty workmanship.

All materials, equipment, and workmanship furnished and installed by the Contractor is warranted and guaranteed by the Contractor to meet the required standards and to accomplish the purposes and functions of the project as defined, detailed, and specified herein.

The County shall, following discovery thereof, promptly give written notice to the Contractor of faulty materials, equipment, or workmanship within the period of the guarantee and the Contractor shall promptly replace any part of the faulty equipment, material, or workmanship at his own cost. These warranty and guarantee provisions create no limitations on the County as to any claims or actions for breach of guaranty or breach of warranty that the County might have against parties other than the Contractor, and do not constitute exclusive remedies of the County against the Contractor.

C.08 ROYALTIES AND PATENTS

The Contractor shall pay all royalties and license fees for equipment or processes in conjunction with the equipment and/or services being furnished. Contractor shall defend all suits or claims for infringement of any patent, trademark or copyright, and shall save the County harmless from loss on account thereof, including costs and attorney's fees.

C.09 AUTHORIZED PRODUCT REPRESENTATION

The Contractor, by virtue of submitting the name and specifications of a manufacturer's product, will be required to furnish the named manufacturer's product. Failure to perform accordingly may, in the County's sole discretion, be deemed a breach of Contract, and shall constitute grounds for the County's immediate termination of the Contract.

C.10 REGULATIONS

It shall be the responsibility of the Bidder to assure compliance with any OSHA, EPA and/or other federal or State of Florida rules, regulations or other requirements, as each may apply.

C.11 CANCELLATION

Any failure of the Contractor to furnish or perform the Work (including, but not limited to, commencement of the Work, failure to supply sufficient skilled workers or suitable materials or equipment) in accordance with the Contract, the County may order the stop of the Work, or any portion thereof, until the cause for such order has been eliminated. If the Contractor persistently fails to perform the Work in accordance with the Contract, the County reserves the right to terminate the Contract and select the next qualified Bidder or re-advertise this procurement in part or in whole. The County reserves the right to cancel all or any undelivered or unexecuted portion of this Contract with or without cause.

C.12 INDEMNIFICATION

The Contractor covenants and agrees to indemnify and save harmless the County, its agents and employees, from and against all claims, suits, actions, damages, causes of action, or judgments arising out of the terms of the resulting Agreement for any personal injury, loss of life, or damage to the property sustained as a result of the performance or non-performance of services or delivery of goods; from and against any orders, judgments, or decrees, which may be entered against the County, its agents or employees; and from and against all costs, attorney's fees, expenses and other liabilities incurred in the defense of any such claim, suit or action, and the investigation thereof. Nothing in the Award, resulting Agreement, Contract or Purchase Order shall be deemed to affect the rights, privileges and immunities of the County as set forth in F.S. § 768.28.

C.13 MANUALS, SCHEMATICS, HANDBOOKS (IF APPLICABLE)

All manuals, schematics and handbooks shall be provided which are applicable to the equipment delivered. An operators manual, parts manual and technician manual must also be provided. Parts lists (manuals) must include OEM part numbers for items not manufactured by the Bidder. Contractor shall furnish two (2) copies of each.

C.14 INSURANCE

The Contractor will not commence Work under a Contract until all insurance under this section and such insurance coverage as might be required by the County has been obtained. The Contractor shall obtain, and submit to purchasing within ten (10) calendar days of request, at his expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy):

a. Workers' Compensation/Employers' Liability

Part One - There shall be no maximum limit (other than as limited by the applicable statute) for liability imposed by Florida Workers' Compensation Act or any other coverage required by the Contract documents which are customarily insured under Part One of the standard Workers' Compensation Policy.

Part Two - The minimum amount of coverage required by the Contract documents which are customarily insured under Part Two of the standard Workers' Compensation Policy shall be:

(Each Accident)	<u>\$100,000</u>
(Disease-Policy Limit)	<u>\$500,000</u>
(Disease-Each Employee)	<u>\$100,000</u>

b. Commercial General Liability

The limits are to be applicable only to Work performed under this Contract and shall be those that would be provided with the attachment of the Amendment of Limits of Insurance (Designated Project or Premises) endorsement (ISO Form CG 25 03) a Commercial General Liability Policy with the following minimum limits.

General Aggregate:	
Products/Completed Operations Aggregate	<u>\$1,000,000</u>
Personal and Advertising Injury	<u>\$1,000,000</u>
Each Occurrence	<u>\$1,000,000</u>
Fire Damage (Any One Fire)	<u>\$Nil</u>
Medical Expense (Any One Person)	<u>\$Nil</u>

ADDITIONAL INSURED: Manatee County, a political subdivision of the State of Florida, shall be specifically named as additional insured on the Commercial General Liability Policy.

c. Business Auto Policy

Each Occurrence Bodily Injury and Property Damage Liability Combined	<u>\$300,000</u>
Annual Aggregate (if applicable)	<u>\$1,000,000</u>

ADDITIONAL INSURED: Manatee County, a political subdivision of the State of Florida, shall be specifically named as additional insured on the Business Auto Policy.

C.14 INSURANCE (Continued)

d. County's Protective Liability Coverage

The minimum Owner's Protective OPC Policy limits per occurrence and, if subject to an aggregate, annual aggregate to be provided by the Contractor shall be the same as the amounts shown above as the minimum per occurrence and general policy aggregate limits respectively required for the Commercial General Liability coverage. The limits afforded by the OPC Policy and any excess policies shall apply only to the County and the County's officials, officers, agents and employees and only to claims arising out of or in connection with the Work under this Contract.

e. Property Insurance

If this Contract includes construction of or additions to above ground buildings or structures, Contractor shall provide "**Builder's Risk**" insurance with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

f. Installation Floater

If this Contract does not include construction of or additions to above ground building or structures, **but does involve** the installation of machinery or equipment, Contractor shall provide an "**Installation Floater**" with the minimum amount of insurance to be 100% of the value of such addition(s), building(s), or structure(s).

g. Certificates of Insurance and Copies of Policies

Certificates of Insurance in triplicate evidencing the insurance coverage specified herein shall be filed with the Purchasing Official before operations are begun. The required certificates of insurance shall name the types of policy, policy number, date of expiration, amount of coverage, companies affording coverage, and also shall refer specifically to the Bid number and title of the project. All insurance policies required herein shall be issued by companies that are authorized to do business under the laws of the State of Florida and hold an A.M. Best rating of A- or better. Insurance, as specified herein, shall remain in force and effect for the duration of the project including any warranty periods.

h. **Complete Policies:** The entire and complete insurance policies required herein shall be provided to the County on request.

If the initial insurance expires prior to the completion of operations and/or services by the Contractor, renewal certificates of insurance and required copies of policies shall be furnished by the Contractor and delivered to the Purchasing Official thirty (30) days prior to the date of their expiration. Nothing herein shall in any manner create any liability of the County in connection with any claim against the Contractor for labor, services, or materials, or of Subcontractors; and nothing herein shall limit the liability of the Contractor or Contractor's sureties to the County or to any workers, suppliers, material men or employees in relation to this Contract.

C.14 INSURANCE (Continued)

i. Certification Requirements – In order for the certificate of insurance to be accepted it must comply with the following:

1. The certificate holder shall be:

**Manatee County Board of Commissioners, a political subdivision of the
State of Florida
P.O. Box 1000
Bradenton, FL 34206-1000**

2. Certificate shall be mailed to:

**Manatee County Purchasing Division
1112 Manatee Avenue West, Suite 803
Bradenton, FL 34205
Attn: Chris Daley-CPPB, Contract Specialist**

C.15 BID BOND/CERTIFIED CHECK

By offering a submission to this Invitation for Bid, the Bidder agrees should the Bidder's Bid be accepted, **to execute the form of Contract and present the same to Manatee County for approval within ten (10) calendar days after notice of Intent to Award.** The Bidder further agrees that failure to execute and deliver said form of Contract **within ten (10) calendar days** will result in damages to Manatee County and as guarantee of payment of same a Bid Bond/Certified Check shall be enclosed within the submitted sealed Bid in the amount of five (5%) percent of the total amount of the Bid. The Bidder further agrees that in case the Bidder fails to enter into a Contract, as prescribed by Manatee County, the Bid Bond/Certified Check accompanying the Bid shall be forfeited to Manatee County as agreed liquidated damages. If the County enters into a Contract with a Bidder, or if the County rejects any and/or all Bids, accompanying bond will be promptly returned.

C.16 PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall furnish surety bonds using the Public Construction Bond form prescribed in F.S. § 255.05, which is provided herein, as security for faithful performance of the Contract awarded as a result of this Bid and for the payment of all persons performing labor and/or furnishing material in connection therewith. Failure to provide the required bonds on the prescribed form may result in successful Bidder being deemed nonresponsive. Bonds must be in the form prescribed in F.S. § 255.05, and must not contain notice, demand or other terms and conditions, including informal pre-claim meetings, not provided for in F.S. § 255.05.

Surety of such bonds shall be in an amount equal to the Bid Award (100% each) issued by a duly authorized and nationally recognized surety company, authorized to do business in the State of Florida, satisfactory to this County. The attorney-in-fact who signs the bonds must file with the bonds, a certificate and effective dated copy of power-of-attorney. Performance and Payment Bonds shall be issued to Manatee County, a political subdivision of the State of Florida, within ten (10) calendar days after notification of Intent to Award.

C.16 PERFORMANCE AND PAYMENT BONDS (Continued)

In addition, pursuant to F.S. § 255.05(1)(b), prior to commencing Work, the Contractor shall be responsible and bear all costs associated to record the Performance and Payment Bond with the Manatee County Clerk of the Circuit Court. A certified copy of said recording shall be furnished to the Purchasing Division upon filing. Pursuant to F.S. § 255.05(1)(b), the County will make no payment to the Contractor until the Contractor has complied with this paragraph.

Furnishing of the recorded Performance and Payment Bonds shall be requisite to execution of a Contract with the County. Said Performance and Payment Bonds will remain in force for the duration of the Contract with the premiums paid by the Contractor. Failure of the successful Bidder to execute such Contract and to supply the required bonds shall be just cause for cancellation of the Award. The County may then contract with another acceptable Bidder or re-advertise this Invitation for Bid. If another Bidder is accepted, and notice given within ninety (90) days after the opening of the Bids, this acceptance shall bind the Bidder as though they were originally the successful Bidder.

Failure of the County at any time to require performance by the Contractor of any provisions set out in the Contract will in no way affect the right of the County, thereafter, to enforce those provisions.

C.17 NO DAMAGES FOR DELAY

No claim for damages or any claim other than for an extension of time shall be made or asserted against the County by reason of any delays. The Contractor shall not be entitled to an increase in the Total Contract Price or payment or compensation of any kind from the County or direct, indirect, consequential impact or other costs, expenses for damages, including but not limited to costs of acceleration or inefficiency arising because of delay, disruption, interference or hindrance from any cause whatsoever; provided, however, that this provision shall not preclude recovery or damages by the Contractor for hindrance or delays due solely to fraud, bad faith, or active interference on part of the County or its agents. Otherwise, the Contractor shall only be entitled to extensions of the Contract time as the sole and exclusive remedy for such resulting delay, in accordance with and to the extent specifically provided above.

C.18 NO INTEREST

Any monies not paid by the County when claimed to be due to the Contractor under this Contract shall not be subject to interest including prejudgment interest. Any monies not paid by the County when claimed to be due to the Contractor for damages awarded in the case of construction delays shall not be subject to prejudgment interest.

C.19 CONSTRUCTION OF CONTRACT

This Contract and the rights and responsibilities hereunder shall not be construed more strongly against either party, regardless of the extent to which such party may have participated in the preparation hereof.

C.20 BE GREEN

All Bidders are encouraged to use as many **environmentally preferable** "green" products, materials, supplies, etc. as possible in order to promote a safe and healthy environment. **Environmentally preferable are products or services that have a reduced adverse effect on the environment.** Provide detail of your organization's initiative and its ability to meet the goal of environmental sustainability.

END OF SECTION C

SECTION 00100
BID SUMMARY

D.01 THE WORK

The Work included in this Bid consists of all labor, materials, equipment and incidentals required to perform site work necessary for the expansion and construction of new little league ball fields, parking lot, and the construction of a new concession building at Blackstone Park located in Palmetto, Florida. The site work shall consist of, but not limited to, drainage, paving, earthwork, fencing, ball fields, batting cages, and construction of a new concession building.

For the earthwork portion of the Work, the County will provide two stockpiles of clean fill material consisting of 10,700 cubic yards and 2,600 cubic yards (truck measure) respectfully. The Contractor shall be responsible for importing all additional clean fill material to complete the project to finished grade elevations in accordance with the technical specifications and plans of the Invitation for Bids.

The successful Contractor shall furnish all shop drawings, working drawings, labor, materials, equipment, tools, services and incidentals necessary to complete all Work required by these specifications.

The successful Contractor shall perform the Work complete, in place and ready for continuous service and shall include any repairs, replacements, and/or restoration required as a result of damages caused prior to acceptance by the Owner.

The successful Contractor shall furnish and install all materials, equipment and labor which is reasonably and properly inferable and necessary for the proper completion of the Work, whether specifically indicated in the Bid documents or not.

D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS

The identity of Subcontractors, Suppliers, and other persons and organizations (including those who are to furnish the principal items of material and equipment) may be requested by the County for each Bid item from any of the Bidders; and the Bidder shall respond within five (5) days after the date of such request. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, persons or organization if requested by County. If County, after due investigation, has reasonable objection to any proposed Subcontractor, supplier, other person or organization, County may, before the Notice of Award is given, request the apparent successful Bidder to submit an acceptable substitute without an increase in Contract price or Contract time.

D.02 SUBCONTRACTORS, SUPPLIERS AND OTHERS (Continued)

If apparent successful Bidder declines to make any such substitution, County may award the Contract to the next lowest qualified Bidder that proposes to use acceptable Subcontractors, Suppliers, and other persons who County does not make written objection to. Contractor shall not be required to employ any Subcontractor, Supplier, other person or organization who Contractor has reasonable objection to.

Subcontractors shall be bound by the terms and conditions of this Contract insofar as it applies to their work, but this shall not relieve the prime Contractor from the full responsibility to the County for the proper completion of all Work to be executed under this Contract.

D.03 BIDS

Bids are to be submitted in **triplicate, one original and two copies**, upon the County supplied forms. All blank spaces must be filled in as noted with amounts extended and totaled and no changes shall be made in the wording of the forms or in the items mentioned therein. In the event a change is made in your submittal, the Bidder shall write its initials by the change. Any Bid may be rejected which contains any omissions, alterations, irregularities of any kind, or which shall in any manner fail to conform to Bid requirements.

A Bid made by an individual, either in his/her own or proper person or under a trade or firm name, shall be executed under the individual's signature. If made by a partnership, the Bid shall be executed by two or more of the general partners. If made by a corporation, the Bid shall be executed by its President or other legally authorized corporate officer or agent.

D.04 EXAMINATION OF BID DOCUMENTS AND SITE

It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Bid 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 codes, laws, and regulations that may affect costs, progress, performance, or furnishing of the Work; (d) study and carefully correlate Bidder's observations with the Bid documents; and (e) notify County of all conflicts, errors, or discrepancies in the Bid document.

Each Bidder may, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies, and obtain any additional information and data which pertain to the physical conditions 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 his Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Bid documents. County will provide each Bidder access to the site to conduct such explorations and tests.

D.04 EXAMINATION OF BID DOCUMENTS AND SITE (Continued)

Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and other lands designated for use by Contractor in performing the Work are identified in the Bid documents.

All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by County unless otherwise provided in the Bid documents.

D.05 MATERIALS AND WORKMANSHIP

All materials and apparatus required for this Work, except as specified otherwise, shall be new, of first class quality, and shall be furnished, delivered, connected and finished in every detail. Construction shall be prescribed by good industry practice and in accordance with manufacturer's recommendations for the type being installed.

Use skilled workman trained and experienced in the necessary trades and who are completely familiar with the specified requirements and the methods needed for proper performance of the Work of this section.

D.06 REGULATIONS AND MATERIAL DISPOSAL

It shall be the responsibility of the Contractor to assure compliance with any OSHA, EPA, federal, state, and/or local rules, regulations or other requirements as each may apply.

D.07 PROJECT CLOSE-OUT

Clean construction site and remove any and all excess materials. Correct any damages to property that may have occurred as a result of installation and/or delivery. Repair and patch all surfaces cut for installation. The Contractor shall remedy any deficiencies promptly should the County determine any Work is incomplete or defective.

When the County determines the Work is acceptable in accordance with this Invitation for Bid, the Contractor shall provide the close out submittals, including but not necessarily limited to the following:

- | | | |
|-------|-----------------------------------|-------------------|
| 1 set | Certificate of Warranties | |
| 1 set | Manufacturer's Product Literature | (when applicable) |
| 1 set | Project Record Drawings | |
| 1 set | Subcontractor Information | (when applicable) |

D.08 DISCRETIONARY WORK

This Bid item entails minor increases (that may be directed by staff) to existing Bid item quantities or minor modification items not bid which were unforeseen and necessary during the construction to provide a safe, complete project in accordance with Bid documents. (This will not affect the requirement for change orders involving major modifications to the project.) Payment for all Work under this item shall be made only at the County's discretion in order to satisfactorily complete the project. In general, this item is for unanticipated conflicts and/or design changes required during construction which are necessary to complete the project without changing the initial Scope of Work and without costly delays.

D.09 PROGRESS REQUIREMENTS

All Work done under this Contract shall be done with a minimum of inconvenience to the private property owners in the area. The Contractor shall coordinate his Work with private property owners such that existing utility services are maintained and they have access to their property at all times.

END OF SECTION D

SECTION 00150

MANATEE COUNTY LOCAL PREFERENCE LAW AND VENDOR REGISTRATION

E.01 Vendor Registration

All vendors are encouraged to register with Manatee County using the on-line "Vendor Registration" web page on www.mymanatee.org.

Enclosed are a copy of the current Manatee County law that details the County's Local Preference and the County's definition of a local business.

If you assert that your firm meets the stated definition of a local business, we ask that in addition to registering on the County's web page, you fill out the attached "**Affidavit As To Local Business Form**" that is included in this section, have the completed document notarized, and mail the original to the following address: Manatee County Purchasing Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205.

Your cooperation in registering your business with Manatee County will enhance our opportunities to identify sources for goods and services, plus identify local businesses. This information is used for soliciting quotations up to \$250,000.00 and for competitive solicitations of larger purchases.

You will note that Manatee County collaborates with the Manatee Chamber of Commerce, posting Bids on www.manatee-chamber.com as well as using the same vendor categories for registration.

Our staff can assist you with your registration as needed. Our office hours are 8:00 A.M. to 5:00 P.M., Monday through Friday on regular business days. Please call (941) 749-3014 if you wish to have a Purchasing staff member assist you.

Quick steps to registration: **www.mymanatee.org**

A link to "Purchasing" is listed under "Quick Links" on page one of the County web site.

On the left hand side of the Purchasing web page, click on "Vendor Registration".

This will bring up the Vendor Registration form for on-line input. Please note that the definition of a "local business" changed on March 17, 2009. The web page will be updated to include the current law which has been provided in this section of the Bid.

Thank you for reviewing this information and considering registering your business with Manatee County. Registration is not mandatory; however, by taking the time to register, you are helping the County to provide timely notifications of Quotation, Bid and Proposal opportunities to your business.

E.02 Section 2-26-6. Local preference, tie Bids, local business defined.

- a) Whenever a responsible local business Bidder and a responsible non-local business Bidder are found, upon the opening of Bids, to have both submitted the lowest responsive Bid, the Bid of the local Bidder shall be awarded the Contract. Should more than one responsible local business Bidder match the responsible non-local business Bidder's lowest responsive Bid, or should no responsible local business Bidder match the lowest responsive Bid but two or more responsible non-local business Bidders submit lowest responsive Bids for equal amounts, then the Award of the Contract shall be determined by a chance drawing, coin toss, or similar tie-breaking method conducted by the Purchasing Division and open to the public. Any Bidders seeking to be recognized as local businesses for purposes of this local business preference provision may be required by the terms of the Bid announcement to certify they meet the definition of local business set forth in this section, and to register as a local business with the County in the manner prescribed by the County to facilitate the County's ability to track the Award of Contracts to local businesses and to allow the County to provide future notifications to its local businesses concerning other Bidding opportunities.
- b) Nothing herein shall be deemed to prohibit the inclusion of requirements with respect to operating and maintaining a local place of business in any Invitation for Bids when the Bidder's location materially affects the provisions of the services or supplies that are required by the invitation.
- c) **Local business is defined as a business legally authorized to engage in the sale of the goods and/or services to be procured, and which certifies within its Bid that for at least six (6) months prior to the announcement of the solicitation of Bids it has maintained a physical place of business in Manatee, Desoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one full-time employee at that location.**
- d) **Each solicitation for Bids made by the County shall contain terms expressly describing the local business preference policies of the County, and shall provide that by electing to submit a Bid pursuant to an Invitation for Bid, all Bidders are deemed to understand and agree to those policies.**
- e) For all Contracts for architecture, professional engineering, or other professional services governed by Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, the County shall include the local business status of a firm among the factors considered when selecting which firms are "most highly qualified." In determining which firm is the "most qualified" for purposes of negotiating a satisfactory Contract, preference shall be given to a local business where all other relevant factors are equal.

E.02 Section 2-26-6. Local preference, tie Bids, **local business defined** (Continued)

f) Local preference shall not apply to the following categories of Contracts:

1. Goods or services provided under a cooperative purchasing agreement or similar "piggyback" contract;
2. Contracts for professional services subject to Florida Statute § 287.055, the Consultants' Competitive Negotiation Act, except as provided for in subsection (e) above;
3. Purchases or Contracts which are funded, in whole or in part, by a governmental or other funding entity, where the terms and conditions of receipt of the funds prohibit the preference;
4. Purchases or Contracts made pursuant to a non-competitive award process, unless otherwise provided by this section;
5. Any Bid announcement which specifically provides that the general local preference policies set forth in this section are suspended due to the unique nature of the goods or services sought, the existence of an emergency as found by either the County Commission or County Administrator, or where such suspension is, in the opinion of the County Attorney, required by law.

g) To qualify for local preference under this section, **a local business must certify to the County that it:**

1. Has not within the five (5) years prior to the Bid announcement admitted guilt or been found guilty by any court or state or federal regulatory enforcement agency of violation of any criminal law, or a law or administrative regulation regarding fraud;
2. Is not currently subject to an unresolved citation or notice of violation of any Manatee County Code provision, except citations or notices which are the subject of a current legal appeal, as of the date of the Bid announcement;
3. Is not delinquent in the payment of any fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, except any such sums which are the subject of a current legal appeal.

Ref: Ordinance 09-21 and 09-23 **PASSED AND DULY ADOPTED** in open session, with a quorum present and voting, on the 17th day of March, 2009.

END OF SECTION E

**MANATEE COUNTY GOVERNMENT
AFFIDAVIT AS TO LOCAL BUSINESS
(Complete and Initial Items B-F)**

A. Authorized Representative

I, [name] _____, am the [title] _____ and the duly authorized representative of: [name of business] _____, and that I possess direct personal knowledge to make informed responses to these certifications and the legal authority to make this Affidavit on behalf of myself and the business for which I am acting; and by electing to submit a Bid pursuant to this Invitation for Bids, shall be deemed to understand and agree to the local business preference policies of Manatee County; and that I have the direct knowledge to state that this firm complies with all of the following conditions to be considered to be a local business as required by the Manatee County Code of Law, Section 2-26-6.

B. Place of Business: I certify that the above business is legally authorized to engage in the sale of goods and/or services and has a physical place of business in Manatee, DeSoto, Hardee, Hillsborough, Pinellas or Sarasota County with at least one (1) fulltime employee at that location. The physical address of the location which meets the above criteria is: _____ [Initial] _____

Business Phone Number: _____

Email Address: _____

C. Business History: I certify that business operations began at the above physical address with at least one fulltime employee on [date] _____ [Initial] _____

D. Criminal Violations: I certify that within the past five (5) years of the date of this Bid announcement, this business has not admitted guilt nor been found guilty by any court or local, state or federal regulatory enforcement agency of violation of any criminal law or administrative regulation regarding fraud. [Initial] _____

E. Citations or Code Violations: I certify that this business is not currently subject to any unresolved citation or notice of violation of any Manatee County Code provision, with the exception of citations or notices which are the subject of a legal current appeal within the date of this Bid announcement. [Initial] _____

F. Fees and Taxes: I certify that this business is not delinquent in the payment of fines, liens, assessments, fees or taxes to any governmental unit or taxing authority within Manatee County, with the exception of those which are the subject of a current legal appeal. [Initial] _____

Each of the above certifications is required to meet the qualification of "local business" under Manatee County Code of Laws, 2-26-6.

Signature of Affiant _____

STATE OF FLORIDA
COUNTY OF _____

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

(Notary Seal) Signature of Notary: _____

Name of Notary: (Typed or Printed) _____

Personally Known ____ OR Produced Identification ____ Type of Identification Produced _____

Submit executed copy to Manatee County Purchasing Division - 1112 Manatee Avenue West - Suite 803 - Bradenton, FL 34205

SECTION 00300
BID FORM
(SUBMIT IN TRIPLICATE)

For: IFB #13-1527CD-BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING

TOTAL BID PRICE (BID "A"): _____
Based on a Completion Time of 210 calendar days

Only one schedule for Completion of the Work shall be considered. Only one Award shall be made.

We, the undersigned, hereby declare that we have carefully reviewed the Bid documents, and with full knowledge and understanding of the aforementioned herewith submit this Bid, meeting each and every specification, term, and condition contained in the Invitation for Bids, in its entirety.

We understand that the Bid package, in its entirety, including but not limited to, all specifications, terms, and conditions in their entirety shall be made a part of any Agreement or Contract between Manatee County and the successful Bidder. Failure to comply shall result in Contract default, whereupon, the defaulting Contractor shall be required to pay for any and all re-procurement costs, damages, and attorney fees as incurred by the County.

Communications concerning this Bid shall be addressed as follows: **(Complete all fields)**

BIDDER'S NAME: _____

MAILING ADDRESS: _____

TELEPHONE: (____) _____ FAX: (____) _____

EMAIL ADDRESS: _____

FL CONTRACTOR LICENSE# _____

LICENSE IN THE NAME OF: _____

STATE OF INCORPORATION _____ (if applicable)

I, _____ on [date] _____ attest that I have visited the project site(s) to familiarize myself with the full Scope of Work required for the Bid.

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

Acknowledge Addendum No. _____ Dated: _____ Acknowledge Addendum No. _____ Dated: _____

AUTHORIZED SIGNATURE(S): _____

Name and Title of Above Signer(s): _____

BID FORM

(Submit in Triplicate) Section 00300

BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING**Bid "A" Based on Completion Time of 210 Calendar Days**

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
	DRAINAGE- (100 SERIES)				
100	6" PVC STORM PIPE (SDR 35)	LF	278	\$ _____	\$ _____
101	15" RCP	LF	903	\$ _____	\$ _____
102	18" RCP	LF	279	\$ _____	\$ _____
103	24" RCP	LF	77	\$ _____	\$ _____
104	30" RCP	LF	46	\$ _____	\$ _____
105	19" X 30" ERCP	LF	455	\$ _____	\$ _____
106	24" X 38" ERCP	LF	386	\$ _____	\$ _____
107	29" X 45" ERCP	LF	390	\$ _____	\$ _____
108	6" Treatment Underdrain System with Filter Material (complete per detail)	LF	200	\$ _____	\$ _____
109	Treatment Underdrain Cleanout	EA	4	\$ _____	\$ _____
110	Ball Field 6" Underdrain with Filter Sock	LF	1,770	\$ _____	\$ _____
111	Ball Field Underdrain Cleanout	EA	21	\$ _____	\$ _____
112	20 LF Trench Drain System (complete per detail)	EA	3	\$ _____	\$ _____
113	24" Mitered End Section w/ Grates	EA	2	\$ _____	\$ _____
114	19" x 30" Mitered End Section w/ Grates	EA	2	\$ _____	\$ _____
115	29" x 45" Mitered End Section w/ Grates	EA	1	\$ _____	\$ _____
116	Roof Drain Downspout Connection (complete per detail)	EA	5	\$ _____	\$ _____
117	Roof Drain Storm Cleanout	EA	3	\$ _____	\$ _____
118	FDOT Type 'D' Inlet (bubbler box)	EA	1	\$ _____	\$ _____
119	Type 'J' Inlet	EA	6	\$ _____	\$ _____
120	FDOT Type 'C' Inlet	EA	2	\$ _____	\$ _____
121	FDOT Type 'E' Inlet	EA	7	\$ _____	\$ _____
122	FDOT Manhole Type '7' w/ 'J' Bottom (4' x 4'), Modify Top w/ Frame and Grate	EA	5	\$ _____	\$ _____
123	FDOT Manhole Type '8' w/ 'P' Bottom (4' Dia)	EA	2	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING**Bid "A" Based on Completion Time of 210 Calendar Days**

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
124	Control Structure SCS-1 (complete with skimmers)	EA	1	\$ _____	\$ _____
125	Rip-rap with Filter Fabric	SY	53	\$ _____	\$ _____
	SUBTOTAL (DRAINAGE 100 SERIES ONLY)				\$ _____
	PAVING (200 SERIES)				
200	2" Type S-III Asphaltic Concrete	SY	6,490	\$ _____	\$ _____
201	Bituminous material prime and tack coat	SY	6,490	\$ _____	\$ _____
202	8" Crushed Concrete Base (LBR 100)	SY	6,700	\$ _____	\$ _____
203	12" Stabilized subgrade (LBR 40)	SY	7,100	\$ _____	\$ _____
204	6" of 1/2" Washed Shell with Weed Barrier	SY	27	\$ _____	\$ _____
205	Type 'D' Curb	LF	1,190	\$ _____	\$ _____
206	Valley Crossing	EA	1	\$ _____	\$ _____
207	4" Concrete Sidewalk	SY	500	\$ _____	\$ _____
208	4" Concrete Pad for Bike Rack	SY	24	\$ _____	\$ _____
209	6" Concrete Pavement with 12" Compacted Subgrade	SY	1,530	\$ _____	\$ _____
210	7" Concrete Pavement with 12" Compacted Subgrade	SY	920	\$ _____	\$ _____
211	Dumpster Pad with Enclosure and Gates (complete)	LS	1	\$ _____	\$ _____
212	Wheel Stops	EA	150	\$ _____	\$ _____
213	Signage and Striping (complete)(includes removal of existing striping along 23rd Street West)	LS	1	\$ _____	\$ _____
214	2' Detectable Warning Strips	EA	12	\$ _____	\$ _____
215	3' Detectable Warning Strip	EA	1	\$ _____	\$ _____
216	Maintenance of Traffic (includes preparation of MOT Plans)	LS	1	\$ _____	\$ _____
217	Adjust Existing Utility Pads/Boxes to Finished Grade	LS	1	\$ _____	\$ _____
218	Specialty Paver Curbing	LF	135	\$ _____	\$ _____
219	Concrete Pavers - Baseball Paver Design (in-place; complete)	SF	113	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING**Bid "A" Based on Completion Time of 210 Calendar Days**

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
220	Concrete Pavers - Diamond Paver Design (in-place; complete)	SF	200	\$ _____	\$ _____
221	Concrete Pavers - Landscape Island Paver Design (in-place; complete)	SF	192	\$ _____	\$ _____
222	Removable Bollard (includes reinforced concrete strip footing)	EA	5	\$ _____	\$ _____
223	Fixed Bollard (includes reinforced concrete strip footing)	EA	3	\$ _____	\$ _____
	SUBTOTAL (PAVING 200 SERIES ONLY)				\$ _____
	EARTHWORK (300 SERIES)				
300	Excavate, place, grade, & compact existing soil material to within 2 feet below finished grade elevation (complete)	LS	1	\$ _____	\$ _____
301	Provide, place, grade, and compact clean, suitable fill material to finished fill elevation (complete) (County supplied stockpiles plus Contractor imported fill).	LS	1	\$ _____	\$ _____
301.A	Labor, materials, tools, services, and incidentals to import up to 3,000 cubic yards (truck measure) of clean, suitable fill material should the County not be able to provide the referenced stockpile consisting of 2,600 cubic yards (To Be Used ONLY with County Approval)	CY	3,000	\$ _____	\$ _____
302	Swale Construction	LF	3,768	\$ _____	\$ _____
303	FDOT Gravity Wall (Scheme 1) with Aluminum Handrail	LF	128	\$ _____	\$ _____
304	Best Management Practice (BMP) Maintenance (includes repair, re-installation, and maintenance of existing BMPs installed by others. Also includes SWPPP implementation, inspections, and reporting)	LS	1	\$ _____	\$ _____
305	Staked Hay Bales	LF	90	\$ _____	\$ _____
306	Common Bermudagrass (materials only)	SY	11,130	\$ _____	\$ _____
307	Common Bermudagrass (installation and maintenance only)	SY	11,130	\$ _____	\$ _____
310	Sodding - Bahia (materials only)	SY	9,400	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING**Bid "A" Based on Completion Time of 210 Calendar Days**

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
311	Sodding - Bahia (installation and maintenance only)	SY	9,400	\$ _____	\$ _____
	SUBTOTAL (EARTHWORK 300 SERIES ONLY)				\$ _____
	FENCING (400 SERIES)				
400	6' High Black Vinyl Chain Link Fence with Black Vinyl Slats around electrical control panels	LF	52	\$ _____	\$ _____
401	6' High x 4' Wide Black Vinyl Chain Link Swing Gate with Black Vinyl Slats	EA	1	\$ _____	\$ _____
402	6' High Black Vinyl Chain Link Fence	LF	1,399	\$ _____	\$ _____
403	7' High Black Vinyl Chain Link Fence	LF	225	\$ _____	\$ _____
404	8' High Black Vinyl Chain Link Fence	LF	302	\$ _____	\$ _____
405	10' High Black Vinyl Chain Link Fence	LF	168	\$ _____	\$ _____
406	12' High Black Vinyl Chain Link Fence	LF	419	\$ _____	\$ _____
407	Black Vinyl Backstop Fence	LF	289	\$ _____	\$ _____
408	8' High x 6' Wide Black Vinyl Chain Link Swing Gate	EA	1	\$ _____	\$ _____
409	Slide Gate for 12' Wide Fence Opening	EA	6	\$ _____	\$ _____
410	Slide Gate for 16' Wide Fence Opening	EA	3	\$ _____	\$ _____
411	Poly-Cap Fence Guard	LF	568	\$ _____	\$ _____
412	Black Vinyl Coated Foul Pole (complete; includes poly-cap fence guard cover)	EA	6	\$ _____	\$ _____
	SUBTOTAL (FENCING 400 SERIES ONLY)				\$ _____
	BALL FIELDS AND BATTING CAGES (500 SERIES)				
500	Ball Field Identification Sign	EA	3	\$ _____	\$ _____
501	Distance Sign	EA	3	\$ _____	\$ _____
502	Visitor / Home Sign	EA	6	\$ _____	\$ _____
503	4' x 10' Folding Backstop Padding Mats	EA	6	\$ _____	\$ _____
504	5' High Windscreen	LF	1,032	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING**Bid "A" Based on Completion Time of 210 Calendar Days**

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
505	6' High Windscreen	LF	282	\$ _____	\$ _____
506	Pitcher's Plate	EA	3	\$ _____	\$ _____
507	Home Plate	EA	3	\$ _____	\$ _____
508	Bases (set of 3 per each)	EA	3	\$ _____	\$ _____
509	6" Clay Infield Mix - Rolled (includes all 3 ball fields)	LS	1	\$ _____	\$ _____
510	4" Root Zone Mixture Material per Ball Field Turf Detail & Specifications (includes all 3 ball fields)	LS	1	\$ _____	\$ _____
511	14" Imported Fill Material per Ball Field Turf Detail & Specifications (includes all 3 ball fields)	LS	1	\$ _____	\$ _____
512	Tifway 419 Bermudagrass - Rolled (materials only)	SY	11,120	\$ _____	\$ _____
513	Tifway 419 Bermudagrass - Rolled (installation and maintenance only)	SY	11,120	\$ _____	\$ _____
514	4" Concrete Pad for Dugout (10' x 22')	EA	6	\$ _____	\$ _____
515	Dugout Canopy Structure (complete)	EA	6	\$ _____	\$ _____
516	5" Concrete Pad for Bleachers (16' x 30')	EA	6	\$ _____	\$ _____
518	4" Concrete Slab for Batting Cages (69' x 85')	SY	652	\$ _____	\$ _____
519	Batting Cage Netting and Support Post System for 4 Batting Cages (complete)	LS	1	\$ _____	\$ _____
520	Indoor/Outdoor Artificial Turf for Batting Cages	SY	320	\$ _____	\$ _____
521	6' x 12' Home Plate Mats for Batting Cages	EA	4	\$ _____	\$ _____
522	12' Safety Netting with Galvanized Steel Support Posts	LF	525	\$ _____	\$ _____
	SUBTOTAL (BALL FIELDS AND BATTING CAGES 500 SERIES ONLY)				\$ _____
	MISCELLANEOUS (600 SERIES)				
600	Construction Surveying & Stakeout (includes collection of record information and record drawing preparation)	LS	1	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING**Bid "A" Based on Completion Time of 210 Calendar Days**

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
601	MOBILIZATION	LS	1	\$ _____	\$ _____
	SUBTOTAL (MISCELLANEOUS 600 SERIES ONLY)				\$ _____
	LANDSCAPE AND IRRIGATION (700 SERIES AND ITEM 800)				
700	Sweetbay Magnolia (14'-16' OA Ht. x 5' Spr., 4" Cal., 6' CT)	EA	16	\$ _____	\$ _____
701	Cathedral Live Oak (12' - 14' OA Ht. x 4' Spr., 3" Cal.)	EA	28	\$ _____	\$ _____
702	Cabbage Palm (10', 12', 14' CT, Mix, HC, Booted)	EA	38	\$ _____	\$ _____
703	Perennial Peanut (Liner, 18" OC)	EA	7,120	\$ _____	\$ _____
704	Florida Lantana (1 Gal., 24" OC)	EA	977	\$ _____	\$ _____
705	Muhly Grass (1 Gal., 12" OA., 30" OC)	EA	290	\$ _____	\$ _____
706	Wax Myrtle (7 Gal., 36" OA, Full, Space as indicated in plan)	EA	193	\$ _____	\$ _____
707	Sand Cordgrass (1 Gal., 12" OA., 30" OC)	EA	140	\$ _____	\$ _____
708	Fakahatchee Grass (3 Gal., 18" OA, 48" OC, Space as indicated in plan)	EA	250	\$ _____	\$ _____
709	Mrs Shillers Delight Viburnum (3 Gal., 18" OA, 36" OC)	EA	105	\$ _____	\$ _____
710	Walters Viburnum (3 Gal., 24" OA, Space as indicated in plan)	EA	112	\$ _____	\$ _____
711	Coontie (3 Gal., 18" OA, 36" OC)	EA	40	\$ _____	\$ _____
712	Mulch - Pine Bark Nuggets	CY	360	\$ _____	\$ _____
800	Irrigation System (complete)	LS	1	\$ _____	\$ _____
	SUBTOTAL (LANDSCAPE AND IRRIGATION 700 SERIES AND ITEM 800 ONLY)				\$ _____
	CONCESSION BUILDING				
900	General Requirements	LS	1	\$ _____	\$ _____
1000	Site Construction- Termite Control	LS	1	\$ _____	\$ _____
1100	Concrete	LS	1	\$ _____	\$ _____
1200	Masonry	LS	1	\$ _____	\$ _____
1300	Wood	LS	1	\$ _____	\$ _____
1400	Thermal Insulation	LS	1	\$ _____	\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING**Bid "A" Based on Completion Time of 210 Calendar Days**

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
1500	Vapor Barrier/ Retarder	LS	1	\$ _____	\$ _____
1600	Preformed Metal Roofing	LS	1	\$ _____	\$ _____
1700	Sheet Metal Flashing and Trim	LS	1	\$ _____	\$ _____
1800	Manufactured Specialties	LS	1	\$ _____	\$ _____
1900	Joint Sealants	LS	1	\$ _____	\$ _____
2000	Metal Doors and Frames	LS	1	\$ _____	\$ _____
2100	Flush Wood Doors	LS	1	\$ _____	\$ _____
2200	Access Doors and Frames	LS	1	\$ _____	\$ _____
2300	Overhead Coiling Doors	LS	1	\$ _____	\$ _____
2400	Coiling Counter Doors	LS	1	\$ _____	\$ _____
2500	Aluminum Windows	LS	1	\$ _____	\$ _____
2600	Door Hardware	LS	1	\$ _____	\$ _____
2700	Louvers and Vents	LS	1	\$ _____	\$ _____
2800	Portland Cement Plaster	LS	1	\$ _____	\$ _____
2900	Gypsum Board Assemblies	LS	1	\$ _____	\$ _____
3000	Epoxy Flooring	LS	1	\$ _____	\$ _____
3100	Painting	LS	1	\$ _____	\$ _____
3200	Toilet Compartments	LS	1	\$ _____	\$ _____
3300	Signs	LS	1	\$ _____	\$ _____
3400	Fire Protection Specialties- Division 10-10520	LS	1	\$ _____	\$ _____
3500	Toilet and Bath Accessories	LS	1	\$ _____	\$ _____
3600	Mechanical	LS	1	\$ _____	\$ _____
3700	Plumbing	LS	1	\$ _____	\$ _____
3800	Fire Protection - Division 15	LS	1	\$ _____	\$ _____
3900	Power and Distribution Wiring	LS	1	\$ _____	\$ _____
4000	Lighting Luminaores and Wiring Devices	LS	1	\$ _____	\$ _____
	SUBTOTAL (CONCESSION BUILDING ONLY)				\$ _____

Bidder Name: _____

Authorized Signature: _____

BID FORM

(Submit in Triplicate) Section 00300

BLACKSTONE PARK EXPANSION SITE WORK AND CONCESSION BUILDING**Bid "A" Based on Completion Time of 210 Calendar Days**

BID ITEM NUMBER	DESCRIPTION	UNITS	QTY.	BID PRICE PER UNIT (\$)	TOTAL BID PRICE (\$)
	DISCRETIONARY WORK (USED ONLY WITH COUNTY APPROVAL)				\$160,000.00
	TOTAL PRICE FOR BID "A" - Based on Completion Time of <u>210</u> Calendar Days				\$ _____

ALTERNATE BID ITEMS FOR CONCESION BUILDING

The following prices are for alternate items to the Concession Building, and may be awarded as alternate items to the Concession Building. Should the County choose to award any or all of the alternate items for the Concession Building, the award shall be made to the lowest, responsive, and responsible bidder including any alternate bid items chosen.

ITEM NO	DESCRIPTION	ADD/ DEDUCT/ or NO CHANGE	U/M	UNIT PRICE
Alternate 1	Provide all labor, materials, tools, services, miscellaneous devices, accessory objects, and similar items incidental to or required to provide complete fiberglass shingle roofing assembly in lieu of preformed metal panel roof system. This bid alternate applies to, but may not be limited to, the following base bid items: Bid Item 1600.		Lump Sum	\$
Alternate 2	Provide all labor, materials, tools, services, miscellaneous devices, accessory objects, and similar items incidental to or required to Omit the interior finishes and wall insulation – match lower storage CMU and painted finish in lieu of 1” rigid insulation, furring and drywall at second floor. This bid alternate applies to, but may not be limited to, the following base bid items: Bid Items 1400 and 2900.		Lump Sum	\$
Alternate 3	Provide all labor, materials, tools, services, miscellaneous devices, accessory objects, and similar items incidental to or required to provide sealed concrete to match all other ground floor areas: Concession and Storage in lieu of Epoxy flooring in restrooms. This bid alternate applies to, but may not be limited to, the following base bid items: Bid Item 3000.		Lump Sum	\$

Bidder Name: _____

Authorized Signature: _____

SWORN STATEMENT
THE FLORIDA TRENCH SAFETY ACT

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

1. This Sworn Statement is submitted with IFB No. 13-1527CD
2. This Sworn Statement is submitted by _____ whose business address is _____ and, if applicable, its Federal Employer Identification Number (FEIN) is _____. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement _____.
3. Name of individual signing this Sworn Statement is: _____, Whose relationship to the above entity is: _____.
4. The Trench Safety Standards that will be in effect during the construction of this project shall include, but are not limited to: Laws of Florida, Chapters 90-96, TRENCH SAFETY ACT, and OSHA RULES AND REGULATIONS 29 CFR 1926.650 Subpart P, effective October 1, 1990.
5. The undersigned assures that the entity will comply with the applicable Trench Safety Standards and agrees to indemnify and hold harmless the County and Engineer, and any of their agents or employees from any claims arising from the failure to comply with said standard.
6. The undersigned has appropriated the following costs for compliance with the applicable standards:

Trench Safety Measure (Description)	Units of Measure (LF, SY)	Unit Quantity	Unit Cost	Extended Cost
a. _____	_____	_____	\$ _____	_____
b. _____	_____	_____	\$ _____	_____
c. _____	_____	_____	\$ _____	_____
d. _____	_____	_____	\$ _____	_____

7. The undersigned intends to comply with these standards by instituting the following procedures:

THE UNDERSIGNED, in submitting this Bid, represents that they have reviewed and considered all available geotechnical information and made such other investigations and tests as they may deem necessary to adequately design the trench safety system(s) to be utilized on this project.

(AUTHORIZED SIGNATURE / TITLE)

SWORN to and subscribed before me this _____ day of _____, 20_____.

(Impress official seal)

Notary Public, State of Florida: _____

My commission expires: _____

SECTION 00430
CONTRACTOR'S QUESTIONNAIRE
(Submit in Triplicate)

The Bidder warrants the truth and accuracy of all statements and answers herein contained. (Attach additional pages if necessary.)

THIS QUESTIONNAIRE MUST BE COMPLETED AND SUBMITTED WITH YOUR BID

1. License #: _____
License Issued to: _____
Date License Received (MM/DD/YR): _____
Company Name: _____

Company's Physical Address _____

City _____ State of Incorporation, if applicable _____ (Zip Code) _____

(_____) _____ Telephone Number; (_____) _____ Fax Number
Email Address: _____
2. Bidding as an individual ___ a partnership: ___ a corporation; ___ a joint venture ___
3. If a partnership: list names and addresses of partners; if a corporation: list names of officers, directors, shareholders, and state of incorporation; if joint venture: list names and address of ventures' and the same if any venture are a corporation for each such corporation, partnership, or joint venture:

4. Your organization has been in business (under this firm's name) as a _____

For how many years? _____ Is this firm in bankruptcy? _____

**_____

_____**
Years holding a Certified Contractors License

**_____
_____**
Years experience performing this type of project
(Attach a list of projects where this specific type of work was performed)

BIDDER: _____

4. (Continued)

Has license ever been suspended, revoked, removed or under investigation?

5. Describe and give the date and County of the last three government or private work of similar scope you've completed which are similar in cost, type, size, and nature as the one proposed (for a public entity), include contact name and phone number. Provide the budget, actual cost, size and summary of work for each project. Attach additional pages as necessary. (Note: If listing a Manatee County reference they should not be directly associated with this project)

6. Have you ever been assessed liquidated damages under a Contract during the past five (5) years? If so, state when, where (contact name, address and phone number) and why.

7. Have you ever failed to complete work awarded to you? Or provide projects not completed within Contract time. If so, state when, where (contact name, address, phone number) and why.

8. Have you ever been debarred or prohibited from bidding on a governmental entity's construction project? If yes, name the entity and describe the circumstances:

BIDDER: _____

9. What specific steps have you taken to examine the physical conditions at or contiguous to the site, including but not limited to, the location of existing underground facilities? Have you visited the site(s)? _____
Provide date(s) of site visit: _____

10. What specific physical conditions, including, but not limited to, the location of existing underground facilities have you found which will, in any manner, affect cost, progress, performance, or finishing of the Work?

11. Will you subcontract any part of this Work? If so, describe which major portion(s):

12. If any, list (with Contract amount) WBE/MBE to be utilized:

13. What equipment do you own to accomplish this Work? (A listing may be attached)

14. What equipment will you purchase/rent for the Work? (Specify which)

BIDDER: _____

15. List the following in connection with the Surety which is providing the Bond(s):

Surety's Name: _____

Surety's Address: _____

Surety's Address: _____

Name, address and phone number of Surety's resident agent for service of process in Florida:

Phone: (_____) _____

Email _____

BIDDER: _____

SECTION 00491
PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION
SWORN STATEMENT PURSUANT TO ARTICLE V,
MANATEE COUNTY PURCHASING ORDINANCE

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

This sworn statement is submitted to the Manatee County Board of County Commissioners by

[Print individual's name and title]

_____ for _____ [print name of entity submitting sworn statement]

whose business address is _____

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

I understand that no person or entity shall be awarded or receive a County Contract for public improvements, procurement of goods or services (including professional services) or a County lease, franchise, concession or management Agreement, or shall receive a grant of County monies unless such person or entity has submitted a written certification to the County that it has not:

- (1) been convicted of bribery or attempting to bribe a public officer or employee of Manatee County, the State of Florida, or any other public entity, including, but not limited to the Government of the United States, any state, or any local government authority in the United States, in that officer's or employee's official capacity; or
- (2) been convicted of an agreement or collusion among Bidders or prospective Bidders in restraint of freedom of competition, by agreement to bid a fixed price, or otherwise; or
- (3) been convicted of a violation of an environmental law that, in the sole opinion of the County's Purchasing Official, reflects negatively upon the ability of the person or entity to conduct business in a responsible manner; or
- (4) made an admission of guilt of such conduct described in items (1), (2) or (3) above, which is a matter of record, but has not been prosecuted for such conduct, or has made an admission of guilt of such conduct, which is a matter of record, pursuant to formal prosecution. An admission of guilt shall be construed to include a plea of nolo contendere; or
- (5) where an officer, official, agent or employee of a business entity has been convicted of or has admitted guilt to any of the crimes set forth above on behalf of such an entity and pursuant to the direction or authorization of an official thereof (including the person committing the offense, if he is an official of the business entity), the business shall be chargeable with the conduct herein above set forth. A business entity shall be chargeable with the conduct of an affiliated entity, whether wholly owned, partially owned, or one which has common ownership or a common Board of Directors. For purposes of this Form, business entities are affiliated if, directly or indirectly, one business entity controls or has the power to control another business entity, or if an individual or group of individuals controls or has the power to control both entities. Indicia of control shall include, without limitation, interlocking management or ownership, identity of interests among family members, shared organization of a business entity following the ineligibility of a business entity under this Article, or using substantially the same management, ownership or principles as the ineligible entity.

(Cont'd.)

Any person or entity who claims that this Article is inapplicable to him/her/it because a conviction or judgment has been reversed by a court of competent jurisdiction shall prove the same with documentation satisfactory to the County's Purchasing Official. Upon presentation of such satisfactory proof, the person or entity shall be allowed to contract with the County.

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR MANATEE COUNTY IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT ANY CONTRACT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE CONTRACTING OFFICER OR THE COUNTY ADMINISTRATOR DETERMINES THAT **SUCH PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.**

[Signature]

STATE OF FLORIDA
COUNTY OF _____

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

Personally known _____ OR Produced identification _____
[Type of identification]

Notary Public Signature My commission expires _____

[Print, type or stamp Commissioned name of Notary Public]

Signatory Requirement - In the case of a business entity other than a partnership or a corporation, this affidavit shall be executed by an authorized agent of the entity. In the case of a partnership, this affidavit shall be executed by the general partner(s). In the case of a corporation, this affidavit shall be executed by the corporate president.

SECTION 00500
**FORM OF AGREEMENT
BETWEEN THE
COUNTY OF MANATEE, FLORIDA
AND THE CONTRACTOR AS IDENTIFIED BELOW
ON THE BASIS OF A STIPULATED UNIT COST CONTRACT PRICE**

THIS AGREEMENT is made and entered into by and between the COUNTY OF MANATEE, a political subdivision of the State of Florida, hereinafter referred to as the "COUNTY" and **XXXXXXXXXX**, hereinafter referred to as the "CONTRACTOR," duly authorized to transact business in the State of Florida, with offices located at **XXXXXXXXXX**.

ARTICLE 1. WORK

CONTRACTOR shall furnish all labor, materials, supplies, and other items required to complete the Work for **IFB #13-1527CD Blackstone Park Expansion Site Work and Concession Building** in strict accordance with Contract documents and any duly authorized subsequent addenda thereto, all of which are made a part hereof.

ARTICLE 2. COMPENSATION

As compensation to the CONTRACTOR, the COUNTY shall pay and the CONTRACTOR will accept as full consideration for the performance of all Work required by **IFB #13-1527CD Blackstone Park Expansion Site Work and Concession Building**, subject to additions and deductions as provided therein, the sum of **\$XXXXXX** for Bid "A" based on a completion time of 210 calendar days.

ARTICLE 3. LIQUIDATED DAMAGES

Time is of the essence in this Agreement. As of the date of this Agreement, the damages that will be suffered by the County in the event of the Contractor's failure to timely complete the Work are impossible to determine. In lieu thereof, it is agreed that if the Contractor fails to achieve substantial completion of the Work within 210 calendar days of issuance of the Notice to Proceed (accounting, however, for any extensions of time granted pursuant to approved change orders), the Contractor shall pay to the County, as liquidated damages (and not as a penalty), the sum of \$1148 per calendar

day for each day beyond 210 days until the Contractor achieves substantial completion. The County shall have the option of withholding said liquidated damages from any pay application(s) thereafter submitted by the Contractor. Alternatively, the Contractor shall immediately pay said sums to the County upon the County's demand for same.

ARTICLE 4. ENGINEER

The County of Manatee, Property Management Department, is responsible as the COUNTY and WilsonMiller Stantec as "ENGINEER," designed this project and is responsible for technical/engineering reviews and decisions. The ENGINEER is a member of the COUNTY'S project management team which is collectively responsible in ensuring the Work is completed in accordance with the Contract documents.

All communications involving this project will be addressed to: Alan Meronek, Project Manager, Property Management Department and to the Engineer of Record, Dan Bond, WilsonMiller Stantec. All invoicing will be addressed to the attention of: Alan Meronek (address noted below) with invoice copies sent to Dan Bond, (address noted below).

Manatee County Property Management Dept.
IFB# 13-1527CD
Attention: Alan Meronek
Project Manager
1112 Manatee Avenue West, Suite 862
Bradenton, Florida 34205
Phone (941) 745-4501 ext. 3097

WilsonMiller Stantec
IFB# 13-1527CD
Attn: Dan Bond
Project Engineer
6900 Professional Parkway East
Sarasota, Florida 34240
Phone (941) 907-6000

Where the terms ENGINEER and/or COUNTY are used in the Contract Documents, it shall mean the COUNTY'S project management team.

ARTICLE 5. CONTRACTOR'S REPRESENTATIONS

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

- 5.1 CONTRACTOR has familiarized itself with the nature and extent of the Bid 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.
- 5.2 CONTRACTOR has studied carefully all drawings of the physical conditions upon which CONTRACTOR is entitled to rely.
- 5.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies which pertain to the physical conditions at or contiguous to the site or which otherwise may affect the cost, progress, performance or furnishing of the Work as CONTRACTOR considers necessary for the performance or furnishing of the Work at the Contract price, within the Contract time and in accordance with the other terms and conditions of the Bid documents; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.
- 5.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Bid documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. Any additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities conducted by the CONTRACTOR will be done at the CONTRACTOR'S expense.

- 5.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Bid.
- 5.6 CONTRACTOR has given COUNTY written notice of all conflicts, errors or discrepancies that have been discovered in the Bid documents and the written resolution thereof by OWNER is acceptable to CONTRACTOR.
- 5.7 CONTRACTOR shall schedule and perform the Work subject to COUNTY'S approval and shall hold COUNTY harmless from all liabilities incurred due to CONTRACTOR'S failure to coordinate with the COUNTY.

ARTICLE 6. CONTRACT DOCUMENTS

The Contract documents which comprise the entire Agreement between COUNTY and CONTRACTOR concerning the Work consist of the following:

- 6.1 This Agreement and Bid document **IFB #13-1527CD**
- 6.2 Public Construction Bond Form and Insurance Certificate(s)
- 6.3 Drawings/Plans (not attached)
- 6.4 Addendum number ?? to ?? inclusive
- 6.5 CONTRACTOR'S Bid Form
- 6.6 Reports
- 6.7 The following, which may be delivered or issued after the effective date of the Agreement and are not attached hereto: all written change orders and other documents amending, modifying, or supplementing the Contract documents.

- 6.8 The documents listed in paragraphs above are attached to this Agreement (except as noted otherwise above). There are no Contract documents other than those listed above in this Article 6.

ARTICLE 7. MISCELLANEOUS

- 7.1 Terms used in this Agreement are defined in Article 1 of the General Conditions.
- 7.2 No assignment by a party hereto of any rights under or interest in the Contract documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law); and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignee from any duty or responsibility under the Contract documents.
- 7.3 COUNTY 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.

AGREEMENT
IFB #13-1527CD

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed by their authorized representatives.

CONTRACTOR

By: _____

Print Name & Title of Signer

Date: _____

COUNTY OF MANATEE, FLORIDA

By: _____
Melissa M. Wendel, CPPO
Purchasing Official

Date: _____

**MANATEE COUNTY GOVERNMENT
PUBLIC CONSTRUCTION BOND**

Bond No. _____

(Enter bond number)

BY THIS BOND, We _____, located at _____, as
(Name of Contractor) (Address)

Principal and _____, a corporation, whose address is
(Name of Surety)

are bound to Manatee County, a political subdivision of the State of Florida, herein called County, in the sum of \$ _____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

WHEREAS, the Contractor has entered into Contract No. IFB #13-1527CD with the County for the project titled Blackstone Park Expansion Site Work AND Concession Building, with conditions and provisions as are further described in the aforementioned Contract, which Contract is by reference made a part hereof for the purposes of explaining this bond.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs Contract No. IFB #13-1527CD, between Principal and County for construction of

Blackstone Park Expansion Site Work and Concession Building, the Contract being made a part of this bond by reference, at

(Title of Project)

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 County all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that County 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 _____.

CONTRACTOR AS PRINCIPAL

SURETY

Company Name

Company Name

Signature

Signature

Print Name & Title

Print Name & Title

(Corporate Seal)

(Corporate Seal)

AGENT or BROKER

Company Name

Address

Telephone

Licensed Florida Insurance Agent? ☐ **Yes** ☐ **No**

License #: _____

State of: _____

County of: _____

City of: _____

SECTION 00700
GENERAL CONDITIONS

ARTICLE 1. DEFINITIONS

Whenever used in the Bid documents, the following terms have the meaning indicated which are applicable to both the singular and plural thereof:

Addendum - Written or graphic instruments issued prior to the opening of Bids which clarify or change the Bidding documents or the Contract documents.

Agreement - The written Agreement between Owner and Contractor covering the Work to be performed; other Contract documents are attached to the Agreement and made a part thereof as provided therein.

Application for Payment - The form accepted by the Project Representative which is to be used by Contractor in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract documents.

Award - Acceptance of the Bid from the person, firm, or corporation which in the Owner's sole and absolute judgment will under all circumstances best serve the public interest. Award shall be made in accordance with Manatee County Code of Laws.

Bid - The offer of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder - One who submits a Bid directly to the Owner, as distinct from a Sub-bidder, who submits a Bid to a Bidder.

Bidding Documents - Consists of the Invitation for Bid, which includes but is not limited to the Bid Form, drawings, technical specifications, terms and conditions, and the proposed Contract documents (including all addenda issued prior to receipt of Bids); and becomes a part of the Agreement.

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

Change Order - A document recommended by the Project Representative 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 time, issued on or after the effective date of the Agreement.

Compensable Delay - Any delay beyond the control and without the fault or negligence of the Contractor resulting from Owner-caused changes in the Work, differing site conditions, suspensions of the Work, or termination for convenience by Owner.

Contract Documents - The Agreement, addenda (which pertain to the Contract documents), Contractor's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award), the bonds, the specifications, special provisions and the drawings, together with all amendments, modifications and supplements issued on or after the effective date of the Agreement.

Contract Price - The monies payable by Owner to Contractor under the Contract documents as stated in the Agreement.

Contract Time - The number of days or the date stated in the Notice to Proceed for the completion of the Work.

Contractor - The person, firm or corporation with whom Owner has entered into an Agreement.

Days - All references to days are to be considered calendar days except as specified differently.

Defective - An adjective which when modifying the Work refers to work that is unsatisfactory, faulty or deficient, or does not conform to the Contract documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract documents, or has been damaged prior to Project Representative's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner).

Discretionary – Payment for all Work that shall be made only at the Owner's discretion in order to satisfactorily complete the project in accordance with the plans and specifications.

Drawings - The drawings which show the character and Scope of Work to be performed and which have been prepared or approved by Engineer and are referred to in the Bidding and Contract documents.

Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective (date of execution).

Excusable Delay - Any delay beyond the control and without the negligence of the Contractor, the Owner, or any other Contractor caused by events or circumstances such as, but not limited to, acts of God or of the public enemy, fires, floods, freight embargoes, acts of government other than Owner or epidemics. Labor disputes and above average rainfall shall give rise only to excusable delays.

Field Order - A written order issued by Project Representative which orders minor changes in the Work, but which does not involve a change in the Contract price or the Contract time.

Float or Slack Time - The time available in the progress schedule during which an unexpected activity can be completed without delaying substantial completion of the Work.

Inexcusable Delay - Any delay caused by events or circumstances within the control of the Contractor, such as inadequate crewing, slow submittals, etc., which might have been avoided by the exercise of care, prudence, foresight, or diligence on the part of the Contractor.

Non-prejudicial Delay - Any delay impacting a portion of the Work within the available total float or slack time and not necessarily preventing completion of the Work within the Contract time.

Notice of Award - The written notice to the successful Bidder stating Award has been approved by the Board of County Commissioners; or by the Purchasing Official in accordance with Manatee County Code of Laws, Chapter 2-26, Manatee County Purchasing Ordinance.

Notice of Intent to Award - The written notice to the apparent low Bidder stating Award has been recommended with final Award to be authorized by the Board of County Commissioners.

Notice to Proceed - Written notice by Owner (after execution of Contract) to Contractor fixing the date on which the Contract time will commence to run and on which Contractor shall start to perform (ten (10) days from date of such notice) Contractor's obligations under the Contract documents.

Owner - Manatee County, Florida, Board of County Commissioners.

Preconstruction Conference - Prior to starting the Work, a meeting scheduled by Owner with Contractor to review the Work schedules, to establish procedures for handling shop drawings and other submissions, for processing periodical pay estimates, and such other matters as may be pertinent to the project.

Prejudicial Delay - Any excusable or compensable delay impacting the Work and exceeding the total float available in the progress schedule, thus preventing completion of the Work within the Contract time unless the Work is accelerated.

Pre-operation Testing - All field inspections, installation checks, water tests, performance tests and necessary corrections required of Contractor to demonstrate that individual components of the Work have been properly constructed and do operate in accordance with the Contract documents for their intended purposes.

Project - The total construction of which the Work to be provided under the Contract documents may be the whole or a part as indicated elsewhere in the Contract documents.

Project Representative - The authorized representative of Owner who is assigned to the project or any part thereof.

Schedule of Values – Unit prices shall be established for this Contract by the submission of a schedule of values. The Contractor shall submit a schedule of values within ten (10) days of Notice to Proceed date. The schedule shall include quantities and prices of items equaling the Total Bid Price and will subdivide the Work into components in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work. Upon request of the County, the Contractor shall support the values with data which will substantiate their correctness.

Shop Drawings - All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a supplier and submitted by Contractor to illustrate material or equipment for some portion of the Work.

Special Provisions: As required to define work or procedures not covered in the standard specifications, and as necessary to supplement or modify items in the standard specifications.

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

Subcontractor - An individual or corporation having a direct contact with Contractor or with any other Subcontractor for the performance of a part of the Work at the site. Such person or firm has contractual relations with the Contractor, not with the Owner.

Substantial Completion - The Work (or a specified part thereof) has progressed to the point when, in the opinion of the Engineer as evidenced by Engineer's definitive certificate of substantial completion, it is sufficiently complete in accordance with Contract documents so that the Work can be utilized for the purposes for which it is intended; or if there be no such certificate issued, when final payment is due.

Successful Bidder - The lowest, responsible and responsive Bidder to whom an Award is made.

Supplier - A manufacturer, fabricator, supplier, distributor, material man or vendor.

Underground Facilities - All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments and any encasement containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or

other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

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

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

Work Directive Change - A written directive to Contractor, issued on or after the effective date of the Agreement and signed by Owner and recommended by Project Representative ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed or to emergencies. A work directive change may not change the Contract price or the Contract time; but is evidence that the parties expect that the change directed or documented by a work directive change 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 time.

Written Amendment - A written amendment of the Contract documents, signed by Owner and Contractor on or after the effective date of the Agreement and normally dealing with the non-engineering or non-technical rather than strictly work related aspects of the Contract documents.

ARTICLE 2. PRELIMINARY MATTERS

Computation of Time: When 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 legal holiday, such day will be omitted from the computation.

- 2.1 The Contractor must submit a proposed schedule of the Work at the preconstruction conference. The purpose of this schedule is to enable the Owner to govern the Work, to protect the functions of the local government and its citizens and to aid in providing appropriate surveillance. The Owner shall have the right to reschedule Work provided such rescheduling is in accord with the remainder of terms of the Contract. The schedule shall show, as a minimum, the approximate dates on which each segment of the Work is expected to be started and finished, the proposed traffic flows during each month, the anticipated earnings by the Contractor for each month and the approximate number of crews and equipment to be used. The Owner, after necessary rescheduling and obtaining additional information for specific purposes, shall review and approve the schedule. The Contractor shall also forward to the Owner, as soon as practicable after the first day of each month, a summary report of the progress of the various parts of the Work under the Contract, in fabrication and in the field, stating the existing status, estimated time of completion and cause of delay, if

any. Together with the summary report, the Contractor shall submit any necessary revisions to the original schedule for the Owner's review and approval. In addition, more detailed schedules may be required by the Owner for daily traffic control.

- 2.2 A Notice to Proceed may be given at any time within thirty (30) days after the effective date of the Agreement. The Contract time will commence at the time specified in such notice. Contractor shall start to perform the Work on the date specified in the Notice to Proceed, but no Work shall be done at the site prior to the date on which the Contract time commences to run.
- 2.3 If at any time the materials and appliances to be used appear to the Owner as insufficient or improper for securing the quality of Work required or the required rate of progress, the Owner may order the Contractor to increase his efficiency or to improve the character of his Work and the Contractor shall conform to such an order. The failure of the Owner to demand any increase of such efficiency of any improvement shall not release the Owner from his obligation to secure the quality of Work or the rate of progress necessary to complete the Work within the limits imposed by the Contract. The Owner may require the Contractor to remove from the Work such employees as the Owner deems incompetent, careless, insubordinate or otherwise objectionable, or whose continued employment on the Work is deemed to be contrary to the Owner's interest.
- 2.4 The Owner reserves the right to let other Contracts in connection with this Work. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and execution of their Work, and promptly connect and coordinate the Work with theirs.

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, RE-USE

- 3.1 The Contract documents comprise the entire Agreement between Owner and Contractor concerning the Work. The Contract documents are complementary; what is called for by one is as binding as if called for by all. The Contract documents will be construed in accordance with the laws and ordinances of the State of Florida and Manatee County.

Should a conflict exist within the Contract documents, the precedence in ascending order of authority are as follows: 1) Standard Printed Contract Documents, 2) Special Conditions, 3) General Conditions, and 4) Drawings.

Note: Computed dimensions shall govern over scaled dimensions.

- 3.2 It is the intent of the Contract documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract documents. Any work, materials or equipment that may reasonably be inferred from the Contract documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials, or

equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract documents) shall be effective to change the duties and responsibilities of Owner, Contractor or Engineer, or any of their agents or employees from those set forth in the Contract documents.

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

- 3.3.1 A Formal Written Amendment

- 3.3.2 A Change Order

- 3.3.3 Administrative Contract Adjustment (ACA)

- 3.3.4 A Work Directive Change

- 3.4 In addition, the requirements of the Contract documents may be supplemented and minor variations and deviations in the Work may be authorized in one or more of the following ways:

- 3.4.1 Discretionary Work – Field Directive

- 3.4.2 Engineer's approval of a Shop Drawing or sample

ARTICLE 4. CONTRACTOR'S RESPONSIBILITIES

- 4.1 Contractor shall keep on the Work at all times during its progress a competent resident superintendent; who shall be the Contractor's representative at the site and shall have authority to act on behalf of Contractor. All communications given to the superintendent shall be as binding as if given to Contractor.

- 4.2 Contractor shall provide competent, suitable 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. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto and except as otherwise indicated in the Contract documents, all Work at the site shall be performed during regular working hours and Contractor will not permit overtime work or the

performance of work on Saturday, Sunday or legal holiday without Owner's written consent given after prior notice to Engineer (at least seventy-two (72) hours in advance).

- 4.2.1 Contractor shall pay for all additional engineering charges to the Owner for any overtime work which may be authorized. Such additional engineering charges shall be a subsidiary obligation of Contractor and no extra payment shall be made by Owner on account of such overtime work. At Owner's option, overtime costs may be deducted from Contractor's monthly payment request or Contractor's retainage prior to release of final payment.
- 4.3 Unless otherwise specified, Contractor shall furnish and assume full responsibility for all bonds, insurance, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.
- 4.4 All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract documents. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable supplier except as otherwise provided in the Contract documents.
- 4.5 Contractor shall be fully responsible to Owner for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect Contract with Contractor just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract documents shall create any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of Owner to pay or to see to the payment of any monies due any such Subcontractor, Supplier or other person or organization.
- 4.6 Permits: Unless otherwise provided, 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.
- 4.7 During the progress of the Work, Contractor shall keep the premises free from accumulation of waste materials rubbish and other debris resulting from the Work. At the completion of the Work, Contractor shall remove all waste

materials, rubbish, and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials and shall leave the site clean and ready for occupancy by Owner. Contractor shall restore to original conditions all property not designated for alteration by the Contract documents.

- 4.8 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.
- 4.9 Safety and Protection: Contractor shall comply with the Florida Department of Commerce Safety Regulations and any local safety regulations. Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of and shall provide the necessary protection to prevent damage, injury or loss to:
- 4.9.1 all employees on the work and other persons and organizations who may be affected thereby;
- 4.9.2 all the work and materials and equipment to be incorporated therein, whether in storage on or off the site; and
- 4.9.3 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.
- 4.9.4 Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall provide and maintain all passageways, guard fences, lights and other facilities for the protection required by public authority or local conditions. Contractor shall provide reasonable maintenance of traffic way for the public and preservation of the Owner's business, taking into full consideration all local conditions. Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed.
- 4.10 Emergencies: In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, Contractor, without special instruction or authorization from Engineer or Owner, is obligated to act to prevent threatened damage, injury or loss. Contractor shall give Owner prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract documents have been caused thereby. If Owner

determines that a change in the Contract documents is required because of the action taken in response to an emergency, a work directive change or change order will be issued to document the consequences of the changes or variation.

- 4.11 For substitutes not included with the Bid, but submitted after the effective date of the Agreement, Contractor shall make written application to Engineer for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will also contain an itemized estimate of all costs and delays or schedule impacts that will result directly or indirectly from review, acceptance and provisions of such substitute, including costs of redesign and claims of other Contractors affected by the resulting change, all of which will be considered by the Engineer in evaluating the proposed substitute. Engineer may require Contractor to furnish at Contractor's expense, additional data about the proposed substitute. In rendering a decision, Owner/Engineer and Contractor shall have access to any available float time in the construction schedule. In the event that substitute materials or equipment not included as part of the Bid, but proposed after the effective date of the Agreement, are accepted and are less costly than the originally specified materials or equipment, then the net difference in cost shall be credited to the Owner and an appropriate change order executed.

4.11.1 If a specific means, method, technique, sequence of procedure of construction is indicated in or required by the Contract documents, Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to Engineer if Contractor submits sufficient information to allow Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract documents.

4.11.2 Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. Engineer will be the sole judge of acceptability and no substitute will be ordered, installed or utilized without Engineer's prior written acceptance which will be evidenced by either a change order or an approved shop drawing. Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

4.11.3 Contractor shall reimburse Owner for the charges of Engineer and Engineer's Consultants for evaluating each proposed substitute submitted after the effective date of the Agreement and all costs resulting from any delays in the Work while the substitute was undergoing review.

- 4.12 The Contractor shall furnish, free of charge, all labor, stakes, surveys, batter boards for structures, grade lines and other materials and supplies and shall set construction stakes and batter boards for establishing lines, position of structures, slopes and other controlling points necessary for the proper prosecution of the construction work. Where rights-of-way, easements, property lines or any other conditions which make the lay-out of the project or parts of the project critical are involved, the Contractor will employ a competent surveyor who is registered in the State of Florida for lay-out and staking. These stakes and marks shall constitute the field control by and in accord with which the Contractor shall govern and execute the Work. The Contractor will be held responsible for the preservation of all stakes, marks and if for any reason any of the stakes or marks or batter boards become destroyed or disturbed, they will be immediately and accurately replaced by the Contractor.
- 4.13 The Contractor has, by careful examination, satisfied himself as to the nature and location of the Work and all other matters which can in any way affect the Work under this Contract, including, but not limited to details pertaining to boring, as shown on the drawings, are not guaranteed to be more than a general indication of the materials likely to be found adjacent to holes bored at the site of the Work, approximately at the locations indicated. The Contractor shall examine boring data, where available, and make his own interpretation of the subsoil investigations and other preliminary data, and shall base his Bid on his own opinion of the conditions likely to be encountered. In no event shall an extension of time be considered for any conditions that existed at the time of bidding, nor shall the Contractor receive extra compensation for completion of the project as intended by the drawings and in keeping with the Contract documents. No verbal agreement or conversation with any officer, agent or employee of the Owner, before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.
- 4.14 If the Contractor, in the course of the Work, finds that the drawings and/or Contract documents cannot be followed, he shall immediately inform the Owner in writing, and the Owner shall promptly check the accuracy of the information. Any work done after such discovery, until any necessary changes are authorized, will be done at the Contractor's risk.

ARTICLE 5. OWNER'S RESPONSIBILITIES

- 5.1 Owner shall furnish the data required of Owner under the Contract documents promptly and shall make payments to the Contractor within a reasonable time (no more than twenty (20) days) after the Work has been accepted by the Owner. The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the Contract documents shall be determined by the Owner/Engineer. Standard County forms shall be utilized.

- 5.2 The Owner shall provide the lands upon which the Work under this Contract is to be done, except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of his materials, together with right of access to same.
- 5.3 The Owner shall have the right to take possession of and use any completed portions of the Work, although the time for completing the entire Work or such portions may not have expired, but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract documents.

ARTICLE 6. CHANGES IN THE WORK

- 6.1 Without invalidating the Agreement and without notice to any Surety, Owner may, at any time, order additions, deletions or revisions in the Work. These will be authorized by a written amendment, a change order, or a work directive change. 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).
- 6.2 Contractor shall not be entitled to an increase in the Contract price or an extension of the Contract time with respect to any Work performed that is not required by the Contract documents as amended, modified and supplemented.
- 6.3 Owner and Contractor shall execute appropriate change orders (or written amendments) covering changes in the Work which are ordered by Owner, or which may be required because of acceptance of defective Work.
- 6.4 At any time Engineer may request a quotation from Contractor for a proposed change in the Work and within twenty-one (21) calendar days after receipt, Contractor shall submit a written and detailed proposal for an increase or decrease in the Contract price or Contract time for the proposed change. Engineer shall have twenty-one (21) calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in sufficient detail to reasonably permit an analysis by Engineer of all material, labor, equipment, subcontracts, overhead costs and fees, and shall cover all Work involved in the change, whether such Work was deleted, added, changed or impacted. Notwithstanding the request for quotation, Contractor shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will be considered non-prejudicial.

ARTICLE 7. CHANGE OF CONTRACT PRICE

- 7.1 The Contract price constitutes the total compensation (subject to authorized adjustments) payable to Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by Contractor shall be at his expense without change in the Contract price.
- 7.2 The Contract price may only be changed by change order or by a written amendment. Any claim for an increase or decrease in the Contract price shall be based on written notice delivered by the party making the claim to the other party. Notice of the amount of the claim with supporting data shall be delivered within ten (10) days from the beginning of such occurrence and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event.
- 7.3 The value of any Work covered by a change order or of any claim for an increase or decrease in the Contract price shall be determined in one of the following ways (at Owner's discretion):
- 7.3.1 Where the Work involved is covered by unit prices contained in the Contract documents, cost will be determined by application of such unit prices to the quantities of the items involved.
- 7.3.2 By mutual acceptance of lump sum.
- 7.3.3 On the basis of the cost of the Work, plus a 15% Contractor's fee for overhead and profit. (Contractor shall submit an itemized cost breakdown together with supporting data.)
- 7.4 Either Owner or Contractor may make a claim for an adjustment in the Contract price. The unit price of an item of Unit Price Work shall be subject to re-evaluation and adjustment under the following conditions:
- 7.4.1 If the total cost of a particular item of Unit Price Work amounts to 5% or more of the Contract price and the variation in the quantity of the particular item of Unit Price Work performed by Contractor differs by more than 15% from the estimated quantity of such item indicated in the Agreement; and
- 7.4.2 If there is no corresponding adjustment with respect to any other item of Work; and
- 7.4.3 If a Contractor believes that it has incurred additional expense as a result thereof; or

7.4.4 If Owner believes that the quantity variation entitles it to an adjustment in the unit price; or

7.4.5 If the parties are unable to agree as to the effect of any such variations in the quantity of Unit Price Work performed.

ARTICLE 8. CHANGE OF CONTRACT TIME

8.1 Contract time may only be changed by a change order or a written amendment. Any claim for an extension or shortening of the Contract time shall be based on written notice delivered by the party making the claim to the other party. Notice of the extent of the claim with supporting data shall be delivered within fifteen (15) days from detection or beginning of such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event.

8.2 The Contract time will be extended in an amount equal to time lost due to delays beyond the control of Contractor. Such delays shall include, but not be limited to, acts or neglect by Owner or others performing additional Work; or to fires, floods, epidemics, abnormal weather conditions or acts of God.

8.3 All time limits stated in the Contract documents are of the essence.

ARTICLE 9. WARRANTY, TEST/INSPECTION, CORRECTION

9.1 Contractor warrants (for a minimum period of three (3) years or as otherwise stated herein) and guarantees to Owner that all Work will be in accordance with the Contract documents and will not be defective; that Owner, representatives of Owner, governmental agencies with jurisdictional interests will have access to the Work at reasonable time for their observation, inspecting and testing (Contractor shall give Engineer timely notice of readiness of the Work for all required approvals and shall assume full responsibility, including costs, in obtaining required tests, inspections, and approval certifications and/or acceptance, unless otherwise stated by Owner).

9.2 If any Work (including work of others) that is to be inspected, tested, or approved is covered without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation. Such uncovering 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. Neither observations by Engineer nor inspections, tests, or approvals by others shall relieve Contractor from Contractor's obligations to perform the Work in accordance with the Contract documents.

9.3 If the Work is defective, or Contractor fails to supply sufficient skilled workers, or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract documents, Owner may order Contractor to stop the Work, or any portion thereof and terminate payments to the Contractor until the cause for such order has been eliminated. Contractor shall bear all direct, indirect and consequential costs for satisfactory reconstruction or removal and replacement with non-defective Work, including, but not limited to fees and charges of engineers, architects, attorneys and other professionals and any additional expenses experienced by Owner due to delays to other Contractors performing additional Work and an appropriate deductive change order shall be issued. Contractor shall further bear the responsibility for maintaining schedule and shall not be entitled to an extension of the Contract time and the recovery of delay damages due to correcting or removing defective Work.

9.3.1 If Contractor fails within seven (7) days after written notice to correct defective Work, or fails to perform the Work in accordance with the Contract documents, or fails to comply with any other provision of the Contract documents, Owner may correct and remedy any such deficiency to the extent necessary to complete corrective and remedial action. Owner may exclude Contractor from all or part of the site, take possession of all or part of the Work, Contractor's tools, construction equipment and machinery at the site or for which Owner has paid Contractor but which are stored elsewhere. All direct and indirect costs of Owner in exercising such rights and remedies will be charged against Contractor in an amount approved as to reasonableness by Engineer and a change order will be issued incorporating the necessary revisions.

9.3.2 If within three (3) years after the date of completion or such longer period of time as may be prescribed by laws or regulations or by the terms of any applicable special guarantee required by the Contract documents, any Work is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions, either correct such defective Work or if it has been rejected by Owner, remove it from the site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instruction, Owner may have the defective Work corrected/removed and all direct, indirect and consequential costs of such removal and replacement will be paid by Contractor.

ARTICLE 10. SUSPENSION/TERMINATION OF WORK

10.1 Owner may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety (90) days by written notice to Contractor, which will fix the date on which Work will be resumed. Contractor shall be allowed an increase in the Contract price or an extension of the Contract

time, or both, directly attributable to any suspension if Contractor makes an approved claim therefore.

- 10.2 Owner may terminate the Contract if Contractor commences a voluntary case under any chapter of the Bankruptcy Code or any similar action by filing a petition under any other federal or state law relating to the bankruptcy or insolvency; if a petition is filed against the Contractor under any chapter of the Bankruptcy Code or similar relief under any other federal or state law; if Contractor persistently fails to perform the Work in accordance with the Contract documents; if Contractor disregards laws or regulations of any public body having jurisdiction or the Engineer; or otherwise violates in any substantial way any provisions of the Contract.

10.2.1 Owner may, after giving Contractor (and the Surety, if there is one) seven (7) days written notice and to the extent permitted by laws and regulations, terminate the services of Contractor; exclude Contractor from the site and take possession of the Work and of all Contractor's tools, construction equipment and machinery at the site and use the same to the full extent they could be used (without liability to Contractor for trespass or conversion); incorporate in the Work all materials and equipment stored at the site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment beyond an amount equal to the value of material and equipment not incorporated in the Work, but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the Work exceed the unpaid balance of the Contract price, Contractor shall pay the difference to Owner. Such costs incurred by Owner shall be verified by Owner and incorporated in a change order; but in finishing the Work, Owner shall not be required to obtain the lowest figure for the Work performed. Contractor's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement.

- 10.3 If, through no act or fault of Contractor, the Work is suspended for a period of more than ninety (90) days by Owner or under an order of court or other public authority, or Engineer fails to act on any application or fails to pay Contractor any sum finally determined to be due; then Contractor may, upon seven (7) days written notice to Owner terminate the Agreement and recover from Owner payment for all Work executed, any expense sustained plus reasonable termination expenses. In lieu of terminating the Agreement, if Engineer has failed to act on any application of payment or Owner has failed to make any payment as aforesaid, Contractor may upon seven (7) days written notice to Owner stop the Work until payment of all amounts then due.

ARTICLE 11. CONTRACT CLAIMS

- 11.1 The rendering of a decision by Engineer with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by Owner or Contractor of such right or remedies as either may otherwise have under the Contract documents or by laws or regulations in respect of any such claim, dispute or other matter. No action, either at law or at equity, shall be brought in connection with any such claim, dispute or other matter later than thirty (30) days after the date on which Owner/Engineer has rendered such written decision in respect thereof. Failure to bring an action within said thirty (30) day period shall result in Engineer's decision being final and binding on the Contractor. In no event may any such action be brought after the time at which instituting such proceedings would be otherwise barred by the applicable statute of limitations.
- 11.2 Before bringing any action in court pertaining to any claim, dispute or other matter in question(s) arising out of or relating to the Contract documents or the breach thereof, or Engineer's final decision, except for claims which have been waived by the making and acceptance of final payment, the Contractor shall first submit written notice(s) of Contract claims to the Purchasing Official for a decision; within the earlier of sixty (60) days after the last date on which the Contractor provided any goods or services required by the Contract or after the date on which the Contractor knew or should have known such a claim existed. The Manatee County Code of Laws, Section 2-26-63, Contract Claims, details the requirements and process for such a claim.

ARTICLE 12. RESIDENT PROJECT REPRESENTATIVE - DUTIES, RESPONSIBILITIES

- 12.1 Resident Project Representative is Engineer/Owner's Agent, who will act as directed by and under the supervision of the Engineer, and who will confer with Owner/Engineer regarding his actions. Resident Project Representative's dealing in matters pertaining to the on-site Work shall, in general, be only with the Owner/Engineer and Contractor and dealings with Subcontractors shall only be through or with the full knowledge of Contractor.
- 12.2 Resident Project Representative will:
- 12.2.1 Review the progress schedule, schedule of shop drawing submissions and schedule of values prepared by Contractor and consult with Owner/Engineer concerning their acceptability.
 - 12.2.2 Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with Owner/Engineer and notify those expected to attend in advance. Attend meetings and maintain and circulate copies of minutes thereof.

- 12.2.3 Serve as Owner/Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist him in understanding the intent of the Contract documents. As requested by Owner/Engineer, assist in obtaining additional details or information when required at the job site for proper execution of the Work.
- 12.2.4 Receive and record date of receipt of shop drawings and samples, receive samples which are furnished at the site by Contractor and notify Owner/Engineer of their availability for examination.
- 12.2.5 Advise Owner/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 Owner/Engineer.
- 12.2.6 Conduct on-site observations of the Work in progress to assist Owner/Engineer in determining if the Work is proceeding in accordance with the Contract documents and that completed Work will conform to the Contract documents.
- 12.2.7 Report to Owner/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 approvals required or if Work has been damaged prior to final payment; and advise Owner/Engineer when he believes Work should be corrected or rejected or should be uncovered of observation or requires special testing, inspection or approval.
- 12.2.8 Verify that tests, equipment and system start-ups and operating and maintenance instructions are conducted as required by the Contract documents and in the 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 start-ups.
- 12.2.9 Accompany visiting inspectors representing public or other agencies having jurisdiction over the project; record the outcome of these inspections and report to Owner/Engineer.
- 12.2.10 Transmit to Contractor, Owner/Engineer's clarifications and interpretations of the Contract documents.
- 12.2.11 Consider and evaluate Contractor's suggestions or modifications in drawings or Contract Documents and report them with recommendations to Owner/Engineer.

- 12.2.12 Maintain at the job site orderly files for correspondence, reports of job conferences, shop drawings and sample submissions, reproductions of original Contract documents including all addenda, change orders, field orders, additional drawings issued subsequent to the execution of the Contract, Owner/Engineer's clarifications and interpretations of the Contract documents, progress reports and other project related documents.
- 12.2.13 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 or manufacturers, fabricators, suppliers and distributors; daily activities, decisions, observations in general and specific observations in more detail as in the case of observing test procedures. Send copies to Owner/Engineer.
- 12.2.14 Record names, addresses and telephone numbers of all Contractors, Subcontractors and major Suppliers of materials and equipment.
- 12.2.15 Furnish Owner/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.
- 12.2.16 Consult with Owner/Engineer in advance of scheduling major tests, inspections or start of important phases of the Work.
- 12.2.17 Report immediately the occurrence of any accident.
- 12.2.18 Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to Owner/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.
- 12.2.19 During the course of the Work, verify that certificates, maintenance and operations manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed, and deliver this material to Owner/Engineer for his review prior to final acceptance of the Work.
- 12.2.20 Before Owner/Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
- 12.2.21 Conduct final inspection in the company of Owner/Engineer and Contractor and prepare a final list of items to be completed or corrected.

12.2.22 Verify that all items on final list have been completed or corrected and make recommendations to Owner/Engineer concerning acceptance.

12.3 Except upon written instructions of Owner/Engineer, Resident Project Representative:

12.3.1 Shall not authorize any deviation from the Contract documents or approve any substitute materials or equipment;

12.3.2 Shall not exceed limitations on Owner/Engineer's authority as set forth in the Contract documents;

12.3.3 Shall not undertake any of the responsibilities of Contractor, Subcontractors or Contractor's superintendent, or expedite the Work;

12.3.4 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;

12.3.5 Shall not advise on or issue directions as to safety precautions and programs in connection with the Work;

12.3.6 Shall not authorize Owner to occupy the project in whole or in part; and

12.3.7 Shall not participate in specialized field or laboratory tests.

ARTICLE 13. APPRENTICES

13.1 If successful Contractor employs apprentices, he shall be governed and comply with the provisions of F.S. § 446.011.

NOTE: The form of all submittals, notices, change orders and other documents permitted or required to be used or transmitted under the Contract shall be determined by the County. Standard County forms shall be utilized.

END OF SECTION

MAILING LABEL

Cut along the outside border and affix this label to your sealed Bid envelope to identify it as a "Sealed Bid". Be sure to include the name of the company submitting the Bid and the Bid due date and time where requested.

MAILING LABEL TO AFFIX TO OUTSIDE OF SEALED BID PACKAGE:

SEALED BID - DO NOT OPEN

CONTRACTOR: _____

SEALED BID NO: 13-1527CD

**BID TITLE: BLACKSTONE PARK EXPANSION SITE WORK and
CONCESSION BUILDING**

DUE DATE/TIME: _____ @ _____



BLACKSTONE PARK EXPANSION

**SITE WORK AND CONCESSION BUILDING
TECHNICAL SPECIFICATIONS**

PREPARED FOR

MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT

AUGUST 2013



Stantec

Stantec Consulting Services Inc.
6900 Professional Parkway East
Sarasota, FL 34240

SITE WORK AND CONCESSION BUILDING TECHNICAL SPECIFICATIONS

for

BLACKSTONE PARK EXPANSION

PREPARED FOR

MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT
1112 MANATEE AVENUE WEST, SUITE 803
BRADENTON, FLORIDA 34205

PREPARED BY

STANTEC CONSULTING SERVICES INC.
6900 PROFESSIONAL PARKWAY EAST
SARASOTA, FLORIDA 34240

AND

FLEISCHMAN AND GARCIA ARCHITECTS AND PLANNERS, A.I.A., P.A.
5967 CATTLEMEN LANE, SUITE 6
SARASOTA, FLORIDA 34232

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PART I - MEASUREMENT AND PAYMENT

BLACKSTONE PARK EXPANSION – SITE WORK AND CONCESSION BUILDING

Manatee County, Florida

MEASUREMENT AND PAYMENT

GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section. See the construction plans listed below for reference:

Site Work plans by Stantec:

Sheets 1 – 19 of 19; sheet 1 of 1 (Concrete and Paver Surfacing Plan and Details); and sheets LP-101, LP-102, LP-401, LP-501, LP-601, LI-101, LI-102, LI-501, LI-502, and LI-601 (landscape and irrigation plans)

Concession Building plans by FleischmanGarcia:

Cover sheet; sheets A0.0, A2.1, A3.1, A5.1, A6.1, A9.1 (architectural); sheets S1.00, S1.01, S1.02, S2.00, S3.00, S4.00, S5.00 (structural); sheet MPE-1 (MPE); sheets M-1 and M-2 (mechanical); sheets E-1, E-2, ES-1 (electrical); sheets P-1 and P-2 (plumbing); and sheets FP-1 and FP-2 (fire protection)

1.2 SUMMARY

- A. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.
- B. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working drawings, labor, materials, tools, testing, restoration, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item contracted on a unit price basis will be determined upon completion of the construction and payment will be based on actual quantities. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.
- C. The quantities shown are approximate in-place quantities and are given only as a basis of calculation upon which the award of the Contract is to be made. The Owner/Engineer/Architect does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding or discrepancies because of such estimate of quantities. Final payment will be made only for satisfactorily completed in-place quantity of each item that is bid on a unit price basis.
- D. No payment will be made for work constructed outside the authorized limits of work. For the concession building, the limits of work shall include all connections and coordination of work up to 5 feet beyond the structure with the exception of the complete electrical scope of work depicted on sheet ES-1 to all courtsides and scoreboards which shall also be included as part of the limits of work for the concession building.
- E. Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally.

BLACKSTONE PARK EXPANSION – SITE WORK AND CONCESSION BUILDING
Manatee County, Florida
MEASUREMENT AND PAYMENT

- F. Where payment for items is shown to be paid for on a lump sum basis, no separate or additional payment will be made for any item of work required to complete the lump sum items. Lump sum items shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum items.
- G. Access to the site is provided by the existing 23rd Street West.
- H. Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work associated with the bid item shall be considered to be included in the scope of the appropriate listed bid items.

1.3 UNIT PRICE

- A. Actual quantities of each item contracted on a unit price basis will be determined upon completion of the construction and payment will be based on actual quantities.

1.4 BID ITEM DESCRIPTIONS

- A. A general description of the bid items contained in the various Bid Sections are described below. All items of work referenced in the contract documents, plans, and specifications shall be included in the various lump sum and unit prices in the bid form/contract if not specifically included as a pay item on the bid form.

Bid Items 100 - 125 (DRAINAGE): The various bid items for DRAINAGE shall include all drainage piping, drainage structures, rip-rap, underdrain, and underdrain filter material. **This section includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications.**

Bid Items 200 - 223 (PAVING): The various bid items for PAVING shall include all asphalt, base, subgrade, shell, curbing, specialty paver curbing, sidewalks, concrete pads/pavement, concrete surfaces, handicap ramps, detectable warning strips, dumpster pad/enclosure/gates, wheel stops, signage and striping (including the removal of existing striping along 23rd Street West), maintenance of traffic, adjustments to existing utility boxes/pads, concrete pavers, and bollards. This section also includes all permitting and permitting fees as may be required for the installation of the dumpster pad/enclosure, work within right-of-way, preparation of traffic control plans as required for maintenance of traffic. **Full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications shall be included in this section.**

BLACKSTONE PARK EXPANSION – SITE WORK AND CONCESSION BUILDING
Manatee County, Florida
MEASUREMENT AND PAYMENT

Bid Items 300 - 311 (EARTHWORK): The various bid items for EARTHWORK shall include all grading, excavation, loading/unloading/hauling/placement/compaction of fill material, swales, gravity wall, sodding, bermudagrass, tree root protection measures, tree protection, and best management practices controls (including the installation of the temporary construction entrance/existing drainage inlet protection located along 23rd Street West, as well as the repair, re-installation, and maintenance of existing BMPs installed by others). The best management practices controls shall include temporary dewatering activities (if needed), as well as the implementation of the Stormwater Pollution Prevention Plan (SWPPP) including all inspections and reporting required as part of the SWPPP.

Please note that an entity hired separately by Manatee County will remove the top 6" of existing soil material from within the entire 9.92-acre (+/-) project area and haul the removed soil material to the landfill. The removal and off-site disposal of the top 6" of existing soil material shall not be included as part of this bid. After the top 6" of existing soil material is removed from the site, topographic survey information will be provided to the Contractor by Manatee County prior to the Contractor starting work on the site. The Contractor is required to review the topographic survey information and notify the County and Engineer of any issues/discrepancies prior to starting any earthwork activities.

Upon confirmation by the Contractor that the top 6" of existing soil has been satisfactorily removed, the Contractor shall excavate, place, grade, and compact existing soil material to within 2 feet below the finished grade elevations depicted on the construction plans. This includes stockpiling any excess existing soil material on-site for removal by others. In no case shall any existing soil material be placed within 2 feet of finished grade elevation without prior written permission by the County and the Engineer. Once the Contractor balances the site to within 2 feet of finished grade and before any import/off-site fill material is placed, the Contractor shall prepare a topographic survey of the site and confirm that all existing soil material is 2 feet below finished grade. This topographic survey shall also be reviewed and accepted by the County and the Engineer prior to the placement of any additional fill on-site. All work described in this paragraph shall be included as part of Bid Item #300 as indicated on the Bid Proposal Form.

Upon confirmation that the work described above has been satisfactorily completed, the Contractor shall provide, place, grade, and compact clean, suitable fill material to the finished fill elevations depicted on the construction plans. This shall include all finished grading activities for the entire project including the complete construction of the dry retention area. Two stockpiles of clean, suitable fill will be provided on-site by the County for full use by the Contractor. The first stockpile will consist of 10,700 cubic yards (truck measure) and will be located west of the proposed dry retention area. The second stockpile will consist of 2,600 cubic yards (truck measure) and will also be located west of the proposed dry retention area. Prior to use of any of the stockpiled fill material, the Contractor shall confirm the quantity of the stockpiled fill material and notify the County and Engineer of any issues/discrepancies or acceptance of quantities provided. Any claim of discrepancy by the Contractor shall be supported by certified topographic survey data and volumetric calculations detailing the discrepancy amount. The clean, suitable stockpiled fill material shall only be placed within 2 feet below finished grade. In addition to utilizing the stockpiled fill material provided by the

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County, the Contractor shall also import any additional clean, suitable fill material needed to complete the project to the finished grade elevations. This shall include all hauling, loading/unloading, placement, grading, and compaction of the import fill material. Prior to being transported to the site, all import fill material shall be tested by Manatee County to confirm it is clean of any hazardous materials/contaminants and is suitable for construction of the proposed facilities. Please refer to the enclosed testing criteria/thresholds for all imported fill material. All work described in this paragraph shall be included as part of Bid Item #301 as indicated on the Bid Proposal Form.

Please note that a bid item has been provided which includes the import of up to 3,000 cubic yards (truck measure) of clean, suitable fill material by the Contractor should the County be unable to provide the referenced stockpile consisting of 2,600 cubic yards of clean, suitable fill.

This section includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with all earthwork bid items in accordance with the contract documents, plans, and specifications.

Bid Items 400 - 412 (FENCING): The various bid items for FENCING shall include all posts, rails, fabric, gates, concrete footings/foundations, chains, slats, and poly-cap fence guard. **This section also includes full compensation for furnishing all labor, materials, hardware, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications.**

Bid Items 500 - 522 (BALL FIELDS AND BATTING CAGES): The various pay items for BALL FIELDS AND BATTING CAGES shall include all ball field signage, backstop padding mats, windscreens, pitcher/home plates, bases, infield clay mix, root zone mixture and import fill material per Ball Field Turf Detail & Specifications, concrete pads for dugouts/bleachers/batting cages, dugout canopy structures (including signed and sealed structural design calculations/design plans for the dugout canopy structures), batting cage netting and support post system, artificial turf and home plate mats for batting cages, safety netting and support post system, and all hardware/appurtenances needed to construct all BALL FIELD AND BATTING CAGES pay items per the contract documents, plans, and specifications complete and in-place. Prior to being transported to the site, all import fill material shall be tested by the Manatee County to confirm it is clean of any hazardous materials/contaminants and is suitable for construction of the proposed facilities. Please refer to the enclosed testing criteria/thresholds for all imported fill material. **This section also includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with the bid items in accordance with the contract documents, plans, and specifications.**

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Bid Items 600 - 601 (MISCELLANEOUS): The various pay items for MISCELLANEOUS shall include construction survey/stakeout/foundation survey/record survey/record drawings, mobilization, miscellaneous permits not already obtained by the County, and bonding required per the contract documents. **This section includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications.**

Bid Items 700 – 712 (LANDSCAPE): The various bid items for LANDSCAPE shall include all trees, palms, shrubs, mulch, and groundcover materials, including the preparation/installation of planting soil as required per the plans and specifications. **This section also includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with these bid items in accordance with the contract documents, plans, and specifications.**

Bid Item 800 (IRRIGATION): The lump sum pay item for IRRIGATION shall include the controller (electrical junction box for irrigation controller will be provided by others), rain sensor, piping, sprinklers, bubblers, rotors, sleeves, thrust blocks, fittings, valves, control wires, reuse water signs, connection to the existing 4” reclaimed service line/valve, and all appurtenances needed to construct the complete irrigation system per the contract documents, plans, and specifications. **This section also includes full compensation for furnishing all labor, materials, tools, equipment, testing, restoration, and incidentals and for doing all the work involved with this bid item in accordance with the contract documents, plans, and specifications.**

Bid Item 900 (GENERAL REQUIREMENTS): Payment for all work under Division 1-GENERAL REQUIREMENTS shall be paid for as a lump sum. The contract price paid shall include all work necessary to coordinate and administer all parts indicated in the approved drawings and specifications, including but not limited to field engineering, submittals, permitting and inspection fees, inspections and all incidentals related to Division 1 General Requirements (such as miscellaneous related expenses, clean-up, temporary facilities, dumpster services, etc.) or referenced by other Divisions. This sum shall be inclusive per drawings and specifications for supervision and coordination of all personnel and trades assigned, scheduling and coordinating a full and complete project completion. This bid item shall also include all related expenses and time needed to coordinate access and schedules with all other contractors (including contractors hired directly by Manatee County).

Payment for any OWNER’S requested changes in the work scope shall require authorization of the OWNER prior to the work being performed. This item is not to cover work outlined in the plans and/or specifications or for work incidental to the completion of the project as outlined herein, and shall only be used when directed by the OWNER. Payment of the applicable negotiated cost shall be full compensation for furnishing, but not limited to, all labor, materials, and equipment necessary to perform work not covered in the drawings and specifications, is requested by the OWNER and is considered outside the original scope of work.

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Bid Item 1000 (SITE CONSTRUCTION - Refer to Civil Drawings): Payment for all work under Division 2-02361 TERMITE CONTROL (soil treatment) of these documents shall be paid for as a lump sum. The contract price paid shall include all work, material and coordination per approved drawings and specifications or referenced by other Divisions, including but not limited to application, storage, transport, safe handling, and disposal of all aspects of work and materials associated with this part of Division 2 for a full and complete installation. Coordinate with all other work and trades.

Bid Item 1100 (CONCRETE): Payment for all work under Division 3-CONCRETE shall be paid for as a lump sum price. The contract price paid shall include all work and materials per approved drawings and specifications. Sum shall include full compensation for coordination of tasks with other personnel or trades, furnishing all labor, materials, transportation costs, tools, equipment, storage, disposal, and incidentals for doing all the work involved in this Division. Refer to Structural drawings for additional concrete specifications and requirements. Coordinate with all other work and trades.

Bid Item 1200 (MASONRY): Payment for all work under Division 4-MASONRY shall be paid for as a lump sum price. The contract price paid shall include all work and materials per approved drawings and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, storage, disposal and incidentals involved in the work in this Division. Refer to Structural drawings for additional specifications and requirements. Coordinate with all other work and trades.

Bid Item 1300 (WOOD): Payment for all work under Division 6-WOOD shall be paid for at a lump sum price. The contract price paid shall include all work and materials per approved drawings and specifications. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 1400 (THERMAL INSULATION): Payment for all work under Division 7-07210 THERMAL INSULATION shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades. Include full scope for approved alternates.

Bid Item 1500 (VAPOR BARRIER / RETARDER): Payment for all work under Division 7-07260 VAPOR BARRIER / RETARDER shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

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Bid Item 1600 (PREFORMED METAL ROOFING): Payment for all work under Division 7-07411 PREFORMED METAL ROOF PANELS shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades. Include full scope for approved alternates.

Bid Item 1700 (SHEET METAL FLASHING AND TRIM): Payment for all work under Division 7-07620 SHEET METAL FLASHING AND TRIM shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades. Include full scope for approved alternates.

Bid Item 1800 (MANUFACTURED SPECIALTIES): Payment for all work under Division 7-07710 MANUFACTURED SPECIALTIES shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 1900 (JOINT SEALANTS): Payment for all work under Division 7-07900 JOINT SEALANTS shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 2000 (METAL DOORS AND FRAMES): Payment for all work under Division 8-08110 METAL DOOR AND FRAMES shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 2100 (FLUSH WOOD DOORS): Payment for all work under Division 8-08211 FLUSH WOOD DOORS shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

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Bid Item 2200 (ACCESS DOORS AND FRAMES): Payment for all work under Division 8-08311 ACCESS DOORS AND FRAMES shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 2300 (OVERHEAD COILING DOORS): Payment for all work under Division 8-08331 OVERHEAD COILING DOORS shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 2400 (COILING COUNTER DOORS): Payment for all work under Division 8-08334 COILING COUNTER DOOR shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 2500 (ALUMINUM WINDOWS): Payment for all work under Division 8-08520 ALUMINUM WINDOWS shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 2600 (DOOR HARDWARE): Payment for all work under Division 8-08710 DOOR HARDWARE shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 2700 (LOUVERS AND VENTS): Payment for all work under Division 8-08900 LOUVERS AND VENTS shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 2800 (PORTLAND CEMENT PLASTER): Payment for all work under Division 9-09221 PORTLAND CEMENT PLASTER shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades. Confirm with the OWNERS Representative final selections.

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Bid Item 2900 (GYPSUM BOARD ASSEMBLIES): Payment for all work under Division 9-09255 GYPSUM BOARD ASSEMBLIES shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades. Include full scope for approved alternates. Confirm with the OWNERS Representative final selections.

Bid Item 3000 (EPOXY FLOORING): Payment for all work under Division 9-09671 EPOXY FLOORING shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades. Include full scope for approved alternates. Confirm with the OWNERS Representative final selections.

Bid Item 3100 (PAINTING): Payment for all work under Division 9-09900 PAINTING shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades. Confirm with the OWNERS Representative final selections.

Bid Item 3200 (TIOLET COMPARTMENTS): Payment for all work under Division 10-10155 TIOLET COMPARTMENTS shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 3300 (SIGNS): Payment for all work under Division 10-10425 SIGNS shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 3400 (FIRE PROTECTION SPECIALTIES): Payment for all work under Division 10-10520 FIRE PROTECTION SPECIALTIES shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

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Bid Item 3500 (TIOLET ACCESSORIES): Payment for all work under Division 10-10800 TIOLET & BATH ACCESSORIES shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved plans and specifications. Sum shall include full compensation for furnishing all labor, materials, transportation costs, tools, equipment, testing, warranties, storage, disposal, and incidentals involved in the work in this Division including coordination with other trades.

Bid Item 3600 (MECHANICAL): Payment for all work under Division 15 (MECHANICAL) shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved drawings and specifications as outlined on sheet MPE-1. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, storage, and incidentals involved in the work in this Division including connection, testing, training, warranties, inspections and full coordination of work with site utilities under separate site development contract.

Bid Item 3700 (PLUMBING): Payment for all work under Division 15 (PLUMBING) shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved drawings and specifications as outlined on sheet MPE-1. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, storage, and incidentals involved in the work in this Division including connection, testing, training, warranties, inspections and full coordination of work with site utilities under separate site development contract.

Bid Item 3800 (FIRE PROTECTION): Payment for all work under Division 15 (FIRE PROTECTION) shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved drawings and specifications as outlined on sheets MPE-1, FP-1, and FP-2. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, storage, permitting, and incidentals involved in the work in this Division including connection, testing, training, warranties, inspections and full coordination of work with site utilities under separate site development contract.

Bid Item 3900 (POWER AND DISTRIBUTION WIRING): Payment for all work under Division 16 (POWER AND DISTRIBUTION WIRING) shall be paid for as a lump sum. The contract price paid shall include all work and materials per approved drawings and electrical specifications as outlined on sheet MPE-1 (less the lighting luminaires and wiring devices provided in a separate bid item). Sum shall include full compensation for furnishing all labor, materials, tools, equipment, storage, and incidentals involved in the work in this Division including connection to and full coordination of work with site electrical and utilities under separate site development contract.

Bid Item 4000 (LIGHTING LUMINAIRES AND WIRING DEVICES): Payment for all work under Division 16 (LIGHTING LUMINARIES AND WIRING DEVICES) shall be paid for as a lump sum. The contract price paid shall include all work and materials for lighting luminaires and wiring devices per approved drawings and specifications as outlined on sheet MPE-1. Sum shall include full compensation for furnishing all labor, materials, tools, equipment, storage, and incidentals involved in the work in this Division including connection to and full coordination of work with including coordination with other trades.

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1.5 ALTERNATE BID ITEMS

This section includes requirements governing Bid Alternates. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

- A. The Bidder proposes that the price provided on the bid form be added to or deducted from the Base Bid if particular alternates are accepted by Owner. Amounts listed for each alternate include costs of related coordination, modification, or adjustment.
- B. If the alternate does not affect the Contract Sum, the Bidder shall indicate "NO CHANGE."
- C. The Bidder shall be responsible for determining from the Contract Documents the effects of each alternate on the Contract Sum.
- D. Owner reserves the right to accept or reject any alternate, in any order, and to award or amend the Contract accordingly unless otherwise indicated in the Contract Documents.
- E. Acceptance or non-acceptance of any alternates by the Owner shall have no effect on the Contract Time.
- F. Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.
- G. Include as part of each alternate all labor, materials, tools, services, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate. Contractor shall execute accepted alternates under the same conditions as other Work of this Contract.

SCHEDULE OF ALTERNATES

Alternate No. 1: Provide all labor, materials, tools, services, miscellaneous devices, accessory objects, and similar items incidental to or required to provide complete fiberglass shingle roofing assembly in lieu of preformed metal panel roof system. This bid alternate applies to, but may not be limited to, the following base bid items: Bid Item 1600

EXAMPLE:

- 1. ADD____ DEDUCT____ NO CHANGE____.
- 2. Lump Sum: _____ Dollars
(\$_____).

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Alternate No. 2: Provide all labor, materials, tools, services, miscellaneous devices, accessory objects, and similar items incidental to or required to Omit the interior finishes and wall insulation – match lower storage CMU and painted finish in lieu of 1” rigid insulation, furring and drywall at second floor. This bid alternate applies to, but may not be limited to, the following base bid items: Bid Items 1400 and 2900

EXAMPLE:

1. ADD____ DEDUCT____ NO CHANGE____.
2. Lump Sum: _____ Dollars
 (\$_____).

Alternate No. 3: Provide all labor, materials, tools, services, miscellaneous devices, accessory objects, and similar items incidental to or required to provide sealed concrete to match all other ground floor areas: Concession and Storage in lieu of Epoxy flooring in restrooms. This bid alternate applies to, but may not be limited to, the following base bid items: Bid Item 3000

EXAMPLE:

1. ADD____ DEDUCT____ NO CHANGE____.
2. Lump Sum: _____ Dollars
 (\$_____).

March 20, 2013

Tom Yarger, PMP
Construction Services Manager
Manatee County
Property Management Department
1112 Manatee Avenue West, Suite 803
Bradenton, Florida 34205

Re: Backfill Testing Requirements
Blackstone Park Expansion
Palmetto, Manatee County
PSI Project No: 0552863

Dear Mr. Yarger:

Any backfill imported to the site shall be tested by a NELAP-accredited analytical laboratory for the following parameters at a minimum rate of 1 sample per 5,000 cubic yards:

- Volatile Organic Compounds by EPA Method 8260,
- Semi-Volatile Organic Compounds by EPA Method 8270,
- Organochlorine Pesticides by EPA Method 8081,
- Polychlorinated Biphenyls (PCBs) by EPA Method 8082,
- The 8 RCRA Metals by EPA Methods 6010 and 7471, and
- Total Recoverable Petroleum Hydrocarbons by laboratory method Florida Petroleum Residual Organics (FL-PRO).

The laboratory analytical results from the above test methods shall be compared to the Soil Cleanup Target Levels (SCTLs) as listed in Chapter 62-777 of the Florida Administrative Code. Any soil with contaminant concentrations exceeding the SCTLs cannot be used as backfill at the Blackstone Park Expansion project. The laboratory analytical report and source of the backfill shall be provided to Manatee County prior to importing any backfill material to the project site.

With regards to geotechnical testing parameters, the same soil samples referenced above shall be tested for Modified Proctor by ASTM D1157, Wash Sieve Analysis (No. 200 sieve) by ASTM D1140, and Organic Content by ASTM D2974. The criteria for suitable fill material in terms of geotechnical qualities shall meet the following statement: fine sand to slightly silty fine sand with no more than 12% passing a No. 200 sieve and no more than 5% organic content. For additional geotechnical information about the site, please reference PSI's Geotechnical Engineering Services Report dated November 21, 2012.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.



Michael J. Bair, ASP
Principal Consultant

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**PART II – TECHNICAL SPECIFICATIONS
(SITE WORK)**

**SECTION 01001
SUPPLEMENTARY TECHNICAL SPECIFICATIONS**

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes Supplementary Technical Specifications, which amend or supplement the technical specifications of these Contract Documents. All specifications not amended or supplemented remain in full force and effect.

1.02 ADDITIONS

- A. Section 01411, Testing Services (Provided by Contractor)
 - 1. Add to the first paragraph under 4.01.B: Testing reports shall be provided with each Application for Payment request made by the CONTRACTOR. The testing reports shall include all required testing results for each requested pay item. The ENGINEER and/or COUNTY may withhold payment of pay items if passing testing reports are not provided.

1.03 MODIFICATIONS

- A. Section 02911, Asphaltic Concrete
 - 1. Paragraph 3.01.D: FM1-T166 shall be replaced with ASTM D1559

PART 2 SPECIAL PROVISIONS

These Special Provisions amend or supplement the contract documents and are intended to set forth conditions and requirements that are unique for this project. All other provisions not amended or supplemented shall remain in full force and effect. In case of a discrepancy, these Special Provisions shall govern over any other written specification or drawing.

- SP-1 The CONTRACTOR shall be responsible for the implementation of the NPDES permit conditions and related Stormwater Pollution Prevention Plan (SWPPP) and inspections/reporting for the duration of the project. Upon completion of the project, the CONTRACTOR shall remove all temporary stormwater management measures/BMPs, and dispose of them as required.
- SP-2 The CONTRACTOR shall provide accurate, detailed, and complete (signed and sealed) record drawings, mylars, and a CD containing AutoCAD files of all record drawing sheets to the ENGINEER. The record drawings shall be signed and sealed by a Florida registered land surveyor. The record drawings shall meet the requirements of SWFWMD, the City of Palmetto, and Manatee County and shall be included in the cost of the project.
- SP-3 The CONTRACTOR shall be responsible for obtaining any required temporary dewatering permits through the Florida Department of Environmental Protection (FDEP) and shall provide copies to the OWNER and ENGINEER.

- SP-4 The CONTRACTOR must have the all approved permits readily available at the job site prior to beginning construction. The CONTRACTOR shall be responsible for adhering to all applicable permit conditions. The CONTRACTOR is responsible for obtaining all local, state and federal construction permits not furnished by the COUNTY, including any right-of-way use permits that may be necessary.
- SP-5 The CONTRACTOR shall be responsible for calling Sunshine State One to obtain information on existing utilities in project vicinity. The CONTRACTOR shall notify and cooperate with utility companies and agencies when the CONTRACTOR's operations are close to existing facilities in order to provide time for the utilities to stake the location of their existing facilities. The CONTRACTOR shall cooperate with the utility company and provide schedules, etc., when requested.

The drawings may or may not indicate the presence of existing utilities or facilities in the project area. Existing above or underground utilities, structures, or facilities that are shown on the plans are based on best information made available to the ENGINEER. The existing facilities may be in locations different than those shown on the drawings. It shall be the responsibility of the CONTRACTOR to acquaint himself with the exact location and to avoid conflict with all existing facilities. Where underground or aboveground utilities, structures, or facilities are damaged, they shall be immediately repaired to the specifications of the owner of the utility. If the owner of the utility elects to make such repairs with his own forces, CONTRACTOR shall make arrangements as to protect the COUNTY from all damages. Where such conflicts are unavoidable, every effort shall be made to construct the work so as to cause as little interference as possible with services rendered by the structure disturbed.

- SP-6 Measurement and payment for the Mobilization Bid Item shall include full compensation for the required 100 percent (100%) Performance Bond, 100 Percent (100%) Payment Bond, all required insurance for the project, and any permits not already obtained by the County. This may include those operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site and for the establishment of temporary offices, safety equipment and first aid supplies, and sanitary and other facilities/utilities. The mobilization pay item also includes demobilization of all equipment, personnel, supplies and incidentals from the project site upon final completion. Payment for mobilization shall not exceed 10 percent (10%) of the total Contract cost unless the Contractor can prove to the County that his actual mobilization cost exceeds 10 percent (10%). The basis of payment for all work associated with Mobilization shall be paid for under the Lump Sum Pay Item and in accordance with the following schedule:

Percent of Total Contract Amount Earned	Allowable Percent of the Lump Sum Price for Mobilization
5	25
10	50
25	75
100	100

END OF SECTION 01001

**SECTION 01050
SURVEYING (PROVIDED BY CONTRACTOR)**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Survey requirements for the project.

1.02 QUALITY CONTROL

- A. Employ a Land Surveyor registered in the State of Florida and acceptable to ENGINEER and OWNER to perform survey functions in this section.

1.03 SUBMITTALS

- A. Submit name, address, and telephone number of Surveyor before starting survey work.
- B. On request, submit documentation verifying accuracy of survey work.
- C. Submit a copy of registered site drawing and certificate signed by the Land Surveyor that the elevations and locations of the work are in conformance with Contract Documents.

1.04 PROJECT RECORD DOCUMENTS

- A. Maintain a complete and accurate log of control and survey work as it progresses.

1.05 EXAMINATION

- A. Verify locations of survey control points and reference points prior to starting work.
- B. Promptly notify ENGINEER of any discrepancies discovered.

1.06 SURVEY REFERENCE POINTS

- A. CONTRACTOR shall locate and protect survey control and reference points.
- B. Control datum for survey is that indicated on drawings.
- C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.
- D. Promptly report to ENGINEER the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
- E. The Registered Surveyor shall replace dislocated survey control points based on original survey control. Make no changes without prior written notice to ENGINEER.

1.07 SURVEY REQUIREMENTS

- A. Provide field engineering services. Utilize recognized engineering survey practices.
- B. Establish a minimum of two permanent benchmarks on site, referenced to established control points. Record locations, with horizontal and vertical data, on project record documents.
- C. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
 - 1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
 - 2. Grid or axis for structures.
 - 3. Building foundation, column locations, and ground floor elevations.
- D. Periodically verify layouts by same means.

1.08 SURVEYS FOR MEASUREMENT AND PAYMENT

- A. Perform surveys to determine quantities of unit cost work, including control surveys to establish measurement reference lines. Notify ENGINEER prior to starting work.
- B. CONTRACTOR's Surveyor shall sign field notes or keep duplicate field notes.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. The cost of the work specified in this section shall be included in all the various pay items or work items described in the schedule and no separate payment will be made, unless a separate pay item is established in the Contract Documents.

END OF SECTION 01050

**SECTION 01300
SHOP DRAWINGS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shop drawing submittal procedures.

1.02 PROCEDURES

- A. Deliver a minimum of six copies of submittals to ENGINEER at address listed on cover sheet of specifications. Distribution is two copies for the ENGINEER, two copies for the OWNER and two copies returned to the CONTRACTOR. If additional copies are required by the CONTRACTOR, they shall submit them.
- B. Transmit each item under ENGINEER-accepted form. Identify Project, CONTRACTOR, Subcontractor, and major supplier. Identify pertinent drawing sheet and specification section number as appropriate. Identify deviations from contract documents. Approve all submittals prior to forwarding to ENGINEER by stamping and signing approval stamp. Provide space for CONTRACTOR and ENGINEER review stamps.
- C. After ENGINEER review of submittal, revise and resubmit as required, identifying changes made since previous submittal.
- D. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.
- E. Prior to any submittals, a Schedule of Shop Drawings must be submitted and approved by ENGINEER.

PART 2 PRODUCTS

2.01 SHOP DRAWING SUBMITTAL

- A. All Precast Structures, Frames, Grates, and Covers
- B. Non-Pressure and Pressure Pipe, Fittings, and Appurtenances
- C. Concrete Pipe, Joints, Connections
- D. Concrete, Base, Asphalt Mix Design
- E. All Hardscape, Amenity, and Ball Field Items
- F. Dugouts, Batting Cage, Signs, Bollards
- G. Fencing and Netting
- H. Dumpster Enclosure

PART 3 **EXECUTION**

Not Used

PART 4 **MEASUREMENT AND PAYMENT**

- A. The cost of the work specified in this section shall be included in all the various pay items or work items described in the schedule and no separate payment will be made unless a separate pay item is established in the Contract Documents.

END OF SECTION 01300

**SECTION 01310
PROGRESS SCHEDULES**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Scheduling requirements, including submittal and revision procedures.

1.02 FORMAT

- A. Unless otherwise specified, the CONTRACTOR shall submit a schedule of activities in either of the forms listed below:
 - 1. A horizontal bar chart (minimum sheet size 24" x 36") with separate bar for each major work item. The time sequence shall be designated horizontally at the top of the chart in weeks, months and years. The position of each activity bar shall indicate the work period from beginning to the end of each activity work period.
 - 2. A logic diagram or CPM of all activities showing description, duration, early and late start/finish dates, predecessors, successors, and float time.

1.03 CONTENT

- A. The list of activities shall represent the complete scope of the project and shall be subject to approval by the OWNER's representative.
- B. Show complete sequence of construction by activity, with dates for beginning and completion of each activity listed.

1.04 REVISIONS TO SCHEDULES

- A. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
- B. Show accumulated percentage of completion of each activity, and total percentage of work completed as of the Application for Payment date.
- C. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
- D. Provide narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken, or proposed, and its effect.

1.05 SUBMITTALS

- A. Submit preliminary outline schedules within 15 days after date of OWNER-CONTRACTOR Agreement for coordination with OWNER's requirements. After review, submit detailed schedules within 15 days, modified to accommodate revisions recommended by ENGINEER.

- B. Submit revised progress schedules with each Application for Payment.

1.06 SUBMITTAL

- A. Submit six copies of schedules to ENGINEER.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. The cost of the work specified in this section shall be included in all the various pay items or work items described in the schedule and no separate payment will be made, unless a separate pay item is established in the Contract Documents.

END OF SECTION 01310

**SECTION 01411
TESTING SERVICES
(PROVIDED BY CONTRACTOR)**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Responsibilities of the CONTRACTOR, OWNER, and Testing Laboratory regarding specified tests.
- B. Report specifications.

1.02 SELECTION AND PAYMENT

- A. Unless otherwise stated in the Contract Documents, the CONTRACTOR will select and pay for the services of an independent testing laboratory to perform tests required by the technical specifications.
- B. Cost of retests due to failures shall be paid for by the CONTRACTOR in the form of a deduction from the contract amount.
- C. Utilization of a testing laboratory shall in no way relieve the CONTRACTOR of any obligation to perform work in accordance with the requirements of the Contract Documents.

1.03 SCHEDULING TESTS

- A. The CONTRACTOR will furnish the name of the testing laboratory to the OWNER at the preconstruction conference.
- B. The CONTRACTOR shall be responsible for scheduling each test by notifying the designated laboratory 24 hours prior to the time the test is to be taken.
- C. The specific requirements, including the type and amount of testing, shall be in accordance with the technical specifications or as otherwise stated in the Contract Documents.
- D. Ample time shall be allowed for the testing process by the CONTRACTOR, since an extension of time will not be allowed for testing delays or retests due to failures.

1.04 QUALITY ASSURANCE

- A. All tests shall be performed by qualified personnel under the direction and control of a Professional Engineer registered in the State of Florida and specializing in Geotechnical or Material analysis as applicable.
- B. In addition to the tests required by the Contract Documents, the OWNER's Representative may direct the testing laboratory to take any other tests or material inspections that he feels necessary to achieve the quality of construction that is specified in the Contract Documents.

1.05 LABORATORY RESPONSIBILITIES

- A. Perform inspection, sampling, and testing in accordance with the Contract Documents.
- B. Provide qualified personnel to perform all phases of required services and cooperate with OWNER's Representative and CONTRACTOR in the performance of those services.
- C. Ascertain compliance of materials and related procedures with requirements of the Contract Documents.
- D. Promptly notify the CONTRACTOR and the OWNER's Representative of any irregularities or non-conformance of work, materials, or product.
- E. Perform additional inspections or tests requested by the OWNER's Representative.
- F. Attend pre-construction conferences and progress meetings.

1.06 LABORATORY REPORTS

- A. After each inspection or test, promptly submit a laboratory report to the OWNER, the OWNER's Representative, and the CONTRACTOR.
- B. The report shall include the following:
 - 1. Date of report.
 - 2. Project title and number.
 - 3. Date, time, and location of each sample extraction or inspection.
 - 4. Identification of material and method of test.
 - 5. Results of tests.
 - 6. Evaluation of conformance to contract specifications.
 - 7. Notification of retest requirement due to test failure.
 - 8. Site map showing testing locations.
 - 9. At the completion of construction the testing firm shall provide a certification signed and sealed by a professional engineer licensed in the state of Florida, certifying that the testing program has been completed in accordance with the project specifications and that the completed project complies with the testing criteria contained in the project plans and specifications.

1.07 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke or alter the requirements of the Contract Documents.

- B. Laboratory may not approve or accept any portion of the work.
- C. Laboratory may not assume any duties of the CONTRACTOR.
- D. Laboratory has no authority to stop the work.

1.08 CONTRACTOR RESPONSIBILITIES

- A. Submit proposed mix designs and samples of proposed materials to the designated laboratory as required by the Contract Documents or as requested by the OWNER's Representative.
- B. Provide access to the site for any tests or inspections.
- C. Provide labor and facilities to obtain, handle, store, and cure test samples and to facilitate material inspection.
- D. Cooperate with laboratory personnel to maximize the efficiency of the testing procedure by periodically updating the construction schedule and adhering to the 24-hour advance notice requirement for tests.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. In accordance with Article 1.02, Selection and Payment, this section.
- B. Testing Services (Provided by CONTRACTOR)

Where no separate pay item for Testing Services (provided by CONTRACTOR) is established in the Contract Documents, the cost of all such work specified in this section shall be included in the prices for the other pay items which are included in the contract and no additional compensation will be allowed.

END OF SECTION 01411

**SECTION 01510
TEMPORARY UTILITIES AND CONTROLS**

PART 1 GENERAL

1.01 REQUIREMENTS

- A. Furnish, install, maintain and remove temporary utilities required for construction. See other sections for additional utilities coordination.

1.02 TEMPORARY TRAILER LOCATION

The CONTRACTOR shall obtain approval from the OWNER for any proposed temporary trailer (office) location on site.

1.03 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with National Electric Code.
- B. Comply with federal, state and local codes and regulations and with utility company requirements.
- C. Comply with County Health Department Regulations.

PART 2 PRODUCTS

2.01 MATERIALS, GENERAL

- A. Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.

2.02 TEMPORARY ELECTRICITY AND LIGHTING

- A. Arrange with utility company and OWNER to provide service required for power and lighting, and pay all costs for service and for power used in the construction, testing and trial operation prior to final acceptance of the work by the OWNER as stipulated by the ENGINEER.
- B. Install circuit and branch wiring, with area distribution boxes located so that power and lighting are available throughout the construction by the use of construction type power cords.
- C. Provide adequate artificial lighting for all areas of work when natural light is not adequate for work, and for areas accessible to the public.

2.03 TEMPORARY HEAT AND VENTILATION

- A. Provide temporary heat and ventilation as required to maintain adequate environmental conditions to facilitate progress of the work, to meet specified minimum conditions for the

installation of materials, and to protect materials and finishes from damage due to temperature or humidity.

- B. Provide adequate forced ventilation of enclosed areas for curing of installed materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors or gases.
- C. Portable heaters shall be standard approved units complete with controls.
- D. Pay all costs of installation, maintenance, operation and removal, and for fuel consumed.
- E. Provide connections to existing facilities, extend and supplement with temporary units as required to comply with requirements. Pay all costs of installation, maintenance, operation and removal.

2.04 TEMPORARY TELEPHONE SERVICE

- A. Arrange with local telephone service company.
- B. Pay all costs for installation, maintenance and removal, and service charges.

2.05 TEMPORARY WATER

- A. Provide and pay for all required water for construction and consumptive purposes.
- B. CONTRACTOR may utilize existing on-site water supply system for water needed for construction purposes. However, all water used shall be coordinated with the utility company. A temporary meter may be required.
- C. Temporary potable water piping shall be chlorinated prior to use to remove bacteriological contaminants.

2.06 TEMPORARY SANITARY FACILITIES

- A. Provide sanitary facilities in compliance with laws and regulations.
- B. Service, clean and maintain facilities and enclosures.

2.07 EROSION AND PROPERTY CONTROL

- A. Flow of drains and sewers maintained: Adequate provisions shall be made for the flow of sewers, drains and water courses encountered during construction, and the lines and structures which may have been disturbed shall be immediately restored to their original condition at the expense of the CONTRACTOR.
- B. Property Protection: Trees, grass, fences, signboards, poles and all other property shall be protected unless their removal is authorized; and any property damage shall be satisfactorily restored by the CONTRACTOR and at the expense of the CONTRACTOR.

- C. Provide all means necessary for prevention, control and abatement of erosion, siltation and water pollution resulting from construction until final acceptance by OWNER. Provide for mulching, sodding, sandbagging, berms, slope drains, sedimentation structures, or other devices necessary to meet county, state and federal regulation.

2.08 CLEANING DURING CONSTRUCTION

- A. Control accumulation of waste materials and rubbish; periodically dispose of off-site.
- B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

2.09 CHEMICALS, HAZARDOUS WASTES, AND PETROLEUM PRODUCTS

- A. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with manufacturer's instructions or government regulations as applicable. The CONTRACTOR shall legally dispose of and clean the project site of all chemicals, hazardous wastes, and petroleum products placed or used on the site by the CONTRACTOR.

PART 3 EXECUTION

3.01 REMOVAL

- A. Completely remove temporary materials and equipment when their use is no longer required as determined by the ENGINEER.
- B. Clean and repair damage caused by temporary installations or use of temporary facilities.
- C. Restore permanent facilities used for temporary services to specified condition.

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. Unless otherwise specified in the Contract Documents, the cost of temporary utilities and control shall be included in the various lump sum and unit prices in the contract.

END OF SECTION 01510

**SECTION 01600
MATERIAL AND EQUIPMENT**

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. This section provides general guidelines for products provided, including their transportation and handling, storage and protection, options, substitutions and systems demonstration.

1.02 SUBSTITUTIONS

- A. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
- B. Request constitutes a representation that CONTRACTOR:
 - 1. Has investigated proposed product and determined that it meets or exceeds, in all aspects, specified product.
 - 2. Will provide the same warranty for substitution as for specified product.
 - 3. Will coordinate installation and make other changes which may be required for work to be complete in all respects.
 - 4. Waives claims for additional costs which may subsequently become apparent.
- C. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.
- D. ENGINEER will determine acceptability of proposed substitution, and will notify CONTRACTOR of acceptance or rejection in writing within a reasonable time.

PART 2 PRODUCTS

- 2.01** Only new materials and equipment shall be incorporated in the work. All material and equipment furnished by CONTRACTOR shall be subject to inspection and approved by ENGINEER.
- 2.02** Comply with specifications and referenced standards as minimum requirements.
- 2.03** Components required to be supplied in quantity within a specification section shall be the same, and shall be interchangeable.
- 2.04** Products specified by reference standards or by description only: Any product meeting those standards.
- 2.05** Products specified by naming one or more manufacturers with a provision for substitutions: Submit a request for substitution for any manufacturer not specifically named.

PART 3 EXECUTION

3.01 TRANSPORTATION AND HANDLING

- A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

3.02 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with weather-tight enclosure as recommended by manufacturer. Provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area. Prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.
- E. Materials, which in the opinion of the ENGINEER, have become so damaged as to be unfit for the use intended or specified shall be removed from the site of the work. CONTRACTOR shall receive no compensation for the damaged material or its removal.

3.03 SYSTEMS DEMONSTRATION

- A. Prior to final inspection, demonstrate operation of each system to ENGINEER and OWNER.
- B. Instruct OWNER's personnel in operation, adjustment, and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. The cost of the work in this section shall be included in all the various pay items or work items described in the schedule and no separate payment will be made, unless a separate pay item is established in the Contract Documents.

END OF SECTION 01600

**SECTION 01675
PRE-CONSTRUCTION VIDEO RECORD**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements for pre-construction color audio-video.

1.02 SCOPE

- A. Prior to commencing work, take a continuous color audio-video tape OR DVD recording along entire length of Project to serve as a record of pre-construction conditions.

1.03 APPROVAL

- A. NO CONSTRUCTION SHALL BEGIN prior to submittal of tapes or DVDs covering construction area by CONTRACTOR. ENGINEER shall have authority to reject all or any portion of a video not conforming to specifications and order that it be redone at no additional charge. CONTRACTOR shall reschedule unacceptable coverage within five days after being notified. All tapes or DVDs and written records shall become property of the OWNER.

PART 2 PRODUCTS

2.01 AUDIO-VIDEO TAPES OR DVDs

- A. Audio-video tapes or DVDs shall be new. The video shall be high grade DVD or, one-half inch high energy, extended still frame capable, a VHS, color video cassette for a color video cassette recorder.

PART 3 EXECUTION

3.01 EQUIPMENT

- A. Furnish all equipment, accessories, materials and labor to perform this service. Audio-video system shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls or any other form of imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume, clarity and be free from distortion and interruptions.

3.02 RECORDED INFORMATION - AUDIO

- A. Each video shall begin with current date, project name and OWNER and followed by general location, i.e., name of street, house address, viewing side and direction of progress. Recording shall contain the narrative commentary of electrographer, recorded simultaneously with their fixed elevation video record of the zone of influence of construction.

3.03 RECORDED INFORMATION - VIDEO

- A. All video recordings must display the date and time of recording. Date information shall contain the month, day and year. Time information shall contain the hour and minutes. Additional information shall be displayed periodically. Such information shall include, but not be limited to, project name and number, name of street, house address, direction of travel and the viewing side. This transparent information shall appear on the extreme upper left hand third of the screen.

3.04 LIGHTING

- A. Perform all videoing during times of good visibility. No videoing shall be done during precipitation, mist or fog.

3.05 SPEED OF TRAVEL

- A. Rate of speed in the general direction of travel of the vehicle used during videoing shall not exceed 75 feet per minute. Planning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

3.06 AREA OF COVERAGE

- A. Video coverage shall include all surface features located within the zone of influence of construction supported by appropriate audio coverage. Such coverage shall include, but not be limited to, existing driveways, sidewalks, curbs, pavements, ditches, mailboxes, landscaping, culverts, fences, signs, headwalls and trees that are contiguous or tree limbs that overhang onto the area of proposed construction activity.

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. Unless otherwise specified in the Contract Documents, the cost of the pre-construction video shall be included in the various lump sum and unit prices in the contract.

END OF SECTION 01675

**SECTION 01700
CONTRACT CLOSE-OUT**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements and procedures for Contract Closeout.

1.02 CLOSE-OUT PROCEDURES

- A. Comply with procedures stated in General Conditions of the contract for issuance of Certificate of Substantial Completion.
- B. When CONTRACTOR considers work has reached final completion, submit written certification that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for ENGINEER's inspection.
- C. In addition to submittals required by the conditions of the contract, provide submittals required by governing authorities, and submit a final statement of accounting giving total adjusted contract sum, previous payments, and sum remaining due.
- D. When ENGINEER finds the work is acceptable for final acceptance, close-out documents shall be submitted.

1.03 FINAL CLEANING

- A. Execute prior to final inspections.
- B. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Clean or replace filters of mechanical equipment. Clean roofs, gutters, downspouts, and drainage systems.
- C. Clean site, sweep paved areas, rake clean other surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from the project and from the site.

1.04 PROJECT RECORD DOCUMENTS

- A. Store documents separate from those used for construction.
- B. Keep documents current; do not permanently conceal any work until required information has been recorded.
- C. At Contract close-out, submit documents with transmittal letter containing date, project title, CONTRACTOR's name and address, list of documents, and signature of CONTRACTOR.

1.05 WARRANTIES AND BONDS

- A. Provide duplicate, notarized copies. Execute CONTRACTOR's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.
- B. Submit material prior to final application for payment. For equipment put into use with OWNER's permission during construction, submit within 30 days after first operation. For items of work delayed materially beyond date of substantial completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.06 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, and maintenance materials in quantities specified in each section, in addition to that used for construction of work. Delivery to OWNER and obtain receipt prior to final payment.

1.07 EVIDENCE OF PAYMENT AND RELEASE OF LIENS

- A. Submit complete and legally effective releases or waivers of all liens filed in connection with the work in compliance with Contract Documents.

1.08 FINAL APPLICATION FOR PAYMENT

- A. Submit final application for payment in accordance with procedures and requirements stated in the General Terms and Conditions of the Contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. Unless otherwise specified in the Contract Documents, the cost of complying with this section of the specifications shall be included in the various lump sum and unit prices in the contract.

END OF SECTION 01700

**SECTION 01730
OPERATION AND MAINTENANCE DATA**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Format and content of manuals.
- B. Instruction of OWNER's personnel.
- C. Schedule of submittals.

1.02 QUALITY ASSURANCE

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.03 FORMAT

- A. Prepare data in the form of an instructional manual.
- B. Binders: Commercial quality, 8½ x 11 inch three-ring binders with hardback, cleanable, plastic covers. When multiple binders are used, correlate data into related consistent groupings.
- C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of project identify subject matter of contents.
- D. Arrange content by systems under section numbers and sequence of Table of Contents of this project manual.
- E. Provide tabbed flyleaf for each separate product and system, with typed description of product and major component parts of equipment.
- F. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold large drawings to size of text pages.

1.04 CONTENTS, EACH VOLUME

- A. Table of Contents: Provide title of project; names, addresses, and telephone numbers of ENGINEER, sub-consultants, and CONTRACTOR with name of responsible parties; schedule of products and systems, indexed to content of the volume.
- B. For each Product or System: List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- C. Product Data - Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

- D. Drawings - Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

1.05 MANUAL FOR MATERIALS AND FINISHES

- A. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: As specified in individual product specification sections.

1.06 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
- B. Panelboard Circuit Directories: Provide electrical service characteristics, controls and communications.
- C. Include color-coded wiring diagrams as installed.
- D. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Provide servicing and lubrication schedule, and list of lubricants required.
- G. Include manufacturer's printed operation and maintenance instructions.
- H. Include sequence of operation by controls manufacturer.
- I. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Provide control diagrams by controls manufacturer as installed.

- K. Provide CONTRACTOR's coordination drawings, with color-coded piping diagrams as installed.
- L. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

1.07 INSTRUCTION OF OWNER PERSONNEL

- A. Before final inspection, instruct OWNER's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems. A minimum of two man-days shall be provided.
- B. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- C. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.08 SUBMITTALS

- A. Submit four copies of preliminary draft or proposed formats and outlines of contents before start of work. ENGINEER will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by OWNER, submit documents within ten days after acceptance.
- C. Submit four copies of revised volumes of data in final form within ten days after final inspection.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. Unless otherwise specified in the Contract Documents, the cost of providing operation and maintenance data shall be included in the various lump sum and unit prices in the contract.

END OF SECTION 01730

**SECTION 02480
LANDSCAPE WORK**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and provisions of the Contract, including Contract Conditions, Division -1 Specification Sections, apply to work of this section.

1.02 SCOPE

- A. Provide all plants, materials, tools, equipment, labor, and services necessary to complete the landscape work and related work as indicated on the drawings and in these specifications.
- B. Grade Elevations: Excavation, filling and grading will be as specified on the related documents. Finished or fine grading is specified herein.

1.03 RELATED WORK

- A. Section 02810 - Irrigation System

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Installer shall be a firm specializing in landscape work with not less than five (5) years of experience installing landscape work on projects similar in size and scope to this project.
- B. The CONTRACTOR, as part of their bid, will list not less than six (6) projects completed by their company of similar size and scope to the work specified herein. The six (6) or more projects will be listed by project, name, location, owner's name and phone number, and the total paid cost of work executed. The listed projects will be considered as representative of the CONTRACTOR's ability to execute the work specified herein. The OWNER, at their sole discretion, reserves the right to reject any CONTRACTOR's bid which either does not respond to this condition or does not represent satisfactory performance of prior work of similar size and scope as that specified herein.
- C. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
- D. Grades and Standards: All plant material furnished by the CONTRACTOR unless otherwise specified shall be Florida No. 1 or better in accordance with the most recent edition; "Grades and Standards for Nursery Plants", parts 1 and 2, published by Florida Department of Agriculture, Division of Plant Industry, Gainesville, Florida. Provide healthy, vigorous stock, grown in recognized nursery standards in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions, or disfigurement. Specialty or accent plant material as noted on the drawings or in the plant list shall be Florida Fancy as defined by said standards.

- E. Analysis and Standards: Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
- F. Verification: The CONTRACTOR shall provide photographic evidence or videocassette of a representative example of all plant material specified on this project. Other specialty plant material may require individual and specific photographs as noted on the drawings.
- G. Source: The CONTRACTOR will provide the name, address, and phone number of all nursery stock dealers or plant material sources providing material for the project. The CONTRACTOR shall submit certification or verification of source or purchase prior to delivery to the site. Approved equals will only be considered prior to bid opening and notified via addenda.
- H. The OWNER's Landscape Architect or designated individual, herein referred to as the OWNER's Representative or LANDSCAPE ARCHITECT 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.

1.05 JOB CONDITIONS

- A. Examination of the Site:
 - 1. The bidder must acknowledge that they have examined the site, plans and specifications. The submission of a quotation will be considered evidence that examinations have been made.
 - 2. The bidder will verify availability of materials prior to submittal of bid. Submission of a bid will be considered confirmation of availability of specified material.
- B. Field Conditions: The CONTRACTOR will verify drawing dimensions with actual field conditions and inspect related work and adjacent surfaces. The CONTRACTOR will report to the LANDSCAPE ARCHITECT all conditions which prevent proper execution of this work.
- C. The CONTRACTOR shall be responsible for determining the exact size, type, and location of all utilities, services, irrigation, and other underground or overhead appurtenances prior to commencing work. The CONTRACTOR agrees to be fully responsible for any damages which may be occasioned by their failure to locate any or all said utilities, services, and appurtenances at the expense of the CONTRACTOR.
- D. The CONTRACTOR will verify the accuracy of all finish grades within the work area. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- E. Excavation: Should any objectionable material, such as concrete, limerock, bricks, roots or other debris, be encountered during landscape operations, they will be removed from the site and legally disposed of by the CONTRACTOR. All open excavations will be properly barricaded and lighted at night.

1.06 SUBMITTALS

- A. Certification: Submit certificates of inspection as required by governmental authorities. Submit manufacturer's or vendors certified analysis for soil amendments and fertilizer materials.

- B. Planting Schedule: Submit a planting schedule, indicating the dates of installation anticipated for this project. Once accepted, revise dates only as approved in writing by the LANDSCAPE ARCHITECT, after documentation of reasons for delay.
- C. The following submittals, defined more specifically in their relative paragraphs herein, are required to be approved by the LANDSCAPE ARCHITECT prior to the authorization or acceptance of any work. The submittals are, but not limited to:
 - 1. Manufacturer's or vendor's certified analysis for soil amendments and fertilizer.
 - 2. Plant material source.
 - 3. Mulch certification or sample.
 - 4. Itemized material cost breakdown.
 - 5. Topsoil and backfill analysis.
 - 6. Representative material photos or video.
 - 7. Certification of herbicides and pesticides.
- D. The following submittals, defined more specifically in their relative paragraphs herein, are required to be approved by the LANDSCAPE ARCHITECT prior to Final Acceptance. The submittals are, but not limited to:
 - 1. Maintenance Instructions: Provide typewritten instructions recommending procedures for maintenance over a one-year period. Submit prior to and in condition of Final Acceptance.
 - 2. Warranty.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. Protection During Transportation: All plant material will be protected from foliage and bark injury or breakage of branches. All plants transported by open trucks will be adequately covered to prevent windburn, drying or damage to plants. All palm trunks will be adequately supported so as not to damage their root balls or buds.
- C. Trees and Shrubs: Trees to be balled and burlapped shall be root pruned in advance, in accordance with good horticultural practice. Number and timing of root prunings may vary with species. Provide freshly dug trees and shrubs. Do not prune prior to delivery unless otherwise approved by Landscape Architect. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.
- D. Root Protection: Balled and burlapped plants (B&B) shall be dug with firm natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Balls shall be firmly wrapped with burlap or similar materials and bound with twine, cord or wire mesh. All collected plants shall be balled and burlapped. If balled plants are dropped or otherwise mishandled, or if the balling materials are broken prior to planting, the plant may be rejected by the Landscape Architect.

- E. Protection of Palms: Only a minimum of fronds shall be removed from the crown of the palm to facilitate moving and handling. Sabal palms shall have a minimum of eight fronds remaining and tied to protect the bud unless otherwise specified. Base sucker growth fronds shall be trimmed back to allow for easier handling, however, no stems should be cut off unless authorized by the LANDSCAPE ARCHITECT. Clear trunk (c.t.) measurement shall be as specified after the fronds have been removed. Sabal Palm boots and burns shall be removed except as otherwise directed. Cabbage palms shall be taken from moist soils. All single trunk palms shall be triple braced and staked with new, clean lumber at least six feet in length, to resist tree displacement. (See Planting Details.) All moving of palms shall be in accordance with the provisions for Heavy Trunk Palms, as described in "Florida Grades and Standards for Nursery Plants", Part II. All palms shall be tied and/or braced to protect the bud(s).
- F. Container Grown Plants: Plants grown in containers will be accepted as "B&B" providing that all other specified requirements are met. Container grown plants shall meet plant sizes as specified on the plant list and on the plans, and shall not be governed by container sizes. Minimum root balls of container grown material shall be no more than 25% less proportionately in size than that stated in "Grades & Standards" for nursery plants. Plants shall exhibit a fully developed root system when removed from the container.
- G. Use of Anti-desiccant: At any time between the delivery and installation of plant material exposed to wind, sun, or drying conditions, plant material will be treated with the anti-desiccant specified, in accordance with the manufacturer's directions. Wilting, drying or sunscald will be considered reason for plant rejection.
- H. Care will be taken to protect and properly handle balled and burlapped stock during delivery and installation. If balled plants are dropped or otherwise mishandled, or if the root balls are broken prior to planting, the plant may be rejected by LANDSCAPE ARCHITECT.
- I. Deliver field grown trees, palms, and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than four hours after delivery, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by covering with mulch, burlap or other acceptable means of protection from drying wind and sun. All plants will be watered as necessary until planted. Storage period will not exceed 72 hours. The CONTRACTOR will assume responsibilities for unplanted materials on site at all times and under any circumstances.
- J. Do not prune trees or shrubs prior to delivery unless otherwise approved by LANDSCAPE ARCHITECT. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery or installation.
- K. Cleanup: The CONTRACTOR will keep the premises free from accumulation of waste material, soil, and/or rubbish caused by their employees or work. CONTRACTOR will arrange their material storage so as to not interfere with the operation of the project. CONTRACTOR will clean behind their work immediately and will take necessary precautions to keep concrete, brick and other paving material clean of soil. This will include the use of drop-cloths, etc. Damage to grades or lawns will be repaired immediately and all debris and excess soil removed from the site. Should the CONTRACTOR fail to keep the premises in a clean satisfactory condition, the OWNER reserves the right to hire appropriate personnel to perform clean-up work and back charge the CONTRACTOR for all costs incurred.
- L. Do not remove container-grown stock from containers until time of installation.

1.08 MAINTENANCE

- A. Begin maintenance of plants upon delivery to the site. All plants will be maintained by the CONTRACTOR until final acceptance or by special maintenance agreement as specified or indicated in the Contract Documents. Maintenance by the CONTRACTOR through Final Acceptance shall include all measures necessary to assure a clean appearance and survivability of the plant material.
- B. Maintain trees, palms, shrubs and other plants by watering, pruning, cultivating and weeding as required for healthy growth. CONTRACTOR will be responsible for all landscape maintenance activities during this period including, weeding, fertilizing, mowing and watering. CONTRACTOR will be responsible for all costs associated with maintenance activities (including watering) during the maintenance period. CONTRACTOR will be responsible for the maintenance of "weed free" planting areas, beds and planters through final acceptance. All planting areas must be weed-free at the time of final acceptance. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Spray as required to keep trees and shrubs free of insects and disease.
- C. At no time shall required maintenance applications by the CONTRACTOR exceed a period of 15 days. Maintenance by the CONTRACTOR shall be required through Final Acceptance.
- D. Cleanup: The CONTRACTOR shall at all times keep the premises free from accumulation of waste material, soil, and/or rubbish caused by their employees or work. CONTRACTOR shall clean behind their work immediately and shall take necessary precautions to keep concrete, brick and other paving material clean of soil. This shall include the use of drop-cloths, etc. Damage to grades or lawns shall be repaired immediately and all debris and excess soil removed. Should the CONTRACTOR fail to keep the premises in a clean satisfactory condition, the OWNER reserves the right to hire appropriate personnel to perform clean-up work and back charge the CONTRACTOR for all costs incurred.

1.09 COMPLETION AND ACCEPTANCE

- A. Completion of the work shall be in compliance and conformity with the provisions expressed or implied in the drawings and specifications, associated change orders and field orders.
- B. The acceptability of all material, workmanship, labor and compliance with the specifications, grades and standards will be solely determined by the LANDSCAPE ARCHITECT.
- C. Right to Reject: The LANDSCAPE ARCHITECT will have the right, at any stage of the work, to reject any and all work and materials which, in their opinion, does not meet the requirements of the plans and specifications. Rejected material will be immediately removed from the site and acceptable material substituted in its place.
- D. Substantial Completion site observation will be performed by the LANDSCAPE ARCHITECT, at the request of the CONTRACTOR to observe if the CONTRACTOR has completed the work in substantial compliance with the plans and specifications. All requirements of the specifications will apply until Final Acceptance of the work by the LANDSCAPE ARCHITECT. The request by the CONTRACTOR must be made at least three working days before the anticipated substantial completion site observation.

- E. Final Acceptance: Upon notification by the CONTRACTOR that all defects have been corrected, the LANDSCAPE ARCHITECT will perform a final site observation. Final acceptance will be given upon satisfactory completion of all work, including "punch list" items. The LANDSCAPE ARCHITECT will conduct one final inspection. Any additional inspections as a result of the CONTRACTOR's failure to comply with the punch list, will be done at the CONTRACTOR's expense, based on the LANDSCAPE ARCHITECT's standard hourly rates and expenses. The notification by the CONTRACTOR must be made at least three working days before the anticipated final site observation.

1.10 SEQUENCING AND SCHEDULING

- A. Plant Installation: Proceed with, and complete, landscape work as rapidly as portions of site become available as specified by the Contract Documents and the approved schedule submitted by the CONTRACTOR.
- B. Coordination with Turf Installation: Plant trees and shrubs after final grades are established and prior to planting of turf, unless otherwise acceptable to LANDSCAPE ARCHITECT. If planting of trees and shrubs occurs after turf work, protect turf areas and promptly repair damage to turf resulting from planting operations.
- C. CONTRACTOR will be responsible for coordinating with other Contractors on the job and in the proper sequencing of work.

1.11 WARRANTY

- A. All plant materials (trees, palms, shrubs, ground covers, etc.), landscape accessories (i.e., edging, etc.), and workmanship will be warranted for a period of not less than one year from the date of Final Acceptance of the landscape installation. Turf (sodding, seeding, sprigging) will be warranted for a period of not less than 90 days, unless otherwise specified.
- B. Landscape which was installed in accordance with the drawings and specifications and is damaged or destroyed through vandalism, theft, traffic or by phenomena considered an Act of God, will be replaced by the CONTRACTOR at the CONTRACTOR's expense through the construction period and until Final Acceptance.
- C. After Final Acceptance by the LANDSCAPE ARCHITECT and OWNER, the OWNER will be responsible for the maintenance of the landscape. It will be understood that in accordance with the terms of the warranty that the CONTRACTOR must promptly inform the OWNER if proper maintenance is not being given to the installation. Such notice will be in writing outlining corrective measures to be taken with a copy to the LANDSCAPE ARCHITECT.
- D. Inspections by the CONTRACTOR of the job will be made during the warranty period to determine and assure proper maintenance. No claim shall be made by the CONTRACTOR that invalidates the warranty based on the OWNER's lack of or improper maintenance of the landscape without written documentation by the CONTRACTOR to the OWNER, with a copy to the LANDSCAPE ARCHITECT, that identifies said maintenance concerns.
- E. At the end of the warranty period, inspections will be made jointly by the OWNER, LANDSCAPE ARCHITECT, and CONTRACTOR. All plants not in a healthy growing condition will be removed and replaced with plants of a like kind and size, except for defects resulting from neglect by OWNER, abuse or damage by others, or unusual phenomena or incidents which are beyond CONTRACTOR's control.
- F. All replacement plants will be guaranteed for an additional period of one year. Replacement turf will be guaranteed for an additional period of 90 days unless otherwise specified.

PART 2 PRODUCTS

2.01 QUANTITIES

- A. All quantities indicated on the plans are intended as a guide for the bidders and does not relieve the bidder of their responsibility to do a comprehensive estimation of plant and material quantities. The CONTRACTOR will be responsible for the quantities shown and illustrated on the drawings.
- B. Should a discrepancy occur between the bidder's bid quantity and the plant list quantity, the LANDSCAPE ARCHITECT is to be notified for clarification prior to the submission of bids.
- C. After receipt of bids any quantities added to or deleted from the bid schedule by the LANDSCAPE ARCHITECT will be at the agreed upon unit cost as reflected in the itemized breakdown submitted, and will not effect any other unit price within the contract whether the contract is based on unit costs or lump sum.

2.02 TOPSOIL

- A. For all landscape areas, the CONTRACTOR will provide and install topsoil as defined on the drawings or within the contract bid form.
- B. Topsoil will be fertile, natural topsoil, typical of the locality, obtained from a well-drained site where topsoil occurs not less than four inches deep. Do not obtain from bogs or marshes. It will be without admixture of subsoil or clay and will be free of stones, lumps, sticks, plants or their roots, toxic substances or other extraneous matter that maybe harmful to plant growth or would interfere with future maintenance.
 - 1. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at the project site.
- C. Topsoil will contain at least two percent of organic matter and will have a pH range of 6.0 - 7.0, unless otherwise recommended by the soil analysis.

2.03 BACKFILL SOIL MIXTURE

- A. CONTRACTOR will provide backfill soil mixture for all trees, shrubs and ground covers.
- B. Backfill mixture:
 - 50% Topsoil (existing soil, if determined acceptable by the soil analysis, or topsoil provided by the CONTRACTOR).
 - 50% Soil Amendments (60% peat, 40% composted manure, unless soil analysis recommends otherwise).

2.04 SOIL AMENDMENTS (AS QUALIFIED BY THE SOIL ANALYSIS)

- A. Lime: Natural dolomitic limestone containing not less than 85% percent of total carbonates with a minimum of 30% magnesium carbonates, ground so that not less than 90% passes a 10-mesh sieve and not less than 50% passes a 100-mesh sieve.
- B. Aluminum Sulfate: Commercial grade.
- C. Peat Humus: Finely divided peat, so completely decomposed and free of fibers that biological identity is lost. Provide in granular form, free of hard lumps, and with a pH range suitable for intended use.

- D. Bonemeal: Commercial, raw, finely ground, 4% nitrogen and 20% phosphoric acid.
- E. Supersulfate: Soluble mixture of treated minerals; 20% available phosphoric acid.
- F. Sand: Clean washed sand, free of toxic materials.
- G. Perlite: Conforming to National Bureau of Standards PS 23.
- H. Vermiculite: Horticultural grade, free of toxic substances.
- I. Sawdust: Rotted sawdust, free of chips, stones, sticks, soil, or toxic substances and with 7.5 pounds of nitrogen uniformly mixed into each cubic yard of sawdust.
- J. Manure: Well rotted, unleached stable cattle manure containing not more than 20% by volume of straw, sawdust, or other bedding or materials and containing no chemical or ingredients harmful to plants.

2.05 FERTILIZER

- A. For trees, palms, shrubs, and ground covers, the CONTRACTOR will provide and install fertilizer. Submit fertilizer analysis to LANDSCAPE ARCHITECT for approval.
- B. All fertilizers will be uniform in composition, free flowing and suitable for application by mechanical spreader equipment. Fertilizers will be delivered to the site fully labeled according to applicable State Fertilizer Laws. The following information will be shown on the fertilizer bag or package or on a tag:
 - 1. Name and address of manufacturer
 - 2. Name, brand or trademark
 - 3. Number of net pounds of ready mixed material in the package
 - 4. Chemical composition or analysis
 - 5. Guarantee of analysis
 - 6. If a brand or grade of fertilizer is delivered in the bulk, a written statement having the above listed information must accompany each load
- C. All fertilizers shall have a written statement containing the following information with each load:
 - 1. Weight of each commercial fertilizer used in the custom mixing
 - 2. The guaranteed analysis of each commercial fertilizer used in the custom mixing
 - 3. Total weight of fertilizer delivered in each load
 - 4. The manufacturer of each of the commercial fertilizers used in the custom mix
 - 5. Guaranteed analysis of each load to be stated as follows:
 - a. Percent of Nitrogen
 - b. Percent of total available Phosphoric Acid
 - c. Percent of total Soluble Potash
 - 6. Name and address of the person providing the fertilizer

D. Fertilizer Formulation

1. Trees, shrubs, and ground covers will have an 8-10-10 analysis fertilizer containing a minimum of 2% magnesium, 2% water soluble magnesium, 2% manganese, 2% iron, and quantities of other secondaries or a fertilizer analysis as recommended by soil testing lab. A minimum of 1.75 units will be slow release nitrogen.
2. Palms will have a 13-3-13 analysis fertilizer containing a minimum of 5% magnesium, 5% water-soluble magnesium, 1.5% manganese, 1.5% iron, and other secondaries or a fertilizer analysis as recommended by soil testing lab. A minimum of 4.85 units will be slow release nitrogen and 2.45 units slow release potash.
3. Turf areas will have a 16-4-8-analysis fertilizer containing a minimum of 2% magnesium, 2% water-soluble magnesium, 2% manganese, 2% iron, and quantities of other secondaries or a fertilizer analysis recommended by soil testing lab unless otherwise specified. Season of application may warrant a differing analysis than indicated above.
4. No substitutions will be made without notification to and acceptance by the LANDSCAPE ARCHITECT. The CONTRACTOR will submit, fertilizer labels to the LANDSCAPE ARCHITECT, defining the guaranteed analysis of the proposed substitution.

2.06 MULCH

- A. Mulch material will be the type and grade as indicated on the drawings. Mulch will be of a relative uniform particle size, and will be free of sticks, stones, leaves, weed seeds, and any other debris.
- B. Submit certification of mulch or a one-quart sample to the LANDSCAPE ARCHITECT for approval.

2.07 PLANT MATERIALS

- A. Summary of Materials Lists: An itemized list of plants is shown on the drawings and complete requirements for these plants are part of these specifications.
- B. Description: Species and variety as specified on the drawings and delivered to the site will be certified true to their genus, species, and variety and as defined within the current edition of International Code of Nomenclature for Cultivated Plants, issued by the International Union of Biological Sciences.
- C. Quality: Provide trees, shrubs, and other plants of size, genus, species, and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI 260.1 "American Standard or Nursery Stock" and Florida #1 or better "Grades and Standards for Nursery Plants", Parts I and II, State Plant Board of Florida (most recent edition) unless directed by the LANDSCAPE ARCHITECT. All accent and specialty plants will be Florida Fancy as defined by the above referenced standards.
- D. Plants will be nursery grown unless otherwise approved by LANDSCAPE ARCHITECT and will be of varieties specified on the plant list bearing botanical names.
- E. Planting stock will be well branched and well formed, sound, vigorous, healthy, free from disease, sun-scale, windburn, abrasion, weeds, and harmful insects or insects eggs; and will have healthy, normal unbroken root systems. Trees will be symmetrically developed, of uniform habit of growth, with straight trunks or stems, and free from objectionable disfigurements or scars.

- F. Container-grown trees, shrubs, and ground covers will have sufficient root growth to hold earth intact when removed from the container and will not be root-bound.
- G. Balled and burlapped plants (B&B) will be dug with firm natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Balls will be firmly wrapped with burlap or similar materials and bound with twine, cord or wire mesh. All collected plants will be balled and burlapped.
- H. Palms: Only a minimum of fronds will be removed from the crown of the palm to facilitate moving and handling. Sabal palms will have a minimum of eight fronds remaining and tied to protect the bud, unless otherwise noted on the drawings. Base sucker growth fronds will be trimmed back to allow for easier handling, however, no stems should be cut off unless authorized by the LANDSCAPE ARCHITECT. Clear trunk (c.t.) measurement will be as specified after the fronds have been removed. Sabal Palm boots and burns will be removed except as otherwise directed. Sabal palms will be taken from moist soils. All moving of palms will be in accordance with the provisions for Heavy Trunk Palms, as described in "Florida Grades and Standards for Nursery Plants", Part II (most recent edition). All palms will be tied and/or braced to protect the bud(s).
- I. Plants will have been grown under climatic conditions similar to those in the locality of the project. Plants budding into leaf or having soft growth will be sprayed with an anti-desiccant at the nursery before digging.
- J. Quality and Size
 - 1. Habit and growth will be normal for the species and will meet or exceed the measurements specified in the plant list, which are the minimum acceptable sizes.
 - 2. Measurement will be performed before pruning with branches in normal position and to the average extents of growth. Any necessary pruning will be done at the time of planting with the approval of the LANDSCAPE ARCHITECT.
 - 3. Where measurements are called out as a range in the plant list (e.g., 10-12'), the average height of the total of all such specified trees will fall at the middle of the range (e.g., 11'). The number of plants that are smaller than the average will not exceed the number that are larger than the average.
 - 4. Plants larger than specified may be used if approved by the LANDSCAPE ARCHITECT, but the use of such plants will not increase the Contract price. The size of container or root ball for large plants will be increased in proportion to the size of the plant specified.
- K. Substitutions
 - 1. Plant substitution requests by the CONTRACTOR will be considered by the LANDSCAPE ARCHITECT only upon submission of proof that any plant is not obtainable in the type or size specified. Under no circumstances will unauthorized substitutions be included in the Bid Proposal and breakdown.
 - 2. The LANDSCAPE ARCHITECT will determine the nearest equivalent replacement in an obtainable size and variety.
 - 3. If contract is based on unit costs, the unit price of the substitute item will not exceed the bid item replaced, unless authorized by LANDSCAPE ARCHITECT.

- L. Inspection: The LANDSCAPE ARCHITECT may inspect trees and shrubs either at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size and quality. LANDSCAPE ARCHITECT retains right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected plant material immediately from the project site. If additional inspections are warranted, field verifications of specified plant material will be performed by the LANDSCAPE ARCHITECT at the CONTRACTOR's expense utilizing WilsonMiller, Inc. standard hourly rates, including expenses.

2.08 GUYING AND STAKING MATERIALS

- A. Guying and staking materials will be as indicated on the planting details.

2.09 ANTI-DESICCANT

- A. Anti-desiccant will be "Wilt-Pruf" or approved equal, delivered in manufacturer's unopened containers and used in accordance with manufacturer's instructions.
- B. Anti-desiccant will be an emulsion that will provide a film over plant surfaces permeable enough to permit transpiration, and not damage the plant.

2.10 HERBICIDES

- A. Herbicides used must comply with all applicable State and Federal Laws and be registered with the U.S. Environmental Protection Agency. Submit certification of type to the LANDSCAPE ARCHITECT for approval.
- B. Herbicide control will be:
 - 1. Pre-emergence application of "Treflan 5% Granules" or equivalent, applied according to manufacturer's recommendations and incorporated into soil as specified.
 - 2. Post-emergence application of "Roundup" or equivalent, applied as specified by manufacturer. Spray with extreme care to avoid contact with landscape plantings and adjoining turf areas.

2.11 PESTICIDES

- A. Pesticides used must comply with all applicable Federal, State and local laws and be registered with the U.S. Environmental Protection Agency.
- B. Pesticide Control shall utilize lindane or an approved equal. Submit certification of pesticide analysis to the LANDSCAPE ARCHITECT for approval.

2.12 EDGING

- A. Edging, where and when specified, will be as specified on the plans and will be one of the following:
 - 1. Ryerson 4" x 1/8" steel edging by Ryerson, Chicago, Illinois (312) 762-2121.
 - 2. Curv-Rite Aluminum Edging, Grand Rapids, Michigan (616) 878-3845.
 - 3. 1" x 4" Bender Board of sound new Southern Pine.
- B. If no specific edging is indicated or specified on the drawings, the CONTRACTOR will install five-inch-deep mulch trenches at all plant bed transitions.

2.13 SUPERABSORBENT POLYMER

- A. Material will be as specified on the plans and will be one of the following:
 - 1. Aqua Mend
 - 2. Terra Sorb
- B. Material to be installed at the amount and rates specified or in accordance to manufacturer's recommendations.

PART 3 EXECUTION

3.01 COORDINATION OF WORK

- A. The CONTRACTOR will be responsible for complete coordination of planting operations with the other Contractors on the job. Repair of damage to plants, grades, lawns, etc., during installation will not be considered as an extra, and not be charged to the "OWNER".

3.02 GENERAL PREPARATION

- A. Site Preparation and Soil Amendments
 - 1. Prior to beginning the work of this section, verify that rough grading and site preparation have been properly completed.
 - 2. CONTRACTOR will remove residual debris from the site and provide a finished grade that is in conformance with the plans.
 - 3. Eradicate any weak growth in all landscape planting areas prior to planting operations.
 - 4. Spray existing grass and weeds with Round-up. Use as many applications as necessary to completely kill all grass and weeds.
 - 5. All shrub, palm and tree planting areas to be 100% weed free. Kill existing weeds, water to encourage dormant weed seed germination and then spray the area until it is free of all noxious weed species.
 - 6. When grass and weeds are completely dead, add soil amendments in the planting and sod areas as specified. Soil amendments shall be thoroughly tilled in with existing soil, to a minimum depth of 12".
 - 7. CONTRACTOR shall keep all areas prepared for planting weed-free until planting takes place.
 - 8. Care and deposition of Existing Vegetation: All unpaved areas within the landscape contract limits as denoted on the drawings, shall be cleared of noxious weeds, dead material, together with any material noted for removal on the plans or within the Contract Documents.

3.03 FINISHED GRADING

- A. CONTRACTOR will be responsible for finished (fine) grading of all landscape bed and turf areas prior to commencement of any installation of plant material.

- B. General: As a final grading operation, the surface of the earthwork will be shaped to conform to the lines, grades, and contours shown on the plans. For cuts or fills where plant growth will be established, slopes will be left in a roughened condition as approved by the LANDSCAPE ARCHITECT. Hand dressing will be required in confined areas where equipment operation is restricted.

CONTRACTOR will take necessary precautions to prevent erosion of slopes before and after finish grading. Any erosion damage will be repaired at the expense of the CONTRACTOR until Final Acceptance of the project.

- C. Tolerances: In final shaping of the surface of earthwork, a tolerance of 0.1 foot above or below the plan elevations and contours will be allowed with the following exceptions:
1. In areas where sod, ground cover or other finish landscape surface will be used, an allowance shall be made for the thickness of sod, etc. that will result in the finish landscape elevation to be congruent with the adjoining surface.
 2. Earthwork shall be shaped to match adjacent pavement, curb, sidewalk, structures, etc. with applicable allowance for sod, etc.
 3. Ditch bottoms may have higher tolerances approved by the LANDSCAPE ARCHITECT or ENGINEER provided that no water will be impounded or that no stormwater flows will be imported.
 4. Absolutely no back of curb, or any other vertical or horizontal gaps in construction will be acceptable.
- D. CONTRACTOR will take the appropriate measures necessary to maintain the positive flow of surface water runoff away from buildings, structures, and walkways, etc. to stormwater conveyance systems. The CONTRACTOR will notify the LANDSCAPE ARCHITECT of any conflicts in general grading and the positive flow of surface water to stormwater conveyance systems. CONTRACTOR will not knowingly commence plant installation where drainage conditions will adversely affect newly installed plant materials and any reinstallation of plant materials will be at the CONTRACTOR's expense.

3.04 SOIL PREPARATION

- A. Soil Testing:

1. CONTRACTOR will be responsible for having samples of the existing soil tested. Samples will be taken from several representative areas, and are to be tested for acidity, fertility and general composition by a recognized commercial or governmental agency. The CONTRACTOR will furnish three copies of the soil analysis and recommended amendments (to meet the desired pH, nutritional and organic levels determined to be adequate for the area) prepared by the testing agency.
 2. Existing soil must meet the requirements for topsoil as specified in Section 2.02, B and C. If existing soil does not meet the specified requirements, CONTRACTOR will provide soil amendments as recommended by the approved testing agency to bring soil analysis up to the proper levels. If the existing soil cannot be amended to the proper levels, the CONTRACTOR will excavate the unacceptable soil and replace with clean topsoil.
- B. CONTRACTOR will excavate all limerock, compacted subgrade or any other deleterious material from all landscape areas, and replace excavated material with acceptable topsoil. Any compacted fill or subgrade must be pierced through completely to allow for percolation and drainage from the entire bed area in question.

- C. Additional soil amendments will be added as recommended by the soil analysis to the areas as indicated on the plans. Additional soil amendment will be added to all landscape bed areas and to all trees, palms, shrubs, ground covers as indicated herein. Soil amendments will be thoroughly tilled in with the existing soil to a minimum depth of 12 inches from existing grade.

3.05 EXISTING VEGETATION

- A. Relocated Existing Plants: Existing plants shown on the drawings to be relocated will be root-pruned sufficiently in advance of planting time to assure safe moving and will be protected and treated as new material in all respects. Pruning of the canopy or foliage will be conducted by the CONTRACTOR under the direction of the LANDSCAPE ARCHITECT. Plant installation will be in accordance with these specifications.
- B. Existing plant material shown on the plans to remain will not be disturbed. New plant material to be installed will be field adjusted to accommodate existing plant material such as overhead canopy trees, understory trees and shrubs or ground cover. Therefore, no existing plant material will be altered by removing cutting, trimming or destroying in order to install new plant material unless directed to do so by the LANDSCAPE ARCHITECT.
- C. If lawns have been established prior to planting operations, CONTRACTOR will make all efforts to protect turf areas during planting operations. If lawn is damaged by the CONTRACTOR, it will be restored to its original condition by the CONTRACTOR and at their time and expense.

3.06 TREE, SHRUB AND GROUND COVER PLANTING

- A. All planting will be performed by personnel familiar with accepted horticultural procedures of planting and under the constant supervision of a qualified Foreman. The LANDSCAPE ARCHITECT reserves the right to have the Foreman removed from the job if, in the opinion of the LANDSCAPE ARCHITECT, the Foreman is not demonstrating an acceptable knowledge of horticultural standards or construction procedures. Any time delays or expenses incurred by the Foreman's dismissal will be at the CONTRACTOR's expense.
- B. All planting is to be conducted as shown on drawings and as specified herein and in strict accordance with standard horticultural practices.
- C. Coordination with Lawns: Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to LANDSCAPE ARCHITECT. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations. Any damage to lawns caused by these procedures will be corrected by the CONTRACTOR.
- D. Layout:
 - 1. Plant material locations and bed outlines will be staked out on site according to the plans by CONTRACTOR and approved by LANDSCAPE ARCHITECT prior to the commencement of material installations.
 - 2. Layout: Location for plants and outlines of areas to be planted are indicated on the drawings. All plants will be located in the field by the CONTRACTOR, to the satisfaction of the LANDSCAPE ARCHITECT. Where construction or utilities below ground or overhead are encountered, or where changes have been made in the construction, necessary adjustments will be approved by the LANDSCAPE ARCHITECT. The CONTRACTOR must receive approval of LANDSCAPE ARCHITECT prior to installation of plant material. Failure to do so may result in the CONTRACTOR re-executing work at the request of the LANDSCAPE ARCHITECT and at the CONTRACTOR's expense.

E. Installation of Trees, Palms, Shrubs, and Ground Covers:

1. Plant pits will be circular in outline with sides approximately vertical with bottom excavation slightly raised at center to provide proper drainage and will extend to the required sub-grades as determined by the plant's root ball or growing container size. Loosen hard subsoil in bottom of excavation. The minimum depth of plant pits specified below will be measured from the finish grade.
2. For balled and burlapped (B&B trees and shrubs) make excavations at least half again as wide as the ball diameter and equal to the ball depth, plus following allowance for setting of ball on a layer of compacted backfill. The top of the root ball shall be even with the surrounding finished grade. Allow for three-inch-thick setting layer of planting soil mixture. Refer to planting details for minimum pit sizes.
3. Balled and Burlapped Plants: After final setting loosen burlap wrappings exposing the top of the root ball, leaving the ball unbroken. Remove excessive amounts of burlap and string wrapping materials to eliminate voids which may be caused upon decomposition (See planting details).
4. Container Grown Plants: Plant pits for container materials will be formed flat on the bottom. Containers will be removed carefully to prevent damage to plant or root system. Excavate as specified for balled and burlapped stock, adjusted to size of container width and depth. Refer to planting details for minimum pit sizes.
5. All excavated soils from plant pits or beds will be used on site, if needed, or removed from the site at no additional cost to the OWNER. Excavated soils, if acceptable topsoil quality, may be mixed with soil amendments to compose the backfill soil mixture.
6. Mass annual planting beds as specified on the drawings will be excavated, to a minimum depth of six inches. Only planting mixture as specified on the planting details will be used to backfill annual beds areas.
7. Setting Trees, Palms, and Shrubs: Unless otherwise specified, all trees and shrubs will be planted in pits, centered, and set on compacted soils to such depths that the finished level of the plant after settlement will be the same as that at which the plant was grown. They will be planted upright and faced to give the best appearance or relationship to viewing stations, approaches, or adjacent structures. Remove burlap from upper 1/2 of balls. When set, place additional backfill around base and sides of ball and work each layer to settle backfill and eliminate voids and air pockets. No burlap will be pulled out from under the balls. Platforms, wire and surface binding from top and sides of the balls will be removed. All broken or frayed roots will be cut off cleanly. After placing approximately 2/3 of planting backfill, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill. No filling around trunks will be permitted. Additional soils will be filled in to the level of the finished grade, allowing for minimum three inches of mulch or as otherwise specified. Form a shallow saucer around each tree to a size needed for adequate water retention (See planting details).
8. Set container grown stock, as specified for balled burlapped stock, except cut cans on two sides with an approved can cutter; remove bottoms or wooden boxes after partial backfilling so as not to damage root system.
9. Back Fill Soils: Plant pits will be backfilled with backfill soil mixture as specified on the plans. All backfill soils will be free of all clods, sticks, roots, stones or other extraneous matter.
10. Fertilizer will be placed during backfilling, at the ratio recommended by the soil analysis.

11. Dish top of backfill to allow for mulching in tree/palm pits.

12. Protection During Planting: Trees and palms moved by winch or crane will be thoroughly protected from chain marks, girdling or bark slippage by means of burlap, wooden battens or other approved methods. No nails or spikes will be driven into palm or tree trunks. Any damage to tree/palm trunks, limbs, structure, etc. will be grounds for rejection.

F. Pruning

1. Prune, thin out and shape trees, palms, and shrubs in accordance with standard horticultural practices. Dead and broken limbs will be removed. Balled and burlapped trees and shrubs will be pruned to reduce total amount of anticipated foliage by 1/5. Typical growth habit of individual plant will be retained with as much height and spread as is practicable. Cuts will be made with sharp instruments, and will be flush with trunk or adjacent branch to insure elimination of stubs. "Headback" cuts at right angles to line of growth will not be permitted. Tree will not be poled or the leader removed, nor will the leader be pruned or "topped off". Trimming will be removed from the site. Cuts one inch in diameter and larger will be painted with black asphalt antiseptic paint or an approved equal.

2. Remove and replace excessively pruned or misformed stock resulting from improper pruning.

G. Anti-desiccant: If deciduous trees or shrubs are moved in full-leaf, out of season, spray with anti-desiccant at nursery before moving and again two weeks after planting, using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage.

H. Staking and Guying

1. Stakes and Guys: Provide stakes and deadmen of sound new southern pine, unless otherwise specified. Provide wire ties and guys of 2-strand, twisted pliable galvanized iron wire not lighter than 12 gauge with one-coated turnbuckles. Provide not less than ½ inch diameter protective hose of uniform color, material, and size to protect trunks and branches from the wire, unless otherwise specified.

2. Plants will be staked and guyed as indicated on plans within 24 hours of planting.

3. Stakes will be driven vertically into the ground to a depth specified in details and in such a manner as not to damage the ball or roots.

4. Ground stakes for tree guying will be driven into the firm ground outside of the plant pit, and the top of the stake will be flush with the ground.

5. Flags will be securely fastened on each guy wire approximately 2/3 of the distance up from ground level.

I. Mulch:

1. All trees, shrubs and planting beds will be mulched immediately after planting. The CONTRACTOR shall place mulch to a three-inch depth or as specified on the drawings or as approved by the LANDSCAPE ARCHITECT. Mulch will be thoroughly watered-in to prevent wind displacement. All landscape beds will have a five-inch mulch trench installed at all edges except adjacent to sidewalks, curbs, buildings, and structures.

2. Prior to the installation of either bark or stone mulch and weed barrier (if required) all areas to be covered will be weed free and will be treated with a pre-emergent herbicide. Submittal as required.

3. Mulch will be kept out of the crowns of shrubs and off buildings, sidewalks, light standards, and other structures.
4. Mulch type and grade are as specified on the drawings.

3.07 RECONDITIONING EXISTING LAWNS

- A. Existing lawn areas which have been damaged during construction will be repaired by the CONTRACTOR at their expense.
- B. Recondition existing lawn areas damaged by CONTRACTOR's operations including storage of materials and equipment and movement of vehicles. Also, recondition existing lawn areas where minor regrading is required.
- C. Provide new topsoil, as required, to fill low spots and meet new finish grades.
- D. Cultivate bare and compacted areas thoroughly to provide a satisfactory planting bed.
- E. Remove diseased and unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from CONTRACTOR operations, including oil drippings, stone, gravel, and other loose building materials.
- F. The CONTRACTOR shall repair existing lawns under the direction of LANDSCAPE ARCHITECT where existing conditions warrant. CONTRACTOR shall be responsible for all damage and wear to existing lawns caused by construction activities. Remove weeds before seeding or, if extensive, apply selective chemical weed killers as required. Apply a seed bed mulch to maintain moist condition.
- G. Water newly planted lawn areas and keep moist until new grass is established.

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS FOR PAYMENT

- A. CONTRACTOR shall submit a lump sum bid and will receive full compensation for conforming to the provisions of this section and related drawings. Lump sum paid for the complete installation as shown and specified will be categorized as follows:
 1. Trees/Palms
 2. Accents (Specialties)
 3. Shrubs/Ground Covers/Vines
 4. Sod/Mulch
- B. No additional compensation will be allowed excluding relative change orders. A complete unit cost breakdown, based on the included Plant Lists (pay items), will be included as a separate item and submitted with the CONTRACTOR's bid or submitted prior to executing any work on the project. The OWNER reserves the right to reject any bid that does not include said unit cost breakdown.

END OF SECTION 02480

**SECTION 02488
COMMON BERMUDA SODDING**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and provisions of the Contract including Contract Conditions, Division-1 Specifications, apply to work of this section.

1.02 SCOPE

- A. The work specified in this section consists of the establishing of a consistent, dense, healthy stand of common bermuda grass within the areas specified on the drawings. The work shall consist of grading, preparing the soil, fumigating (if specified on plans), and furnishing and placing of grass sod, fertilizing, watering, and maintaining the sodded areas through construction and until final acceptance by the OWNER and LANDSCAPE ARCHITECT.
- B. Grade Elevations: Excavation, filling, rough and finish grading shall be as specified on the drawings and other related documents.

1.03 RELATED WORK

- A. Not applicable

1.04 QUALITY ASSURANCE

- A. CONTRACTOR shall be a firm with not less than five-years experience in the type of work specified in this section, or provide satisfactory substitute evidence with the OWNER, at its sole discretion, may accept the CONTRACTOR as qualified to perform the work herein specified.
- B. The CONTRACTOR, as part of their bid, shall list not less than six projects completed by their company of similar size and scope to the work specified herein. The six or more projects shall be listed by project name, location, owner's name and phone number, and the total paid cost of work executed. The listed projects shall be considered as representative of the CONTRACTOR's ability to execute the work specified herein. The OWNER, at their sole discretion, reserves the right to reject any bids which either do not respond to this condition or do not represent satisfactory performance of prior work of similar size and scope as that specified herein.
- C. Subcontract sodding work to a single firm specializing in sod work, if service not provided by the CONTRACTOR.
- D. Perform tests in accordance with standards hereinafter specified.

- E. Package standard products with manufacturer's certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.
- F. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto:
 - 1. Florida State Plant Board Standards for Nursery Plants (latest edition).
 - 2. Florida Nurserymen and Growers Association, Approved Planting Practice.
 - 3. Bailey's Hortus Second.
 - 4. State Department of Agriculture Regulations.

1.05 SUBMITTALS

- A. All submittals shall be submitted to the LANDSCAPE ARCHITECT.
- B. Submit certificates of inspection as required by governmental authorities.
- C. Submit manufacturer's or vendors certified analysis for soil amendments and fertilizer materials.
- D. Submit other data substantiating that materials comply with specified requirements, when applicable.
- E. Submit soil analysis results.
- F. A letter of certification from the sodding contractor as to when the sod was cut, and what type shall be provided to the LANDSCAPE ARCHITECT, at their request, upon delivery of sod to the job site.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver packaged materials in containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. No sod, which has been cut for more than 48 hours, may be used unless specifically authorized by the LANDSCAPE ARCHITECT after their careful inspection thereof.
- C. Transportation: Sod must be in a moist condition at the time of cutting and kept in a moist condition until it is placed. Transport sod in either a closed van or in open truck properly covered to prevent windburn, drying, or damage to sod.
- D. Disposal of Surplus Material: Surplus and waste materials resulting from sodding operations shall be legally disposed of by the CONTRACTOR off-site.

1.07 JOB CONDITIONS

- A. Examination of site: The bidder must acknowledge that they have examined the site, plans and specifications and the submission of a quotation shall be considered evidence that examinations have been made.
- B. The sodding contractor shall be fully responsible to acquaint himself with the exact location of all utilities and to avoid conflict with all existing facilities. Hand excavate, as required. Maintain stakes set by others until removal is mutually agreed upon by parties concerned.
- C. If the quantity of the existing or excavated topsoil is inadequate to establish finish grades as specified on the drawings, it shall be the sodding CONTRACTOR's responsibility to provide topsoil in accordance with these specifications.
- D. The sodding CONTRACTOR shall be responsible for complete coordination of sodding operations with the other CONTRACTORS on the job. Repair of damage to plants, grades, lawns, etc., during installation shall not be considered as an extra, and not be charged to the OWNER. Damage caused by other CONTRACTORS will be the responsibility of said CONTRACTOR.

1.08 COMPLETION AND ACCEPTANCE

- A. Completion of the work is defined as the full and exact compliance and conformity with the provisions expressed or implied in the drawings and specifications, and associated change orders.
- B. The acceptability of all material, workmanship, labor and compliance with the specifications, grades and standards is to be solely determined by the LANDSCAPE ARCHITECT.
- C. Right to Reject: The LANDSCAPE ARCHITECT has the right, at any stage of the work, to reject any and all work and materials which, in their opinion, does not meet the requirements of the plans and specifications. Rejected material shall be immediately removed from the site and acceptable material substituted in its place.
- D. Substantial Completion: Upon notification by the CONTRACTOR that the installation is complete, the LANDSCAPE ARCHITECT, will perform a substantial completion site observation to determine if the CONTRACTOR has completed the work in accordance with the plans and specifications. If final acceptance is not given, the LANDSCAPE ARCHITECT will prepare a "punch list". The notification by the CONTRACTOR must be made at least three working days before the anticipated substantial completion site observation.
- E. Final Acceptance: Upon notification by the CONTRACTOR that all defects have been corrected, the LANDSCAPE ARCHITECT will perform a final site observation. Any additional final site observations due to the CONTRACTOR's inability to meet the items listed on the initial or subsequent "punch lists", will be at the expense of the CONTRACTOR according to the LANDSCAPE ARCHITECT's standard hourly rate. Final acceptance will be given upon satisfactory completion of all work, including "punch list" items. The notification by CONTRACTOR must be made at least three working days before the anticipated final site observation.

PART 2 PRODUCTS

2.01 TOPSOIL

- A. For all landscape areas, the CONTRACTOR shall provide and install topsoil as defined on the drawings or within the contract bid forms.
- B. Topsoil shall be fertile, natural topsoil, typical of the locality, obtained from a well-drained site. It shall be without admixture of subsoil or clay and shall be free of stones, lumps, sticks, plants or their roots, toxic substances or other extraneous matter that may be harmful to plant growth or would interfere with future maintenance.
- C. Topsoil shall contain at least two percent of organic matter and shall have a pH range of 6.2-7.2.
- D. Topsoil shall be free from Johnson grass (*Sorghum Halpense*), nut grass (*Cyperus Rotundus*) and all other objectionable herbaceous weeds, grasses and toxic substances. Said topsoil shall be sifted to remove sticks, stones, and debris larger than one-half inch in size.
- E. Soil Testing: The CONTRACTOR shall be responsible for having topsoil tested. Representative samples are to be tested for acidity, fertility and general composition by a recognized commercial or government agency. The CONTRACTOR shall furnish one copy of the soil analysis and recommended amendments (to meet the desired pH, nutritional and organic levels determined to be adequate for the area) prepared by the testing agency, to the LANDSCAPE ARCHITECT prior to application of any amendments or fertilizer.

2.02 FERTILIZER

- A. All fertilizers shall be uniform in composition, free flowing and suitable for application by mechanical spreader equipment. Deliver fertilizers to the site fully labeled according to applicable State Fertilizer Laws. The following information must be shown on the fertilizer bag or package or on a tag:
 - 1. Name and address of manufacturer.
 - 2. Name, brand or trademark.
 - 3. Number of net pounds of ready mixed material in the package.
 - 4. Chemical composition or analysis.
 - 5. Guarantee of analysis.
 - 6. If a brand or grade of fertilizer is delivered in the bulk, a written statement having the above listed information must accompany each load.

- B. Bermuda sod shall have a 27-3-10-analysis fertilizer containing a minimum 2% magnesium, 2% water-soluble magnesium, 2% manganese, 1.5% iron, 3% sulfur and other trace secondaries. A minimum of 6.0 units shall be slow release nitrogen. At least 50 percent of the phosphoric acid shall be form normal super phosphate or an equivalent source, which will provide a minimum of two units of sulfur. Unless otherwise approved by the LANDSCAPE ARCHITECT, Type I fertilizer shall be used.

2.03 SOD

- A. Bermuda sod shall be as specified on the Landscape Drawings.
- B. Pad Size: Cut individual pieces of sod to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be five percent. Extensively broken pads and torn or uneven ends will not be acceptable.
- C. Strength of Sod Sections: Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10 percent of the section.
- D. Moisture Content: Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- E. Time Limitations: Sod shall be harvested, delivered and installed within a period of 72 hours.
- F. Class of Sod and Composition: The sod used shall be as specified on the plans; nursery grown and well rooted. Each shipment shall be accompanied by a certification verifying the sod as specified. Sod shall be subject to review by the LANDSCAPE ARCHITECT prior to being cut and again before it is laid. The consistency of adherent soil shall be such that it will not break, crumble, or tear during handling and placing of the sod.
- E. Each piece of sod shall be well covered with turf grass, free from noxious weeds and other objectionable plants and shall not contain thatch quantities and substances injurious to growth. The grass shall be mown to a length of no less than 1½-inch nor more than four inches before the sod is cut.
- F. Comply with State and Federal laws with respect to inspection for plant diseases and insect infestation. An inspection certificate to this effect is required by law and shall accompany each shipment and on arrival shall be filed with the LANDSCAPE ARCHITECT.
- G. Thickness of Cut: Machine cut sod at a uniform soil thickness of three-fourths inch, plus or minus one-fourth inch, at the time of cutting. Measurement for thickness excludes top growth and thatch.

PART 3 EXECUTION

3.01 GRADE AND SOIL PREPARATION

- A. Remove all debris, brush, large roots, weeds, and old tree stumps. If extensive grading is needed, remove topsoil and stockpile it for replacement after the rough grade is established. Rough grade should conform to final grade after topsoil is replaced. (See Earthwork Section for required soil preparation in regards to deleterious material.) Replaced topsoil will be sifted as specified.
- B. Remove all debris, brush, large roots, weeds and any other deleterious materials from the top six inches of soil.
- C. Verify grades established during final site preparation as being true to finish contours shown, and maintain such areas until the effective date to begin sodding operations. In such instances where a split responsibility exists between grading and sodding contractors, it shall be the responsibility of the sodding CONTRACTOR to maintain a suitable grade for sodding once they have accepted the grade provided to him.
- D. No sod shall be placed on soil which has been treated with soil sterilants until sufficient time has elapsed to permit dissipation of toxic materials. The CONTRACTOR assumes full responsibility for any loss or damage to sod or seed arising from improper use of sterilants or due to their failure to allow sufficient time to permit dissipation of toxic materials, whether or not such sterilants are specified herein.
- E. Perform a soil analysis on each area to be sodded and shall include a lime requirement analysis if pH is below 6.2. If fill material is to be brought in, it must be tested prior to delivery to the site. Obtain a representative soil sample by collecting samples from 10 locations in the area from the top six inches of soil. Samples shall be combined and thoroughly mixed. Submit a portion for analysis at a Soil Testing Laboratory approved by the LANDSCAPE ARCHITECT with a copy of the testing results given to the LANDSCAPE ARCHITECT for approval. The acceptable pH range shall be 6.2-7.2. OWNER shall pay for this testing.
- F. If the soil is too acidic, (pH too low), dolomite limestone (dolomite) shall be used for increasing soil pH. Application shall be based on a lime requirement analysis which considers both soil buffering capacity and soil pH value.
- G. If the soil is too alkaline, (pH too high), a water degradable form of sulfur shall be used for decreasing soil pH. Application shall be based on soil analysis.
- H. Sifting: All areas to be sodded with bermuda will have the top four inches of topsoil sifted to remove all sticks, stones, and debris greater than one-eighth inch in diameter. No sprigs, shall be set until sifting is complete.
- I. Placing Topsoil: Areas to be sodded shall have a minimum topsoil cover of eight inches. Topsoil shall not be placed when the subgrade is excessively wet, extremely dry, or in a condition otherwise detrimental to the proposed planting or to proper grading.

- J. Tillage: Thoroughly till the area to be sodded to a depth of 12 inches using a plow and disc harrow or rotary tilling machine until a suitable bed has been prepared and no clods or clumps remain. The seed bed should be soft enough to permit penetration of the grass stolons to an adequate depth. The prepared soil shall be loose and reasonably smooth and reasonably free of large clods, roots, and other material which will interfere with the work or subsequent mowing and maintenance operations. No subsequent operations shall be commenced until the LANDSCAPE ARCHITECT has approved the condition of the prepared areas.
- K. Applying Fertilizer: Apply granular fertilizer at the rate of one pound per 1000 square feet and shall be thoroughly incorporated into the top three to four inches of soil for spriggings. Spread the fertilizer uniformly to one or more applications as specified below. The rate and number of applications may vary based on weather conditions and shall be determined by LANDSCAPE ARCHITECT.
1. An initial application of 500 pounds per acre with 10-20-30 fertilizer.
 2. One week after initial fertilizing and sprigs are planted, fertilize with an application of ammonia nitrate at the rate of 150 pounds per acre.
 3. Apply three additional applications of ammonia nitrate if soil pH is low (below 6.2), ammonia sulfate if soil pH is high (above 7.2), each at the rate of 150 pounds per acre, beginning one week after the first application of ammonia nitrate/ammonia sulfate specified in paragraph above, each application applied one week apart, resulting in a total of four applications of ammonia nitrate/ammonia sulfate fertilizer.
 4. On the fourth week after planting, fertilize with a complete (10-10-10) fertilizer at the rate of 50 pounds per acre. Repeat the above cycle (three applications 33-0-0 one week apart followed by 10-10-10 or 8-8-8) until the grass has covered. To avoid burning, fertilize when the grass is dry and water immediately following application.
- L. Soil Fumigation: Sterilize the planting area after tillage, but prior to final grading. Apply Methyl Bromide at the rate of one pound (0.45 kg) per 1000 square feet 9.3m²). Treated areas must be covered with a polyethylene cover under which methyl bromide is injected. Follow manufacturer's recommendations and precautions for any soil fumigant used.
- M. Final Grading: Final grade just prior to planting to provide a smooth planting bed. Rake, harrow, or use a grading box to leave the soil surface smooth. Follow contours from design drawings. Roll or cultipack the area to firm the planting bed. Irrigation can be used to settle the soil before planting. Avoid rolling or cultipacking wet soil as compaction may occur.

3.02 FERTILIZATION

- A. Apply fertilizer at a minimum rate of 10 pounds per 1,000 square feet and required additional soil amendments in accordance with the soil sample results.

- B. Incorporate fertilizer and soil amendments into the top two to three inches of soil and rake to provide a final smooth even grade.

3.03 SODDING

- A. Sodding Time: Place sod when the ground is in a workable condition and temperatures are less than 90 degrees Fahrenheit (when possible). Sod shall not be placed during extended drought, unless irrigation is available.
- B. Sod cut for more than 48 hours shall not be used without the concurrence of the LANDSCAPE ARCHITECT. Keep all sod moist and protected from exposure to sun, wind and freezing prior to placing.
- C. Moistening the Soil: During periods of high temperature and after all unevenness in the soil surface has been corrected, lightly irrigate the soil immediately prior to laying the sod.
- D. Starter Strip: Lay the first row of sod in a straight line with subsequent rows placed parallel to and tightly against each other. Stagger lateral joints to promote more uniform growth and strength. Exercise care to insure that the sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air-drying of the roots.
- E. Sloping Surfaces: In ditches place the sod with the longer dimension perpendicular to the flow of water in the ditch. On slopes, starting at the bottom of the slope, place the sod with the longer dimension paralleled to the contours of the ground. Bury the exposed edge of the sod shall be buried flush with the adjacent sod. On slopes where the sod may be displaced during sodding operations, the workmen shall work from ladders or treaded planks.
- F. Staking Sod: Stake sod on all slopes of 2:1 or steeper. Stake sod with not less than four stakes per square yard with at least one stake for each piece of sod. Stakes shall be of lath or similar material, pointed, and driven with the flat side against the slope, six inches into the ground, leaving approximately one-half inch of the top above the ground.
- G. Water sod immediately after installation to prevent excessive drying during progress of the work. CONTRACTOR will be responsible for watering sod through Final Acceptance.
- H. Finished Transitions: At no time will backs of curbs or gaps in transitions (i.e., walks, beds, structures, etc.) be accepted. All transitions will be horizontally and vertically smooth and congruent with adjacent transitions. Cut all buds with a machete or similar tool to provide a neat, uniform, and consistent bedline. Bedlines shall reflect the shape and form indicated on the drawings and shall be laid to the satisfaction of the LANDSCAPE ARCHITECT.

3.04 WATER AND ROLLING

- A. Roll sod with a mechanical roller of no less than two tons as sodding is completed in any one section. All sod areas must be rolled to provide an even sodded appearance with no high and low points.
- B. Immediately following rolling operations irrigate the sod thoroughly to a depth sufficient that the underside of the new sod pad and soil immediately below the sod are thoroughly wet.
- C. No equipment or vehicles shall be allowed to travel over the sodded areas after sodding by CONTRACTORS on the job site.
- D. Supplemental Watering: During periods of intense heat or abnormal rainfall, supplemental watering may be required prior to acceptance of the work.
- E. CONTRACTOR will be responsible for watering in all sodded areas and assure that sodded areas receive 2 to 2½ inches of water per week through Final Acceptance. CONTRACTOR shall make no claim for the loss of sod due to the failure of the irrigation system (if applicable).

3.05 MAINTENANCE

- A. Begin maintenance immediately following the last operation of sod installation. Maintenance includes watering, mowing, replanting, and all other work necessary to produce a uniform stand of grass. The maintenance program will continue for four months or until the newly sodded areas are fully-grown in and have passed final completion inspection by the LANDSCAPE ARCHITECT.
- B. Pest Management: Apply Oftanol at the following rates per 1000 square feet, depending on the formulation used: 5G at 0.9 pounds, 1.5G at three pounds or 2E liquid at three fluid ounces. The application shall be watered into the soil with approximately one-half to one inch of water. All pesticides shall be used in a manner consistent with manufacturer's specifications.
- C. Insects: Inspect the grass daily for the presence of worms. For control, use insecticides such as Diazinon, Dursban, Lannate, and Proxol. Should other turf insects become a problem contact LANDSCAPE ARCHITECT for control recommendations. All insecticides shall be used in a manner consistent with manufacturer's specifications.
- D. Weeds: Begin a weed control program three to four weeks after sod installation. However, do not begin spraying for weeds if the Bermuda grass has not greened up and become established. Also, be sure the soil contains adequate moisture before each application of spray. All herbicides shall be used in a manner consistent with manufacturer's specifications.
 - 1. For control of grassy weeds such as crabgrass, goosegrass, and watersedge apply Monosodium Methanearsonate (MSMA) at the rate of one to two pounds active ingredient per acre. Repeat the application every five to seven days until the weeds are controlled. For grassy weed control use MSMA at the rate of one pound per acre.

2. Broadleaf weeds such as mousseear, chickweed, pennyport and Carolina geranium can be controlled using Buctril at the rate of one-half pound active ingredient per acre. 2-4D should be used at the rate of 1/8 pound per acre. Of the two materials, Buctril is safer than 2-4D for use on Bermuda grass; however, for effective control, it must be applied when the weeds are in the one to two leaf stage.
- E. Water: The CONTRACTOR will assure that all sodded areas are receiving a consistent and uniform amount of water during the maintenance period. CONTRACTOR shall test, if necessary, the irrigation system and check the controller so that the newly sodded areas are receiving 2 to 2½ inches of water per week. The sodding CONTRACTOR is responsible for assuring and providing, if necessary, water to all sodded areas during the maintenance period.
- F. Mowing: Mow at regular intervals using a reel-type mower set to cut at one inch for 419 Bermuda.
- G. Rolling: To provide a smooth, firm surface for future play and operation of mowing equipment, all areas will need to be rolled. The first rolling should begin when the grass is approximately 25 to 50 percent covered.

3.06 WARRANTY

- A. The CONTRACTOR as part of their contract, shall furnish three written guarantees warranting all materials, workmanship, and products for a period of not less than 60 days from the time of Final Acceptance.
- B. The CONTRACTOR will repair all washouts that occur within the warranty period at no additional cost to the OWNER. Repairs that are considered excessive by the LANDSCAPE ARCHITECT and the OWNER (i.e., damage associated with or caused by other Contractors) shall be subject to review and negotiation between the OWNER and CONTRACTOR.

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. CONTRACTOR will submit a lump sum bid and shall receive full compensation for conforming to the provisions of this section and related drawings. Lump sum paid will be for the complete installation as shown and specified, including any addenda or change orders.
- B. No additional compensation will be allowed. A complete unit cost breakdown, based on a square foot unit, shall be included as a separate item and submitted with the CONTRACTOR's bid. The OWNER reserves the right to reject any bid that does not include said unit cost breakdown.

END OF SECTION 02488

**SECTION 02703
TRENCHING AND BACKFILLING FOR PIPING**

PART 1 GENERAL

1.01 SCOPE

- A. The work specified in this section consists of the excavation, bedding, and backfilling of trenches for water main, storm sewer, sanitary sewer, force main, irrigation lines, and utility lines. Also included is the excavation and backfilling of pertinent structures, such as manholes, inlets, pump stations, etc.

1.02 REFERENCES

- A. Referenced standards or specifications such as ASTM, AASHTO, or AWWA, shall be the latest edition.
- B. WilsonMiller Specifications Sections:

02817 CLEARING AND GRUBBING
02820 EXCAVATION AND EMBANKMENT
- C. Attachments

Figure A (Section 02703)

1.03 SUPPLEMENTAL REQUIREMENTS

- A. The requirements in this section are the minimum for this project. Any additional requirements stated in the Contract Documents or otherwise specified by the manufacturer or any governmental agency in a permit, code, or ordinance shall take precedence over the requirements of this section.

1.04 SUBSURFACE CONDITIONS

- A. The CONTRACTOR shall be responsible for determining the subsurface conditions in areas where excavation can be anticipated. The type of soil, depth and thickness of rock and unsuitable materials, ground water table, and other factors that affect cost shall be evaluated prior to submitting a bid.
- B. The method used to determine subsurface conditions shall be the responsibility of the CONTRACTOR. Soil borings (if provided) only supply information in the exact location of each boring; therefore, on-site exploration of the subsurface is the CONTRACTOR's responsibility. All on-site exploration shall be scheduled with the OWNER and coordinated with jurisdictional agencies and utility companies.

1.05 PROTECTION

- A. With the exception of sheeted excavations for deep pipe installations, wet wells or other poured in place construction activity, all excavations or trenches shall be backfilled immediately after the work is completed. The CONTRACTOR shall plan the daily construction activity whereby trenches are backfilled and compacted in accordance with the accompanying specifications at the end of each work day. Should it be necessary for reasons other than standard construction procedures to leave an excavation open the CONTRACTOR shall isolate and protect the workers and the general public from the entire excavation by barricades, fences, signs, lights or other devices required by the contract documents and/or local agency codes.

- B. The CONTRACTOR shall comply with the applicable trench safety standards specifically set forth in Florida's Trench Safety Act.
- C. Pavement, sidewalk, driveway, curb and gutter, and other structures shall be protected from damage during excavation wherever possible and as directed in the Contract Documents.

PART 2 PRODUCTS

2.01 BEDDING MATERIALS

- A. Crushed stone bedding material: Crushed, washed, and graded in accordance with ASTM C-33, gradation 67.
- B. Sand bedding: Clean sand, free of clay, silt, debris, roots, vegetation, or rock larger than one-half inch in diameter.
- C. Clean 3/8 inch washed shell material.

2.02 BACKFILLING MATERIALS

- A. Select fill: Materials excavated from the limits of construction or imported that conform to AASHTO Standard M-145, Groups A-1 and A-3 and free of rocks or gravel, clay, silt, debris, roots and vegetation.
- B. Common fill: Material that conforms to AASHTO Standard M-145, Groups A-1, A-2, or A-3, free of rocks or gravel, clay, silt, debris, roots and vegetation.

PART 3 EXECUTION

3.01 PREPARATION

- A. Investigate existing conditions and identify line and grade stakes as applicable. Arrange for placement of materials required to minimize the duration of open trenches or excavated areas.
- B. Install well points or other approved methods of dewatering as required so that the discharged water complies with all pertinent ordinances, codes, permits, or requirements of the Contract Documents.
- C. Implement traffic control and protective devices as may be applicable.
- D. For pipe lines placed above the natural ground, embankment shall be placed and compacted to an elevation of at least two feet above the top of the pipe and to a width equal to four pipe diameters prior to trench excavation. The minimum side slopes shall be six feet (horizontal) to one foot (vertical).

3.02 CLEARING AND GRUBBING

- A. Prior to trench excavation, the existing surface that will be disturbed by the excavation operation shall be cleared and grubbed in accordance with WilsonMiller Specification Section 02817 CLEARING AND GRUBBING.

- B. The limits of clearing and grubbing for this section shall be as shown on the plans or as otherwise specified in the Contract Documents. Where the clearing limits are not shown or stated, the limits of clearing and grubbing shall be the smallest area that will facilitate the construction of work specified.

3.03 TRENCH WIDTH

- A. Trenches for pipe construction shall be excavated to a width that will provide enough working space next to the pipe and facilitate proper compaction of backfill material around the haunches of the pipe. All such trench excavation shall comply with the manufacturer's recommendations for the type of pipe used.
- B. Excavation for structures such as manholes, inlets, pump stations, etc. shall be large enough to provide adequate working room. A minimum distance of two feet shall be provided between the outside edge of the structures and the side or wall of the excavation to allow for proper backfilling and compaction.

3.04. EXCAVATION

- A. All trenches shall be excavated by open cut unless otherwise indicated in the Contract Documents.
- B. The length of the open cut trench that is excavated ahead of the pipe laying operation shall not exceed half of the normal daily production length. The excavation and pipe laying operation shall be coordinated so that all pipe laid in one day is fully backfilled except for the last length of pipe in an unfinished run between structures.

3.05 ROCK EXCAVATION

- A. Where rock is encountered during the performance of work specified in this section, the rock shall be excavated in accordance with WilsonMiller Specifications Section 02820 EXCAVATION AND EMBANKMENT.

3.06 UNSUITABLE MATERIALS

- A. Where materials unsuitable for backfilling are encountered during trench excavation, these materials shall be separated from the suitable materials and disposed of off-site or utilized on-site in embankment areas as authorized by the OWNER's Representative.

3.07 REPLACEMENT MATERIAL

- A. Where unsuitable material including rock larger than six inches is excavated and hauled off-site, replacement material shall be acquired from on-site excavation as provided by the Contract Documents or as authorized by the OWNER. Where replacement material is not available from the site, the CONTRACTOR shall furnish fill material from an off-site borrow source. Only materials that conform to Article 2.02 of this section may be used for backfilling operations unless otherwise specified in the Contract Documents or authorized in writing by the OWNER's Representative.

3.08 PREPARATION OF TRENCH BOTTOM

- A. Where rock is encountered at the bottom of the trench, the trench shall be undercut to a depth of at least six inches below the bottom of the pipe to allow for a bedding cushion above the rock.

- B. Where muck, roots or other organic materials are encountered at the bottom of the trench, the trench shall be undercut to remove the unsuitable material to the satisfaction of the OWNER's Representative.
- C. The CONTRACTOR shall dewater the excavation operation as required to provide a dry trench bottom. Prior to beginning work CONTRACTOR shall prepare their dewatering plan and obtain all necessary permits.

3.09 BEDDING

- A. Where the exposed material at the bottom of the trench meets the requirements of Article 2.01 this section, the existing material may be used as bedding, provided it is compacted.
- B. Where the bottom of the trench has been undercut to remove rock or unsuitable material, the bottom shall be brought up to grade by placing and compacting bedding materials conforming to the requirements of Article 2.01 this section.
- C. In exceptionally wet conditions, the CONTRACTOR may request permission from the OWNER's representative to lay the pipe in water. If that request is authorized, the CONTRACTOR shall undercut the existing bottom a minimum of six inches and replace with "bedding material" conforming to Article 2.01A or 2.01C this section. This bedding material shall be tamped and consolidated to provide a solid and unyielding base for the pipe. During this operation, the CONTRACTOR shall continue the dewatering process to facilitate adequate installation of the pipe or structure and to permit observation of the process by the OWNER's representative. The additional undercut excavation, crushed stone bedding, and other associated costs shall be at the CONTRACTOR's expense and no extra compensation will be allowed.

3.10 BACKFILLING

- A. Backfilling of pipe trenches shall be done in three stages as follows:
 - 1. First Stage: Material above the bedding and beneath the haunches compacted in six-inch layers.
 - 2. Second Stage: Material along the sides of the pipe up to at least one foot above the top of the pipe compacted in six-inch layers.
 - 3. Third Stage: Material above the second stage up to the bottom of the subgrade or the finished surface as applicable compacted in 12-inch layers.
- B. Backfilling of structures shall be done in 12- inch compacted layers up to the top of the completed or partially completed structure.
- C. Materials used for backfilling shall comply with the requirements of Article 2.02 this section or as otherwise authorized in writing by the OWNER's representative. For backfilling of pipe, "Select Fill" shall be used for the first and second stages. "Common Fill" shall be used for the third stage of pipe backfill and for backfilling structures.

3.11 COMPACTION

- A. The compaction requirements for backfilling pipe trenches and around structures are listed below under the following categories. These requirements are the minimum percentages of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557).

1. Under and adjacent (within ten feet) to pavement shall be 95 percent except within three feet of bottom of subbase grade it shall be 98 percent.
2. Not under pavement: Any area outside the 10 feet referred to above shall be 95% for all stages.

These requirements are the minimum percentages of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557).

3. Under and adjacent (within ten feet) to structures shall be 95 percent except within three feet of finished grade it shall be 98 percent.
- B. The CONTRACTOR shall add water or dry out the material used for backfilling until the moisture content is within two percent of the optimum moisture required to achieve the maximum compaction.
- C. A density test shall be taken for each 300 lineal foot section of trench or part thereof for each layer.
- D. A density test shall be taken for every other layer for each structure.

PART 4 **MEASUREMENT AND PAYMENT**

4.01 **BASIS OF PAYMENT**

- A. Unless otherwise specified in the Contract Documents, the cost of trenching and backfilling shall be included in the various lump sum and unit prices in the contract.

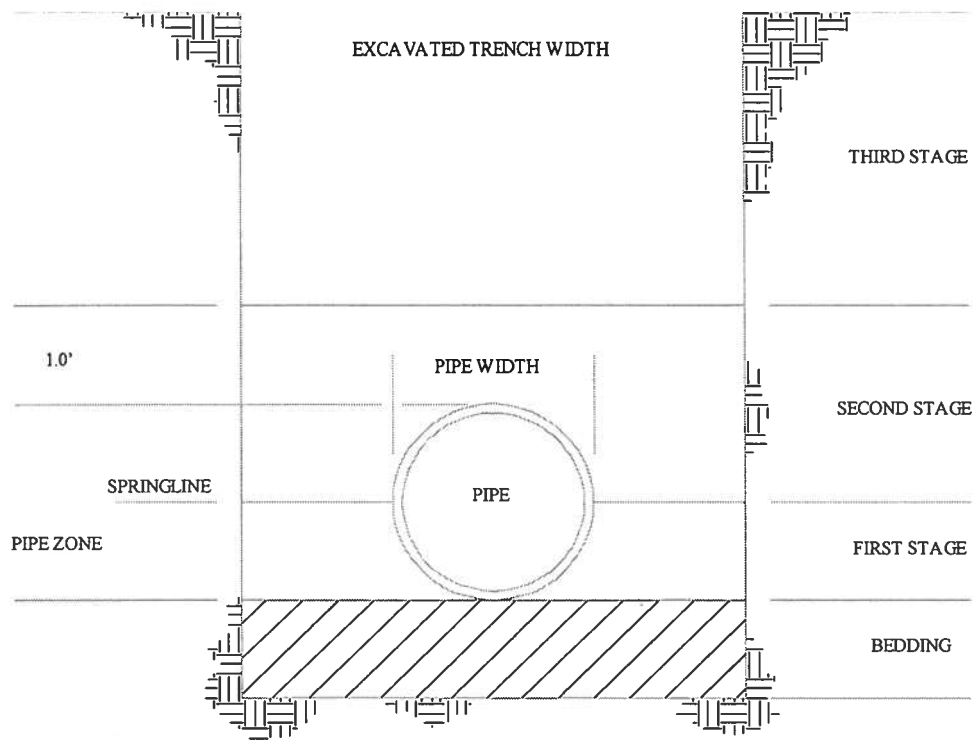


FIGURE A

N.T.S.

END OF SECTION 02703

SECTION 02704
TEMPORARY TRAFFIC CONTROL

PART 1 **GENERAL**

1.01 **SCOPE**

- A. This section specifies temporary traffic control for the project as shown on the plans and/or called for in the specifications. In general, all temporary traffic control shall comply with the latest editions of the Florida Department of Transportation's Standard Specifications for Road and Bridge Construction, herein referred to as FDOTSPEC, the Florida Department of Transportation's Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System, Index 600, and the Federal Highway Administration's Manual on Uniform Traffic Control Devices, Part 6, Temporary Traffic Control.

- B. The main objective of this section is to provide safe and efficient movement of vehicles, bicyclists and pedestrians through or around the work zone, and protect workers and equipment from the traveling public.

The secondary objective of this section is to provide efficient completion of the construction or maintenance activity causing the interruption of normal roadway use, and protection of the work in progress.

1.02 **SPECIFICATIONS AND STANDARDS**

- A. The work specified in this section shall be in accordance with the documents identified in Article 1.01.A. and the requirements of the authority having jurisdiction over the operation and maintenance of the roadway, bicycle and/or pedestrian path.

PART 2 **PRODUCTS**

2.01 **MATERIALS**

- A. All materials used for temporary traffic control, including but not limited to signs, signals, pavement markings, channelizing devices, warning lights and barriers shall meet the requirements of the documents identified in Articles 1.01.A. and 1.02.A.

PART 3 **EXECUTION**

3.01 **GENERAL REQUIREMENTS**

- A. All work required for temporary traffic control shall be executed in accordance with the requirements of the documents identified in Articles 1.01.A. and 1.02.A.

3.02 SPECIFIC REQUIREMENTS

- A. In addition to the CONTRACTOR providing a worksite traffic supervisor in accordance with FDOTSPEC Section 102-3.2, the Traffic Control Plan (TCP) shall be installed, maintained and removed under the direct supervision of an individual who is certified by a Florida Department of Transportation (FDOT) approved training agency, which meets the FDOT's maintenance of traffic training requirement for intermediate or advanced training.
- B. The CONTRACTOR will maintain the existing number of lanes of traffic in each direction at all times by using existing or constructing temporary pavement. There shall be no lane closures or road closures without the prior written approval of the ENGINEER and the authority having jurisdiction over the operation and maintenance of the roadway.
- C. The CONTRACTOR shall not provide detours to re-route vehicle, bicycle and/or pedestrian traffic around the work zone without prior written approval from the ENGINEER and the authority having jurisdiction over the operation and maintenance of the roadways.
- D. If approved by the ENGINEER and the authority having jurisdiction over the operation and maintenance of the roadway, the CONTRACTOR may concurrently construct portions of the work from different phases.
- E. If the CONTRACTOR cannot maintain the existing access to a current residence or business, then the CONTRACTOR shall provide an alternate access, as approved by the ENGINEER.
- F. All surfaces used to maintain traffic through the work zone shall be paved.
- G. Any alterations to the approved traffic patterns must be reviewed and approved by the ENGINEER prior to implementation, unless the alterations are required to avoid eminent danger to the public or the workers present within the approved work zone.
- H. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time, temporary traffic control devices that are no longer appropriate shall be removed or covered.

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. Payment for temporary traffic control shall be on a lump sum basis in accordance with the accepted bid. Such payment shall constitute full compensation for furnishing all labor, materials, and equipment necessary to complete the MOT Plan in accordance with the plans and specifications.

END OF SECTION 02704

SECTION 02705
RESTORATION AND GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 SCOPE

- A. The work specified in this section consists of restoring existing surfaces or any improvements such as but not limited to pavement, curb and gutter, sidewalk, structures, signs, or landscaping damaged during construction.

1.02 SPECIFICATIONS AND STANDARDS REFERENCE

- A. Any reference to a supplementary specification or standard such as ASTM, AWWA, AASHTO, is intended to be a reference to the latest edition of that specification or standard.
- B. All references to "FDOTSPEC" shall mean the latest edition of the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction."
- C. WilsonMiller Specifications Section:

02703 TRENCHING AND BACKFILLING FOR PIPING

PART 2 PRODUCTS

2.01 MATERIALS

- A. Flexible Pavement: Comply with requirements of Sections 901, 902, 911, 913, 914, 916, and 917 of the FDOTSPEC.
- B. Concrete Pavement, Driveway, Sidewalk, Curb and Gutter: Comply with requirements of Sections 901, 902, 921, 923, 924, and 925 of the FDOTSPEC.
- C. Grassing: Comply with requirements of Section 981, 982, and 983 of the FDOTSPEC.

PART 3 EXECUTION

3.01 GENERAL

- A. Existing property damaged during construction shall be restored to a condition at least equal to the original condition of the property, unless otherwise specified in the Contract Documents.
- B. Existing roadway or drainage improvements damaged within a roadway or drainage right-of-way or easement shall be restored in accordance with the requirements of the state, county, and city agencies having jurisdiction thereof.

3.02 UNDERGROUND FACILITIES

- A. Existing underground utilities and drainage systems damaged during construction shall be immediately repaired to the specifications of the owner of the damaged system. Where the utility owner elects to make said repairs under their direction, the CONTRACTOR shall pay for such repair costs directly.
- B. Where damage to existing underground utilities is anticipated due to unavoidable conflicts, the CONTRACTOR shall construct their work so as to cause the least amount of interruption of service as possible.
- C. Where construction changes the land surface elevation and existing valve boxes are present, the valve box will be extended or reduced by means of new extension pieces of proper length for the finished grade.

3.03 TRENCHING AND BACKFILLING

- A. Any trenching and backfilling required to satisfy the requirements of this section shall be in accordance with Section 02703, TRENCHING AND BACKFILLING FOR PIPING.

3.04 PAVEMENT CUTS

- A. On dead end streets, collector streets, and high traffic streets, trenching and pipe laying shall be performed in such a manner that at least one-way traffic is maintained at all times.
- B. All trench lines across existing pavements, driveways, sidewalks, curbs, etc. shall be saw cut in straight parallel lines prior to trench excavation.
- C. CONTRACTOR shall exercise care to minimize amount of pavement, sidewalk, driveways, and curbing to be removed.

3.05 CONCRETE PAVEMENT, CURB AND GUTTER, ETC.

- A. Concrete pavement, driveway, sidewalk, and curb and gutter damaged during construction shall be restored to the same dimensions as that removed or as specified in the Contract Documents. All such restoration shall be in accordance with the applicable Sections 345, 350, 520, 522, of FDOTSPEC.
- B. Prior to placing concrete, the subgrade shall be compacted to at least 98% of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557).

3.06 FLEXIBLE PAVEMENT

- A. Stabilized subgrade damaged during construction shall be restored in accordance with Section 160 of FDOTSPEC. The restored stabilized subgrade shall have a minimum bearing value of LBR-40, and be compacted to at least 98% of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557).

- B. Soil cement or shell base damaged during construction shall be restored in accordance with Section 200 of FDOTSPEC. The minimum density of the restored base shall be 98% of the maximum density determined by the "Modified Proctor Density" (ASTM D-1557). After completion of the base course, a bituminous prime coat shall be applied in accordance with Section 300 of FDOTSPEC when applicable prior to placement of asphalt surface course.
- C. Asphalt surfaces damaged during construction shall be replaced with a similar surface in accordance with Section 330 of FDOTSPEC. The material used shall be the same type and the thickness of that damaged, except that the minimum thickness shall be one inch. In the case of multiple layers, each layer or course of the damaged asphalt surface shall be reconstructed to duplicate the original.

3.07 LANDSCAPING AND MISCELLANEOUS

- A. Trees and bushes damaged during construction shall be removed and replaced with equal size and type by the CONTRACTOR at their expense unless otherwise specified in the Contract Documents.
- B. Grassed areas damaged during construction shall be repaired with the same type sod unless otherwise specified in the Contract Documents.
- C. Sodding and grassing and mulching operations shall begin within a maximum of three (3) weeks after utility installation, except in cases of front and back slopes which shall be done immediately following installation completion. Any yards or part of right-of-way in front of private property, that has a grass mat, shall be re-sod with like sod. CONTRACTOR shall maintain disturbed areas until acceptable vegetation is re-established.
- D. Areas without established grass mats in front of vacant lands shall be restored by seeding and mulching. The grass mat shall be restored to the required design or finished grade to permit proper drainage.
- E. Unimproved areas such as an open field or lot having its surface disturbed during construction shall be graded to duplicate the existing conditions and seeded and mulched unless otherwise specified in the Contract Documents.
- F. Any damage to an existing irrigation system caused by the construction operations shall be repaired by the CONTRACTOR prior to the installation of sod, seed, or other landscaping unless otherwise specified in the Contract Documents.
- G. Mailboxes, railroad ties, or any other miscellaneous items damaged during construction shall be repaired to the satisfaction of the OWNER's representative unless otherwise specified in the Contract Documents.

3.08 DENSITY TESTS

- A. Density tests shall be performed in accordance with 3.08B and elsewhere in the specifications as may apply. The CONTRACTOR shall pay for all tests related to restoration work.

- B. Field density tests shall be required for each stage of fill, stabilized subgrade, soil cement base, and asphalt surface in accordance with the frequency listed below unless otherwise authorized by the OWNER's representative.
- * Transverse Trench Crossing - one/location/stage
 - * Longitudinal Trench - one/300 LF/stage
 - * Pavement Repair - one/1000 SY/stage
- C. Concrete shall be tested for slump, air content, and compressive strength every 50 cubic yards for continuous pours. For smaller volume work, the same tests shall be taken for each separate pour. A minimum of four (4) sample cylinders shall be made when testing for compressive strength.

3.09 GENERAL REQUIREMENTS

- A. Maintenance of Service - CONTRACTOR shall provide facilities and be responsible for protection of all structures, buildings and utilities, underground, on the surface, or above ground, against trenching, dewatering or any other activity connected with work covered by this modifications of existing utilities, CONTRACTOR shall provide for maintaining continuous water electric, telephone, gas, sewage and other utilities, to all present customers of such utilities unless approval is obtained in writing from the utility company or OWNER for the interruption of such services.
- B. Existing Facilities - Underground structures shown on the plans are according to the best available information, but it shall be the responsibility of the CONTRACTOR to acquaint himself with the exact location and to avoid conflict with all existing facilities. Where underground structures are damaged, they shall be immediately repaired to the specifications of the owner of the utility. If the owner of the utility elects to make such repairs with their own forces, CONTRACTOR shall make arrangements as to protect the OWNER from all damages. Where such conflicts are unavoidable, every effort shall be made to construct the work so as to cause as little interference as possible with services rendered by the structure disturbed.
- C. Utility Installation Permits - CONTRACTOR shall obtain necessary permits for construction across public and private property, streets, railroads, telephone lines, power lines, etc. CONTRACTOR shall abide by all rules, regulations and requirements of the owner of such property in regard to construction under this contract, including giving of notices, provisions for inspection and employment of such methods of construction as may be required. Costs of any permits shall be incidental to construction and reflected in unit prices bid.
- D. Work in State Rights-of-Way - Construction in state rights-of-way shall comply with the State of Florida Department of Transportation (FDOT) Utility Accommodation Guide.
- E. Work in County/City Rights-of-Way - Construction in county/city rights-of-way shall comply with the utility accommodation manual for the agency having jurisdiction.

- F. Clearing of Excavation Corridor - Only items necessary to provide adequate work space including space for hubs, batter boards, and equipment shall be removed within the right-of-way, easement, or designated construction corridor. Trees, shrubbery, poles, mailboxes, and other items not to be removed shall be protected from damage during construction. When necessary to cut tree roots and branches, such cutting shall be performed with saws in a neat and workmanlike manner.

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. There shall be no separate payment for any work defined in this section. The cost of any such restoration work shall be included in the various work items that necessitate the restoration unless otherwise specified in the Contract Documents.

END OF SECTION 02705

SECTION 02707
STORM SEWERS, PIPE AND STRUCTURES

PART 1 **GENERAL**

1.01 **SCOPE**

- A. Work specified in this section consists of furnishing and installing a storm drainage system with all the component parts specified in the Contract Documents. Included are storm sewers, pipe culverts, manholes, crossing boxes, inlets, catch basins, pipe end treatments, restoration, and other similar items defined in this section.

1.02 **SPECIFICATION AND STANDARDS REFERENCE**

- A. Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be the latest edition.
- B. WilsonMiller Specifications Sections:

02703 TRENCHING AND BACKFILLING FOR PIPING
02705 RESTORATION AND GENERAL REQUIREMENTS
03030 CONCRETE CONSTRUCTION
- C. All references to "FDOTSPEC" shall mean the latest edition of the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction".
- D. All references to "FDOT INDEX BOOK" shall mean the latest edition of the "FDOT Roadway and Traffic Design Standards".

PART 2 **PRODUCTS**

2.01 **CORRUGATED ALUMINUM ALLOY CULVERTS**

- A. Aluminum alloy culvert pipe shall meet requirements of Section 945, FDOTSPEC. Where bituminous-coated aluminum pipe is specified, bituminous coating shall meet requirements of AASHTO M 190, for Type A, (Fully Bituminous Coated).

2.02 **CORRUGATED STEEL PIPE AND PIPE ARCH**

- A. Corrugated steel pipe, including round culvert pipe, pipe arch and under-drain, and coupling bands for each type, shall conform to requirements of Section 943, FDOTSPEC. Corrugated steel pipe shall be bituminous coated, both sides, in accordance with requirements of AASHTO M 190, Type A, (Fully Bituminous Coated).

2.03 **REINFORCED CONCRETE PIPE**

- A. Reinforced concrete pipe materials shall conform to Section 941, FDOTSPEC.

- B. Reinforced Concrete Pipe (Round) - Unless otherwise specified, reinforced concrete pipe shall meet the requirements of ASTM Designation C 76, "Standard Specification for Reinforced Concrete Pipe", Class III, Wall Thickness B. Lifting holes will not be permitted in pipe. CONTRACTOR shall only use pipe joint lubricants supplied by or recommended by pipe manufacturer. Lubricant shall be water-soluble, non-toxic, and inhibitor to bacterial growth, and shall be non-detrimental to the elastomeric seal and pipe. Mineral oil, petroleum jelly, hydrogenated vegetable fat (i.e. Crisco(r), cooking oil, grease, etc.) shall not be used. Joints for round reinforced concrete pipe shall be made by use of "O-Ring", round synthetic rubber gaskets meeting the requirements of Sections 430-7 and 942-1, FDOTSPEC. An 18-inch wide Mirafi wrap shall be centered on each joint.
- C. Reinforced Concrete Pipe (Elliptical) - Elliptical concrete pipe shall meet the requirements of ASTM C 507, except exceptions and modifications to ASTM C 76, as specified in Section 941-1.3, FDOTSPEC shall apply also to elliptical pipe. Standard elliptical pipe shall meet requirements of Table I for Class HE-III and special elliptical pipe shall meet requirements of Table I for Class HE-IV. Lifting holes will not be permitted in pipe. Joints for elliptical concrete pipe shall be designed in accordance with ASTM C443 and AASHTO M198 and provide a rubber gasketed watertight connection. For pipe sizes greater than 58" X 91" use same joint as arch pipe. An 18-inch wide Mirafi wrap shall be centered on each joint.
- D. Reinforced Concrete Pipe (Arch Pipe) - Arch concrete pipe shall meet the requirements of ASTM C 506, except exceptions and modifications to ASTM C 76, as specified in 941.1.3., FDOTSPEC shall apply where applicable to arch pipe. Lifting holes will not be permitted in pipe. Joints for arch concrete pipe - field joints for arch concrete pipe shall be made with a pre-formed plastic gasket material. Gasket material shall meet the requirements of Section 942-2, FDOTSPEC. Material shall be "Ram Nek" as manufactured by K.T. Snyder Co. or approved equal. An 18-inch wide Mirafi wrap shall be centered on each joint.

2.04 CORRUGATED POLYETHYLENE PIPE

- A. Corrugated polyethylene pipe shall meet the requirements of AASHTO M294 specification except size range shall be expanded through 36-inch diameter. Minimum pipe values shall be as follows:

DIAMETER	INTERIOR	PIPE STIFFNESS	N FACTOR
12"	Smooth	45 psi	.12
15"	Smooth	42 psi	.12
18"	Smooth	40 psi	.12
24"	Smooth	34 psi	.12
30"	Smooth	28 psi	.12
36"	Smooth	22 psi	.12

2.05 MORTAR, BRICK, AND REINFORCING BARS

- A. Mortar used for constructing and plastering manholes, catch basins, drop inlets and junction boxes shall meet the requirements of ASTM Specification Serial Designation C 270. CONTRACTOR shall use either a Portland cement-hydrated lime mixture cement or a Portland cement mixture with masonry cement added for

improved workability. However, the same materials must be used throughout the project. Mortar materials shall be proportioned by volume and shall be as follows:

One (1) part Type I Portland Cement - ASTM C-150

Three (3) parts Aggregate (sand) - ASTM C-144

Addition of masonry cement, ASTM C-91 will be permitted to improve workability of mortar.

- B. Brick used in construction of manholes, catch basins, drop inlets and junction boxes shall be Portland cement concrete meeting the requirements of ASTM Serial Designation C-55, Grade P II.
- C. All bars shall be deformed Reinforcing Steel and shall meet the requirements of Specifications for Billet-Steel Bars for Concrete Reinforcement (ASTM A-15), and to Specifications for Deformation on Deformed Steel Bars (ASTM A-305) for concrete reinforcement. All bars shall be lapped and placed in accordance with ACI Requirements and Specifications.

2.06 STRUCTURES

- A. Structures shall be precast or cast in place. Work specified in this section shall consist of furnishing all concrete, reinforcing steel, ties, forms, labor, materials, and placing of all embedded pipe sleeves, fixtures, joist anchors, etc., necessary to complete the work shown on the plans and specified herein, all in accordance with the Southern Building Code and the American Concrete Institute Building Code Requirements for Reinforced Concrete (ACI 318). All concrete shall develop 3,000 psi compressive strength in 28 days. Coarse aggregate shall be no smaller than 1/2-inch in diameter.

2.07 IRON CASTINGS

- A. Frames, covers and gratings shall be of the type and duty shown on the plans. Iron castings shall conform to ASTM A-48, Class 30, gray cast iron. All castings shall be true to pattern in form and dimension, free from faults or other defects. Bearing surfaces between cast frames, cover and grates shall be machined fitted together and match-marked to prevent rocking. All covers shall have a concealed type pick-hole (non-penetrating), and shall have the words "storm sewer" cast thereon.

2.08 CROSSING BOXES (CONFLICT BOXES)

- A. Conflict boxes shall be constructed at the location and depth indicated on the plans and in accordance with details shown.

PART 3 EXECUTION

3.01 GENERAL

- A. Pipe and structures shall be constructed at the location and elevations specified on the plans and in accordance with the details specified in the Contract Documents.

3.02 TRENCHING AND BACKFILLING

- A. Excavation, bedding, and backfilling of trenches during the construction of a storm drainage system shall comply with the requirements of WilsonMiller Specifications Section 02703, TRENCHING AND BACKFILLING.

3.03 MATERIAL HANDLING

- A. Pipe and accessories shall be loaded and unloaded by lifting with hoists or skidding in a manner that will avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground. In distributing material at the site of the work, each piece shall be off-loaded near the place where it is to be laid in the trench.

3.04 PIPE LAYING

- A. In general, corrugated metal pipe shall be installed in accordance with the Handbook for Steel Drainage and Highway Construction Products, published by the American Iron and Steel Institute. In general, concrete pipe shall be installed in accordance with the Concrete Pipe Installation Manual, published by the American Concrete Pipe Association.
- B. Laying of pipe in finished trenches shall be commenced at the lowest point, and shall progress up-grade. All pipe shall be carefully laid, true to the lines and grades given, with hubs up-grade and tongue end fully entered into the hub. When pipe with quadrant reinforcement, or circular pipe with elliptical reinforcement is used, pipe shall be installed in a position such that manufacturer's marks designating "top" and "bottom" of the pipe shall not be more than five degrees from the vertical plane through the longitudinal axis of the pipe. Any pipe that is not in true alignment or which shows any settlement after laying shall be taken up and re-laid without additional compensation. Pipe and joints shall be kept clean at all times.

3.05 SAND CEMENT RIP RAP

- A. Where the plans and specifications call for sand cement construction, bags shall be made of burlap. Paper bags will not be permitted.

3.06 PIPE END TREATMENTS

- A. Where storm drains connect to a lake, location of the headwall or end section shown on the plans shall be adjusted to fit the slope of the lake bank. Length of pipe at each end treatment shall be adjusted accordingly, and the quantity of pipe paid for shall be the actual length installed.
- B. If mitered ends are called for on the plans, mitered end section shall be constructed so that the top of the pipe end will match and intersect the designed slope of the lake bank, and the concrete collar slope shall conform to the mitered end detail.

- C. Storm drainage CONTRACTOR and lake excavation CONTRACTOR shall coordinate the location and installation of the headwall or mitered end section to be constructed at the lake bank. All "field adjustments" to end treatment location or elevation shall be approved by the ENGINEER of Record prior to construction.

3.07 JOINING ARCH CONCRETE PIPE

- A. Joint Design - CONTRACTOR shall furnish the ENGINEER with details in regard to configuration of the joint and the amount of gasket material required to affect a satisfactory seal. Joint surfaces which are to be in contact with the gasket material shall not be brushed or wiped with a cement slurry. Minor voids may be filled with cement slurry provided that all excess cement slurry is removed from the joint surface at the point of manufacture.
- B. Primer - Prior to application of gasket material, a primer of the type recommended by the manufacturer of the gasket material shall be applied to all joint surfaces which are to be in contact with the gasket material. The surface to be primed shall be thoroughly cleaned and dry when primer is applied.
- C. Application of Gasket - Prior to placing a section of pipe in the trench, gasket material shall be applied to form a continuous gasket around the entire circumference of the leading edge of the tongue. The paper wrapper on the exterior surface of the gasket materials shall be left in place until immediately prior to joining of sections. The gasket material shall be checked to assure it is bonded to the joint surface, immediately prior to placing a joint in the trench. Plastic gasket material shall be applied only to surfaces which are dry. A hand heating device shall be kept at the job site to dry joint surfaces immediately before application of the plastic gasket material. When the atmospheric temperature is below 60°F, plastic joint seal gaskets shall either be stored in an area warmed to above 70°F, or artificially warmed to this temperature in a manner satisfactory to the ENGINEER.
- D. Installation of Arch Concrete Pipe - Handling of a section of pipe after the gasket material has been affixed shall be carefully controlled to avoid displacement of gaskets or contamination of gasket material with dirt or other foreign material. Any gasket displaced or contaminated in handling of the pipe shall be removed and repositioned or replaced as directed. Pipe shall be installed in a dry trench. The bottom of the trench shall be carefully shaped so as to minimize the need for realignment of sections of pipe after they are placed in the trench. Care shall be taken to properly align each section of pipe to the gaskets coming into contact. Realignment of a joint after the gaskets come into contact tends to reduce the effectiveness of the seal and shall be held to a minimum. When pipes are joined, the entire joint shall be filled with gasket material and there shall be evidence of squeeze-out of gasket material for the entire internal and external circumference of the joint. Excess material on the interior of the pipe shall be trimmed to provide a smooth interior surface. After the pipe is in its final position, joint shall be carefully examined to determine the gasket material is satisfactorily adhering to all surfaces of the joint and the entire joint is filled with gasket material. If a joint is defective, the leading section of pipe shall be removed and the joint resealed.

- E. In addition to the required gasketed joint, a filter fabric jacket shall be included. The filter fabric jacket shall conform to FDOT Miscellaneous Drainage Detail Index No. 280 Sheet 1.

3.08 INSTALLATION OF CORRUGATED POLYETHYLENE PIPE

- A. Pipe shall be joined by split corrugated couplings at least seven corrugations wide and exceeding soil tightness requirements of the AASHTO Standard Specifications for Highway Bridges Section 23 (2.23.2). Unless otherwise specified by the ENGINEER, a mastic type gasket shall be utilized.
- B. Pipe and accessories shall be unloaded by using skidways, hoists or dropping on non-paved areas, in a manner that does not damage the pipe.
- C. Pipe shall be installed in accordance with ASTM 2321 specifications.

3.09 PLACING OF CONCRETE FOR STRUCTURES

- A. Concrete shall be deposited in clean wet form as nearly as practicable in its final position to avoid segregation. Concrete placing shall be carried on at such a rate that the concrete is, at all times, plastic and flows readily into the spaces between the bars. Concreting shall be a continuous operation until the panel or section is completed. Walls and slabs shall be poured monolithically unless shown otherwise on the plans. All structural concrete shall be mechanically vibrated.
- B. No concrete shall be allowed a free fall of more than four feet or allowed to strike against a vertical or inclined surface or reinforcement above point of deposit. Placing by means of pumping may be allowed, contingent upon the adequacy of the equipment for this particular work. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced.
- C. Placing of concrete shall be so regulated the pressure caused by wet concrete shall not exceed that used in the design of the forms. After the concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement.
- D. Joints between the junction box and manhole walls and incoming and out-going pipes shall be sealed with Portland Cement Mortar to form a watertight joint. All pipes in manholes or catch basins shall be sawed off flush with the inside face of the structure and sawed ends of these pipes shall be grouted with Portland Cement Mortar to a smooth uniform covering with no steel exposed.

3.10 FINAL INSPECTION OF STORM WATER SYSTEM

- A. Each sewer, upon completion, or at such time as the ENGINEER may direct, is to be cleaned and inspected. All repairs or alterations shown necessary by these inspections shall be made; all broken or cracked pipe removed; all excessive infiltration or exfiltration corrected; all deposits in pipe and manholes removed; and the sewer left clean, true to line and grade and ready for use. Each section of pipe from manhole to manhole is to show a full circle of light from either end. Each manhole shall be to the specified form and size, to the proper depth and watertight.

3.11 ADJUSTING EXISTING STRUCTURES

- A. Existing manholes, catch basins, inlets, conflict boxes, monument boxes, etc., within the limits of the proposed work, that do not conform to the finished grade of the proposed pavement, or to the finished grade designated on the plans for such structures, shall be cut down or extended, and made to conform to the grade of the new pavement, or to the designated grade of the structure if outside of the proposed pavement area. The materials and construction methods for this work shall conform to the requirements specified above. Where manholes are to be raised, the adjustment may, at the CONTRACTOR's option, be made by the use of adjustable extension rings of the type which do not require the removal of the existing manhole frame. The extension device shall provide positive locking action and shall permit adjustment in height as well as diameter. The particular type of device used shall be submitted to the ENGINEER for review.

3.12 RESTORATION

- A. Existing surfaces or property improvements damaged during the construction of work specified in this section shall be repaired in accordance with the requirements of WilsonMiller Specifications Section 02705 RESTORATION AND GENERAL REQUIREMENTS.

PART 4 MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

- A. The quantities of storm sewer and pipe culvert to be paid for under this section shall be the lengths of the various types and sizes of pipe satisfactorily completed according to the Contract Documents. The pay quantity shall be in linear feet measured along the centerline of the pipe with no deductions for manholes, inlets, crossing boxes, or catch basins.

For pipe other than the main line where the pipe connects to a manhole, inlet, conflict box, or catch basin, the measurement of the pipe shall extend to the center of the applicable structure.

Where a pipe terminates with a headwall, endwall, mitered end or other end treatment, the measurement of the pipe shall extend to the end of the pipe. This method also applies where pipe connects to a control structure, weir, or cast in place structures.

- B. The quantities for manholes, inlets, conflict boxes, and mitered end sections paid for under this section shall be the number of the various types and sizes satisfactorily completed according to the Contract Documents.
- C. The quantities of existing structure adjustment to be paid for under this section shall be the number of existing manholes, inlets, conflict boxes or other similar structure satisfactorily adjusted, unless otherwise specified.

4.02 BASIS OF PAYMENT

- A. The quantities, determined by the methods described above, shall be paid for at the contract unit prices established for each pay item. Such payment shall constitute full compensation for all work specified in this section including all labor, materials, equipment, and other incidental costs required to construct the work defined in this section.
- B. Unless otherwise specified in the Contract Documents, restoration work shall not be paid for separately. The cost of any such restoration work shall be included in the various work items that necessitate the restoration.

END OF SECTION 02707

**SECTION 02810
IRRIGATION SYSTEMS**

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and provisions of the Contract including Contract Conditions, Division-1 and Division-2 Specifications, apply to work of this section.

1.02 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 fees and all other costs and tests, 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 their duly appointed representative.

1.03 RELATED WORK

- A. Section 02480 - Landscape Work

1.04 MANUFACTURER

- A. The manufacturer(s) for the components of the irrigation system will be as specified on the drawings. Approved equals must be submitted to the LANDSCAPE ARCHITECT, in writing, no less than 10 days prior to bid deadline. LANDSCAPE ARCHITECT shall determine acceptance of approved equals.

1.05 QUALITY ASSURANCE

- A. Contractor Qualifications: A firm specializing in irrigation work with not less than five years of experience in installing irrigation systems similar to those required for this project.
- B. The CONTRACTOR, as part of their bid, shall list not less than six projects completed by their company of similar size and scope to the work specified herein. The six or more projects shall be listed by project, name, location, owner's name and phone number, and the total paid cost of work executed. The listed project shall be considered as representative of the CONTRACTOR's ability to execute the work specified herein. The OWNER, at their sole discretion, reserves the right

to reject any bids which either do not respond to this condition or do not represent satisfactory performance of prior work of similar size and scope as that specified herein.

- C. Coordination: Coordinate and cooperate with other CONTRACTORS to enable the work to proceed as rapidly and efficiently as possible.
- D. Codes and Inspections: The entire installation shall comply fully with all local and state laws and ordinances and with all established codes applicable thereto. The CONTRACTOR shall obtain all required permits, 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, they shall furnish to the OWNER all inspection certificates customarily issued in connection with the class of work involved.
- E. The CONTRACTOR shall keep on their work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the OWNER, or OWNER's representative.
- F. The superintendent shall represent the CONTRACTOR in their absence and all directions given to him shall be as bindings if given to the CONTRACTOR.
- G. The OWNER's Landscape Architect or designated individual, herein referred to as the OWNER's Representative or LANDSCAPE ARCHITECT 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.
- H. In all cases where observation of the irrigation system work is required and/or where portions of the work specified to be performed under the direction of the OWNER's Representative, the CONTRACTOR shall notify same, at least 48 hours prior to the time such observation or direction is required.
- I. Any necessary re-excavation or changes to the system needed because of failure of the CONTRACTOR to have the required observations, shall be performed at the CONTRACTOR's expense.

1.06 SUBMITTALS

- A. Refer to Section 01730 Operation and Maintenance Data and Section 01300 Shop Drawings.
- B. All materials shall be those specified and or approved by the LANDSCAPE ARCHITECT.
- C. 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, six copies of the complete list of materials, manufacturer's technical data, shop drawings, and installation instructions which they propose to install. The CONTRACTOR shall forward all required submittals to the LANDSCAPE ARCHITECT within 14 days of award of contract.

- D. Installation Schedule: Submit a construction schedule, indicating the dates of installation anticipated for this project. Once accepted, revise dates only as approved in writing by the LANDSCAPE ARCHITECT, after documentation of reasons for delay.
- E. Commence no work before approval of material list and descriptive material by the LANDSCAPE ARCHITECT.
- F. Record Drawings: The OWNER shall furnish the CONTRACTOR with one set of reproducible reverse mylar sepia showing all work required under this contract for the purpose of having the CONTRACTOR record on these reproductions all changes that may be made during actual installation of the system. "Record" locations shall be provided for all water source connection appurtenance, backflow preventer, controllers, valves, mainline fittings, wire splices, etc. Location shall include dimensions from two permanent points of reference (building corner, street corner, fence line, etc.).
 - 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 blue line prints. Records shall be made on a daily basis. All records shall be neat and subject to the approval of the OWNER and LANDSCAPE ARCHITECT.
 - 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. Identify field changes of dimension and detail of changes made by Change Order or Field Order.
 - 4. 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.
 - 5. Each month when CONTRACTOR submits their progress payment request to the OWNER it shall include the up to date record drawing information for all material installed to that date.
 - 6. Progress payment request and record drawing information must be approved by the LANDSCAPE ARCHITECT before payment is made.
 - 7. If in the opinion of the OWNER or LANDSCAPE ARCHITECT, 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.
 - 8. Upon completion, all information noted on the prints shall be transferred to a reproducible reverse mylar by the CONTRACTOR. Drawings shall be to scale and all information shall be recorded in a neat, orderly way.

9. Record Drawings: Before the date of the final site observation and approval, the CONTRACTOR shall deliver two sets (of blue-line prints) of the record drawing plans and notes to the LANDSCAPE ARCHITECT. Upon approval of the record drawings, the CONTRACTOR will forward the original marked reproducible to the LANDSCAPE ARCHITECT. Upon approval of the record drawings, the LANDSCAPE ARCHITECT will forward the documents to the OWNER. Record drawing information shall be approved by the LANDSCAPE ARCHITECT and OWNER prior to final payments, including retentions. The delivery of the prints shall not relieve the CONTRACTOR of the responsibility of furnishing required information that may have been omitted. Incorrect or unacceptable record drawings will be returned to the CONTRACTOR for corrections and resubmittal.
- G. CONTRACTOR shall furnish one Manufacturer's service manual each to, the OWNER, or Tenant. Manuals may be loose-leaf and shall contain complete exploded drawings of all equipment installed showing components and catalog numbers together with the manufacturer's name and address.
- H. Loose equipment to furnish: Loose irrigation equipment, operating keys and spare parts will be furnished by the Irrigation Contractor in quantities as shown on the plans.
 1. Three quick coupler keys and matching swivel hose ends (if required).
 2. Two valve keys for gate valves (if required).
 3. Two keys for each controller.

1.07 JOB CONDITIONS

- A. Examination of the Site: The bidder acknowledges that they have examined the site, with the plans and specifications. The submission of a quotation shall be considered evidence that examinations have been made.
- B. Field Conditions: 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 adjustments in the layout of the work to accommodate existing facilities.
- C. The CONTRACTOR shall verify the correctness of all finish grades within the work area to insure the proper soil coverage of the irrigation system pipes.
- D. Protection of Existing Plants and Site Conditions: The CONTRACTOR shall take necessary precautions to protect all existing vegetation. Contact LANDSCAPE ARCHITECT if minor adjustments are not sufficient to protect existing site conditions. All existing grades shall be maintained and restored to their previously existing condition immediately following installation and testing.
- E. 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 their agents, employees, or subcontractors, during the course of their work, whether through negligence or otherwise, shall be replaced or repaired by CONTRACTOR at their 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. They shall securely cover all openings into the systems and over 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.

1.08 MATERIALS STORAGE AND CLEANUP

- A. The CONTRACTOR shall keep the premises free from rubbish and all debris at all times and shall arrange their material storage so as to not interfere with the operation of the project. All unused materials, rubbish and debris shall be removed from the site.
- B. Storage and Handling: Use care in handling, loading, storing and assembling components to avoid damage. Store plastic pipe and fittings under cover and protect from sunlight before using. Discolored plastic pipe and fittings shall be rejected.
- C. All metallic pipe and fittings shall be handled, stored, loaded and assembled with the same care used for plastic components. Metallic components shall be stored in an enclosure to prevent rusting and general deterioration.

1.09 COMPLETION AND ACCEPTANCE

- A. The completion of the contract will be accepted and Notice of Completion recorded only when the entire contract is completed to the satisfaction of the LANDSCAPE ARCHITECT.
- B. The acceptability of material, components, workmanship, labor, compliance with the specifications and required coverages shall be solely determined by the LANDSCAPE ARCHITECT.
- C. Right to Reject: The LANDSCAPE ARCHITECT will have the right, at any stage of the work, to reject any and all work, materials, and components which, in their opinion, does not meet the requirements of the drawings and specifications. Rejected material and components shall be immediately removed from the site and acceptable material substituted in its place.

- D. Substantial Completion: Upon notification by the CONTRACTOR that the installation is substantially complete, the LANDSCAPE ARCHITECT will perform a substantial completion site observation to determine if the CONTRACTOR has completed the work in accordance with the plans and specifications. If final acceptance is not given, the LANDSCAPE ARCHITECT will prepare a "punch list". The notification by CONTRACTOR must be at least three days before the anticipated substantial completion site observation.
- E. Final Completion: Upon notification by the CONTRACTOR that all defects have been repaired or replaced following substantial completion site observation, the LANDSCAPE ARCHITECT will perform one final site observation. The request by the CONTRACTOR must be made at least three working days before the anticipated final completion site observation. Any additional inspections as a result of the CONTRACTOR's failure to comply with punch list, will be done at the CONTRACTOR's expense, based on the LANDSCAPE ARCHITECT's standard hourly rates and expenses. The work will be accepted by the LANDSCAPE ARCHITECT upon satisfactory completion of all work including "punch list" items.
- F. "Record" Irrigation Drawings: Record drawings shall be delivered to the LANDSCAPE ARCHITECT, for approval. Upon approval the LANDSCAPE ARCHITECT will forward record drawings to the OWNER before final acceptance of work.

1.10 WARRANTY

- A. Warranty: The CONTRACTOR shall furnish three written warranties, stating that all work included under this contract shall be warranted against all defect and malfunction of workmanship and materials for a period of one year from the date of Final Acceptance of this project.
- B. The CONTRACTOR further agrees that they will at their own expense repair and/or replace all such defective work and materials and all other work damaged thereby and which becomes defective during the term of the guaranty-warranty in an expedient manner.
- C. The OWNER retains the right to make emergency repairs without relieving the CONTRACTOR's guaranty obligation. In the event the CONTRACTOR does not respond to the OWNER's request for repair work under their guaranty-warranty within a period of 48 hours, the OWNER may make such repairs as they deem necessary, at the full expense of the CONTRACTOR.
- D. Any settling of backfilled trenches which may occur during the guaranty-warranty period shall be repaired by the CONTRACTOR at no additional expense to the OWNER, including the complete restoration of all damaged planting, sod, paving or other improvement of any kind.

1.11 OPERATION AND MAINTENANCE

- A. Instructions: After completion and testing of the system, the CONTRACTOR will instruct the OWNER's personnel in the proper operation and maintenance of the system. The CONTRACTOR will submit proof to the LANDSCAPE ARCHITECT that said instructions were conducted. Submittal will include the name of attendees, attendees phone number, date, time, place, and content of instruction.
- B. CONTRACTOR will at the above on-site instruction with the OWNER's representative, supply complete manuals to the OWNER and/or the Tenant (three total) containing component description, operating instructions, and maintenance recommendations.

PART 2 PRODUCTS

2.01 GENERAL

- A. All products shall be as specified on the plans and in these specifications. The materials chosen for the design of the irrigation system have been specifically referred to by the manufacturer so as to enable the LANDSCAPE ARCHITECT to establish the level of quality and performance required by the system design. Equipment by other manufacturers may be used only if submittal of manufacturer's technical data and installation instructions are reviewed and approved by the LANDSCAPE ARCHITECT. Approval may be granted only if substitution is equal to the specified equipment as determined by the LANDSCAPE ARCHITECT.
- B. All materials to be incorporated in this system shall be new (latest model) and without flaws or defect and of quality and performance as specified and meeting the requirements of this system.

2.02 MATERIALS

- A. Water Meters: Shall be provided and installed per local requirements, if applicable.
- B. Well and Pump: Shall be as indicated on the drawings, if applicable.
- C. Centrifugal or Vertical Turbine Pump: Shall be as indicated on the drawings, if applicable.
- D. Backflow Preventor: The backflow prevention device shall be as specified on the drawings. Installation shall conform to the manufacturer's specifications and all applicable codes. If backflow prevention device is required by local or state laws or ordinances, it shall be considered part of this contract whether or not it is specified on the accompanying Contract Documents.
- E. Polyvinyl Chloride Pipe (PVC):
 - 1. All PVC pipe shall be homogeneous throughout, free from visible cracks, holes and foreign materials. The pipe shall be free from blisters, dents, ripples, extrusion die and heat marks.

2. All PVC pipe shall be continuously and permanently marked with the manufacturer's name or trademark, kind and size (IPS) of pipe, material, and manufacturer's lot number, schedule, class or type and the National Sanitation Foundation (NSF) seal of approval.
3. Piping under constant pressure, upstream of irrigation control valves:
 - a. Shall be PVC 1120/1220, Class 200, unless otherwise specified.
 - b. Pipe size three inches and larger shall be Bell End Gasket Type.
 - c. Pipe size 2½ inches and smaller shall be Solvent Weld Type.
 - d. Materials shall be in accordance with the latest revision of the following specifications:

American Society for Testing Materials
ASTM-D 1784, ASTM-D 2241
Department of Commerce, PS 22-70
National Sanitation Foundation Testing Laboratories
4. Piping on non-constant pressure side of irrigation control valves:
 - a. Shall be PVC 1120/1220, Class 160, unless otherwise specified.
 - b. Pipe size three inches and large shall be as specified on drawings.
 - c. Pipe size 2½ inches and smaller shall be Solvent Weld Type.
 - d. Materials shall be in accordance with the latest revision of the following specifications:

American Society for Testing and Materials
ASTM-D 1784, ASTM-D 2241
Department of Commerce, PS 22-70
National Sanitation Foundation Testing Laboratories
5. Schedule 40, High impact type, PVC 2110 pipe:
 - a. All solvent weld or bell end gasket Schedule 40 PVC pipe shall be in accordance with the latest revisions of the following specification:

ASTM-D 1785
Department of Commerce, PS 22-70
National Sanitation Foundation Testing Laboratories
6. Provide written certification from manufacturer that all PVC pipe has successfully passed all tests per ASTM D 1785.
7. Piping for Sleeving: High impact type pipe, PVC 2110, minimum Schedule 40.
8. PVC Pipe Fittings:
 - a. Molded solvent weld socket fittings shall be PVC Schedule 40, Type I/II in accordance with ASTM-D 2466. Sockets shall be tapered conforming to the outside diameter of the pipe, as

recommended by the pipe manufacturer. All fittings must conform to the 20-minute acetone test as for pipe and shall be approved.

- b. Molded threaded fittings shall be PVC Schedule 40 in accordance with ASTM-2464. All fittings shall withstand the 20-minute acetone test and be approved.
 - c. All molded fittings shall be marked with manufacturer's name and/or trademark, type PVC, schedule, size and NSF seal of approval. Extruded couplings shall be from NSF rated raw materials and meet ASTM standards. Supplier shall provide certification on extruded couplings when requested.
 - d. Schedule 40 threaded male/female adapters shall be used in connecting to threaded joints.
 - e. All changes in depth of mainline pipe shall be made using 45° fittings.
 - f. All threaded PVC to metallic connections shall be made in accordance with the PVC fitting manufacturers recommendations. Any sealant used shall be of the non-hardening, non-petroleum base type, and shall not adversely effect PVC pipe or fittings.
- F. PVC Solvent Cement: PVC solvent cement and primer/cleaner shall be compatible with the specific size and type of PVC pipe and fittings, of proper consistency in accordance with the pipe manufacturer's recommendations and will conform to ASTM D-2855, D-2564, F-656.
- G. Rubber Rings and Gasket Joint Lubricant: Rubber rings shall conform to ASTM F 477. CONTRACTOR shall only use pipe joint lubricant supplied by or recommended by the pipe manufacturer. Lubricant shall be water soluble, non-toxic, an inhibitor to bacterial growth, and shall be non-detrimental to the elastomeric seal and pipe. Mineral oil, petroleum jelly, hydrogenated vegetable fat (i.e. Crisco, petroleum products, cooking oil, grease, etc.) shall not be used.
- H. Automatic Field Controller: The irrigation controller shall be as specified on the plans. All field controllers shall be equipped with all available electrical surge/lightning protection devices for all circuits. Protection shall be factory supplied and installed whenever possible. Protection devices not supplied by the Manufacturer shall be as recommended by Manufacturer to provide a maximum degree of protection.
- I. Low Voltage Valve Control Wire (24 Volt): All 24 volt control wire shall be #14 AWG UL listed single conductor solid copper, type UF, 600 volt test for direct burial installation.
- 1. Provide one individual 24-volt valve control wire between the field controller terminal strip station lug and each control valve/sprinkler solenoid lead. Provide one consistently colored 24-volt common wire from the terminal strip common wire lug to all control valves/ sprinklers.

2. Valve common wire shall be white in color. Individual valve control wires shall be color-coded or identified by an approved tagging method.
 3. All wire shall be furnished in minimum 2,500-foot rolls and spliced only at the valve and the controller.
- J. Control Valves: The remote control valves shall be as specified on the plans, and shall perform to the manufacturer's specifications.
- K. Gate Valves: Gate valves one inch through four inch shall be Series 206 bronze threaded end gate valves manufactured by "Red-White" unless otherwise specified.
- L. Quick Coupling Valve: All quick coupling valves shall be solid bronze as specified on the plans, and shall perform to the manufacturer's specifications.
- M. Control Valve Boxes: All control valve, gate valve and quick coupling valve boxes shall be Ametek Box (unless otherwise specified) with Cover marked "Control Valve". Box shall be of sufficient size to allow easy operation and maintenance of valve. Where possible, gate valves shall be installed with control valves and occur in the same box. Ametek Jumbo Box Model 190101 w/cover 192101 shall be used for the pair.
1. Locking lids shall be green in color, boxes and extensions shall be black or green and constructed of high strength, light weight thermoplastic.
- N. Pop-Up Spray Head to PVC Pipe Fittings: All pop-up spray sprinkler heads are to be connected to PVC pipe with barbed x threaded adapters and an 18" minimum length of polyethylene tubing (i.e., funny pipe). All tubing ends shall be cut square to the outside diameter of the pipe. Pop-Up Spray Heads: All pop-up spray heads are to be of the type specified on the plans, and shall perform to the manufacturer's specifications. Spacing shall not exceed that which is graphically depicted on the plans or by the manufacturer's maximum recommendation.
- O. Rotor Sprinkler to PVC Pipe Fittings:
1. All rotor sprinklers are to be connected to PVC lateral lines using swing joints. Swing joints shall be the same size (IPS) as the inlet size of the sprinklers, unless otherwise indicated on the installation details. All swing joints shall be capable of 360 degrees of freedom.
- P. Rotor Sprinklers: All rotor sprinklers are to be of the type specified on the plans. The sprinklers shall perform to manufacturer's specifications concerning the diameter of throw and gallonage at given pressures. Sprinkler spacing shall not exceed the manufacturer's maximum recommendation.
1. Matched precipitation between full and part circle sprinklers will be required on all sprinklers operating on the same zone.
- Q. Swing Joints: Prefabricated swing joints (triple swing) shall be used as specified. Swing joints from individual nipples and fittings shall be assembled from PVC Schedule 40 or better.

- R. Teflon Tape: Any threaded connection using Teflon tapes as an anti seize device shall avoid excessive use of Teflon tape. Apply Teflon tape only in accordance with fittings and/or component manufacturer's recommendations.
- S. Rain shut-off devices shall be of the type on the plans, and shall perform to the manufacturer's specifications.
- T. Splicing Materials: 3M Direct Bury (DBY) splice kits by 3M Corporation, Austin TX (512) 984-5657 or "Snip-Snap" connector by Imperial, Lenexa, KS (913) 469-5700, unless otherwise noted.
- U. Metalized tape: CONTRACTOR shall provide metalized identification tape on all mainline piping (non-pressurized and pressurized).

PART 3 **EXECUTION**

3.01 GENERAL

- A. The CONTRACTOR shall carefully schedule their work with the General Contractor and all other trades on site.
- B. Sleeves are required wherever piping or electrical wires are placed under paved surfaces. CONTRACTOR will install sleeves prior to commencement of paving and will be responsible for coordinating with other trades. No additional compensation shall be made for the CONTRACTOR's failure to coordinate with other trades.
- C. CONTRACTOR will install the irrigation system as shown on the Contract Documents. Should any changes be deemed necessary after award of contract, for proper installation and operation of the system, such changes must be approved by the LANDSCAPE ARCHITECT. In the event that notification of the OWNER or LANDSCAPE ARCHITECT is not given, the CONTRACTOR shall assume full responsibility of all revisions.
- D. The plans and drawings are diagrammatic of the work to be performed. All piping, wires, field controllers, etc. shall be installed within the project boundaries. The CONTRACTOR shall not willfully install the irrigation system as shown on the plans when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been known in the design of the system.
- E. Layout: The CONTRACTOR shall carefully review all relative drawings for this project and will be responsible for coordinating the irrigation system installation with all known improvements. If at any time the irrigation system conflicts with other improvements (i.e., structures, landscape, etc.), the CONTRACTOR will be responsible for relocating irrigation components at their time and expense.
- F. Design Pressures: Main line pressure at the source location shall be as required to operate the irrigation heads at the design pressures as specified on the plans. Pressure shall not exceed the manufacturer's specifications. Pressure at the last irrigation head on the circuit shall not be less than 35 psi, unless otherwise noted on plans.

- G. Minimum Water Coverage: In turf planting areas, 100 percent coverage shall be provided. Layout may be modified if necessary and approved by the LANDSCAPE ARCHITECT, to obtain coverage. Do not decrease number of heads specified unless otherwise approved by the LANDSCAPE ARCHITECT.
- H. Locate all irrigation system components within planting areas where possible. Do not install irrigation lines directly over another unrelated line in same trench.
- I. Final location of piping and wiring shall be done following CONTRACTOR ascertaining location of existing underground utilities. All work shall be installed in a manner to avoid conflicts with utilities and other construction elements.
- J. CONTRACTOR shall coordinate with other trades executing work on the project to avoid conflicts with locations of plant material, utilities and other site improvements.
- K. Sprinkler spacings are maximums. Do not exceed spacings shown or noted on the plans. Sprinkler spacings may be adjusted to accommodate changes in terrain, proposed planting locations, and existing site conditions, only if approved prior to installation by the LANDSCAPE ARCHITECT.
- L. Pipe sizes shall conform to those shown on the drawings. No substitutions of smaller pipe sizes will be permitted. However, substitutions of larger sizes may be approved.

3.02 EXCAVATION AND TRENCHING

- A. Perform all excavations as required for the installation of the work as defined and described on the irrigations plans, in accordance with the contract documents and under this section of specifications. Work may include shoring of earth banks, if necessary. Restore all surfaces, existing underground installation, etc., damaged or cut as a result of the excavations, to their original condition.
- B. All construction shall be done in a neat and workman like manner in strict accordance with manufacturer's recommendations. No sand or foreign material shall be allowed to enter the pipe. Ends shall be suitably plugged when pipe laying is not in progress.
- C. Main and Lateral Line Trenching - irrigation lines shall be installed in accordance with the installation details and by cutting and removing sod if necessary, trenching, laying pipe, backfilling, compacting soil, restoring grades, and replacing sod, if required.
- D. Should utilities not shown on the plans be found during excavation, CONTRACTOR shall promptly notify the OWNER or LANDSCAPE ARCHITECT for instructing as to further action. Failure to do so will make CONTRACTOR liable for any and all damage thereto arising from their operations subsequent to discovery of such utilities. Indicate such utility crossings on the record drawings promptly.
- E. Trenches shall be open, vertical sided construction wide enough to provide free working space around work installed and to provide ample space for backfilling and compacting. ABSOLUTELY NO PULLING OF PIPE SHALL BE PERMITTED.

Trench width shall not be greater than is necessary to permit satisfactory jointing and other installation procedures.

- F. Trench Bottom: Construct a continuous, firm, smooth trench bottom, free of rocks or other hard objects. Where ledge rock, hardpan, debris or boulders are encountered, undercut and fill the trench bottom with bedding material, using sand or compacted fine-grained soils to provide a minimum depth of bed between the pipe and rock of six inches. Where unstable trench bottom conditions are encountered, use stabilizing methods and materials to provide continuous and permanent support.
- G. When two pipes are to be placed in the same trench, a six-inch space is to be maintained between pipes. The CONTRACTOR shall not install two pipes with one directly above the other.
- H. The CONTRACTOR shall cut trenches for pipe to required grade lines and compact trench bottom provide accurate grade and uniform bearing and support for each section of pipe at every point along its entire length. Trench bottoms shall be free of rocks, gravel and all extraneous debris.
- I. Trenches located under paving shall be backfilled as specified in paragraph 3.16. Depth of trenches shall be sufficient to provide a minimum cover above the top of the pipe as follows:
 - 12 inches over non-pressure lateral lines, unless otherwise noted on the drawings
 - 18 inches over non-pressure lateral lines under paving, unless otherwise noted on the drawings
 - 18 inches over control wires, unless otherwise noted on the drawings
 - 24 inches over irrigation main line, unless otherwise noted on the drawings
 - 24 inches over an irrigation line under rigged paving, unless otherwise noted on the drawings
- J. Safety: Maintain all warning signs, shoring, barricades, flares and red lanterns as required by the Safety Orders of the Division of Industrial Safety and any applicable federal, state, and local ordinances.

3.03 EXCAVATION AND TRENCHING INSPECTION

- A. The following inspections are required. Notify the LANDSCAPE ARCHITECT in advance that each item is ready for inspection as indicated below in accordance with the contract documents.
 - 1. Inspection of all flagged pipeline locations at one single inspection prior to beginning construction - notify one week in advance.
 - 2. Inspection of all pipeline placed in trench must be done before any backfill is put in. All mainlines and laterals will be inspected in one single inspection - notify one week in advance.
 - 3. Pipeline hydrostatic pressure test - notify one week in advance.

4. Pipeline flushing - notify one week in advance.
5. Sprinkler coverage test - notify one week in advance.
6. Final inspection - notify one week in advance.

3.04 WATER METER AND BACKFLOW PREVENTION DEVICE (when applicable)

- A. Water Meter: Shall be installed according to all federal, state, and local codes and requirements.
 1. Installation of the backflow prevention device shall conform to the details on the drawings, local codes, and/or manufacturers specifications. All backflow prevention and piping shall be sized to allow no more than a 20 percent decrease in pressure from that which is available from the main source.

3.05 PIPE LINE ASSEMBLY

- A. General
 1. Install pipes and fittings in accordance with manufacturers latest printed instructions.
 2. Clean all pipes and fittings of dirt, scales and moisture before assembly.
 3. All pipe, fittings, and valves, etc. shall be carefully placed in the trenches. Interior of pipes shall be kept free from dirt and debris and when pipe laying is not in progress, open ends of pipe shall be closed by approved means.
 4. All lateral connections to the mainline as well as all other connections shall be made to the side of the mainline pipe. No connections to the top of the line shall be allowed.
 5. Plastic pipe shall be cut with PVC pipe cutters or hacksaw, or in a manner so as to ensure a square cut. Burrs at cut ends shall be removed prior to installation so that a smooth unobstructed flow will be obtained.
- B. Above Ground Piping: All pipe and fittings permanently installed above ground shall be galvanized steel Schedule 40 pipe. Piping shall be painted or wrapped to prevent rusting. Paint color shall be approved by the OWNER.
 1. All pipe fittings intended for temporary use and installed above ground shall be UV resistant PVC Schedule 40.
- C. Solvent-Weld Joints for PVC Pipes
 1. Use only a color tinted cleaner/primer to prepare the outside diameter of the pipe and the inside diameter of the fitting socket. Cleaner/ primer and solvent cement shall be compatible with the specific sizes and types of PVC pipe and fittings being used.

2. Use only those applicator devices approved or recommended by the pipe and fitting manufacturer to apply the cleaner/primer and the solvent cement. Applications shall also be approved by the manufacturer of the cleaner/primer and solvent cement.
3. Priming the joints: Prime the socket side of the joint first, using an applicator. Prime the male pipe end to the length of the joint, making sure that all surfaces are entirely softened. Re-prime the sock and proceed immediately with cement.
4. Make all joints immediately after applying the solvent cement. Check all fittings for correct position. Hold joint steady so that pipe does not push out from fitting. Use a clean rag to remove any excess solvent from completed joint area.
5. Cure all joints a minimum of one hour before applying any external stress on the piping and at least 24 hours before placing the joint under water pressure, unless otherwise specified by manufacturer.

D. Threaded Joints for PVC Pipes

1. Use Teflon tape on all threaded PVC fittings. All threads shall be thoroughly cleaned of dirt, dust, and moisture before wrapping with teflon tape.
2. Use strap-type friction wrench only. Do not use metal-jawed wrench.
3. When connection is plastic to metal, male adapters shall be used. The male adaptor shall be hand tightened, plus one turn with a strap wrench.

E. Laying of Pipe

1. Pipes shall be bedded in at least two inches of finely divided material with no rocks or clods over one inch diameter to provide a uniform bearing.
2. Pipe shall be snaked from side to side of trench bottom to allow for expansion and contraction. One additional foot per 100 feet of pipe is the minimum allowance for snaking.
3. Do not lay PVC pipe when there is water in the trench.
4. Mainline trench depths will be as noted on the drawings and herein. Use 45° fittings for all changes in depth or direction of mainline pipe.

F. PVC Sleeves and Electrical Conduit

1. PVC sleeves shall be of Schedule 40 PVC, and sized as indicated on the drawings. All sleeves shall extend at least 24 inches beyond the edge of paving when passing under roadways, parking lots, sidewalks, or other paved surfaces.

2. All PVC control wire conduit shall be sufficient size to hold the required quantity of control and common wires. Electrical wires are not to be placed in the same sleeve with water pipes. However, in no case shall more than 50 percent of the control wire sleeve be filled with wire.

G. Thrust Blocks

1. Concrete thrust blocks must be provided on the thrust side of the mainline pipe wherever the pipe line:
 - a. Changes direction, as at tees or bends.
 - b. Dead ends.
 - c. Any other spot where thrust is to be expected.
2. All irrigation mainline and lateral pipes three inches and larger will be thrust blocked. See irrigation drawings for Thrust Block Details.

3.06 SHUT-OFF VALVES

- A. If indicated in plans, shut-off valves shall be located in the following locations:
1. After backflow preventor and prior to main supply loop.
 2. Between mainline and each remote control valve.
- B. To be located within planting and lawn areas.
- C. All shut-off valves shall be housed in valve boxes. Shut-off (ball) valves shall be housed in the same box as Irrigation Control Valves, where applicable.

3.07 IRRIGATION CONTROL VALVES

- A. Install control valves in valve boxes, grouping together where practical. Place no closer than 12 inches to walk edges, buildings, and walls.
- B. Pressure regulating remote control valves shall be adjusted so that the most remote sprinkler heads operate at the pressure specified.
- C. Valves shall be installed as shown in details and in accordance with manufacturer's instructions and the specifications.

3.08 QUICK COUPLING VALVES

- A. Shall be set a minimum of 12 inches from walks, curbs or paved areas where applicable or as otherwise noted. Quick coupling valves shall be housed in valve boxes.
- B. Valves shall be installed on three elbow PVC Schedule 40 swing joint assembly as detailed on the drawings. Quick coupler shall be anchored with rebars as shown on the details.

- C. Where possible, quick coupling valves may be installed with control valves and occur in the same box.

3.09 VALVE BOXES

- A. Valve boxes shall be set flush with finish grade in lawn areas and one-half-inch above finish grade in ground cover and shrub bed areas.
- B. Install all valve boxes to avoid direct contact with PVC irrigation piping. Following valve box installation place gravel or sand as indicated in the detail.
- C. CONTRACTOR shall label/number all zone valve covers/boxes with the corresponding controller zone number and isolation valve box covers with record drawing numbers. Numbers shall be applied using a weather resistant tape or paint.

3.10 SPRINKLER HEADS

- A. Sprinkler Head Installation: Locate all sprinkler heads a minimum distance of six inches from walks, pavement, and back of curbs.
- B. Pop-Up Spray Heads in sodded areas shall be installed flush (+ one-half-inch tolerance) with finished sod elevations. In mulched and planted areas all heads are to be flush with finish mulch elevations or as otherwise indicated on the plans.
- C. Rotor Heads shall be installed to be flush (+ one-fourth-inch tolerance) with finish sod elevations except those rotor heads specifically designed to be mounted below grade.
- D. All sprinkler nozzles shall be adjusted for the proper radius and direction of spray pattern. Make adjustments where possible to prevent over spraying onto walks, pavement or buildings.
- E. Sprinkler heads and quick coupling valves shall be set perpendicular to finished grade unless otherwise designated on the plans.

3.11 DRAIN VALVES

- A. All laterals shall be provided with manual drain valves to be installed as shown in details.
- B. The mainline shall be drained with manual drain valves to be installed as shown in details.
- C. Drain valves are to be provided at sufficient intervals to provide complete drainage of all piping.

3.12 AUTOMATIC CONTROLLER

- A. The automatic controller shall be installed at the approximate location shown on the drawings. The actual location shall be approved by the LANDSCAPE ARCHITECT following stake-out in the field by the CONTRACTOR. CONTRACTOR shall be responsible for monitoring the integrity of the flag markings.
- B. Controllers shall be installed in accordance with the drawings, details, manufacturer's instruction and local codes.
- C. CONTRACTOR shall provide controller grounding in accordance with the manufacturer's requirements and/or recommendations. If specified ground resistance cannot be obtained consult manufacturer for prescribed methods. Use conduit for connection of power source to controller.
- D. Connect remote control valve to controller in the sequence shown on the plans. If plan is not labeled then connect remote control valves to controller in a clockwise sequence to correspond with station setting beginning with Stations 1, 2, 3, etc. CONTRACTOR shall verify that each station number corresponds with the same numbered control valve.
- E. Affix controller name (i.e. "Controller A") on inside of controller cabinet door with letters minimum of one inch high. Affix a non-fading copy of irrigation diagram to cabinet door below controller name. Irrigation diagram to be sealed between two sheets of 20 mil (minimum) plastic. Irrigation diagram shall be a reduced copy of the as-built drawing and shall show clearly all valves operated by the controller, showing station number, valve size and type of planting irrigated.
- F. The CONTRACTOR shall be responsible for stationing the Controller as shown in the Irrigation Station Schedule on the drawings, where applicable.

3.13 CONTROL WIRING AND ELECTRICAL

- A. CONTRACTOR shall be responsible for the placement of the 110 volt AC service necessary for the operation of electric controller as specified on the plans and in accordance with the manufacturer's specifications.
- B. All electrical equipment and wiring shall be installed in accordance with the latest provisions of the National Electrical Code, state and local code and be installed by those skilled and licensed in the trade.
- C. Electric control lines (24 volt) from controller to automatic valves shall be direct burial wire of a different color than the 110 volt service to controllers. The 24 volt common ground shall be of one continual color and a different color than the other 24 volt lines and the 110 volt service. All 110 volt AC wiring shall be installed in accordance with Federal, State, and local electric requirements.
- D. All 24 volt wire shall be encased in two-inch Schedule 40 PVC sleeves when extending under roadways, parking lots, sidewalks, or other rigged surfaces shown or not shown on the drawings.

- E. All wire passing under existing or future paving, or construction, shall be encased in plastic conduit extending at least 24 inches beyond edges of paving or construction as indicated on the irrigation drawings or elsewhere in these specifications.
- F. All above ground low voltage wiring shall be installed in UL listed plastic conduit and connectors in accordance with prevailing local codes.
- G. Install all 24-volt valve control wires and common wire to one side of mainline trench. Placement over pipes is not permitted. Installation depth shall conform to the depth of the mainline as indicated elsewhere in these specifications. Install all 24-volt wires in mainline trench except for distance between controller and mainline pipe location.
- H. All field repair splices shall be made using Scotch-Lok No 3500 or DBY connector sealing packs, or approved equivalent. Each individual wire splice requires one connector sealing pack.
- I. All in the field low voltage wire splices shall be made in a valve box as described within these specifications or in the pedestal of the field controller. Direct bury splices shall be prohibited.
- J. When more than one wire is placed in the same open trench, wires shall be bundled and taped together at intervals of ten feet, using black electrical tape.
- K. Provide an expansion curl within three feet of each wire connection and at each change of direction, and at least every 100 feet of wire length on runs of more than 100 feet in length. Each expansion curl shall be formed by wrapping at least six turns of wire around a two-inch diameter pipe, then removing the pipe.
- L. Provide an expansion coil of eight to 10 feet of wire or cable at each change in direction along the wire routing, where wire is direct buried in a trench. Provide an expansion coil of four to six feet of wire every 1,000 feet of straight wire run. Coil diameter to be 24 to 30 inches. Do not tape restrain the wire coil. Lay the wire coil flat in the trench.
- M. Provide an expansion coil of eight to 10 feet of wire or cable at each side of a road crossing. Coil diameters to be 24 to 30 inch. Do not tape restrain the wire coil. Lay the wire coil flat in the trench.
- N. The 24 VAC low voltage wiring system between field controller and remote control valves shall be properly grounded per manufacturer's instructions.
- O. The main line shall have two spare wires installed its entire length and to the automatic controller. Label each end "spare wire".

3.14 CLOSING OF PIPE AND FLUSHING OF LINES

- A. Cap or plug all openings as soon as lines have been installed to prevent the entrance of materials that would obstruct the pipe. Leave in place until removal is necessary for completion of installation.

1. Thoroughly flush out all water lines under a full head of water before installing heads, valves, quick coupler assemblies, etc. Maintain flushing for a minimum of three minutes at the valve located furthest from water supply.
2. Test as specified below.
3. Upon completion of testing, complete assembly and adjust sprinkler heads for proper grade and distribution.

3.15 TESTING

- A. Request the presence of the LANDSCAPE ARCHITECT or ENGINEER in writing or by phone at least 48 hours in advance of testing. Final testing is to be accomplished in the presence of the LANDSCAPE ARCHITECT or ENGINEER. Any additional tests required due to the failure of the initial test shall be accomplished at the expense of the CONTRACTOR.
- B. Hydrostatic Testing: Center load piping with small amount of backfill to prevent arching or slipping under pressure. A continuous and static water pressure of 120 psi will be applied for a period of not less than two hours. Repair all leaks resulting from pressure test. Expel air from system after testing, flush all lines.
- C. Tests shall be made between valves and as far as practicable in section of approximately 1,000 feet long or as approved by the LANDSCAPE ARCHITECT or ENGINEER. Potable water from an existing water distribution system shall be used if available. The test pressure for the water lines shall be 120 psi and this pressure shall be maintained for a period of not less than two hours. Pressure shall not vary more than two pounds from the above during the two-hour test period. Allowable leakage shall be computed on the basis of Table 3, Section 13.7. AWWA Standard C600-64, or the applicable formula for other than 18 foot lengths.

All leaks evident at the surface shall be uncovered and repaired regardless of the total leakage as indicated by the test, and all pipes, valves and fittings and other materials found defective under the test shall be removed and replaced at the CONTRACTOR's expense. Tests shall be repeated until leakage has been reduced below the allowable amount.

- D. Operational Testing: Perform operational testing after hydrostatic testing is completed, backfill is in place, and sprinkler heads adjusted to final position.
- E. Demonstration: The CONTRACTOR shall demonstrate to the LANDSCAPE ARCHITECT that the system meets coverage requirements and that automatic controls function properly. Coverage requirements are based on operation of one circuit at a time.
- F. Clearly list dates of all pressure tests on the record drawings.

3.16 INSPECTION

- A. The CONTRACTOR shall maintain proper facilities and provide safe access for inspection to all parts of the work.

- B. Irrigation inspection shall consist of a minimum of:
 - 1. Mainline pressure test.
 - 2. Trench excavation and pipe coverage.
 - 3. Coverage/hydrological test.
 - 4. Final irrigation inspection.
- C. If the specifications, the LANDSCAPE ARCHITECT's instructions, laws, ordinances or any public authority require any work to be specifically tested or approved, the CONTRACTOR shall give three days notice of its readiness for inspection.
- D. The CONTRACTOR shall be solely responsible for notifying the LANDSCAPE ARCHITECT where and when such work is in readiness for testing.
- E. If any work should be covered up without approval, it must be uncovered, if required, for examination at CONTRACTOR's expense.
- F. No inspection shall commence without "Record" drawings and without completing previously noted corrections, or without preparing the system for inspection.

3.17 BACKFILL AND COMPACTING

- A. CONTRACTOR shall not backfill over fittings, valves, couplings, etc., until pressure tests have been executed and approved.
- B. After testing of system has occurred and inspections have been made, backfill excavations and trenches with clean soil, free of stones, sticks, construction debris and rubbish. Unsuitable material, including clods and rocks over two inches in size shall be removed from the site.
- C. Metallic identification tape shall be buried approximately three inches above PVC pipe. Metallic tape shall be buried approximately three inches above ductile iron pipe. Tape width shall be three inch minimum tape colors and imprints shall be as follows:

<u>Imprint</u>	<u>Color</u>
Caution - Non-Potable Irrigation Water Line Buried	Purple

- D. Water Packing: When water packing is used, the pipeline must first be filled with water, all air removed, and the pipe kept full during the backfill operation. The backfill, before wetting, shall be 12 to 18 inches deep over the top of the pipe. Water packing is accomplished by adding water in such quantity as to thoroughly saturate the initial backfill. While saturated, rods, shovels, concrete vibrators or other means may be used to help consolidate the backfill around the pipe, taking care not to float or damage the pipe. After saturation, the pipeline shall remain full until after final backfill is made. Allow the wetted fill to dry until firm enough to walk on before final backfill is begun.

- E. Hand or Mechanical Backfilling: Tamp the backfill in layers not to exceed six inches lift and compact firmly around the pipe and up to a least six inches above the top of the pipe. The backfill must be sufficiently damp to permit thorough compaction under and on each side of the pipe to provide support free from voids. Take care to avoid deforming, displacing, or damaging the pipe.
- F. Backfill for all trenches, regardless of the type of pipe covered, shall be compacted to minimum 98 percent modified (T-180) density under pavement, 85 percent under planted areas. Compact trenches in areas to be planted by thoroughly flooding the backfill. Jetting process shall be used when necessary in those areas.
- G. A fine granular material shall be placed initially on all lines with a minimum of three inches cover. No foreign matter large than one-half inch in size shall be permitted in the initial backfill.

Trenches located under paving shall be backfilled with sand (a layer six inches below the pipe and three inches above the pipe) and compacted in layers of 98 percent modified (T-180) compaction.
- H. Dress off all areas to finish grades and restore to condition previous to irrigation installation.
- I. Clean-Up: Remove from the site all debris and surplus earth resulting from work of this section. Clean-up shall be conducted continuously throughout the installation process to keep extraneous materials off the work site.

PART 4 **MEASUREMENT AND PAYMENT**

4.01 BASIS OF PAYMENT

- A. CONTRACTOR will submit a lump sum bid and shall receive full compensation for conforming to the provisions of this section and related drawings. Lump sum paid for the complete installation as shown and specified will be categorized as follows:
 - 1. Sleeving (Mains and Laterals)
 - 2. Primary Components (Mains/Controllers/Solenoid Valves)
 - 3. Secondary Components (Heads/Valves/Laterals/Wiring/Couplers)
- B. No additional compensation will be allowed excluding relative change orders. The CONTRACTOR shall provide a complete unit cost breakdown for all irrigation components shown on the drawings or noted in the legend and shall be included as part of the CONTRACTOR's bid. Said breakdown may be submitted after award of contract and prior to the execution of work. However, the OWNER reserves the right to reject any bid that does not include said unit cost breakdown.

END OF SECTION 02810

**SECTION 02813
SEEDING, MULCHING, AND SODDING**

PART 1 GENERAL

1.01 DESCRIPTION

- A. Work specified in this section consists of the required sodding, grassing and mulching, or hydro-seeding/mulching in conformity with the lines and grades shown on the plans.

PART 2 PRODUCTS

2.01 SODDING

- A. The sod shall be Argentine Bahia and shall be well matted with grass roots. It shall be sufficiently thick to secure a dense stand of live grass with a minimum thickness of two inches. The sod shall be live, fresh and uninjured at the time of planting. It shall be shaded and kept moist from the time of digging until planting.
- B. Fertilizer to be used shall be a standard balanced fertilizer, such as 6-6-6, 8-8-8, 10-10-10, with 25 percent organic.

2.02 GRASSING AND MULCHING

A. Seed

- 1. Unless other types of seed are called for in the plans or have been approved as an acceptable blend, permanent type grass seed shall be a mixture of 20 parts of Bermuda seed and 80 parts of Pensacola Bahia seed. Quick-growing type grass shall be species which will provide an early ground cover during the particular season when planting is done and will not later compete with the permanent grass. The separate types of seed used shall be thoroughly mixed immediately before sowing. Seed which has become wet shall not be used.
 - a. The Bermuda seed shall be an equal mixture of hulled and unhulled seed. The Pensacola Bahia seed shall be scarified seed, having a minimum active germination of 40 percent and a total germination of 85 percent. All seed shall meet the requirements of the State Department of Agriculture and Consumer Services and all applicable state laws.

B. Mulch

- 1. Unless otherwise approved by the ENGINEER, the mulch material used shall normally be dry mulch. Dry mulch shall be straw or hay consisting of oat, rye or wheat straw, or of pangola, peanut, coastal bermuda or bahia grass hay. Only undeteriorated mulch which can readily be cut into the soil shall be used.

C. Fertilizer

- 1. Commercial fertilizers shall comply with the state fertilizer laws. The numerical designations for fertilizer indicate the minimum percentages (respectively) of (1.)

total nitrogen, (2.) available phosphoric acid, and (3.) water soluble potash, contained in the fertilizer. The chemical designation shall be 12-8-8. At least 50 percent of the phosphoric acid shall be from normal super phosphate or an equivalent source which will provide a minimum of two units of sulfur. Unless otherwise approved by the ENGINEER, Type I fertilizer shall be used.

D. Dolomitic Limestone

1. Shall be an approved product, designated for agricultural use.

E. Water

1. The water used in the grassing operations may be obtained from any approved spring, pond, lake, stream or municipal source. The water shall be free of excess and harmful chemicals, acids, alkalies or any substance which might be harmful to plant growth or obnoxious to local residents or traffic. Brackish or salt water shall not be used.

F. Fertilizer Spreader

1. The device for spreading fertilizer and dolomitic limestone shall be capable of uniformly distributing the material at the specified rate.

G. Seed Spreader

1. The seed spreader shall be an approved mechanical hand spreader or other approved type of spreader.

H. Equipment for Cutting Mulch into Soil

1. The mulching equipment shall be a type capable of cutting the specified materials uniformly into the soil and to the required depth. Harrows will not be allowed.

I. Rollers

1. A cultipacker, traffic roller or other suitable equipment will be required for rolling the grassed areas.

2.03 HYDRO-SEEDING/MULCHING

A. Seed (all seed shall meet the requirements of the State Department of Agriculture)

1. Argentine Bahia - Scarified seed
2. Gulf Rye (or Brown Top Millet as approved) Note: to be used in conjunction with permanent type seed (1) above, during particular seasons when early ground cover is desired, as directed by the ENGINEER.

B. Mulch

1. The mulch material shall be wood cellulose fiber material for use in hydro-seeding slurry, especially prepared for this purpose, or an approved substitute.

2. It shall be processed in such a manner that it will contain no growth-inhibiting or germination-inhibiting factors and shall be dyed an appropriate color for readily determining the rate of spread by visual observation. It shall be manufactured in such manner that after agitation in slurry tanks, with fertilizer, grass seed and water (and with other additives which may be approved for use), the fibers in the material will readily become uniformly suspended in the solution to form a homogeneous slurry; also that when the slurry is hydraulically sprayed on the ground, the mulch material will act to form a blotter-like ground cover impregnated uniformly with grass seed, and will allow the absorption of water and permit rainfall and watering to percolate to the undersoil.

The CONTRACTOR shall, if requested, submit appropriate certification from the producer or the supplier, that the material meets all of the above requirements, based upon laboratory and field tests of the product.

The air dry weight (as defined by the Technical Association of the Pulp and Paper Industry, for wood cellulose) shall be marked on each package by the producer.

C. Fertilizer

1. The fertilizer to be used shall be a standard balance fertilizer, such as 6-6-6, 8-8-8 or 10-10-10, with 25 percent organic unless otherwise recommended for any particular area as approved by the ENGINEER. Select acid forms of recommended fertilizer if pH adjustments is indicated by soil tests.

D. Water

1. The water used in the grassing operations may be obtained from any approved spring, pond, lake, stream or municipal water system. The water shall be free of excess and harmful chemicals, acids, alkalies, or any substance which might be harmful to plant growth or produce obnoxious odor. Salt water shall not be used.

E. Equipment

1. The equipment for mixing the slurry and for applying the slurry over the areas to be seeded shall be especially designed for this purpose, and shall meet the approval of the ENGINEER. It shall be capable of applying a uniform slurry, (and of the mulch, when specified to be included), in a uniform application over the entire area to be hydro-seeded.

PART 3 **EXECUTION**

3.01 SODDING

- A. Immediately before the sod is placed, fertilizer shall be applied evenly at the equivalent rate of approximately 20 pounds of 6-6-6 per 1,000 square feet and shall be cut into the soil with suitable equipment.
- B. The sod shall be taken up in 12-inch by 12-inch squares, except where the plans may call for narrower strips. The sod shall be firmly embedded by light tamping.

- C. After the sod has been placed, it shall be thoroughly watered. Water shall not be applied between the hours of 8:00 AM and 4:00 PM.
- D. Sodding includes maintaining sod until growth is established. All erosion, siltation and maintaining grades is the responsibility of the CONTRACTOR until the ENGINEER determines root system has adequately "survived" and taken "hold".

3.02 GRASSING AND MULCHING

- A. Fertilizing, seeding or mulching operations will not be permitted when wind velocities exceed 15 miles per hour. Seed shall be sown only when the soil is moist and in proper condition to induce growth. No seeding shall be done when the ground is frozen, unduly wet or otherwise not in a tillable condition.
- B. Whenever a suitable length of roadway slopes or adjacent areas has been graded, it shall be made ready, approved by the ENGINEER, and grassed in accordance with these specifications. Grassing shall be incorporated into the project at the earliest practical time in the life of the contract.
- C. All grassing shall be completed on shoulder areas prior to the placement of the friction course on adjacent pavement.
- D. The several operations involved in the work shall proceed in the following sequence: Fertilizing (and/or application of limestone) and preparation of the ground, spreading of mulch, seeding, cutting-in mulch and rolling.
- E. The ground over which the seed is to be sown shall be prepared by disk-harrowing and thoroughly pulverizing the soil to a suitable depth. The prepared soil shall be loose and reasonably smooth. It shall be reasonably free of large clods, roots, and other material which will interfere with the work or subsequent mowing and maintenance operation. No subsequent operations shall be commenced until the ENGINEER has approved the condition of the prepared areas.
- F. The fertilizer and/or limestone shall be spread uniformly in one or more applications as specified below:
 - 1. An initial application of 500 pounds per acre.
 - 2. Unless otherwise directed, a second application of 400 to 500 pounds per acre shall be applied within 90 calendar days after the initial application on projects which have not been accepted prior to this time.
 - 3. Unless otherwise directed, a third application of 400 to 500 pounds per acre shall be applied within 270 to 360 calendar days after the initial application on projects which have not been accepted prior to this time.
- G. On steep slopes or other areas where machine-spreading may not be practicable, the spreading may be done by hand. Immediately after the fertilizer is spread, it shall be mixed with the soil to a depth of approximately four inches.
- H. The plans or special provisions may designate that a separate application of fertilizer and/or dolomitic limestone be made subsequent to other operations.

- I. While the soil is still loose and moist, the seed shall be scattered uniformly over the grassing area. Unless shown otherwise in the plans or the special provisions, the rate of spread for the permanent type seed mixture shall be 150 pounds per acre.
- J. Seed of an approved quick-growing species of grass, such as rye, Italian rye, millet, or other cereal grass, shall be spread in conjunction with the permanent type seed mixture. The type of quick-growing seed used shall be appropriate to provide an early ground cover during the particular season when planting is done. The rate of spread shall be 30 pounds per acre.
- K. When mulching, approximately two inches, loose thickness, of the mulch material shall then be applied uniformly over the seeded area, and the mulch material cut into the soil with the equipment specified, so as to produce a loose mulched thickness of three to four inches. Care shall be exercised that the materials are not cut too deeply into the soil.
- L. Immediately after completion of the seeding, the entire grassed or mulched area shall be rolled thoroughly with the equipment specified. At least two trips over the entire area will be required.
- M. The seeded areas shall be watered so as to provide optimum growth conditions for the establishment of the grass. In no case, however, shall the period of maintaining such moisture be less than two weeks after the planting.
- N. On steep slopes, where the use of a machine for the cutting-in process described above is not practicable, the construction operations shall be modified as follows:
 - 1. The fertilizer shall be applied uniformly, at the rate specified, and shall be raked in and thoroughly mixed with the soil to a depth of approximately two inches.
 - 2. The seeding operations shall follow the fertilizing.
 - 3. The mulch material, in lieu of being cut into the soil, may be anchored down. Anchoring shall be done by either of the following methods:
 - a. Placing a layer of soil, approximately two inches thick by nine inches wide, along the upper limits of the mulch, and spotting soil piles over the rest of the area at a maximum spacing of four feet.
 - b. Spreading a string net over the mulch, using stakes driven flush with the top of the mulch, at six foot centers, and stringing parallel and perpendicular, with diagonals in both directions.

3.03 HYDRO-SEEDING/MULCHING

- A. The ground areas to be hydro-seeded/mulched shall be clean earth, free of tree limbs, stumps, roots, rocks, etc.
- B. Seed and Fertilizer - The proportions of seed and fertilizer used in the slurry shall be as follows or as otherwise approved by the ENGINEER.
 - 1. Gulf Rye or Brown Top Millet seed at 40 pounds per acre.

2. Scarified Argentine Bahia seed at 100 pounds per acre.
 3. Apply fertilizer at the equivalent rate of 10 pounds of 6-6-6 per 1,000 square feet unless otherwise approved by the ENGINEER.
- C. Mulching - When the mulch material is to be included in the slurry mixture, it shall be applied at the rate of 1,000 pounds of mulch material per acre, when the moisture content of the "air-dry" mulch does not exceed ten percent. If this moisture content exceeds ten percent, a proportional increase of mulch material shall be made, as directed by the ENGINEER. The application of the slurry over the seeding areas shall be in accordance with the directions of the manufacturer of the hydro-seeding equipment, and as directed by the ENGINEER. The slurry mixture shall be maintained uniform by continuous agitation during the application.
- D. Watering - The hydro-seeding areas shall be watered so as to provide optimum growth conditions for the establishment of the grass. In no case, however, shall the period of maintaining such moisture be less than four weeks after planting.

3.04 MAINTENANCE

The CONTRACTOR shall, at their expense, maintain the planted or sodded areas in a satisfactory condition until final acceptance or completion of the project, whichever is the latest. Such maintenance shall include the filling, leveling and repairing of any washed or eroded areas as may become necessary, equipment damaged areas, etc. The ENGINEER, at any time, may require replanting or resodding of any areas in which the establishment of the grass stand does not appear to be developing satisfactorily. Replanting or replacement shall be at the CONTRACTOR's expense.

PART 4 MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

The quantity to be paid for shall be the area in square yards of sodding, grassing and mulching, or hydro-seeding/mulching, completed and accepted. The quantity shall be determined by the actual measurement in place within the lines which were authorized. When this work is required for restoration due to pipeline installation, all disturbed areas will be covered.

4.02 BASIS OF PAYMENT

The quantity of sodding, grassing and mulching, or hydroseeding/mulching, as determined above, shall be paid for at the contract unit price per square yard for these items, which price and payment shall be full compensation for all labor and material, transportation and any other items necessary for satisfactorily performing the work described on the plans and in conformity with these specifications. When this work is required for restoration due to pipeline installation, the costs will be included in the pipeline unit prices.

END OF SECTION 02813

SECTION 02814
CONCRETE CURBS, GUTTERS, MANHOLE FRAMES, STORM INLETS, ETC.

PART 1 **GENERAL**

1.01 **SCOPE**

- A. These specifications make reference to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, hereafter referenced as FDOTSPEC. Work covered in this section consists of furnishing all labor, equipment, materials and the performing of all operations necessary for construction of:
 - 1. All concrete curbs, gutters, walks, medians, aprons, etc.
 - 2. All storm water inlets including throat inlets, catch basins, and grated inlets.
 - 3. Adjustment or installation of sanitary and storm manhole frames and covers, or grates, inlet grates, gate-valve boxes, and other similarly exposed utilities in paved areas.

1.02 **SPECIFICATION AND STANDARDS REFERENCE**

- A. Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be the latest edition.

PART 2 **PRODUCTS**

2.01 **CONCRETE CONSTRUCTION**

- A. All concrete and concrete work shall conform to the following specifications unless otherwise noted on the plans. All concrete specified in this section shall attain a minimum compressive strength of 3,000 psi in 28 days.
- B. Concrete Mix Materials
 - 1. Coarse aggregate shall be hard, clean, washed gravel or crushed stone. Minimum aggregate size shall not be larger than one inch nor smaller than one-half inch equivalent diameter. Fine aggregate shall be clean, sharp sand. Water shall be clean, fresh, free from injurious amounts of minerals, organic substances, acids or alkalis. Cement shall be Type I, domestic Portland cement, meeting the requirements of ASTM C 150.
- C. Concrete Admixtures
 - 1. Air-entrainment admixtures in concrete are permitted in accordance with manufacturer's specifications provided specified strength and quality are maintained and unless admixtures appears to be causing abnormal field results, and total entrained air content does not exceed five percent. No other admixture of any type will be permitted without written approval of the ENGINEER.

D. Reinforcement Steel

1. Reinforcing bars shall be intermediate grade, new billet-steel, deformed bars, free of loose rust, scale, dirt or oil, and shall conform to ASTM A15 "Specifications for Billet-Steel Bars for Concrete Reinforcement." Rebar deformations shall conform to ASTM A305. Welded wire fabric for concrete reinforcement shall conform to ASTM A185, "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement." All reinforcement steel shall be placed, spliced, lapped, etc. in accordance with the ACI Standard 318, Building Code Requirements For Reinforced Concrete.

E. Transit Or Ready-Mixed Concrete

1. Transit or ready-mixed concrete may be used provided it meets the requirements of ASTM C 94, Ready Mixed Concrete, and provided the central plant producing the concrete, the batching, mixing and transportation equipment, in the opinion of the ENGINEER, is suitable for the production and transportation of the specified concrete.

PART 3 **EXECUTION**

3.01 CONSTRUCTION METHODS

- A. Work shall be performed to lengths and cross-sections shown on the plans. Forms shall be of sufficient strength to resist pressure of the concrete without springing. Bottom forms shall not be removed within twenty-four hours after concrete has been placed. Side or top forms shall not be removed within 12 hours after concrete has been placed. Upon removal of forms, minor defects shall be corrected with a rich mix of cement mortar. Curbs, gutters, walks or medians shall be finished with a smooth surface is attained. Final finish shall be a light broom finish. When completed, concrete shall be cured as specified.

3.02 PLACING OF CONCRETE

- A. Concrete shall be deposited in clean wet forms and as nearly as practicable in its final position to avoid segregation. Concrete placing shall be carried on at such a rate the concrete is at all times plastic and flows readily into spaces between the bars. Concreting shall be a continuous operation until the panel or section is completed. All structural concrete shall be vibrated. No concrete shall be allowed a free fall of more than four feet or allowed to strike against a vertical or inclined surface or reinforcement above the point of deposit. Placing by means of pumping may be allowed, contingent upon the adequacy of the equipment for this particular work. The operation of the pump shall be such that a continuous stream of concrete without air pockets is produced. Placing of concrete shall be so regulated pressure caused by wet concrete shall not exceed that used in the design of the forms. After concrete has taken its initial set, care shall be exercised to avoid jarring the forms or placing any strain on the ends of projecting reinforcement.

3.03 MACHINE-LAYING

- A. Machine laying of work will be permitted, providing all quality conditions of conventional construction are met.

- B. As a specific requirement for machine-laid curb and gutter, contraction joints shall be sawed unless an alternate method of constructing them is approved in writing by the ENGINEER. Joints shall be sawed as soon as the concrete has hardened to the degree that excessive raveling will not occur and before uncontrolled shrinkage cracking begins. Contraction joints shall be spaced at intervals of ten feet except where a lesser interval is required for closure, but no section shall be less than four feet in length.

3.04 CURING

- A. As soon as practicable after finishing, all concrete shall be covered with burlap and kept moist for a period of seven days or, an approved membrane curing compound may be applied at the CONTRACTOR's option. Where membrane curing compound is used, no walking or other traffic will be allowed over the slab for 72 hours after application unless the surface is protected by burlap or heavy building paper. Curing shall meet the requirements of FDOTSPEC Section 520-8.

3.05 JOINTS

- A. Construction Joints: Joints not shown or specified shall be located as to least impair the strength and appearance of the work. Placement of concrete shall be carried on at such a rate that the surfaces of concrete which have not been carried to joint levels will not have attained initial set before additional concrete is placed thereon.
- B. Contraction Joints: Curbs-and-gutters, and valley gutters shall be constructed with contractions joints at intervals of ten feet except where shorter intervals are required for closures, but no joint shall be constructed at intervals of less than four feet. Sidewalks and concrete medians shall be constructed with contraction joints at intervals equal to the width of the walk or median respectively unless otherwise noted on the plans. Contraction joints may be of the open type, tooled or sawed. Construction and construction procedures of contraction joints shall conform to the specifications set forth in the FDOTSPEC.
- C. Expansion Joints: Curbs, curb-and-gutters, and valley gutters shall be constructed with expansion joints at all inlets, all radius points, all points where operations cease for any considerable time and at intervals of not more than 500 feet. Walks and concrete medians shall be constructed with expansion joints at points of walk or median termination against an unyielding surface and at intervals not to exceed 90 feet. Expansion joints shall be constructed with PVC slips encasing the reinforcing bars. Expansion joint material shall be one-half inch bituminous impregnated expansion joint material which meets the requirements of FDOTSPEC, 932-1.1. Expansion joints between the sidewalk and the curb or driveway or at fixed objects and sidewalk intersections shall be one-half-inch joints, formed with a preformed joint filler meeting the requirements specified in FDOTSPEC, 932-1.1.

3.06 CONTRACTORS RESPONSIBILITIES

- A. Prior to placing any concrete, the CONTRACTOR shall give the ENGINEER sufficient advance notice of same. No concrete shall be placed on any subgrade or in any formwork until the subgrade, formwork, reinforcing steel, anchor bolts and other imbedded items have been reviewed.
- B. CONTRACTOR is fully responsible for all concrete and concrete work and finishes, and shall reject all delivered concrete and finishes not meeting these specifications. CONTRACTOR shall also be responsible for securing laboratory tests or reports if such tests or reports are requested by ENGINEER.
- C. ENGINEER may, at their discretion, request that specified tests be conducted and reports furnished at the CONTRACTOR's expense. Normally the ENGINEER will not require testing of more than one set of four compression test cylinders per 50 cubic yards, (or part thereof). In no case shall there be less than one test for each day concrete is poured.
- D. From each test, one cylinder shall be tested by the laboratory at seven days, and two at 28 days, or as directed by the ENGINEER. One cylinder shall be kept as a reserve.

3.07 EXCAVATION AND BACKFILL

- A. Excavation shall be to the required depth, and supporting earth, base, or subgrade shall be compacted. When the plans call for a stabilized subgrade under the curb or gutter, subgrade shall be stabilized, and tested if required, as set forth elsewhere in these specifications and as indicated on the plans. When the plans call for a soil-cement base, subgrade supporting the curb or gutter shall be compacted by watering, rolling or tamping to 95 percent of maximum density as determined by AASHTO-T-180. Subgrades for walks and concrete medians shall be compacted to a firm, even surface, by means of rolling, watering and/or tamping.
- B. After the concrete has set sufficiently, but not later than three days after placing, the spaces in front and back shall be backfilled with suitable material and compacted. When street bases are to be constructed adjacent to curbs, gutters, etc., the curbs, gutters, etc., shall be properly backfilled and shall cure for a period of not less than three days before any base material is placed against it.

3.08 STORM WATER INLETS

- A. Construction of storm water inlets shall include all work and materials necessary for final construction by CONTRACTOR of throat inlets, catch basins, grated manholes, or other storm water inlets.
- B. Construction of throat inlets shall be to the lines, elevations and dimensions shown on the plans and include forming of the throat and construction of the top slab with frame and cover, and supporting walls.

- C. Construction of grated inlets, catch basins, manholes, etc. shall be to the elevations and dimensions shown on the plans. Construction shall include any reasonable adjustment and realignment of the grate necessary (if grates are installed by the previous CONTRACTOR), or the installation of inlet grates. Frames shall be secured in mortar and the mortar struck smooth inside and out.

3.09 MANHOLE FRAMES AND COVERS

- A. Manhole frames with covers or grates in paved areas shall be installed/adjusted flush with the final paved surface. Frames and covers shall be milled to prevent rocking of the cover when passed over by a motor vehicle. Frames shall be secured in mortar or concrete and surfaces struck smooth inside and out. Gate valve boxes and other similarly exposed utilities shall be raised or lowered as required to insure a flush, even surface with the adjacent paved area.

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. Payment shall be made on a unit price basis in accordance with the construction contract.
- B. Units of payment stated in the contract cover the following:
 - 1. Concrete Curbs, Gutters, Walks, Medians and Valley Crossing: Payment for concrete curb-and-gutters, vertical curbs, and valley gutters shall be on the basis of actual lineal feet in place. Payment for valley crossings shall be on a per unit basis. Concrete medians shall be paid on the basis of actual square feet in place. Concrete walks shall be paid on the basis of actual linear feet completed unless otherwise noted. Concrete aprons, inlet channels, etc., shall be paid on the basis of actual square feet completed, unless otherwise noted. Unit cost for the construction of the above stated work shall include all equipment, labor and materials; shall include all excavation, trenching, subgrade compaction, backfilling, etc., necessary to perform the work in accordance with the plans, specifications, and good construction practices.
 - 2. Storm Water Inlets: Payment for storm water inlets, as defined herein, shall be on a unit basis. Unit cost of construction shall include all labor, equipment, materials, excavation, backfilling, structural adjustments, etc., necessary to perform the work in accordance with the plans, specifications and good construction practice. Payment for the installation or adjustment of manhole frames and covers or grates shall be included in the cost of storm water inlets. Unit costs shall include all materials, equipment, labor backfilling, etc., necessary to perform the work in accordance with the plans, specifications, and good construction practice. Costs for adjustment of gate-valve boxes and other similar utilities in paved areas shall be considered as incidental.

END OF SECTION 02814

**SECTION 02820
EXCAVATION AND EMBANKMENT**

PART 1 GENERAL

1.01 SCOPE

- A. Work specified in this section consists of excavation and embankment required for roadways, lakes, ditches, swales, berms, canals, parking areas, site fill, building pads, retention areas, structure excavation, and other similar work described herein or shown on the plans. This section includes preparation of subgrades, construction of embankments, utilization or disposal of materials excavated, and compaction and finish grading of excavated areas and embankments. All work shall conform to the proposed alignment, elevations, slopes, and cross-sections shown on the plans.

1.02 SPECIFICATION AND STANDARDS REFERENCE

- A. Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc. are referenced, such references shall be latest edition.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.01 CLASSIFICATION OF EXCAVATION

- A. General: Included in the excavation under this section are materials of whatever nature encountered within the required limits of excavation (except material removed during clearing and grubbing). Determination of sub-surface conditions and its effect on construction costs are the sole responsibility of the CONTRACTOR. Sub-surface conditions between soil borings that may be provided can vary greatly from those conditions found at the location where the sample was extracted.

Locating existing underground utilities shall be the responsibility of the CONTRACTOR. In the event of any utility conflict, the CONTRACTOR shall immediately inform the utility company, OWNER and the ENGINEER of the conflict. CONTRACTOR shall be responsible for the immediate repair of any utility lines damaged during construction. CONTRACTOR shall notify all utility companies or utility owners, both public or private of their intent to perform such work and coordinate field location of utility lines prior to commencement of construction.

Where separate classification is provided in the proposal, excavation specified under this section may be listed as any of the following classes: (1) Regular Excavation, (2) Swale Excavation, (3) Subsoil Excavation, (4) Rock Excavation, (5) Lake Excavation (unclassified).

For any of the above classifications not specifically listed as a separate pay item in the proposal or included as part of another pay item, all excavation of such type shall be included under the item of Regular Excavation. If the item of Regular Excavation is not

listed in the proposal, all costs included in the excavation of roadway, swales, subsoil, rock, lakes, structures (including utilization or disposal of materials) shall be incidental to the general cost of the project and no additional compensation will be allowed.

- B. Regular Excavation: Regular Excavation shall consist of excavation of materials necessary for construction of roadways, ditches, sidewalks, building pads, retention ponds, and other surfaces as shown in the plans. Excavated material suitable for embankment shall be utilized in areas requiring fill with all excess material spread or stockpiled on site where shown on the plans or as directed by the OWNER's representative.
- C. Swale Excavation: Swale Excavation shall consist of excavation of swales and ditches as indicated on the plans and shall include the utilization of suitable excavated materials in areas requiring fill with all excess material spread or stockpiled on site where shown on the plans or as directed by the OWNER's representative.
- D. Subsoil Excavation: Subsoil Excavation shall consist of the excavation and off-site disposal of muck, clay, roots, or any other material that is determined to be unsuitable by the OWNER's Geotechnical Engineer in its original position and that is excavated below the finished grading template. If provided in the plans or Contract Documents unsuitable material shall be stockpiled in areas on site designated by the OWNER.
- E. Rock Excavation: Rock Excavation shall consist of excavation of rock and boulders necessary for construction of roadways, ditches, lakes, and other cut sections shown on the plans. It shall also include the utilization and disposal of excavated rock and boulders according to Articles 3.02, 3.03, and 3.04 in this section.

For the purpose of classifying rock excavation as a pay item, the rock strata encountered shall be of such thickness and hardness as to preclude removal by using a modern 3/4 yard hydraulic backhoe maintained in excellent operating condition, Caterpillar 235 or equal.

- F. Rock Blasting: All blasting is strictly prohibited.
- G. Lake Excavation (Unclassified): Lake Excavation (Unclassified) shall consist of excavation of all material necessary for construction of lakes according to the depths, dimensions, side slopes, and in the locations shown in the plans. It shall also include the utilization of excavated materials and the disposal of unsuitable materials in accordance with Articles 3.02 and 3.03 in this section. All materials excavated shall be considered as "unclassified". CONTRACTOR shall be responsible for any investigation of sub-surface conditions and subsequent determination of the amount of rock, roots, and other materials to be incorporated into his price.

CONTRACTOR shall construct the lake banks in strict accordance with the ordinances or laws governing the excavation. All slopes must be equal to the specified slopes. The bottom of the lake shall not be excavated below the specified depth without prior written approval of the OWNER and the governing agency.

- H. **Structure Excavation:** Work specified in this sub-article consists of excavating for bridge foundations, box culverts, pipe culverts, sewers, pipe lines, retaining walls, pump stations, manholes, inlets, catch basins, sewage and water treatment plants and other similar type facilities shown on the plans. It shall also include (1) the construction and removal of cofferdams, sheeting, bracing, etc.; (2) dewatering; (3) disposal of structures (of whatever type) encountered during excavation; (4) disposal of unsuitable materials; (5) bedding materials; (6) backfilling and the compacting thereof; (7) utilization of excess suitable materials according to article 3.02 this section.

Material excavated (of whatever nature) shall be classified for utilization or disposal according to Articles 3.02 and 3.03. The excavation shall be of such size and depth as to facilitate the construction and/or installation of each structure according to the location and elevations shown in the plans. Rock blasting, rock excavation, demolition of structures or foundations, or any unusual or undefined work that may be necessary to complete the excavation for a structure shall be considered as work included in Structure Excavation.

If the excavation requires the use of cofferdams, dewatering, sheeting, or bracing, all such work will be done in strict compliance with all permit requirements and any laws or ordinances that may apply to the work being performed. It shall be the responsibility of the CONTRACTOR to familiarize himself with any regulations applicable and to satisfy said regulations at his own expense.

The structure shall be constructed or laid in dry dewatered excavation unless otherwise approved by the ENGINEER. In such cases where the excavation is unstable or has water in sufficient quantities that make uniform bedding impossible, the bottom of the excavation shall be stabilized as required. If washed shell is used, it shall be a graded according to the sieve analysis listed below:

100 percent passing 1½" screen
0 percent passing 5/8" screen

After the structure is complete, backfilling shall be performed in a careful manner so as not to disturb or damage the completed structure. The backfill material shall conform to the requirements of Sub-article 3.04.C., except that the size of rock shall not exceed 3 1/2 inches in diameter. The backfill material shall be compacted to the same or greater density as the adjacent existing earth.

3.02 UTILIZATION OF EXCAVATION MATERIALS

- A. **General:** All excavated materials suitable for embankment shall be utilized in the embankment areas shown in the plans or as otherwise specified in the Contract Documents. After the requirements for embankment have been satisfied, the surplus suitable excavated material shall be deposited in areas on-site as directed by the OWNER's representative, unless otherwise specified in the Contract Documents.

On projects where excavation does not provide enough material to satisfy embankment requirements, excavated materials shall first be utilized in the roadway or other permanent structure embankment, then into other embankment areas shown in the plans.

- B. Classification of Materials: Material shall be classified as "suitable" if it meets all the requirements of Sub-article 3.04.C. of this Section. A rock strata that can be excavated and split or screened to meet the requirements of Sub-article 3.04.C. shall be considered as "suitable" for embankment.

Material such as muck, or any other material containing excessive amounts of organic, silt, clay, or other deleterious materials shall be classified as "unsuitable" for embankment unless otherwise specified or classified by the ENGINEER.

The term "unclassified" simply refers to material that has not been defined as suitable or unsuitable.

If a dispute arises over the classification of materials, the final determination shall be made by the ENGINEER.

- C. Rock and Boulders: Rock and boulders shall be utilized on site as embankment unless otherwise specified. In all cases, the alteration or replacement of excavated material shall be at the CONTRACTOR's expense unless otherwise provided in the plans or Contract Documents.
- D. Muck: Although muck or other material high in organic content will not generally be permitted in embankment areas, certain conditions may require or permit its utilization. Muck will not be permitted in embankment unless specifically stated on the plans or specified herein. When so specified the placement of muck or other similar material will only be permitted outside of an imaginary downward 2:1 slope starting from the outward edge of roadway structure or other permanent structure.
- E. Top Soil: Where top of the existing surface is high in organic content, it may be necessary to strip the topsoil and reuse it or dispose of it. Topsoil shall be stripped and stockpiled on-site for later use as a layer under sod, grassing, or in landscaped areas. When an item of topsoil is not listed as a separate pay item in the Contract Documents, the placement of the stockpiled topsoil shall be included in the item of Clearing and Grubbing or Excavation. When topsoil is listed as a pay item, it shall be placed in locations shown in the plans to a specified thickness and to a finished elevation that will allow for the placement of sod, ground cover or other landscape related surface.

The material utilized as topsoil shall be suitable for plant growth and free from appreciable quantities of hard clods, stiff clay, hardpan, gravel, brush, large roots, refuse, or other deleterious materials. The organic content shall be at least 1.5 percent. The characteristics of the material shall be such that it can be adjusted to have a pH value between 5.0 and 8.0, or as approved by the ENGINEER.

3.03 DISPOSAL OF EXCAVATED MATERIALS

- A. Disposal of Surplus Materials: Ownership of all suitable excavated materials shall be retained by the OWNER unless otherwise stated in the plans or Contract Documents to be surplus material. When so specified the surplus material shall become the property of the CONTRACTOR to be disposed of outside the project limits. The cost of the disposal and furnishing the disposal area shall be included in the item requiring excavation and no additional compensation will be given.

- B. Disposal of Unsuitable Materials: Unsuitable excavated material as defined in Sub-article 3.02.B. shall become the property of the CONTRACTOR to be disposed of outside the project limits. The cost of the disposal and furnishing the disposal area shall be included in the item requiring excavation and no additional compensation will be given.

3.04 EMBANKMENT

- A. General: Embankments shall be constructed true to lines and grades shown in the plans or ordered by the ENGINEER. Material used in embankments shall be obtained from on-site excavation and/or from off-site borrow sources secured by the CONTRACTOR.
- B. Site Preparation: Subsequent to clearing and prior to placement of embankment material, the existing earth surface shall be compacted six feet beyond the building and pavement structure limits and in other areas shown in the plans or stated in the Supplementary Conditions. The existing surface shall be compacted at a moisture content such that the specific density requirement can be attained. Soil one foot below the compacted surface shall attain a density of 95 percent of the maximum theoretical density as determined by the Modified Proctor Density (ASTM-D-1557). Field density tests shall be conducted in accordance with ASTM D-1556, D-2167, D-2922, or D-2937 (latest revisions) by a certified laboratory or soils engineer approved by the OWNER. The location and number of the tests shall be verified by the ENGINEER.
- C. Requirements for Embankment Materials: Embankments shall be constructed of material containing no muck, stumps, roots, brush, vegetable matter, rubbish, or other material that will not compact into a suitable and enduring roadbed or similar foundation. Material designated as unsuitable in the soil borings or as classified as unsuitable by the ENGINEER shall be removed from the embankment and disposed of off-site. Utilization of material in embankment construction shall be in accordance with plan details or as directed by the ENGINEER.

The maximum size of rock which will be permitted in the completed embankment are as follows:

In top 12 inches -----	3 1/2 inches
12 inches to 2 feet -----	6 inches
In the 2 feet depth below ---	Not to exceed the compacted thickness of the layer being placed

When and where approved by the ENGINEER, the CONTRACTOR may place larger rocks outside the 2-to-1 slope of any structure embankment. Where such rock is utilized in any embankment, enough fine material shall be deposited and compacted between individual rocks so as to completely fill any voids that may occur during the placement of such material. No rock shall be utilized in any building pad embankment areas.

- D. Borrow Material: The use of borrow material shall be resorted to only when sufficient quantities of suitable material are not available from the various types of excavation required on the drawings. When borrow is required the material shall conform to the requirements of article 3.04.C. and shall be approved by the ENGINEER prior to

placement. Borrow material shall be obtained from areas furnished by the CONTRACTOR at his expense. Borrow sources shall comply with all local requirements applicable for the excavation and sale of fill material.

- E. Construction Requirements: Embankment material shall be placed in horizontal layers not to exceed 12 inches thickness measured loose. Each layer shall be leveled and compacted in accordance with Sub-article 3.04.F. No fill material shall be placed where area is wet. Dewatering may be required prior to filling operation, either by pumping or well pointing. Water shall not be allowed to stand on or adjacent to fill areas that could saturate the material.

When embankments are constructed on a hill or slope, slope shall be "stepped" so as to permit the embankment to be placed in horizontal layers and compacted as stated above. Upon completion of the embankment steps on a slope, steps shall be dressed to conform to the specified slope.

For any embankments not covered above, construction methods shall be approved by the ENGINEER prior to placement.

- F. Compaction Requirements: Materials shall be compacted at a moisture content such that the specific density can be attained. If necessary, water shall be added to the material, or the moisture content shall be lowered by manipulating the material or allowing it to dry, as is appropriate. Each layer of material shall be compacted by the use of a smooth drum vibratory roller or other method approved by the engineer. The top 12" of natural ground shall be compacted in accordance with the requirements listed below.

Field density tests shall be conducted in accordance with ASTM D-1556, D-2167, D-2922, or D-2937 (latest revisions) by a certified laboratory or soils engineer approved by the OWNER according to the Compaction Requirements stated below:

Embankment Area	Density ¹ Below 3'	Density ¹ 0' to 3'	Testing Frequency/Lift
Building Pads ²	95%	98%	1 Ea/2000 SF, Minimum 2 Ea/Structure
Pavement Areas ³	95%	98%	1 Ea/500 SY
Retention Areas ⁴	95%	95%	1 Ea/500 SY
Other Areas	N/A	N/A	N/A

¹ The percentage listed shall be the minimum acceptable amount of the maximum theoretical density as determined by the Modified Proctor Density (ASTM-D-1557).

² Includes future building pads and lots.

³ Includes any permanent pavement structure such as curb and gutter, sidewalk, roadway, shoulder, driveway, or any other similar surface.

⁴ Includes earth berms, water retention slopes, dikes, and other similar areas.

CONTRACTOR shall be responsible for scheduling of all soil testing. These soil testing costs shall be borne by the CONTRACTOR unless stated otherwise in the plans or specifications. Where the testing costs are borne by the OWNER, in the event of a test failure all subsequent tests required to pass density shall be at the expense of

the CONTRACTOR. The OWNER may deduct this expense from the CONTRACTOR's payment or request payment directly from CONTRACTOR.

3.05 FINISH GRADING

- A. General: As a final grading operation the surface of the earthwork shall be shaped to conform to the lines, grades, and contours shown on the plans. Hand dressing will be required in confined areas where equipment operation is restricted or where the equipment finished surface is unsatisfactory in the judgment of the ENGINEER.

CONTRACTOR shall take necessary precautions to prevent erosion of slopes before and after finish grading. Any erosion of whatever consequence shall be repaired at the expense of the CONTRACTOR until final acceptance of the project.

- B. Tolerances: In final shaping of the surface of earthwork a tolerance of 0.1 foot above or below the plan elevations and contours will be allowed with the following exceptions:
1. In areas where sod, ground cover or other finish landscape surface will be used, an allowance shall be made for the thickness of sod, etc. that will result in the finish landscape elevation to be within the above tolerance.
 2. Earthwork shall be shaped to match adjacent pavement, curb, sidewalk, structures, etc. with applicable allowance for sod, etc.

PART 4 MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

- A. General:
1. VOLUMETRIC - When payment is made on a volumetric basis, calculations shall be based on the method of average end areas or the grid cell method, unless the ENGINEER determines that another method will provide a more accurate result. The existing elevations shown on the plans or field survey taken by the ENGINEER shall be incorporated into the volume calculations. Should any of these existing elevations appear to be in error, the CONTRACTOR shall notify the ENGINEER in writing and resolve the dispute prior to disturbing the existing surface in question. Once the existing surface is disturbed by clearing, excavating, or any other construction, the CONTRACTOR's right to dispute the existing elevations shown by the ENGINEER will be nullified. After the excavation or embankment is completed, the finished surface shall be measured in place by field survey paid for by the CONTRACTOR and these cross-sections shall be incorporated into the volume calculations.
 2. LOOSE VOLUME - In special cases as shown in the Contract Documents, payment shall be made on a loose volume basis as measured in trucks or other hauling equipment. The volume capacity of each truck shall be measured and recorded by the OWNER's representative. Before unloading on-site, the OWNER's representative shall compare the loaded truck to its recorded

capacity and record the actual volume on the load ticket. Only load tickets that have been so recorded and collected by the OWNER's representative at the point of dumping shall be included in the quantity for payment.

3. LUMP SUM - The proposal may contain items of work that are to be paid for on a lump sum basis. Additionally, the Contract Documents may provide for a lump sum payment for the entire project. The lump sum payment for individual items or for the entire project shall constitute full compensation for the completion of all work specified in the plans and specifications.
 4. PLAN QUANTITY - When cross sectioning finished surfaces is not feasible, the ENGINEER may specify the final pay quantity of any item to be the original plan quantity. When so specified in the Contract Documents, such quantity will be revised only in the event that it is determined to differ by more than 10 percent of the original plan quantity. Such revisions will be determined by calculation of quantities from the plan sheets as applicable. Field measurement will not be considered except to verify that the work was accomplished in substantial compliance with the plan dimensions.
- B. Regular Excavation: Measurement of regular excavation shall include only the net volume of material excavated between the original ground surface and the surface of the completed earthwork. The pay quantity shall be the plan quantity in accordance with article 4.01.A., unless otherwise stated in the Contract Documents.
 - C. Swale Excavation: Measurement of swale excavation shall include only materials excavated within the line and grades indicated in the plans or as directed by the ENGINEER. Measurement may be by volume or lineal feet as called for in the Contract Documents.
 - D. Subsoil Excavation: Measurement of subsoil excavation shall include only material excavated within the lines and grades indicated on the plans or as directed by the ENGINEER. Where the limits of subsoil excavation are not shown or vary from the limits shown on the plans, the pay quantity shall be determined by cross-sectioning measurements in accordance with the volumetric method described in Article 4.01.A. When the final pay quantity is more or less than the original plan quantity, an appropriate adjustment shall be made to the applicable pay quantity for imported fill so that the loss or increase is compensated provided that the unsuitable material is to be disposed off-site. A lower than plan volume will require less fill replacement and a higher than plan volume will require more fill replacement than originally calculated. However, if the subsoil excavation is displaced by on-site excavation, a quantity adjustment will not be made. Where no separate pay item is included in the contract, all such work involving the excavation and disposal of unsuitable material shall be considered incidental to the cost of the applicable excavation item.
 - E. Rock Excavation: When rock excavation is listed as a separate pay item in the Contract Documents, measurement of rock excavation shall be by cross-sectioning method prior to and after the rock layer is excavated. CONTRACTOR shall allow enough time between operations to facilitate this field survey work.

If Rock Excavation is not listed as a separate pay item in the Contract Document, the cost of all such work shall be included in the unit price for Regular Excavation, Swale Excavation, Subsoil Excavation, Lake Excavation (Unclassified), or other items which may require the excavation of rock or boulders.

- F. Lake Excavation (Unclassified): Measurement of Lake Excavation (Unclassified) shall include only the net volume of material excavated between the ground surface and bottom of the lake using the VOLUMETRIC method as described in the first paragraph of Article 4.01.A. Any unauthorized overdigging or excavation below the plan bottom elevation will not be included in the measurement for payment.

If the sections indicate that the depths or bank slopes do not conform to the permitted design slopes or indicate that they are steeper, the CONTRACTOR shall correct the deficiency. Further, the CONTRACTOR shall pay for the expense of re-sectioning the lakes to document that said correction has been accomplished.

OWNER shall have the option of deducting the re-sectioning costs from the CONTRACTOR's payment, or the OWNER may request separate payment directly from the CONTRACTOR.

- G. Structure Excavation: Unless otherwise specified, there shall be no measurement for structure excavation. The cost of structure excavation shall be incidental to the cost of the applicable structure and no separate pay item will be established.
- H. Pavement Removal: Measurement for pavement removal shall be by the square yard as measured in place prior to removal unless otherwise specified in the Contract Documents. When no separate pay item is included, the cost of such work shall be incidental to the item of clearing and grubbing or excavation as applicable.
- I. Topsoil: Measurement for topsoil shall be by the square yard as measured in place in locations shown in the plans or as directed by the ENGINEER. Placement of topsoil shall be to the thickness specified in the plans or Contract Documents, and it shall include the cost of furnishing the material as specified in Article 3.02.E. If enough excavated material is not available to satisfy the topsoil requirements, suitable topsoil shall be imported and the cost of furnishing and hauling this imported material shall be included in the unit price of the topsoil item.
- J. Embankment: When there is not enough suitable excavated material to satisfy the requirements of embankment, a separate item called Embankment or Borrow may be established in the Contract Documents to facilitate completion. Payment will be made only for material required to complete the embankment to the plan dimensions and elevations. Material placed beyond the limits shown on the plans will not be measured for payment.

For Embankment, the pay quantity shall be the plan quantity unless otherwise stated in the plans or Contract Documents. The measurement for embankment shall be the in place volume of material placed above the original surface elevation within the dimensions and elevations indicated on the plans less the neat volume of excavation. No allowance will be made for subsidence or shrinkage.

For Borrow, the pay quantity shall be made on a loose volume basis unless otherwise specified in the plans or Contract Documents. The method of measurement shall be in accordance with the second paragraph of Article 4.01.A., LOOSE VOLUME.

- K. **Berm Construction:** Measurement for Berm Construction shall include only materials excavated within the lines and grades indicated in the plans or as directed by the ENGINEER. Measurement may be by volume or lineal feet as defined in the Contract Documents.
- L. **Finish Grading:** Measurement for Finish Grading shall only include areas that require a change in elevation to meet the new design grade. Placement of sod to an existing elevation would require finish grading to facilitate placement of sod. If there is no pay item for finish grading, the cost of all such work shall be incidental to the applicable item of excavation or embankment.

4.02 BASIS OF PAYMENT

- A. **General:** Prices and payments for the various work items included in this section shall constitute full compensation for all work described herein and shall include excavation, hauling, placing, compacting, and dressing of the finish surface. Said payments shall also include the following items when no separate pay item is included in the contract:
 - 1. Removal and disposal of existing pavement
 - 2. Clearing and grubbing
 - 3. Providing disposal areas
 - 4. Furnishing of borrow areas
 - 5. Permits and waiver costs
- B. **Excavation and Embankment:** Cost of utilizing suitable excavated materials and disposing of unsuitable excavated materials shall be included in the cost of the applicable excavation item, unless otherwise stated in the plans or Contract Documents.

When separate classifications of Excavation and/or Embankment are listed as pay items in the contract, the quantities determined as provided above shall be paid at the contract unit price per cubic yard, square yard, lineal foot or lump sum as applicable. Such payment shall constitute full compensation for all items as described in this section or as stated in the plans or Contract Documents.

- C. **PAY ITEMS:** For all work specified in this section, payment shall be made in accordance with the list of pay items established or as otherwise defined in the Contract Documents. The description of a pay item in the proposal section may vary from the descriptions stated in this section.

END OF SECTION 02820

**SECTION 02822
RIPRAP**

PART 1 GENERAL

1.01 SCOPE

- A. The work specified in this section consists of the construction or riprap, composed of sand and cement or rubble as specified in the Contract Documents. The riprap shall be placed against the embankment or other work to be protected, in accordance with these specifications and in conformity with the lines, grades, dimensions and notes shown in the plans.

1.02 SPECIFICATIONS AND STANDARDS REFERENCE

- A. Any reference to a supplementary specification or standard such as ASTM, AWWA, AASHTO, is intended to be a reference to the latest edition of that specification or standard.
- B. All references to "FDOTSPEC" shall mean the latest edition of the "Florida Department of Transportation Standard Specifications for Road and Bridge Construction."

PART 2 MATERIALS

2.01 SAND-CEMENT

- A. Portland Cement used shall be Type I from an approved domestic manufacturer.
- B. Fine Aggregate shall meet the requirements of FDOTSPEC Subsection 902-3.3.
- C. Sacks shall be made of burlap unless otherwise approved by the ENGINEER and shall hold the sand-cement mixture without significant leakage when handled. The sack material shall be permeable and absorptive enough to permit passage of sufficient water to provide for hydration of the cement.

The sacks shall be uniform in size and strong enough to stand handling without ripping and splitting. Only one type and size of sack shall be used at any one location.

- D. Grout used shall be mixed from portland cement and fine aggregate as specified above in this section.

2.02 RUBBLE

- A. Rubble shall consist of broken rock or stone locally available. The material shall of sufficient hardness so as not to break or crumble while loading or placing, similar to the cap rock stratus found in southwest Florida.
- B. The pieces shall be roughly angular and shall be reasonably free from thin, flat, or elongated pieces. The rubble shall be a graded mixture of individual pieces ranging

in size from three inches to 12 inches with at least 50 percent composed of pieces that measure six inches across the shortest dimension, unless otherwise specified.

- C. Bedding material shall be a crushed stone in accordance with ASTM C-33, gradation 67.

PART 3 **CONSTRUCTION METHODS**

3.01 SAND-CEMENT RIPRAP

- A. **Mixing Materials:** The sand and cement shall be proportioned in the ratio of five cubic feet of sand (loose volume) to 94 pounds (one bag) of cement. If the materials are proportioned by weight, sand shall be assumed to have a unit weight of 85 pounds per cubic foot (loose volume). Sand may be batched at the moisture content occurring in the stockpile.

The sand and cement shall be mixed until the mixture is of uniform color.

- B. **Filling Sacks:** The mixed material shall be accurately measured into each sack, with care being taken to place the same amount of material in each sack, and at least the top six inches of the sacks shall remain unfilled to allow for proper tying for folding and to insure against breaking of the sack during placing.
- C. **Placing:** The filled sacks shall be placed with their tied or folded ends all in the same direction unless otherwise shown in the plans. The sacks shall be laid with broken joints, in a regular pattern. The sacks shall be rammed or packed against each other so as to form a close and molded contact after the sand and cement mixture has set up. Sacks ripped or torn in placing shall be removed and replaced with sound, unbroken sacks. All sacks shall then be thoroughly saturated with water.
- D. **Grouting:** Immediately after watering, all openings between sacks shall be filled with dry grout composed of one part portland cement and five parts sand.
- E. **Toe Walls:** Toe walls of riprap for fill slopes may be constructed of poured-in-place concrete in lieu of sand-cement in sacks. If sand-cement in sacks is used for the toe walls, the entire trench excavated for the toe walls shall be filled with sand-cement in sacks.

3.02 RUBBLE RIPRAP (Rock RipRap)

- A. Rubble shall be dumped in place and arranged to form a compact layer conforming to the neat lines called for and to the specified thickness, plus or minus three inches. It shall be placed in such manner that the small pieces are not segregated but are evenly distributed and placed so that they fill the voids between the larger pieces.
- B. Bedding material will only be required if shown on the plan detail.

- C. Filter fabric shall be placed on the prepared surface prior to placement of rubble. The fabric shall be Mirafi 700X or as approved by the OWNER's representative and it shall be overlapped three feet at any seam or break in the fabric.

PART 4 **MEASUREMENT AND PAYMENT**

4.01 METHOD OF MEASUREMENT

- A. The quantities of Sand-Cement Riprap to be paid for under this section shall be the volume in cubic yards of sand-cement bags satisfactorily placed according to the details in the plans, unless otherwise specified.
- B. Rubble Riprap shall be measured in square yards and satisfactorily placed according to the details in the plans.

When payment is by the ton, a certificate of scale weight shall be provided by a facility approved by the OWNER's representative. Only the rubble actually used shall be included in the quantity to be paid.

When payment is by the square yard, the area to be included for payment shall be the actual area satisfactorily completed according to the details in the plans or as otherwise authorized by the OWNER's representative. The dimensions used for payment purposes shall be measured parallel to the completed surface of riprap.

4.02 BASIS OF PAYMENT

- A. The quantities as determined according to the above shall be paid for at the contract unit price as established in the Contract Documents for RIPRAP (SAND-CEMENT) or RIPRAP (RUBBLE). This price and payment shall be full compensation for all the work specified in this section and shall include all materials, equipment, labor, and other incidental costs required to satisfactorily complete the work according to the details in the plans. The cost of excavation for the placement of riprap and backfilling and finish grading after placement shall also be included in the contract unit price for riprap.

END OF SECTION 02822

SECTION 02828
CHAIN LINK FENCE AND GATE

PART 1 GENERAL

1.01 SCOPE

- A. Work specified in this section covers materials and work necessary for the chain link fence and gate, complete, as shown on the plans.

1.02 MANUFACTURER

- A. Like items of materials provided hereunder shall be the end products of one manufacturer in order to achieve standardization for appearance, maintenance, and replacement.

1.03 SPECIFICATION AND STANDARDS REFERENCE

- A. Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be latest edition.

PART 2 PRODUCTS

2.01 FENCE MATERIALS

- A. The use of a manufacturer's name and model or catalog number is for the purpose of establishing standard of quality and general configuration. Products of other manufacturers will be considered in accordance with the General Conditions.
- B. Materials shall be new and products of recognized, reputable manufacturers. Used, rerolled, or re-galvanized materials are not acceptable.
- C. All materials shall be hot-dip galvanized after fabrication. Fabric, posts and other appurtenances shall have a minimum zinc coating of 1.2 ounces per square foot of surface, and fused and bonded with black vinyl meeting the requirements of ASTM F668-11, Class 1.
- D. Fabric: Chain link fence fabric (height per plan), woven of No. 9-gauge wire in two-inch diamond-mesh pattern, selvages knuckled (top and bottom).
- E. Posts: Federal Specification RR-F-191, fence, posts, gates, and accessories, except as hereinafter modified. Standard lengths for setting in ground or in concrete as required for conditions shown.
- F. Line Posts: Use galvanized 2 ½ inch outside diameter, meeting the requirements of ASTM A 120, Schedule 40 steel pipe, weight per linear foot per ASTM F 1043.
- G. End, Corner, Angle and Pull Posts: For end, corner, angle, and pull posts, use 2.875 inch outside diameter standard weight steel pipe, weight per linear foot per ASTM F 1043.
- H. Gate Posts: Follow manufacturer's recommendations.

- I. Post Tops: Post tops shall be pressed steel, or malleable iron, designed as a weather-tight closure cap for tubular posts. Provide one cap for each post, unless equal protection is afforded by combination post top cap and barbed wire supporting arm where barbed wire is required. Where top rail is used, provide tops to permit passage of top rail.
- J. Tension Wire: Tension wire shall be zinc or aluminum-coated coil spring steel wire not less than No. 7 gauge (0.177 inch in diameter). Provide tie clips of manufacturer's standard as approved for attaching the wire to the fabric, at intervals not exceeding 24 inches.
- K. Stretcher Bars: Stretcher bars shall be one-piece lengths equal to full height of fabric with a minimum cross-section of 3/16 inch by three-fourths inch. Provide one stretcher bar for each gate and end post and two for each corner and pull post.
- L. Stretcher Bar Bands: Bar bands shall be heavy-pressed steel, spaced not over 15 inches on center to secure stretcher bars to tubular end, corner, pull, and gate posts.
- M. Top Rail: Not less than 18 foot long tubular steel, 1-5/8 inch outside diameter, weight 2.27 pounds per linear foot. Couplings to be outside-sleeve type and at least six inches long. Provide springs at one coupling in five to permit expansion in rail as recommended by the manufacturer. Top rail to extend through line post tops to form continuous brace from end-to-end of each fence.
- N. Brace pipe shall be of the same material as the top rail and shall be installed midway between the top rail and extend from the terminal post to the first adjacent line post. Braces shall be securely fastened to the posts by heavy-pressed steel and malleable fittings, then securely trussed from line post to base of terminal post with a three-eighths inch truss rod and tightener.
- O. Fittings: Malleable steel, cast iron, or pressed steel, galvanized to meet the requirements of ASTM A 153. Fittings to include stretcher bars and clamps, clips, tension rods, brace rods, hardware, fabric bands and fastenings, and all accessories.

2.02 GATE MATERIALS

- A. Gate shall be swing or sliding as indicated, complete with latches, stops, keepers, hinges, or rollers and roller tracks.
- B. Gate frames shall be constructed of tubular members welded at all corners or assembled with fittings. On steel, welds shall be painted with zinc-based paint. Where corner fittings are used, gates shall have truss rods of 5/16-inch minimum nominal diameter to prevent sag or twist. Gate leaves shall have vertical intermediate bracing as required, spaced so that no members are more than eight feet apart. Gate leaves 10 feet or larger shall have a horizontal brace or one 5/16-inch minimum diagonal truss rod.
- C. Fabricate frames of standard weight pipe 1.90 inch outside diameter, weight 2.72 pounds per linear foot.

- D. Gate fabric shall be the same type as used in the fence construction. Fabric shall be attached securely to the gate frame at intervals not exceeding 15 inches.
- E. Gate hinges shall be of adequate strength for gate and with large bearing surfaces for clamping in position. Hinges shall not twist or turn under the action of the gate. Gates shall be capable of being opened and closed easily by one person.
- F. Gate latches, stops, and keepers shall be provided for all gates. Latches shall have a plunger-bar arranged to engage the center stop, except that for single gates of openings less than 10 feet wide a forked latch may be provided. Latches shall be arranged for locking with padlocks. Center stops shall consist of device arranged to be set in concrete and to engage a plunger-bar on the latch of double gates. No stop is required for single gates. Keepers shall consist of a mechanical device for securing the free end of the gate when in the full open position.
- G. Double Gate: Size and configuration shall be as indicated. Provide gate stops for all double gates, consisting of mushroom type or flush plate with anchors. Set in concrete to engage the center drop rod or plunger bar. Provide locking device and padlock eyes as an integral part of the latch, requiring one padlock for locking both gate leaves.

2.03 CHAIN AND LOCK MATERIALS

- A. Immediately upon installation of chain link fence and gates, case hardened chain of adequate length to secure gate and a locked padlock shall be installed to keep the site clear except when CONTRACTOR is working on-site. Key and/or combination to be provided to Owner.

2.04 CONCRETE

- A. All concrete and concrete work shall conform to the following specifications unless otherwise noted on the plans. All concrete specified in this section shall attain a minimum compressive strength of 3,000 psi in 28 days.
- B. Concrete Mix Materials: Coarse aggregate shall be hard, clean, washed gravel or crushed stone. The maximum aggregate size shall not be larger than one inch nor smaller than one-half inch equivalent diameter. Fine aggregate shall be clean, sharp sand. Water shall be clean, fresh, free from injurious amounts of materials, organic substances, acids or alkalis. Cement shall be Type I, Domestic Portland Cement, conforming to ASTM C150-latest revision.
- C. Concrete Admixtures: Air-entrainment admixtures in concrete are permitted in accordance with manufacturer's specifications provided the specified strength and quality are maintained and unless the admixtures appear to be causing abnormal field results, and provided that the total entrained air content does not exceed 5.0 percent. No other admixture of any type will be permitted without the written approval of the ENGINEER.
- D. Transit or Ready-Mixed Concrete: Transit or ready-mixed concrete may be used provided it meets the requirements of ASTM C94, Ready Mixed Concrete, specifications herein stated and provided the central plant producing the concrete,

the batching, mixing and transportation equipment, in the opinion of the ENGINEER, is suitable for the production and transportation of the specified concrete.

PART 3 EXECUTION

3.01 INSTALLATION OF CHAIN LINK FENCE AND GATE

- A. Installation of fencing shall meet the requirements of ASTM F 567.
- B. Fencing shall be installed in straight lines between angle points. Fencing installation shall be in accordance with the manufacturer's recommendations and with these Specifications. Post holes shall be to the minimum depths noted below finished grade. Post space shall not exceed 10 feet on centers and in true lines. Posts shall be plumb and to the depths noted. Top rail of the fence shall be at the top of the fabric. Concrete shall cure prior to installing accessories. Chain link fabric shall be fastened to end posts with stretcher bars and clamps and to line posts and top rail with wire or bands at approximately 14-inch centers and 24-inch center, respectively. Gate posts shall be braced diagonally to adjacent line posts to ensure stability. Gates shall be hung and adjusted so gates operate from open or closed position in accordance with the manufacturer's recommendations.
- C. Cleanup: CONTRACTOR shall clean up and finish grade all areas disturbed by his construction.

PART 4 MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

- A. Quantities to be paid for under this section shall be in lineal feet and include all gates, posts, fixtures, etc., complete in place.

4.02 BASIS OF PAYMENT

- A. Payment shall be made on a unit price basis in accordance with the accepted proposal. OWNER reserves the right to add to or deduct from the scope of the work, and such additions or deductions will be made at the unit price established in the proposal.

END OF SECTION 02828

**SECTION 02911
ASPHALTIC CONCRETE**

PART 1 GENERAL

1.01 SCOPE

- A. The work consists of the application of hot bituminous mixtures of the type and thickness specified on the construction plans which shall be composed of a mixture of:
 - 1. Aggregate.
 - 2. Mineral filler, if necessary to produce the desired stability hereinafter described; and
 - 3. Asphalt cement.
- B. The application of hot bituminous mixtures shall be properly placed upon a prepared base of the type called for on the construction plans in accordance with lines, grades, thickness, and typical section(s) shown including the conditioning of existing surface or base.

PART 2 PRODUCTS

2.01 ASPHALT MIXES

- A. Except for friction courses and base courses, the hot bituminous mixture shall be of the type called for on the construction plans and shall conform to hot mix design criteria as outlined in the latest edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.

2.02 FRICTION COURSE

- A. The asphaltic concrete friction course shall be in accordance with Section 337, Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, latest edition.

PART 3 EXECUTION

3.01 APPLICATION OF ASPHALT MIXES

- A. Limitation of Operations
 - 1. The mixture shall be spread only when the air temperature (in the shade) is above 40° Fahrenheit and rising.
 - 2. The temperature of the mixture at the time of spreading shall be within 25° Fahrenheit of the temperature set by the ENGINEER for this stage of the operation. The temperatures thus set by the ENGINEER shall be between 250° Fahrenheit and 340° Fahrenheit.

3. Any mixture caught in transit by a sudden rain may be laid only at the CONTRACTOR's risk. Should such mixture prove unsatisfactory, it shall be removed and replaced with satisfactory mixture at the CONTRACTOR's expense. In no case shall the mixture be laid while rain is falling or when there is water on the surface to be covered.

B. Joints

1. Transverse joints: Placing of the mixture shall be as continuous as possible and the roller shall not pass over the unprotected end of the freshly laid mixture except when the laying operation is to be discontinued long enough to permit the mixture to become chilled. When the laying operation is thus interrupted, or laying operation is to commence from a cold joint, a transverse joint shall be construction by cutting back on the previous run to expose the full depth of the mat.
2. Longitudinal joints: Where only a portion of the width of pavements is to be laid, the exposed edge shall be vertical. If traffic has rolled over the edge the ENGINEER may require the rolled edge trimmed back to a vertical face prior to construction the adjacent strip.
3. General: When the fresh mixture is laid against the exposed edges of joints (trimmed or formed) it shall be placed on close contact with the exposed edge so that an even, well compacted joint will be produced after rolling without having an open joint or unlevel surface condition.
4. Layered placement of hot bituminous mixture shall be accomplished to cause longitudinal joints to be offset 6 to 12 inches laterally between successive layers.

C. Finished Surface Requirements

1. For the purpose of testing the finished surface, the CONTRACTOR shall provide a 15-foot straight edge and a standard template cut to the true cross-section of the road. These shall be available at all times during construction so that the ENGINEER may check the finished surface. The CONTRACTOR shall provide and designate some employee whose duty it is to use the straight edge and template in checking all rolled surface under the direction of the ENGINEER. Vertical measurements from a string line between curbs to determine crown may be accepted as an alternate. The finished surface shall be such that it will not vary more than one-fourth inch from the 15-foot straight edge. Any irregularity of the surface exceeding the above limits shall be corrected.
2. The CONTRACTOR shall be responsible for obtaining a smooth surface on all pavement courses placed. The finished surface shall be of uniform thickness texture and compaction. The surface shall have no pulled, torn, loosened portions and shall be free of segregation, sand streaks, sand spots, ripples or roller marks, depressions that show up after initial rolling, and roller depressions. Any area of the surface which does not meet the

foregoing requirements shall be corrected at the CONTRACTOR's expense.

3. Correction of unacceptable pavement or portion thereof shall be determined in one of the following methods, only if approved by the ENGINEER:

- a. Remove and replace - if correction is made by removing and replacing the pavement, the removal must be for the full depth of the course and extend at least 50 feet on either side of the defective area, for the full width of the paving lane.
- b. Overlaying - if correction is made by overlaying, the overlay shall cover the length of the defective area and taper uniformly to a feather edge thickness at a minimum distance of 50 feet on either side of the defective area and for the entire width of roadway.

D. Compaction

1. The complete pavement will be accepted with respect to in-place density when the following criteria has been met:
 - a. Ninety-five percent of laboratory density (FM 1-T166) has been achieved.
 - b. Laboratory density (FM-T166) will be determined from a sample of the hot mix obtained in the field.
 - c. In-place density will be determined from field cores obtained during thickness evaluation.

E. Tests (Allowable Deficiencies - Thickness)

1. The average thickness of the compaction in-place mixture shall be determined as shown on the construction plans typical cross-section(s) for that particular roadway(s) to be constructed. The pavement shall not be approved or accepted unless the following criteria has been met:
 - a. The compacted in-place pavement has not exceeded a deficiency of $\frac{1}{4}$ inch in thickness as determined by the measured depths of two-inch diameter cores taken at random at a rate of one every 500 SY.
 - b. Not more than 20 percent of the total cores taken for than roadway (thickness and type) shall be deficient with no individual core exceeding the $\frac{1}{4}$ -inch tolerance. Roadway pavement indicating an average thickness of $1\frac{1}{4}$ inch shall not have an individual core of less than one-inch in-place thickness.
 - c. Core lengths shall not exceed the average pavement thickness by more than three-eighths inch and shall be calculated as the next lower thickness.

- d. All testing required such as mixture, density, cores, etc. shall be the responsibility of the CONTRACTOR with the testing performed by an independent testing laboratory, testing results submitted to and approved by the ENGINEER.

F. Care to be Exercised

1. The CONTRACTOR shall use extreme care when applying prime coats, tack coats or laying the asphaltic concrete to insure the materials being applied do not come in contact with surface of adjacent structures such as but not limited to curb, inlets, etc., other than those surfaces designed for contact. Any material allowed to come in contact with surfaces other than those scheduled shall be cleaned by any method acceptable to the ENGINEER that does not destroy the function or aesthetic value of the structure. Any surface after cleaning that remains objectionable to the ENGINEER may result in removing and replacing the objectionable section. All removal, replacement or attempts to clean surfaces shall be at the CONTRACTOR's expense.
2. The CONTRACTOR shall use extreme care in using equipment adjacent to structures such as, but not limited to curbs, inlets, etc. to prevent damage to those structures such as roller scars, grader scars, etc. The ENGINEER may direct removal and replacement of those objectionable surfaces that have in his opinion destroyed the functional or aesthetic value of the structure. Cost of removal and replacement shall be at the CONTRACTOR's expense.

PART 4 MEASUREMENT AND PAYMENT

4.01 METHOD OF MEASUREMENT

- A. The quantity to be paid for under this section shall be the number of square yards of asphaltic surface and/or friction course actually completed and accepted, for the various types required by the approved plans.
- B. In determining the quantity of asphaltic concrete surface and/or friction course, the length to be used in the calculation shall be the actual length measured along the surface of the pavement and the width as specified by the approved plans.

4.02 BASIS OF PAYMENT

- A. The quantity of asphaltic concrete surface and/or friction course shall be paid for at the contract unit price per square yard for the various types required by the approved plans.
- B. The above price and payment shall be full compensation for all the work specified in this section and shall include all materials, equipment, tools, labor, testing laboratory, and incidentals necessary to complete the work.

END OF SECTION 02911

SECTION 02912
BASE COURSE, PRIME AND TACK COAT, AND STABILIZED SUBGRADE

PART 1 GENERAL

1.01 SCOPE

- A. The soil-cement base course work specified in this section consists of construction of a base course composed of soil and Portland cement uniformly mixed, moistened, compacted, finished and cured in accordance with these specifications, and shall conform to the lines, grades, thicknesses and typical cross-sections shown on the plans. The base shall be designed to have a seven-day in-situ compressive strength of 250 psi minimum. Seven-day laboratory design compressive strength shall be a minimum of 300 psi.
- B. The shell base course work specified in this section consists of construction of a base course composed of shell. It shall be constructed on the prepared subbase in accordance with these specifications and in conformity with the lines, grades, notes and typical cross-sections shown on the plans. Where so shown on the plans, the base shall be constructed in two courses. Where the plans do not specify double-course base, the base may be constructed in either one or two courses.
- C. The prime and tack coat work consists of applying bituminous materials on a previously prepared base in accordance with these specifications and in conformity with the lines, grades, dimensions and notes shown on the plans.
- D. The stabilized subgrade work shall consist of bringing the bottom of excavations and top of embankments of the roadway between the outer limits of the paving or base course to a surface conforming to the grades, lines and cross-sections shown on the plans, and to a uniform density.
- E. The base material must meet the requirements of the local transportation entity or it will not be considered.
- F. The base material specified on the drawings shall be the basis for the bid.

PART 2 PRODUCTS

2.01 SOIL CEMENT BASE

- G. Portland cement shall comply with the latest specifications for Portland cement, AASHTO M-85, AASHTO M-134 or ASTM C-150 for the type specified. A one-cubic-foot sack of Portland cement shall be considered to weight 94 pounds. The amount of cement used shall be sufficient to obtain the required compressive strength, however, under no circumstances shall the amount be more than 9 percent by weight. No minimum cement content is required.
- H. Water for use with cement shall be clean and free of substances deleterious to the hardening of the soil-cement.

- I. The soil to be used for the base course shall consist of bank-run shell, limerock, crushed portland cement concrete, approved borrow material or a combination of these materials proportioned as approved by the laboratory. The soil shall be free of organic debris, trash, roots or any other substance considered deleterious to the hardening of the soil-cement. Proposed recycled materials will be considered on a case-by-case basis.

1. Specific requirements for soil

Limerock Bearing RatioMinimum 100 (per FM S-515)

Plastic IndexMaximum 10 percent (per FM 1-T090)

Liquid IndexMaximum 25 percent (per FM 1-T089)

Gradation:	Sieve Size	Minimum % Passing
	2 - inch	100 percent
	#4	55 percent
	10	37 percent

- J. Soil cement for base construction shall have a LBR value of not less than 100. One LBR test shall be required from the source of the soil cement base material.

- K. The CONTRACTOR shall submit for approval a design mix for the soil proposed for use in soil-cement construction prepared by an independent testing laboratory approved by the ENGINEER. The design mix submittal shall include the results of tests run to verify that the soil meets the material requirements. Results of test used to establish the cement content, and a final design laboratory sample shall also be submitted. Laboratory testing for design mix evaluation shall be accomplished using water from the source proposed for use during construction. The design mix shall be submitted to the Engineer for approval a minimum of 15 calendar days prior to beginning of soil-cement construction. The minimum cement content shall be determined by Florida Test Method FM 5-520-Laboratory Design of Soil-Cement Mixtures. The soil material, used in producing a soil-cement mixture, shall be obtained from a commercial source where soil properties are consistently uniform, and the mixture shall be processed in a central mix plant that automatically weighs components and automatically records the weight of each component on a printed ticket or tape. Mixed in place soil cement will not be authorized.

2.02 SHELL BASE

The materials shall not contain excessive amounts of sand and fine particles to prevent proper bonding.

At least 97 percent of the material shall pass a 3½-inch sieve. Not less than ten percent nor more than 20 percent of the material shall pass the Number 200 sieve by washing.

The portion of the material passing the Number 40 sieve shall be non-plastic.

Shell for base construction shall have an LBR value of not less than 100. One LBR test shall be taken per each 1,500 SY area. Each source of shell base materials must be specifically approved for usage.

Each deposit proposed for use shall be inspected by the ENGINEER prior to use. Acceptance or rejection will be made on production of a uniform material consistently meeting this specification. The ENGINEER may require a certified copy of current Florida Department of Transportation (FDOT) quality assurance for each source.

2.03 CRUSHED CONCRETE BASE

Crushed concrete conforming to the gradation and other requirements of Section 204-2 of the most recent FDOT Standard Specifications for Road and Bridge Construction.

2.04 PRIME AND TACK COAT

For the prime and tack coat, any one of the following types or grades of prime and tack materials may be used at the option of the CONTRACTOR unless a particular type and grade are called for on the plans.

1. Prime Coat
 - a. Cutback Asphalt, Grade RC-70 or RC-250.
 - b. Emulsified Asphalt, Grade RS-2, SS-1, SS-1H or Special MS.
2. Tack Coat
 - a. Emulsified Asphalt, Grade S, RS-2, AE-90, SS-1, SS-1H or Special MS.

PART 3 EXECUTION

3.01 CONSTRUCTION OF SOIL CEMENT BASE

A. Equipment

3. For performing the work specified in this section, the CONTRACTOR may use any machine, combination of machines or equipment that will produce the completed soil-cement base course meeting the requirements for soil pulverization, cement application, mixing, water application, incorporation of materials, compaction, finishing and curing as controlled by these specifications. Special attention is directed to the necessity for utilizing compaction equipment which will produce the required density in a particular soil-cement blend.

B. Preparation

1. Before other construction operations are begun, the areas to be paved shall be graded and shaped as required to construct the soil-cement base in conformance with the grades, lines, thicknesses and typical cross-sections shown on the plans. Any additional soil needed shall be placed as directed by the ENGINEER. The subgrade shall be firm and able to support without displacement the construction equipment and compaction hereinafter specified. Any unsuitable soil or materials, including material retained on a three-inch sieve, shall be removed and replaced with acceptable material. Soft or yielding subgrade shall be corrected and made stable before construction proceeds.

2. The subgrade in both cuts and fills shall be compacted to density of 98 percent of the maximum density as determined by AASHTO T-180 (modified). The subgrade shall be shaped prior to making the density tests. Subgrade LBR shall be as shown on the construction plans. Test results of subgrade density and LBR shall be provided to the ENGINEER for review prior to the construction of the base material.

C. Plant Mix

1. A plant mixture of soil-cement material shall be utilized. The plant should demonstrate the ability to properly proportion the cement to obtain a uniform mix, meeting all specifications.

D. Compaction

1. Prior to the beginning of compaction the mixture shall be in a loose condition for its full depth and shall be within approximately two percent of the optimum moisture. The loose mixture shall be uniformly compacted to the specified density within three hours. During compaction operations, shaping may be required to obtain uniform compaction and required grade and cross-section. No soil cement shall be applied when the soil or subgrade is frozen. The air temperature shall be at least 40° Fahrenheit in the shade and rising, or over 50° Fahrenheit.

E. Finishing

1. After the mixture has been compacted, the surface of the soil-cement shall be shaped, if necessary, to the required lines, grades and cross-section. During shaping operations, the surface shall be lightly scarified to loosen any imprints left by the compacting or shaping equipment. The resulting surface shall then be compacted to the specified density with steel-wheel or pneumatic tire rollers, or both. Rolling shall be supplemented by broom-dragging as required. Surface compaction and finishing shall be done in such a manner as to produce, in not longer than three hours, a smooth, dense surface, free of surface compaction planes, cracks, ridges or loose materials.

F. Uniformity

1. Any portion of the soil-cement that has a density less than 95 percent of the maximum density, determined as specified, shall be corrected by additional rolling. If the time limits set forth herein have been exceeded, the base shall be left undisturbed and shall be tested (after seven days of curing) to determine its suitability. If it is found unsuitable, it shall be removed and replaced by the CONTRACTOR without additional compensation. The CONTRACTOR may, at his option, remove and replace the deficient base rather than wait for the results of the seven-day test.

G. Construction Joints

1. At the end of each day's construction, a straight transverse construction joint shall be formed by cutting back into the completed work to form a true vertical face. The construction joint thus formed shall be located so as to exclude all of that part of the base at the end of the run from being considered a part of the finished base if it

does not have full depth, is not thoroughly compacted, is not properly proportioned, or is not properly mixed.

H. Curing

1. After the soil-cement base has been finished as specified herein, it shall be protected against drying for seven days, as specified herein. The finished soil-cement base shall be maintained in a moist condition by application of water until the curing material is applied. The curing material shall not be applied until the finished soil-cement base has been inspected by the ENGINEER and such inspection has determined that the base material is hardening in a uniform and satisfactory manner. The bituminous material and construction shall be in accordance with the specifications for Prime and Tack Coat for base courses. The actual rate of application shall be sufficient to provide complete coverage without excessive runoff. At the time the bituminous material is applied, the soil-cement surface shall be dense, free of all loose and extraneous material and shall contain sufficient moisture to permit penetration of the bituminous material. Water shall be applied in sufficient quantity to fill the surface voids of the soil-cement immediately before the bituminous curing material is applied.

I. Opening to Traffic

1. After the seven-day curing period, the completed portion may be open to all traffic, provided the soil-cement is either protected or has hardened sufficiently to prevent marring or distorting of the surface by the equipment or traffic, and provided the curing as specified is not impaired.
 - a. The curing material shall be adequately maintained during the seven-day protection period so that all of the soil-cement will be covered effectively during this period.
 - b. Finished portions of soil-cement that are used by equipment during the construction of an adjoining section shall be protected in such a manner as to prevent the equipment from marring or damaging the completed work.
 - c. When the air temperature may be expected to reach the freezing point, sufficient protection from freezing shall be given the soil-cement for seven days after its construction and until it has hardened. Other curing materials such as moist earth, straw or hay may be used upon approval.

J. Maintenance

1. The CONTRACTOR shall maintain the base to a true and satisfactory surface until the wearing surface is constructed. Should any repairs of patching be necessary, they shall extend to the full depth of the base and shall be made in a manner that will assure restoration of a uniform base course conforming to the requirements of these specifications. In no case shall repairs be made by adding a thin layer of soil-cement to the completed work. The CONTRACTOR may, at his option, make full-depth repairs with concrete to small or minor areas such as manholes, inlets or the like.

K. Testing

1. Tests are a necessary part of soil-cement base construction. The following tests will be made by the laboratory:
 - a. Determinations of Cement Applied
 - b. Field Density - Tests shall be taken per each 500 SY maximum area or per each 500 feet per lane, whichever is less.
 - c. Moisture-Density Test
 - d. Bag Samples - Bag samples shall be taken at least once daily at intervals not to exceed 5,000 SY and molded in the laboratory at field moisture content based on standard proctor density test (AASHTO T-99). Each specimen shall be four inches in diameter and six inches in height. The specimens shall be cured for seven days and tested for compressive strength. The bag samples shall have a minimum strength of 250 psi.
 - e. Six-Inch Diameter Cores - For each day's placement of base material, field cores of six inch diameter shall be taken after seven days curing time at intervals of one every 500 SY or at intervals closer if necessary to isolate areas showing below minimum requirements. The cores shall be used to determine thickness of base and compression tested to determine strength of base material. The cores shall have an average compressive strength of 250 psi. The minimum compressive strength core break shall be 200 psi. Cores with less than 200 psi shall require the CONTRACTOR to isolate the area of base with additional cores and compressive tests for determining limits of the unacceptable base. That portion determined unacceptable shall be removed and replaced with new material, retested after seven days as outlined above. Where the base is more than one-half inch deficient in thickness, the area covered by this deficient base shall be replaced. The one-half inch deficiency may be accepted only if found in minor isolated areas. Additional cores will be required to determine size of deficient area.
 - f. Test Results - After receipt of the test reports from the laboratory stating that there is a satisfactory soil-cement base, the ENGINEER may allow the wearing surface to be placed.
 - g. All tests shall be performed by a testing laboratory, approved by the ENGINEER. The testing laboratory shall be under the direction of a Professional Engineer with at least five years of materials testing experience. All tests shall be performed at the CONTRACTOR's expense.

L. Grade Stakes

1. The CONTRACTOR shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the CONTRACTOR's expense.

3.02 CONSTRUCTION OF SHELL BASE

A. Equipment

1. This work may be performed with any machine, combination of machine or equipment that will produce the specified results.

B. Transporting Shell

1. The shell shall be transported (over material previously spread) to the point where it is to be used. It shall then be dumped on the end of the preceding spread. In no case shall material be dumped directly on the subbase.

C. Spreading Shell

1. The shell shall be spread uniformly. All segregated areas of fine or coarse material shall be removed and replaced with well graded shell. For double-course base, the material shall be spread in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional to bear the weight of the construction equipment without disturbing the subbase.

D. Compacting and Finishing Base

1. For double-course base, the first course shall be bladed if necessary to secure a uniform surface and shall be compacted to the density specified below immediately prior to spreading the second course. No other finishing of this course is required.
 - a. After spreading is completed, the entire surface shall be scarified and shaped so as to produce the exact grade and cross-section after compaction. For double-course bases, this scarifying shall extend to a depth sufficient to penetrate slightly the surface of the first course.
 - b. As soon as proper conditions of moisture are attained, the material shall be compacted to a density of 98 percent of the maximum density obtainable under AASHTO Method T-180 (modified). Where the base is being constructed in one course and the specified thickness is more than six inches, the density specified above shall be obtained in both the bottom half and the top half of the base. During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross-section, the compacting operations for such areas shall be completed prior to making the density determinations on the finished base.
 - c. The surface shall be "hard-planed" with a blade grader immediately prior to the application of the prime coat to remove the tin-glazed or cemented surface, leaving a granular or porous condition that will allow free penetration of the prime material. The materials planed from the base shall be removed from the base area.

- d. If, at any time, the subbase material should become mixed with the base course material, the CONTRACTOR shall excavate and remove the mixture. He shall reshape and compact the subgrade, and replace the materials removed with clean base material. The clean base material shall then be shaped and compacted as specified above.

E. Testing Surface

1. The finished surface of the base course shall be checked with a templet cut to the required cross-section and with a 15 foot straight edge laid parallel to the centerline of the road or other approved testing devices. All irregularities greater than $\pm 1/4$ inch shall be corrected by scarifying and removing or adding rock, as may be required, after which the entire areas shall be recompacted as specified herein. On every project at least one of each of the following density tests shall be made by the laboratory at intervals not exceeding 500 SY unless otherwise specified.
 - a. Modified Proctor Maximum Density Determination Tests. Tests shall be taken per each 500 SY maximum area.
 - b. Field In-Place Density Tests.

F. Thickness

1. After the base is completed, test holes shall be dug or cores taken at intervals of not more than 500 SY, or at closer intervals if necessary. Where the base is deficient in thickness, the area covered by this deficient base shall be reworked by scarifying to a depth of at least three inches and adding more base material, so that after proper compacting the thickness will conform to the plans.

All tests shall be performed by an independent testing laboratory, approved by the ENGINEER. The testing laboratory shall be under the direction of a Professional Engineer with at least five years of materials testing experience.

G. Grade Stakes

4. The CONTRACTOR shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the CONTRACTOR's expense.

3.03 CONSTRUCTION OF CRUSHED CONCRETE BASE

A. Equipment

1. This work may be performed with any machine, combination of machine or equipment that will produce the specified results.

B. Transporting Crushed Concrete

1. The crushed concrete shall be transported (over material previously spread) to the point where it is to be used. It shall then be dumped on the end of the preceding spread. In no case shall material be dumped directly on the subbase.

C. Spreading Crushed Concrete

1. The crushed concrete shall be spread uniformly. All segregated areas of fine or coarse material shall be removed and replaced with well graded material. For double-course base, the material shall be spread in two courses. The thickness of the first course shall be approximately one-half the total thickness of the finished base, or enough additional to bear the weight of the construction equipment without disturbing the subbase.

D. Compacting and Finishing Base

1. For double-course base, the first course shall be bladed if necessary to secure a uniform surface and shall be compacted to the density specified below immediately prior to spreading the second course. No other finishing of this course is required.
 - a. After spreading is completed, the entire surface shall be scarified and shaped so as to produce the exact grade and cross-section after compaction. For double-course bases, this scarifying shall extend to a depth sufficient to penetrate slightly the surface of the first course.
 - b. As soon as proper conditions of moisture are attained, the material shall be compacted to a density of 98 percent of the maximum density obtainable under AASHTO Method T-180 (modified). Where the base is being constructed in one course and the specified thickness is more than six inches, the density specified above shall be obtained in both the bottom half and the top half of the base. During final compacting operations, if blading of any areas is necessary to obtain the true grade and cross-section, the compacting operations for such areas shall be completed prior to making the density determinations on the finished base.
 - c. The surface shall be "hard-planed" with a blade grader immediately prior to the application of the prime coat to remove the tin-glazed or cemented surface, leaving a granular or porous condition that will allow free penetration of the prime material. The materials planed from the base shall be removed from the base area.
 - d. If, at any time, the subbase material should become mixed with the base course material, the CONTRACTOR shall excavate and remove the mixture. He shall reshape and compact the subgrade, and replace the materials removed with clean base material. The clean base material shall then be shaped and compacted as specified above.

E. Testing Surface

1. The finished surface of the base course shall be checked with a templet cut to the required cross-section and with a 15 foot straight edge laid parallel to the centerline of the road or other approved testing devices. All irregularities greater than $\pm 1/4$ inch shall be corrected by scarifying and removing or adding rock, as may be required, after which the entire areas shall be recompactd as specified herein. On every project at least one of each of the following density tests shall be made by the laboratory at intervals not exceeding 500 SY unless otherwise specified.

- a. Modified Proctor Maximum Density Determination Tests. Tests shall be taken per each 500 SY maximum area.
- b. Field In-Place Density Tests.

F. Thickness

- 1. After the base is completed, test holes shall be dug or cores taken at intervals of not more than 500 SY, or at closer intervals if necessary. Where the base is deficient in thickness, the area covered by this deficient base shall be reworked by scarifying to a depth of at least three inches and adding more base material, so that after proper compacting the thickness will conform to the plans.

All tests shall be performed by an independent testing laboratory, approved by the ENGINEER. The testing laboratory shall be under the direction of a Professional Engineer with at least five years of materials testing experience.

G. Grade Stakes

- 1. The CONTRACTOR shall make every effort to preserve the grade stakes until the job is completed. Destroyed or moved stakes shall be replaced at the CONTRACTOR's expense.

3.04 APPLICATION OF PRIME AND TACK COAT

A. Equipment

- 1. This work may be performed with any machines, combination of machines, or equipment that will produce the specified results.

B. Cleaning the Base

- 1. Before any bituminous material is applied, all loose material, dust, caked clay and foreign materials which might prevent proper bond with existing surface shall be moved to the shoulders. Particular care shall be taken to clean the outer edges of the strip to be treated in order to insure that the tack coat will adhere. Where the prime or tack coat is applied adjacent to the curb and gutter or valley gutter, such concrete surfaces are to be protected and kept free of bituminous material.

C. Weather Limitations

- 1. No bituminous material shall be applied when the temperature of the air is less than 40° Fahrenheit in the shade, or when the weather conditions or the condition of the existing surface is unsuitable.

D. Application of Prime Coat

- 1. The surface to be primed shall be clean and contain optimum moisture. The temperature of the prime material shall be between 100° and 150° Fahrenheit. The exact temperature shall be such as will insure uniform distribution. The material shall be applied by means of a pressure distributor.

The amount of bituminous material applied shall be at the rate of approximately 0.10 to 0.25 gallons per square yard, dependent upon the type of base materials. The rate of application shall be sufficient so as to coat the surface thoroughly and uniformly without having any excess to form pools or to flow off the base. A light, uniform application of clean sand shall be applied prior to opening the primed base to traffic. To cure the prime coat in such cases, the sand shall be rolled with a traffic roller in conjunction with traffic. If warranted by traffic conditions, the application shall be made only on one-half of the width of the base at one time, care being taken to secure the correct amount of bituminous material at the joint. The base shall be sufficiently moist in order to obtain maximum penetration of the asphalt.

E. Application of Tack Coat

1. Where a bituminous surface is to be laid and a tack coat is required, both shall be applied as herein specified. On newly constructed base courses, the application of the tack coat (when one is required) shall follow the application of the prime coat, immediately before the wearing surface is applied. In general, a tack coat will not be required on primed bases, except in areas which have become excessively dirty and cannot be cleaned, or in areas where the prime has cured and lost bonding effect. The tack coat shall be applied with a pressure distributor. The bituminous material shall be heated to a suitable consistency as designated. The bituminous material shall be applied only in the amount necessary to bond the wearing surface to the base. The rate of application shall be between 0.02 and 0.08 gallons per square yard. The exact rate shall be designated by the ENGINEER. The tack coat shall be applied sufficiently in advance of the wearing surface to permit drying. However, it shall not be applied so far in advance or over such an area as to lose its adhesiveness as a result of being covered with dust or other foreign material. The tack coat shall be kept free from traffic until the wearing surface is laid.

3.05 PREPARATION OF STABILIZED SUBGRADE

A. Subbase

1. The work shall consist of bringing the bottom of excavations and the top of embankments of the roadway to a surface conforming to the grades, lines and cross sections shown on the plans.

All soft and yielding material and other portions of the subgrade which will not compact readily shall be removed and replaced with suitable material and the whole subbase brought to line and grade, allowing for subsequent compaction.

- a. All submerged stumps, roots or other organic matter encountered in the preparation of the subbase shall be removed.
- b. The subbase shall be stabilized to the minimum Bearing Ratio and depth shown on the plans. LBR tests shall be taken per each 1,500 SY area or per each 1,500 feet of roadway, whichever is less. If the natural in-place soils do not meet the required stability, sufficient borrow material for stabilization shall be uniformly mixed with in-place soils to produce the load Bearing Ratio. Material used for stabilization must be specifically approved for usage. Borrow material shall be included in the cost of subbase bid item.

- c. The stabilized subbase in both cuts and fills shall be compacted to a density as determined by AASHTO T-180 (modified). The subbase shall be shaped prior to making the density tests.
- d. The subbase shall be firm and able to support the construction equipment without displacement. The minimum density acceptable at any location will be 98 percent of the maximum density as determined by AASHTO T-180 (modified). Load Bearing Ratio determinations shall be made by the Limerock Bearing Ratio Method, Test Method D of AASHTO T-180 as modified by the Florida Department of Transportation's Research Bulletin 22-B, revised April, 1972. Soft or yielding subgrade shall be corrected and made stable before construction proceeds.
- e. Density tests shall be made before work proceeds.
- f. The required density shall be maintained until the base of pavement has been laid or until the aggregate materials for the base of pavement course have been spread in place.
- g. After the subbase has been prepared, and immediately before any base material is placed, the subbase shall be tested for substantial compliance as to crown and elevation. Material shall be removed or added, as the condition necessitates, and again stabilized and compacted to bring all portions of the subbase to the specified elevation, stability and density.

PART 4 MEASUREMENT AND PAYMENT

4.01 SOIL-CEMENT BASE

A. Method of Measurement

- 1. The quantity to be paid for under this section shall be the number of square yards of soil-cement base course actually completed and accepted. In determining the quantity of soil-cement base course, the length to be used in the calculations shall be the actual length measures along the surface of the base and the width shall be the width of the base actually constructed, both within the neat lines shown on the plans.

B. Basis of Payment

- 1. This work shall be paid for at the contract unit price per square yard of completed and accepted soil-cement base course. The contract unit price shall be full payment for furnishing all materials, equipment tools, labor, testing and incidentals necessary to complete the work and for carrying out the maintenance provisions in this specification.
- 2. Any additional earth required for the base course in accordance with Paragraph 3.01,B.1 herein, will be paid for at the contract unit price per cubic yard for excavation.
- 3. No allowance shall be made for any materials used or work done outside the lines established by the ENGINEER.

4.02 SHELL BASE

A. Method of Measurement

1. The quantity to be paid for under this section shall be the number of square yards of base acceptably completed. The length to be used in the calculation shall be the actual length measured along the surface of the completed base, and the width of the base actually constructed, both within the neat lines shown on the plans.

B. Basis of Payment

1. The quantity determined as provided above shall be paid for at the contract unit price per square yard for base, complete, in place and accepted. Such price and payment shall be full compensation for performing and completing all the work described in this section and shall include furnishing all materials, equipment, tools, labor, testing and incidentals necessary to complete the work.

4.03 CRUSHED CONCRETE BASE

A. Method of Measurement

1. The quantity to be paid for under this section shall be the number of square yards of base acceptably completed. The length to be used in the calculation shall be the actual length measured along the surface of the completed base, and the width of the base actually constructed, both within the neat lines shown on the plans.

B. Basis of Payment

1. The quantity determined as provided above shall be paid for at the contract unit price per square yard for base, complete, in place and accepted. Such price and payment shall be full compensation for performing and completing all the work described in this section and shall include furnishing all materials, equipment, tools, labor, testing and incidentals necessary to complete the work.

4.04 PRIME AND TACK COAT

A. Method of Measurement

1. The quantity to be paid for under this section shall be the number of square yards of prime or tack coat actually completed and accepted.
2. In determining the quantity of prime or tack coat, the length to be used in the calculation shall be the actual length measured along the surface of the pavement and the width shall be the width of pavement actually constructed, both within the neat lines shown on the plans.

B. Basis for Payment

1. The quantity of prime or tack coat determined, as provided in Paragraph A above, shall be paid for at the contract unit price per square yard for this item.

2. When no separate bid item for prime is provided in the proposal, the prime coat shall not be paid for directly, and the cost shall be included in the contract unit price for the base course on which it is applied.
3. When no separate bid item for tack coat is provided in the proposal, the tack coat shall not be paid for directly, and the cost shall be included in the contract unit price for the pavement to be laid over the tack coat.
4. The prices and payments provided for herein shall be full compensation for all materials (including sand covering where required) for heating, hauling and applying, and for all equipment, tools, labor and incidentals necessary to complete the work covered by this section.

4.05 STABILIZED SUBGRADE

A. Method of Measurement

1. The quantity to be paid for under this section shall be the number of square yards of subgrade acceptably completed. The length to be used in the calculation shall be the actual length measured along the surface of the completed subgrade, and the width of the subgrade actually constructed, both within the neat lines shown on the plans.

B. Basis of Payment

1. The quantity determined as provided above shall be paid for at the contract unit price per square yard for subgrade, complete, in place and accepted. Such price and payment shall be full compensation for performing and completing all the work described in this section and shall include furnishing all materials, equipment, tools, labor, testing and incidentals necessary to complete the work.

END OF SECTION 02912

**SECTION 02924
PAVEMENT MARKING, STRIPING, AND SIGNS**

PART 1 GENERAL

1.01 SCOPE

- A. This section specifies pavement traffic painting, marking, striping, and signing shown on the plans or called for in the specifications. In general, all pavement traffic painting, marking, striping, and signing shall comply with the Florida Department of Transportation Standard Specifications for Road and Bridge Construction, hereafter referenced "FDOTSPEC" and the Manual on Uniform Traffic Control Devices, U.S. Department of Transportation, Federal Highway Administration, hereafter referenced as "MUTCD" and the Florida Department of Transportation Roadway and Traffic Design Standards, hereafter referenced by index number.

1.02 SPECIFICATION AND STANDARDS REFERENCE

- A. Where supplementary specifications or standards such as ASTM, AWWA, AASHTO, etc., are referenced, such references shall be the latest edition.

PART 2 PRODUCTS

2.01 SIGN PANELS AND POSTS

- A. Sign panels shall be aluminum. All signposts shall be steel flanged channel installed in accordance with FDOT index number 11865.

2.02 SIGN BLANKS AND FACES

- A. Regulatory and Warning signs as defined in the MUTCD shall be "High Intensity" reflectorized grade.
- B. Street name and guide signs as defined in the MUTCD shall be "Standard reflectorized grade."
- C. CONTRACTOR shall submit documentation from the sign suppliers which identifies the reflector grade of each sign. All materials shall meet the requirements of FDOTSPEC.

2.03 SIGN HARDWARE

- A. Signs shall be attached to posts in accordance with FDOT index number 11865.

2.04 PAVEMENT STRIPING AND PAINTING

- A. Thermoplastic Striping and Marking - Thermoplastic pavement striping shall be reflective and meet the requirements of FDOTSPEC, Section 711.

- B. Painted Striping and Marking - Painted striping shall be reflectorized and meet the requirements of FDOTSPEC, Section 710.

2.05 REFLECTIVE PAVEMENT MARKERS

- A. Reflective pavement markers and their installation shall meet the requirements of FDOTSPEC, Section 706.

PART 3 EXECUTION

Not Used

PART 4 MEASUREMENT AND PAYMENT

4.01 BASIS OF PAYMENT

- A. Payment for pavement marking, striping, and signing shall be on a lump sum basis in accordance with the accepted bid. Such payment shall constitute full compensation for furnishing all labor, materials, and equipment necessary to complete the construction on accordance with the plans and specifications.

END OF SECTION 02924

SECTION 10002
NATURAL TURF ATHLETIC PLAYING FIELD

PART ONE - GENERAL

1.01 RELATED DOCUMENTS:

- A. All Final Construction Documents, and all Contract Documents defined in the Agreement shall apply to this Section, including general provisions of the Agreement and any Supplementary Conditions and Division 1 Specification Sections of the Design Criteria Package.

1.02 DESCRIPTION:

A. SCOPE

Natural turf athletic fields is referred to as the "Playing Field System" in this specification section and is composed of the following subsystems/requirements:

1. Earthwork Requirements:

Excavation, trenching, grading, filling, back filling, compaction, and disposal of spoil materials.

2. Playing Field Requirements:

Root zone soil materials and amendments.

Tifway 419 Bermudagrass

1.03 SUBMITTALS

A. SUBMITTALS REQUIRED PRIOR TO CONTRACTOR SELECTION

1. Pre-bid Materials Inspection and Testing: The CONTRACTOR shall pre-qualify proposed deviations from the specified root zone materials, drainage material, and sod with the LANDSCAPE ARCHITECT. All costs associated with Pre-bid testing shall be borne by the CONTRACTOR. Proposed substitutes received after bids have been submitted will be rejected. Materials testing requirements are described in this Section.

2. **CONTRACTOR Qualification Requirements:** The CONTRACTOR shall provide proof of three (3) or more sport field installation projects which have been in use successfully for three (3) or more years. To be included as a qualified installer, the CONTRACTOR shall submit the following for review by the LANDSCAPE ARCHITECT and OWNER for acceptance or rejection of the proposed CONTRACTOR.
 - a) If any portion of the NATURAL TURF ATHLETIC PLAYING FIELD scope of work will not be provided directly by the CONTRACTOR, provide the name of a single SUBCONTRACTOR for each of the subsystems referenced in Article 1.02.A of this Section. The SUBCONTRACTOR shall specialize in the scope of work to be performed and provide proof of three (3) or more sport field installation projects for which the work they intend to perform under this contract has been in use successfully for three (3) or more years.
 - b) Listing of employees to be used on this project and their experience level.
 - c) Listing of equipment proposed to use for construction.
 - d) Listing of special consultants necessary to complete the project.
3. Submit a detailed construction schedule for field installation, including grow-in period to the LANDSCAPE ARCHITECT and OWNER for review and approval.

B. SUBMITTALS REQUIRED AFTER AWARD OF CONTRACT

1. **Test Reports:** The following reports shall be scheduled and coordinated with the LANDSCAPE ARCHITECT and the OWNER's designated testing firm.

Field reports and testing requirements are specified in this Section. The submission of test data and reports shall be accomplished in an expeditious and timely manner to allow adequate time for review and re-testing, if necessary, and to allow sufficient time to approve all samples and proposed materials, prior to delivery of materials to the site and initiation of all playing field work. All costs associated with untimely test scheduling shall be the responsibility of the CONTRACTOR.

2. **Shop Drawings:** Submit shop drawings to the LANDSCAPE ARCHITECT, and Engineer of Record for approval. Submit Shop Drawings for approval of the associated field grading and drainage system design including layout and connections.

3. Material Certifications: Manufacturer's or vendors certified analysis for soil amendments, fertilizers and sod shall be submitted to the LANDSCAPE ARCHITECT and Engineer of Record.
4. Samples: Immediately upon notice to proceed submit multiple samples simultaneously to insure meeting this requirement. Re-submit any materials accepted as alternates in the pre-bid submittals. All phase one testing materials shall be submitted, tested and approved 21-days after Notice to Proceed for the playing field system subcontract. Submit samples of each of the following materials:

Fill Material: Provide a one-gallon sample of each 1,000-ton lot(s) of fill material for testing.

Sod: Submit a one square foot sample of the proposed sod with one inch of soil below the thatch layer.
5. Supplier List: Submit list of procured and contracted suppliers of all materials required for the Playing Field System no later than 21-days after Notice to Proceed for the playing field system subcontract. Contacts and phone numbers shall be included for verification.
6. Submit underdrain and grade verification survey, prior to sodding of the fields.
7. Grow in and Maintenance Procedures: Submit to the LANDSCAPE ARCHITECT the proposed grow in procedures including fertilization rates, watering rates, weed killers or other chemical applications, including rates for grow in and post grow in maintenance for approval.

1.04 QUALITY ASSURANCE

- A. Codes and Standards: Comply with all local, State and Federal rules, regulations and ordinances including but not limited to those which apply to sloping of excavation, trenching and safety of workers, as well as the latest version of OSHA requirements.
- B. The following publications of the issues listed below, but referred to thereafter by basic designation only, from a part of this specification to the extent indicated by the reference thereto:
 1. Florida State Plant Board Standards for Nursery Plants (latest edition).
 2. Florida Nurserymen and Growers Association, Approved Planting Practice.
 3. Bailey's Hortus Second.

4. State Department of Agriculture Regulations.

- C. Soil Testing and Inspection Service: The CONTRACTOR shall employ and pay for a qualified independent geotechnical testing and inspection laboratory to perform soil testing and inspection service during earthwork operations, the CONTRACTOR will provide necessary means to assure cooperation with testing firm.
- D. CONTRACTOR Testing and Verification: Agents representing the CONTRACTOR and OWNER shall be present during the preparation and packaging of samples from the processed sand, the sand and peat blend and the drainage material. Certification of this testing shall be submitted to the LANDSCAPE ARCHITECT.

The sample shall consist of cross-sections taken from the top, bottom, and sides of the stockpile. A one-gallon sample in a sealed plastic bag shall be packaged and shipped to the CONTRACTOR's testing firm.

- E. Project Schedule: Provide a bar chart project schedule that lists the types of work to be performed and length of time for each, including grow-in period.
- F. Materials Testing after Award of Contract: The CONTRACTOR shall schedule and coordinate the testing of all materials during construction including specified materials, materials previously accepted as alternates and materials pre-qualified during the pre-bid phase. Copies of the test reports shall be submitted to the LANDSCAPE ARCHITECT. The LANDSCAPE ARCHITECT reserves the right to contract with an independent testing agency to verify and confirm data at any time during the course of the Playing Field System installation. The CONTRACTOR shall assist and cooperate in obtaining samples for testing by the independent testing agency if requested. The OWNER shall pay for all required testing.

Testing shall be performed in the following phases:

1. Phase One - Materials Selection and Definition Prior to Construction:

The CONTRACTOR shall pay for all costs for subsequent testing required to gain approval of rejected materials, if needed.

- a) Root Zone Mix Testing: The root zone mix shall be evaluated using the most current USGA, United States Golf Association, testing protocol as a guideline. Soil tests will be randomly taken from the soils that will be utilized as the root zone profile, for each

field area. These tests will determine current pH, calcium, potassium, phosphorus and magnesium levels. The pH will be adjusted by incorporating dolomite limestone or elemental sulfur uniformly in the root soil profile, prior to planting.

The test results will establish the specifications for approval or rejection of all subsequent submittals during construction.

- b) **Root Zone Mix Formulation and Testing:** The CONTRACTOR shall produce a representative sample of the proposed root zone mix by using the defined ratio of approved processed sand and approved peat. The ratio of sand/peat shall be based on laboratory testing and performance criteria established by the specifications. The physical and performance characteristics of the sample developed by the CONTRACTOR's testing agent shall define the root zone mix.

The following are minimum standards for the root zone soil particle sizes:

- The root zone soils shall be made up of mostly well drained sandy soils,
 - The root zone soils should be free of roots, rocks, and other debris,
 - The majority of the soil particle sizes should be in the 0.5 to 0.25-diameter sieve (mm).
 - Organic content should be a maximum of 10% or less,
 - Total clay, silt, and very fine particle sizes should be less than 5%.
- c) Upon approval of the root zone mix the test results will establish the specifications for approval or rejection of all subsequent submittals during construction.
- d) **Nematode Testing:** The sod supplier shall show proof that nematode testing and/or treatment has been performed within the last two years prior to harvest. The supplier shall guarantee to the CONTRACTOR and the LANDSCAPE ARCHITECT that these tests and their data are reliable. If not, the CONTRACTOR's Testing Agent shall determine a nematode essay. Plant pathogenic nematode threshold shall be determined on the sod materials and growing medium. Plant pathogenic nematodes shall not exceed critical threshold values for sod or growing medium at time of delivery.

2. Phase Two - Quality Control Testing during Construction: The CONTRACTOR shall pay for all subsequent testing required to gain approval of rejected materials, if needed. ALL MATERIALS SHALL BE TESTED AND APPROVED BEFORE DELIVERY TO THE PLAYING FIELD SYSTEM SITE. The CONTRACTOR shall coordinate with and notify the LANDSCAPE ARCHITECT and the CONTRACTOR's testing firm when testing samples are scheduled to be taken. Materials that are approved for delivery and materials to be tested are to be stored separately from other soil sources. The LANDSCAPE ARCHITECT reserves the right to conduct random sampling and/or independent testing at any time during the field installation.
- a) Root Zone Mix Testing: Processed peat shall not be mixed with any sand until the OWNER's testing firm has approved the particle size distribution and determined that the peat and sand materials are uniform and representative of the approved samples per Phase One Testing Requirements. After approval of the Phase One root zone components and mix, the CONTRACTOR prepares the processed sand in lots of 1000 tons.
 - b) Fertility Testing During Maintenance Period: If determined to be required by the LANDSCAPE ARCHITECT, the OWNER shall assign a local testing laboratory(s) to be used for soil and tissue tests during the maintenance period. Soil and/or tissue samples may be submitted for testing of the installed grass material through substantial completion. The local testing laboratory shall make recommendations to the CONTRACTOR for fertilizer ratios and rates and application of macro and micronutrients during the maintenance period. Copies of this report shall be submitted to the LANDSCAPE ARCHITECT and CONTRACTOR.
 - c) Sod Supplier Grow-in Program: Upon approval of a grass material submit to the LANDSCAPE ARCHITECT the location of the sod supply from which the sod will be harvested. The Sod Supplier shall submit to an on-site inspection of the area to be used as the material source. During the grow-in and harvest period, the LANDSCAPE ARCHITECT shall be allowed to inspect the source at any time.
 - d) The Sod Supplier shall submit a grow-in schedule for the playing field turf including but not limited to:
 - Watering
 - Fertilization (rates, ratios)
 - Weed Control
 - Pest Control
 - Mowing

- e) Sod Harvesting Procedure: Uniformity of cut is required. Sod shall be big roll cut in approximate widths of greater than or equal to 30 inches and minimum lengths of 50 feet having 3/4 inch of topsoil below thatch layer across the width and length of each section. Thickness and width shall be kept to strict dimensions. Edges shall be cut at 90-degree angles to provide for tight fit during installation.

The LANDSCAPE ARCHITECT may reject sod not meeting specifications as determined by their sole judgment.

1.05 JOB CONDITIONS

- A. Site Information: Data in subsurface investigation reports was used for the basis of the bid process and is available to the CONTRACTOR for information only. Conditions are not intended as representations or warranties of accuracy or continuity between soil borings. CONTRACTOR will be responsible for interpretations or conclusions drawn from this report.

Additional test borings and other exploratory operations may be performed by CONTRACTOR, at the CONTRACTOR's option; however, no change in the Contract Sum will be authorized for such additional exploration.

- B. The OWNER will allow access to the Project Site by way of existing roads within the park. The CONTRACTOR shall coordinate with the OWNER's representative and schedule all use of the roads to accommodate the requirements of the park's operations. Such coordination may include, but shall not be limited to:
 - 1. Restricting times the access drives may be available for construction.
 - 2. Restricting CONTRACTOR's hours of operation.
 - 3. Restrictions which may be required by emergency services.
 - 4. Noise and dust control.
 - 5. Frequency of pavement cleaning.
 - 6. Restricting areas for parking or storage of CONTRACTOR's vehicles, equipment, and materials.
 - 7. Special project safety requirements.
 - 8. Maintenance responsibilities and coordination.

- C. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- D. Existing Bench Marks: Carefully preserve and maintain existing benchmarks, vertical/horizontal control, monuments, property line pipes and pins, and other reference points. If disturbed or destroyed, restore or replace at no additional cost to the OWNER.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. Root Zone Mix: Blend approved root zone materials at an approved location that is not at the Playing Field System site. Deliver approved lots in clean, washed and covered trucks to eliminate contamination during transportation. Stockpile of material on site shall be coordinated with the OWNER and placed in an area free of contamination such as low, wet and/or refuse areas if Playing Field System area is not available.
- C. Sod: All sod shall be transported and planted at the site within twenty-four (24) hours after cutting. Sod cutting and shipping shall be coordinated with the sod installers. Sod must be in a moist condition at the time of cutting and kept in a moist condition until it is placed. Transport sod in either a closed van or in open truck properly covered to prevent windburn, drying, or damage to sod.
- D. Plant material must be acceptable at the time of planting and approved by the LANDSCAPE ARCHITECT.
- E. Disposal of Surplus Material: Surplus and waste materials resulting from sodding operations shall be legally disposed of by the CONTRACTOR off-site.

1.07 COMPLETION DATES/OBSERVATIONS

- A. Completion of the work is defined as the full and exact compliance and conformity with the provisions expressed or implied in the drawings and specifications, and associated change orders.
- B. The acceptability of all material, workmanship, labor and compliance with the specifications, grades and standards is to be solely determined by the LANDSCAPE ARCHITECT.

- C. Right to Reject: The LANDSCAPE ARCHITECT has the right, at any stage of the work, to reject any and all work and materials which, in their opinion, does not meet the requirements of the plans and specifications. Rejected material shall be immediately removed from the site and acceptable material substituted in its place.
- D. General: Field completion and observations shall be separated into 2 phases, "Initial Completion" and "Substantial Completion."
1. Initial Completion: Scheduled date for Initial Completion shall be no later than one month before Playing Field System Substantial Completion. The CONTRACTOR shall notify the LANDSCAPE ARCHITECT in writing, 7 days prior to scheduling the date for the "Initial Completion" field review. A punch list of items shall be provided in written form and must be completed before the Playing Field System will be considered as "Initially Complete". To be considered "Initially Complete" the following items shall be provided:
- a) Rough grading completed.
 - b) Root zone mixture in place or incorporation of soil amendments are compacted and to grade.
 - c) Pre-plant dolomite and fertilizer incorporation into the top 10-12 inches of root zone profile.
 - d) Rough laser grade of field surface.
 - e) Irrigation system installed, tested, and adjusted.
 - f) Fumigation with Methyl Bromide (if specified).
 - g) Final laser grade to 0.5-inch of specification by survey.
 - h) Certified sod areas laid, seams tight, joints filled.
 - i) Topdress entire turf surface with same root zone mixture that the fields were built from, or USGA sand, twice before "Substantially Complete" or "Playable" condition.
 - j) Roll entire turf surface with a maximum of two (2) -ton double steel drum roller.

2. Substantial Completion: The CONTRACTOR shall notify the LANDSCAPE ARCHITECT in writing, 7 days prior to scheduling a date for the "Substantial Completion" field review. This date shall occur at least one week prior to the Substantial Completion date set for the entire project. To be considered "Substantially Complete" or "Playable" the following items shall be provided:
- a) All "Initial Completion" punch list items are complete.
 - b) Grow-In Log compiled in a loose-leaf 3-ring binder detailing all work done on fields from installation through Substantial Completion. Log shall include product information sheets and manufacturer's representatives contacted with phone numbers.
 - c) In addition to top dressings as required for "Initial Completion" a minimum of one top dressing performed on total field turf surfaces.
 - d) Root depth of 3-1/2 inch averaged over the entire field as determined by eight (8) core samples equally representative of the field areas as determined by the LANDSCAPE ARCHITECT.
 - e) Absence of all joints and cracks in sod installation as to appear "seamless."
 - f) Dense, green, consistent turf void of any bare or patchy areas. Smooth, level playing surface compacted and level to grading tolerances.
 - g) Written warranties/guarantees.
 - h) Turf maintained at a height of 3/4 inch to one inch mowed with reel-type equipment.
 - i) Insect and weed free turf. No off type bermudagrass (common) or torpedo species.

1.08 WARRANTY/GUARANTEE

- A. General: Warranties/Guarantees specified in this Article shall not deprive the OWNER of other rights it may have under other provisions of the Contract Documents and are in addition to and run concurrent with other warranties/guarantees made by the CONTRACTOR under requirements of the Contract Documents.

1.09 FIELD GROW - IN MAINTENANCE

- A. General: Perform all operations necessary to maintain the Playing Field System through the date of Substantial Completion. The grow-in of the bermudagrass will not stop after the initial grow-in period is completed. Minimum grow-in will be 12-weeks for sodded fields. However, LANDSCAPE ARCHITECT inspection shall identify project completeness and field playability. At that time an extended maintenance agreement may or may not be negotiated at the OWNER's request. CONTRACTOR shall be onsite to direct all field subcontractors during this period.
- B. Grow In Schedule: Project schedules should be adjusted to maximize seasonal effects for the grow-in period. Bermudagrass is a warm season grass and grows more aggressively when temperatures are well above 60 degrees, and the length of daylight is longer. Depending upon project schedule, increased rate and fertility applications may be approved by the LANDSCAPE ARCHITECT to counteract the effect of shorter and cooler days in the project schedule.
- C. Minimum Requirements: The following list of items represents the minimum operations necessary to maintain the fields during the installation period. Prepare and present to the OWNER and LANDSCAPE ARCHITECT in writing a maintenance schedule prior to installation for consideration. Representative schedule items shall include, but not be limited to the following:
1. Mowing: Turf shall be maintained to a neat uniform appearance using only reel-type, clean, sharp, non-contaminated equipment. Turf shall be maintained to a height of 3/4 to 1 inch during Initial and Substantial Completion. Remove grass clippings only when an unsightly condition will occur. Frequency will be dependent on the removal of no more than 1/3 of the blade height at any one time to maintain the desired turf height. Mowing pattern shall vary with each cut.
 2. Rolling: The turf field shall be rolled in two directions on initial planting of the sod. Care shall be taken not to damage irrigation heads. Additional rolling shall, be accompanied by additional aerification operations. Two (2) -ton rollers maximum.
 3. Top Dressing: In addition to the initial top dressing during the sod installation to fill in gaps between sod, two (2) lifts of 1/8 to 1/4 inch will be required using the same root zone mix as specified previously. Additional top dressing as required to ensure a smooth and safe playing surface may be required. Care shall be used to avoid smothering sod. A minimum of one top dressing shall occur prior to both Initial Completion and Substantial Completion.
 4. Sod Replacement/Patching: Certified sod of the same type and source shall be used when necessary. All patches shall be a minimum of 12 inches in width and length when using sod.

5. Verticutting/Slicing: The newly sodded field shall be verticut at a time if and when determined during the grow-in period by the LANDSCAPE ARCHITECT and CONTRACTOR to be beneficial to the grass. All loose material created by this operation shall be removed from the playing field and disposed of.
 6. Sod Fertilization: Four days after sod installation the CONTRACTOR shall apply by spray, Panasea Plus, a liquefied sea plant extract at 4 ounces per 1000 square feet. Apply an additional application every 5-7 days. One week after the installation of the sod and the initial fertilization, apply one half pounds of N of Scott's product 8420 (9-0-32) or equivalent per 1000 square feet every 5-7 days until rootzone surface is stabilized and turf clippings are able to be collected. At that time take soil and tissue samples and submits to the testing laboratory assigned by the OWNER's testing firm for results. The results and recommendations shall be submitted to the OWNER for consideration and approval. An appropriate fertilizer and rate shall be applied as recommended by the fertility tests throughout Substantial Completion. Both granular and liquid fertilizers can be used.
- D. Pesticide Application: All treatments will comply with local and state codes. Utilize only commercially licensed personnel and applicators to perform these operations. Treatment shall be made according to the needs of the field as determined by the LANDSCAPE ARCHITECT and CONTRACTOR.
- E. Weed Control: Three to four weeks after planting the weed control program should begin only if the bermudagrass has greened up, rooted and begun to spread. The root zone mix shall contain adequate moisture prior to any herbicide application. Do not spray on a day when the temperature is expected to exceed 90 degrees Fahrenheit. Follow all safety procedures, read all labels and properly calibrate all equipment.

Broadleaf weeds (i.e. such as clover, mouse ear, chickweed, dandelion, pennywort and carolina geranium) can be controlled by using a 2,4-D product such as Trimec at label rates. Repeat after 7 days if desired results are not achieved.

Grassy type weeds (i.e. such as crabgrass, goosegrass and nutsedge) can be treated with a product such as Monosodium Methanearsonate (MSMA) at a rate of one to two pounds active ingredient per acre. Repeat the application every 10 to 14 days until the desired results are achieved.

Other products types maybe utilized if pre-approved by LANDSCAPE ARCHITECT and OWNER.

- F. Irrigation System: The system shall be adjusted on a continual basis as necessary to maintain specified coverage. Heads shall be adjusted to elevation when necessary. All repairs to lines, valves, heads, field mixes shall be performed in a timely manner repairing to the previous condition and specifications. Heads shall be cleaned as necessary to insure full pop-up and flush lowered positions.
- G. Irrigation Frequency: Watering duration for the first 14-21 days after sodding is critical to the success of the grow-in procedure. The root zone soil must be kept damp at all times in order to grow new sprigs, to initiate roots, and establish quickly. The CONTRACTOR shall provide continual daylong observation during daylight hours, night watering is not necessary, if the root zone is saturated during the daylight. The top 2-4 inches of soil should not be allowed to dry out during the entire twelve-week grow-in period. Watering should be adjusted if rainfall events occur. The controller shall be set for appropriate watering intervals with adequate instructions to the OWNER.
- H. Grow-In Log: Record a daily log of all maintenance activities performed on the field through Substantial Completion. Log shall include list of all pesticide labels and rate of application used. The log shall also include a detailed record of agridrain weir positions and run times of both the surface and subsurface irrigation systems. These daily records shall be submitted to the OWNER and LANDSCAPE ARCHITECT on a weekly basis through Substantial Completion.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MATERIALS

2.02 SOIL MATERIALS

General: All fill material, regardless of intended use category, shall be clean and free from organic matter, roots, brush or other vegetation, trash, debris or other detrimental substances, and rocks or unbroken lumps larger than 3 inch, and shall be tested and approved by the soil testing and inspection agency prior to delivery and placement.

Trench Backfill: Existing soils obtained from Playing Field System excavations, excluding broken and pulverized weathered bedrock.

Unacceptable Soil Materials: Existing onsite material or asphalt materials not suitable for fill.

2.03 GROWING MEDIUM MATERIALS AND MIXES

- A. Root Zone Mixture: Provide an 80% sand/ 20% peat mix with an organic range of 0.80 percent organic matter on a dry weight basis. Percentage of peat in the sand-peat mix shall be as determined through laboratory testing using performance criteria as outlined under Root Zone Mixture Performance and Testing.

THE CONTRACTOR WILL REVIEW THE FOLLOWING MATERIAL AND PERFORMANCE REQUIREMENTS WITH THE CONTRACTOR'S TESTING FIRM.

1. Processed Sand: The sand shall be non-calcareous, clean and processed and meet the following particle size criteria. Calcareous sand meeting the following criteria will be acceptable only if proven that a local source within a 100-mile radius cannot be found to supply non-calcareous material meeting the following criteria.

Size	Sieve MESH	Diameter of Sieve (mm)	Allowable Range Percent Retained
Gravel	10	2.00	less than, equal to 3%
Very Coarse	18	1.00	less than, equal to 7%
Coarse	35	0.50	at least 60% particles in this range
Medium	60	0.25	
Fine	100	0.15	20% maximum
Very Fine	270	0.05	5% maximum
Silt		0.002	5% maximum
Clay		less than 0.002	3% maximum

No more than 10% including 3% fine gravel combined for sieve meshes 10 and 18. Minimum of 80% combined fractions for sieve meshes 35, 60 and 100. Combined fractions no more than 10% for material less than or equal to 0.05 in size.

2. Processed Peat: Canadian Peat shall be free of sticks, stones and other debris and comply with the following:

Parameter	Specifications
Total ash	15% or less
pH	6.5 to 7.5
% Moisture	30 to 50%
Sieve Size	% Passing
2.0 mm	95-100
1.0 mm	Greater than 80

Florida peat is not acceptable.

3. Root Zone Mixture Performance and Testing: United States Golf Association (USGA) physical evaluation protocol. Water retention shall be 30 cm tension. Tests shall determine compliance with specified mixing ratio and provide calibration data for the quality control program.

Tests shall comply with the following criteria on a core compacted to 14.3 ft. - lb./inches squared:

Test Requirement	Performance
Infiltration Rate inches/hour	10 to 14
Bulk Density, grams/cc	1.2 to 1.6
Total Porosity, percent	35 to 55%
Saturation percentage @ 30 cm Tension	35 to 65%

Peat content will be verified using the Walkley-Black organic matter determination process.

4. Admixtures: The OWNER's testing firm shall propose inorganic admixtures to improve water retention of the root zone mix if the need is indicated by test results. The pH reaction of the root zone mix shall be adjusted to pH 5.5 - 6.5 by either adding sulfur or by adding dolomitic agricultural limestone as needed according to test results.

2.04 SOD AND GRASS MATERIALS

- A. Sod: Celebration Bermuda shall be used. Sod shall be grown in a sand based soil medium similar to the root zone mixture specified in this section. Sod shall be 9 - 12 months old; machine stripped to a uniform thickness of 3/4" soil below thatch layer no more than 24 hours prior reinstallation, free of objectionable grasses and broad-leafed weeds.

Sod shall be big roll cut in industry standards not less than 30 inches in width and minimum lengths of 50 feet. Sod not displaying the specified soil medium shall be accepted at the sole discretion of the LANDSCAPE ARCHITECT.

- B. Sod Not Grown in the Specified Soil Medium: At the sole discretion of the LANDSCAPE ARCHITECT sod not grown in the specified soil medium may be accepted if it can be thoroughly proven that the specified material cannot be found within a 250-mile radius. At no cost to the OWNER the following additional requirements apply to sod grown in a non-specified soil medium:

Soil medium shall be a free draining material acceptable to the OWNER's representative in particle size and soil characteristics. Sample(s) shall be submitted to the LANDSCAPE ARCHITECT.

Aerate the sod installation after Substantial Completion, remove all cores, and top dress with a tested and approved root zone mix at a time within the warranty period that the OWNER deems appropriate for the health of the sod. This will be in addition to the top dressings required during installation of the field through Substantial Completion.

SOD

- A. Bermuda sod shall be specified on the Landscape Drawings.
- B. Pad Size: Cut individual pieces of sod 30-inch width and 50-foot length. Maximum allowable deviation from standard widths and lengths shall be five percent (5%). Extensively broken pads and torn or uneven ends will not be acceptable.
- C. Strength of Sod Sections: Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10 percent (10%) of the section.
- D. Moisture Content: Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
- E. Time Limitations: Sod shall be harvested, delivered and installed within a period of 24 hours.
- F. Class of Sod and Composition: The sod used shall be as specified on the plans; nursery grown and well rooted. Each shipment shall be accompanied by a certification verifying the sod as specified. Sod shall be subject to review by the LANDSCAPE ARCHITECT prior to being cut and again before it is laid. The consistency of adherent soil shall be such that it will not break, crumble, or tear during handling and placing of the sod.
- G. Each piece of sod shall be well covered with turf grass, free from noxious weeds and other objectionable plants and shall not contain thatch quantities or substances injurious to growth. The grass shall be mown to a length of no less than 1½-inch nor more than 2½-inches before the sod is cut.
- H. Comply with state and federal laws with respect to inspection for plant diseases and insect infestation. An inspection certificate to this effect is required by law and shall accompany each shipment and on arrival shall be filed with the LANDSCAPE ARCHITECT.
- I. Thickness of Cut: Machine cut sod at a uniform soil thickness of three-fourths inch ($\frac{3}{4}$ "), plus or minus one-fourth inch ($\frac{1}{4}$ "), at the time of cutting. Measurement for thickness excludes top growth and thatch.

PART 3 - EXECUTION

3.01 EXAMINATION AND PROTECTION

- A. Verification of Conditions: Examine areas and conditions under which all work of this Section is being performed. Do not proceed with any work until unsatisfactory conditions have been corrected. Commencement of work implies acceptance of all areas and conditions.
- B. Protection of Work: Protect all on-going work, so as not to delay work due to weather or project related construction. This includes but is not limited to the use of tarps, geotextile, plywood, and other protective measures.
- C. Protection of Persons and Property: Provide all necessary measures to protect workmen and passersby. Barricade open excavations occurring as part of the work, as required by municipal or other authorities having jurisdiction.

Protect adjacent construction throughout the entire operation. Protect newly graded areas from destruction by weather or runoff. Protect structures, utilities, pavements, and other improvements from damage caused by settlement, lateral movement, undermining, and washout.

- D. Unanticipated Conditions: Notify the LANDSCAPE ARCHITECT immediately upon finding evidence of previous structures, filled materials which penetrate below designated excavation levels, or other conditions which are not shown or which cannot be reasonably assumed from existing surveys and geotechnical reports. Secure the written instruction and approval before proceeding with further work in such areas.

3.02 EARTHWORK EXECUTION

- A. General: Remove material of every nature or description encountered in obtaining required lines and grades. Excavate and/or place and compact fill to provide for elevation(s) required by Drawings. Excavation is all considered unclassified and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.

Conform to elevations and grades required within a tolerance of plus or minus one-half inch ($\frac{1}{2}$ ") in 50 feet either direction.

3.03 PLACEMENT AND COMPACTION OF SOIL MATERIALS

- A. Remove all debris, brush, large roots, weeds, and old tree stumps. If extensive grading is needed, remove topsoil and stockpile it for replacement after the rough grade is established. Rough grade should conform to final grade after topsoil is replaced. (See Earthwork Section for required soil preparation in regards to deleterious material.) Replaced topsoil will be sifted as specified.

- B. Drainage Fill: Shape surface of areas under root zone mixture to line, grade, and cross-section, with finish surface not more than one-half inch ($\frac{1}{2}$ ") in 50 feet either direction above or below required subgrade elevation. Avoid over compaction by utilizing rubber-tire machinery as soon as practical.
- C. Grade Verification: Verify grades established during final site preparation as being true to finish contours shown, and maintain such areas until the effective date to begin sodding operations. In such instances where a split responsibility exists between grading and sodding contractors, it shall be the responsibility of the sodding CONTRACTOR to maintain a suitable grade for sodding once they have accepted the grade provided to him. A certified survey verifying compliance with Contract Documents shall be performed at 50-foot centers to verify grade and elevation of the subgrade. Submit copy of surveyor's certification, signed and sealed, to LANDSCAPE ARCHITECT prior to sodding the field.

3.04 PLAYING FIELD ROOT ZONE MATERIAL INSTALLATION

- A. Root Zone Mixture: Every load of root zone mix delivered to site or mixed onsite shall be visually inspected for excessive contamination and obvious clumps of peat not properly ground into the blend. If samples appear to be contaminated or visually different from a uniform blend, a sample shall be sent to the CONTRACTOR's Testing Agent for testing.

Apply the root zone soil mixture over the completed field irrigation system to the depth and finish grades indicated on the drawings. Material shall be installed in a moist condition. Root zone mixture shall be installed within one-half inch ($\frac{1}{2}$ ") in 50 feet either direction plus or minus of elevation shown on Drawings when compacted except where shown flush to adjoining conditions per the Drawings. CONTRACTOR shall move the root zone mix from the stockpile in such a manner that contaminated materials are not tracked onto the field from the tracks or tires. If determined by the OWNER that contamination is occurring; onsite samples will be taken and tested by an independent Testing Agent at the expense of the CONTRACTOR. Any contamination or over compacted conditions will require immediate action by the CONTRACTOR to satisfy the intent of the specifications.

- B. Compaction of Root Zone Mix: Operate the irrigation system and thoroughly flood the field. Fill all low spots to finish grade with root zone mix and water in. This process shall be repeated as required to bring field to finish grade specifications and tolerance forming a smooth, firm surface. Finish grades and

material depths shall be verified utilizing laser operated survey instruments. Machinery with turf type tires should be used whenever practical. If roller is used to obtain field grade, surface shall be scarified prior to laying sod. Field compaction shall not exceed bulk density as performed in laboratory testing.

- C. Grade Verification: A certified survey shall be performed at 50 foot centers to verify that base grade before installation and grade elevation of the root zone mix material after compaction is in compliance with the requirements of the Contract Documents.

3.05 SOD INSTALLATION

- A. Perform a soil analysis on each area to be sodded and shall include a lime requirement analysis if pH is below 6.2. If fill material is to be brought in, it must be tested prior to delivery to the site. Obtain a representative soil sample by collecting samples from ten (10) locations in the area from the top six inches (6") of soil. Samples shall be combined and thoroughly mixed. Submit a portion for analysis at a Soil Testing Laboratory approved by the LANDSCAPE ARCHITECT with a copy of the testing results given to the LANDSCAPE ARCHITECT for approval. The acceptable pH range shall be 6.2 – 7.2. CONTRACTOR shall pay for this testing.
 - 1. If the soil is too acidic (pH too low), dolomite limestone (dolomite) shall be used for increasing soil pH. Application shall be based on a lime requirement analysis which considers both soil buffering capacity and soil pH value.
 - 2. If the soils is too alkaline (pH too high), a water degradable form of sulfur shall be used for decreasing soil pH. Application shall be based on soil analysis.
- B. Pre-installation Fertilization: Immediately prior to laying sod and after compaction of the root zone mix is complete, the following fertilization shall occur:
 - 1. Incorporate into the upper 4 inches (4") of the root zone mix a fertilizer with the following ratios:
 - 3.8 pounds N (40% soluble, 60% slow release)
 - 6.5 pounds of P205
 - 6.5 pounds K20
 - 2. Just prior to sprig installation an additional application of 10-20-30 at 500 lbs. / acre rate shall be applied to the soil surface.
- C. Laying Sod: The entire area shall be approved by the LANDSCAPE ARCHITECT prior to laying sod. Areas to receive sod shall be firm and the irrigation and drainage system shall be fully operational. Lay sod within 24 hours from time of stripping. Sod not placed within 24 hours may be rejected.

- A. Sodding Time: Place sod when the ground is in a workable condition and temperatures are less than 90 degrees Fahrenheit (when possible). Sod shall not be placed during extended drought, unless irrigation is available.
- B. Sod cut for more than 24 hours shall not be used without the concurrence of the LANDSCAPE ARCHITECT. Keep all sod moist and protected from exposure to sun, wind and freezing prior to placing.
- C. Moistening the Soil: During periods of high temperature and after all unevenness in the soil surface has been corrected, lightly irrigate the soil immediately prior to laying the sod.
- D. Starter Strip: Lay the first row of sod in a straight line with subsequent rows placed parallel to and tightly against each other. Stagger lateral joints to promote more uniform growth and strength. Exercise care to insure that the sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air-drying of the roots.
- D. Water sod immediately after installation to prevent excessive drying during progress of the work. CONTRACTOR will be responsible for watering sod through Final Acceptance.
- E. Finished Transitions: At no time will backs of curbs or gaps in transitions (i.e., walks, beds, structures, etc.) be accepted. All transitions will be horizontally and vertically smooth and congruent with adjacent transitions. Cut all buds with a machete or similar tool to provide a neat, uniform, and consistent bedline. Bedlines shall reflect the shape and form indicated on the Drawings and shall be laid to the satisfaction of the LANDSCAPE ARCHITECT.
- F. Lay sod to form a solid mass with tightly fitted joint. Overlap all ends and trim to butt right. Butt sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards when necessary to avoid damage to subgrade. Tamp or roll lightly to ensure contact with subgrade.
- G. Patching: All patches necessary to fill in undesirable areas shall be of a minimum size of 12 inches in length and width. Patches shall be of the same source and type as the original installation and shall be installed at specified finish grade and watered in firm.
- H. No equipment or vehicles shall be allowed to travel over the sodded areas after sodding by CONTRACTOR on the job site.
- I. Top Dress Sod Field: If sod has been approved by the LANDSCAPE ARCHITECT after laying and rolling of sod, fill joints and seams with approved root zone mixture. Broom or sweep excess material to avoid smothering turf. Sod areas requiring more than 0.25-inch of top dress to meet specified grade shall be

lifted. Root zone mix shall be added below the sod area and thoroughly compacted prior to the re-installation of the sod area. Thoroughly walk all seams to verify that all have been filled and that all low or irregular areas have been brought to specified grade tolerances.

3.06 ESTABLISHMENT WATERING OF SOD

- A. General: Begin irrigation as sod is completed in any one section and water to a depth of four inches (4") below the new sod pad. After a short drying period, roll the sod area in two (2) directions to ensure contact with soil mixture and to smooth the area. Water sod areas, as required, through Substantial Completion and until OWNER takes possession. Adjust irrigation heads as required for spray pattern and depth to finish grade.

3.07 FIELD LAYOUT INSTALLATION

- A. General: Layout of the field and all painted lines and logos shall be by the Design/Builder following Substantial Completion and acceptance of the playing fields by the LANDSCAPE ARCHITECT.

3.08 FIELD QUALITY CONTROL

- A. Quality Control During Construction: Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed.
- B. Subgrade Material: One test for every 5000 square foot of compacted subgrade material, or major fraction thereof, but in no case less than two (2) tests for each day's work.
- C. Acceptance of Sod: At the end of each day, the LANDSCAPE ARCHITECT shall inspect in place material for conformance with requirements. Unacceptable sod areas shall be removed immediately from the site and replaced the following workday. This preliminary acceptance does not guarantee final acceptance at Substantial Completion.
- D. Grass Root Depth: Sod shall display a minimum average of roots 3-1/2 inch in depth prior to acceptance of Substantial Completion.
- E. Grade Verification: A certified survey shall be made of the as-built condition of the subgrade and installed sod layers for conformance to specified elevations.

3.09 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Remove waste materials, including materials not allowed for fill, backfill or site grading as specified within, trash, and debris, and properly dispose of it off property at CONTRACTOR's expense.

3.10 INSPECTION AND ACCEPTANCE

- A. When the Play Field System installation work is completed, including maintenance, LANDSCAPE ARCHITECT will make inspection with CONTRACTOR to determine acceptability.
 - 1. The playing surfaces have complete healthy bermudagrass coverage with no bare areas or weeds (less than 1%). This includes Common Bermudagrass or other off-type grasses, other than Celebration Bermudagrass.
 - 2. The playing surfaces should be free of any insect damage.
 - 3. The final grade verification (+ or - 1/2") of the fields will be verified by survey and match field specifications.
 - 4. Random sampling of root depth on the bermudagrass playing surfaces will be a minimum of 3-1/2" at the time of acceptance.
- B. All work may be inspected for acceptance in portions as agreeable to LANDSCAPE ARCHITECT, provided each portion of work offered for inspection is complete, including maintenance.
- C. When inspected work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by LANDSCAPE ARCHITECT and found to be acceptable. Remove rejected materials promptly from the project site.

3.11 WARRANTY

- A. The CONTRACTOR as part of their contract, shall furnish three (3) written guarantees warranting all materials, workmanship, and products for a period of not less than 60 days from the time of Final Acceptance.
- B. The CONTRACTOR will repair all washouts that occur within the warranty period at no additional cost to the OWNER.

END OF SECTION 10002

**PART III – TECHNICAL SPECIFICATIONS
(CONCESSION BUILDING)**

SECTION 01100 - SUMMARY OF WORK**PART 1 - GENERAL****1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Project consists of the development of new little league fields and concession, restroom & scoring booth building.
 - 1. Project Location: Blackstone Park, City of Palmetto, Florida.
 - 2. Owner: Manatee County
- B. Architect Identification: The Contract Documents, dated **February 22, 2013**, were prepared for Project by Fleischman and Garcia Architects and Planners, AIA PA. – 5967 Cattlemen Lane, Suite 6, Sarasota, Florida 34232.
- C. Project Coordinator: -.

1.03 CONTRACT

- A. Project will be constructed under a general construction contract, with one bid number issued for:
 - 1. Blackstone Park Concession Building: Approx. 2,000 SF Building, 1,230 SF at ground floor, 770 SF at second floor scoring booth.

1.04 WORK SEQUENCE

- A. The Work shall be conducted in one phase as illustrated in the Construction Documents.

1.05 USE OF PREMISES

- A. General: Contractor shall have limited use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited only by Owner's right to perform work or to retain other contractors on portions of Project. Contractor staging, storage, and job trailer location shall be finalized at a Pre-Construction conference and as required by authority having jurisdiction. Keep driveways and entrances clear at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize requirements for on site storage of materials. No work shall commence before 7:00 a.m. or proceed after 7:00 p.m. on any day.

1.06 PARTIAL OWNER OCCUPANCY

- A. The Owner reserves the right to occupy, and place and install equipment, in completed areas prior to Substantial Completion provided such occupancy does not interfere with completion of the Work. Placement of equipment and partial occupancy shall not constitute acceptance of total Work.
1. A Certificate of Substantial Completion will be executed by the Architect for the Work occupied prior to Owner occupancy after the Construction Manager (Contractor) punch list has been reviewed and clarified by the Architect and Owner.
 2. Obtain a Certificate of Completion from local building officials prior to Owner occupancy.
 3. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall be fully operational, and Owner shall be trained in the use and maintenance of facility systems by the Contractor. Required inspections and tests shall have been successfully completed. Upon occupancy, the Contractor will provide operation and maintenance of mechanical and electrical systems during a 1 year warranty period. Owner will take over O&M after the 1-year period.

1.07 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 2004 CSI/CSC's "MasterFormat" numbering system.
1. Section Identification: The Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

END OF SECTION 01100

SECTION 01150 - FIELD ENGINEERING**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for field engineering services, including, but not necessarily limited to the following, including civil engineering:
 - 1. Site lay-out work of all improvements: sports fields and required surface, utilities, improvements, walkways, boardwalk repairs, lighting, etc.

PART 2 - PRODUCTS (Not Applicable)**PART 3 - EXECUTION****3.1 EXAMINATION**

- A. The Contractor shall identify existing control points and property line corner stakes.
- B. Verify layout information shown on the Drawings, in relation to the property survey and existing benchmarks before proceeding to lay-out the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.
 - 1. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.
 - 2. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.
 - 3. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
- C. Existing utilities and equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction.
 - 1. Prior to construction, verify the location and invert elevation at points of connections of sanitary sewer, storm sewer and water service piping.

3.2 PERFORMANCE

- A. Working from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.
 - 1. Advise entities engaged in construction activities of marked lines and levels provided for their use.
 - 2. As construction proceeds, check every major element for line, level and plumb.

- B. Surveyor's Log: maintain a surveyor's log of control and other survey work. Make this log available for reference.
 - 1. Record deviations from required lines and levels, and notify the Architect, engineer and the owner's representative, when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and/or not corrected.
- C. Site Improvements: Locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes and invert elevations by instrumentation and similar appropriate means.
 - 1. Contractor shall be responsible for providing an as-built survey for all sanitary and stormwater- related site improvements. As-built survey shall be prepared and certified by a Florida registered land surveyor and shall include, at a minimum, all invert elevations, slopes, pipe sizes, top of structure elevations, and inlet elevations. Submit survey to Architect prior to Substantial Completion.
- D. Building Lines and levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels and control lines and levels required for mechanical and electrical work.
- E. Existing Utilities: Furnish information necessary to adjust, move or relocate existing structures, sports drainage systems, underground service lines, utility poles, lines, services or other appurtenances located in, or affected by construction.

Coordinate with local authorities having jurisdiction (AHJ).

END OF SECTION 01050

SECTION 01330 - SUBMITTAL PROCEDURES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's and Construction Manager's responsive action.
- B. Informational Submittals: Written information that does not require Architect's and Construction Manager's approval. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Single instance electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect and its consultants for Contractor's use in preparing submittals after the Preconstruction Conference. Release forms may be required to be signed by the Contractor. Subsequent requests for CAD Drawings are not included.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
- a. Architect and Construction Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal.
 - 1. Initial Review: Allow 10 working days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Concurrent Review: Where concurrent review of submittals by Architect's consultants, Owner, or other parties is required, allow an additional 5 working days for initial review of each submittal.

3. If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Allow 10 working days for processing each resubmittal.
 5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Identification: Utilize General Contractor's standard submittal routing sheet.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect and Construction Manager.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name; Date.
 - b. Name and address of Architect and Construction Manager.
 - c. Name and address of Contractor.
 - d. Name and address of subcontractor; Name and address of supplier.
 - e. Name of manufacturer.
 - f. Unique identifier, including revision number.
 - g. Number and title of appropriate Specification Section.
 - h. Drawing number and detail references, as appropriate; other necessary identification.
- E. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals. If deviations are not identified, subcontractor must provide work as specified.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect or Construction Manager observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect and Construction Manager.
 2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using the Architect's routing form. Architect and Construction Manager will discard submittals received from sources other than Contractor.
1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect and Construction Manager on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
 2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
 3. Transmittal Form: Provide locations on form for the following information:
 - a. Project name; Date.
 - b. Destination (To:).
 - c. Source (From:).
 - d. Names of subcontractor, manufacturer, and supplier.
 - e. Category and type of submittal.
 - f. Submittal purpose and description.
 - g. Submittal and transmittal distribution record.
 - h. Remarks; Signature of transmitter.

- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, and installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Submittal Format:

Contractor shall after his review;
 - a. Provide submittals to designated individual at Architect's office that do not require raised seal(s) in *.pdf format. *.pdf submittals shall be routed and returned electronically by Architect.
 - b. Required Raised seal submittals shall be submitted non-electronically to designated individual at Architect's office. Quantity shall be determined at Preconstruction Conference.
 - c. Samples (3) shall be submitted non-electronically to designated individual at Architect's office.
- J. Use for Construction: Use only final submittals with mark indicating action taken by Architect and Construction Manager in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 - 1. Number of Copies: in addition to determined quantity of submittals, retain one returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operating and maintenance manuals.
 - k. Compliance with recognized trade association standards.
 - l. Compliance with recognized testing agency standards.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.
 - i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
- D. Samples: Prepare physical units of materials or products, including the following:
 1. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 2. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Architect's sample where so indicated. Attach label on unexposed side that includes the following:
 - a. Generic description of Sample.
 - b. Product name or name of manufacturer.
 - c. Sample source.
 4. Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, provide the following:
 - a. Size limitations.
 - b. Compliance with recognized standards.
 - c. Availability.
 - d. Delivery time.
 5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three sets of paired units that show approximate limits of the variations.

- b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, and details of assembly, connections, operation, and similar construction characteristics.
- 6. Number of Samples for Initial Selection: Submit three (3) full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Construction Manager, will return submittal with options selected.
- 7. Number of Samples for Verification: Submit three sets of Samples. Architect and Construction Manager will retain two Sample sets; remainder will be returned.
 - a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
- 8. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
- E. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 - 1. Type of product. Include unique identifier for each product.
 - 2. Number and name of room or space.
 - 3. Location within room or space.
- F. Contractor's Construction Schedule: Comply with requirements in CM/Owner Agreement.
- G. Submittals Schedule: Comply with requirements in CM/Owner Agreement.
- H. Application for Payment: Comply with requirements in CM/Owner Agreement.
- I. Schedule of Values: Comply with requirements in CM/Owner Agreement.
- J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit as required for each submittal, unless otherwise indicated. Architect and Construction Manager will not return copies.

2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements in Division 1 Section "Quality Requirements."
- B. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- F. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- G. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- I. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.
- J. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- K. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- L. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- M. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 1. Name of evaluation organization.
 2. Date of evaluation.

3. Time period when report is in effect.
 4. Product and manufacturers' names.
 5. Description of product.
 6. Test procedures and results.
 7. Limitations of use.
- N. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment.
- O. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- P. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
 2. Required substrate tolerances.
 3. Sequence of installation or erection.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- Q. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- R. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- S. Construction Photographs: Comply with requirements in Construction Management Agreement.
- T. Material Safety Data Sheets: Submit information directly to Owner. If submitted to Architect, Architect will not review this information but will return it with no action taken.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect and Construction Manager.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S AND CONSTRUCTION MANAGER'S ACTION

- A. General: Architect and Construction Manager will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect and Construction Manager will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect and Construction Manager will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken. CM marks shall be made in green. Architects marks shall be in red. Subcontractor highlights or questions shall be made in blue.
- C. Informational Submittals: Architect and Construction Manager will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect and Construction Manager will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 01330

SECTION 01780 - CLOSEOUT PROCEDURES**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

- A. General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work..
- B. Individual Product Sections: Specific requirements for operation and maintenance data.
- C. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- B. Operation and Maintenance Data:
 - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
 - 2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
 - 3. Submit two sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
 - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
 - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
 - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED**PART 3 EXECUTION****3.01 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction

including:

1. Field changes of dimension and detail.
2. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

- A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.
- B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
- D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

- A. For Each Product, Applied Material, and Finish:
- B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

- A. For Each Item of Equipment and Each System:
 1. Description of unit or system, and component parts.
 2. Identify function, normal operating characteristics, and limiting conditions.
 3. Include performance curves, with engineering data and tests.
 4. Complete nomenclature and model number of replaceable parts.
- B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
- C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- D. Provide servicing and lubrication schedule, and list of lubricants required.
- E. Include manufacturer's printed operation and maintenance instructions.
- F. Include sequence of operation by controls manufacturer.
- G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- H. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

- A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.
- B. Prepare data in the form of an instructional manual.

3.06 WARRANTIES AND BONDS

- A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for

CLOSEOUT SUBMITTALS

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items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

- B. Verify that documents are in proper form, contain full information, and are notarized.
- C. Co-execute submittals when required.
- D. Retain warranties and bonds until time specified for submittal.

END OF SECTION 01780

SECTION 02361 - TERMITE CONTROL**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. FBC section 1816 Termite Protection – work shall also comply with this document.

1.2 SUMMARY

- A. This Section includes the following for termite control:
 - 1. Soil treatment.

1.3 DEFINITIONS

- A. EPA: Environmental Protection Agency.
- B. PCO: Pest control operator.

1.4 SUBMITTALS

- A. Product Data: Treatments and application instructions, including EPA-Registered Label.
- B. Product Certificates: Signed by manufacturers of termite control products certifying that treatments furnished comply with requirements.
- C. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's record information, including the following as applicable:
 - 1. Date and time of application.
 - 2. Moisture content of soil before application.
 - 3. Brand name and manufacturer of termiticide.
 - 4. Quantity of undiluted termiticide used.
 - 5. Dilutions, methods, volumes, and rates of application used.
 - 6. Areas of application.
 - 7. Water source for application.
- E. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A PCO who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment in jurisdiction where Project is located and who is experienced and has completed termite control treatment similar to that indicated for this Project and whose work has a record of successful in-service performance.
- B. Regulatory Requirements: Formulate and apply termiticides, and label with a Federal registration number, to comply with EPA regulations and authorities having jurisdiction.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with EPA-Registered Label requirements and requirements of authorities having jurisdiction.

1.7 COORDINATION

- A. Coordinate soil treatment application with excavating, filling, and grading and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs, before construction.

1.8 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, signed by applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.
- C. Warranty Period: Five years from date of Substantial Completion.

1.9 MAINTENANCE SERVICE

- A. Continuing Service: Provide a proposal for continuing service, including monitoring, inspection, and re-treatment for occurrences of termite activity, from applicator to Owner, in the form of a standard yearly (or other period) continuing service agreement, starting on the date of Substantial Completion. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT

- A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in a soluble or emulsible, concentrated formulation that dilutes with water or foaming agent, and formulated to prevent termite infestation. Use only soil treatment solutions

that are not harmful to plants. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to the product's EPA-Registered Label.

- B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AgrEvo Environmental Health, Inc.; a Company of Hoechst and Schering, Berlin.
2. Bayer Corp.; Garden & Professional Care.
3. DowElanco.
4. FMC Corp.; Pest Control Specialties.
5. Zeneca Professional Products.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of the soil, interfaces with earthwork, slab and foundation work, landscaping, and other conditions affecting performance of termite control. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparing substrate. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated, except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended by termiticide manufacturer.
- C. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

3.3 NOTIFICATION – Notify the Owner, and the owner's construction representative office 48 hours prior to applying chemical.

3.4 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

3.5 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of

termiteicide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute the treatment evenly.

1. Slabs-on-Grade: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
 2. Foundations: Adjacent soil including soil along entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating slab, and around interior column footers, piers, and chimney bases; and along entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
 3. Masonry: Treat voids.
 4. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.
- B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- D. Post warning signs in areas of application.
- E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.
- F. Inspect and service stations from time of their application until completion of the time period established by continuing service agreement, according to the EPA-Registered Label for the product and manufacturer's written instructions for termite bait products.

END OF SECTION 02361

SECTION 03300 - CAST-IN-PLACE CONCRETE**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.
- B. Cast-in-place concrete work includes the following:
 - 1. Foundations and footings.
 - 2. Slabs-on-grade.
 - 3. Integrally colored concrete for slabs-on-grade where indicated on drawings.
 - 4. Foundation walls.
 - 5. Building frame members.
 - 6. Equipment pads and bases.
 - 7. Setting of anchor bolts, frames, and other items to be embedded in concrete.
 - 8. Dowels for masonry walls.
 - 9. Equipment pads.
 - 10. Laboratory field testing services.
 - 11. Concrete curbs, walks, and pavements.
- C. Related work specified elsewhere:
 - 1. Furnishing miscellaneous steel shapes and plates embedded in concrete.
 - 2. Furnishing anchor bolts for structural steel.
 - 3. Furnishing piping, sleeves and conduit embedded in concrete.

1.3 SUBMITTALS

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for proprietary materials and items, including colored admixture, reinforcement and forming accessories, vapor retarders, admixtures, joint systems, curing compounds, and others if requested by Architect.
 - 1. Submit colored admixture manufacturer's color charts showing full range of colors for initial selection.
 - 2. Submit colored admixture manufacturer's colored concrete sample box set containing 2 inch by 2 inch samples.
 - 3. Submit up to five 7" x 9" custom samples of colored concrete including burnished finish.
- C. Shop drawings reviewed and stamped by General Contractor for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for openings through concrete structures.
- D. Laboratory test reports for concrete materials and mix design test.
- E. Material certificates in lieu of material laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

- F. Concrete Mix Design Data: Submit, not less than 21 days prior to placing of concrete, the following proposed concrete mix design data:
1. Intended usage and location for each type.
 2. Mix design for each type.
 3. Cement content in pounds per cubic yard.
 4. Coarse and fine aggregate in pounds per cubic yard.
 5. Water-cement ratio by weight.
 6. Cement type and manufacturer.
 7. Slump range.
 8. Air content range.
 9. Admixture types and manufacturers.
 10. Percent of admixtures by weight.
 11. Strength test data required to establish mix design.
- G. Qualification Data: For firms indicated in "Quality Assurance" article, provide list of completed, integrally colored concrete installations.

1.4 QUALITY ASSURANCE

- A. Provide all materials and perform all work in accordance with ACI 301 "Specifications for Structural Concrete for Buildings" and the reference specifications listed therein.
- B. Where the provisions of this specification conflict with those of any reference specification, the provisions of these specifications govern.
- C. The applicable provisions of the latest issue of the following ACI and CRSI Standards are made a part of these specifications. Where the provisions of any reference specification conflict with those of ACI 301, the more stringent provisions govern.

<u>ACI NUMBER</u>	<u>TITLE</u>
301	Specification for Structural Concrete.
302.1R	Recommended Practice for Concrete Floor and Slab Construction.
304.R	Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
304.2R-91	Placing concrete by pumping methods.
305.R	Recommended Practice for Hot Weather Concreting
308	Recommended Practice Curing Concrete
309.R	Recommended Practice for Consolidation of Concrete
315	Manual of Standard Practice for Detailing Reinforced Concrete Structures
318-89 & 89R	Building code requirements for reinforced concrete
347	Recommended Practice for Concrete Formwork
70-56	Guide for Use of Epoxy Compounds - Committee 503 Report
75-18	Concrete committee 503 report. Cold weather concreting.

<u>CRSI NUMBER</u>	<u>TITLE</u>
63	Recommended Practice for Placing Reinforcing Bars

- D. Concrete Testing Service: Contractor shall retain a testing agency acceptable to Architect to perform material evaluation tests. Contractor will bear cost of tests, including cost of any retests due to failure of concrete to meet specified requirements.
- E. Materials and installed work may require testing and retesting at any time during progress of Work. Tests, including retesting of rejected materials for installed Work, shall be done at

Contractor's expense.

- F. Colored Concrete Installer Qualifications: Installer shall demonstrate 5 years of experience in colored concrete installations of similar scope and quality.
- G. Integrally Colored Concrete Field Samples:
1. At location on Project selected by Architect, place and finish 10 feet by 10 feet area.
 2. For accurate color, the quantity of concrete mixed to produce the sample should not be less than 3 cubic yards (or not less than 1/3 the capacity of the mixing drum on the ready-mix truck) and should always be in full cubic yard increments. Excess material shall be discarded according to local regulations.
 3. Construct sample panel using processes and techniques intended for use on permanent work, including curing procedures. Include samples of control, construction, and expansion joints in sample panels. Field sample shall be produced by the individual workers who will perform the work for the Project.
 4. Retain samples of cements, sands, aggregates and color additives used in mockup for comparison with materials used in remaining work.
 5. Accepted field sample provides visual standard for work of Section.
 6. Field Sample shall remain through completion of work for use as a quality standard for finished work.
 7. Remove field sample when directed.
- H. PRE-INSTALLATION CONFERENCE FOR COLORED CONCRETE
1. General contractor, Architect, Owners' representative, concrete subcontractor, ready-mix concrete supplier, and representative of colored concrete admixture supplier shall be present. Concrete coloring, placement, and finishing requirements shall be verified.

PART 2 - PRODUCTS

All products must be manufactured in the United States.

2.1 CONCRETE MATERIALS

- A. Portland Cement - ASTM C 150, Type I. Type III may be used where authorized by the Engineer.
- B. Air-Entraining Admixtures - ASTM C 260, Darax AEA, W.R. Grace & Company, SIKA AER, SIKA, MB-AE10, Master Builders, AMEX, American Admixtures Corp. Air Mix, Euclid Chemical Corp.
- C. Water-Reducing Admixtures - ASTM C 494, Type A. WRDA with Hycol, W.R. Grace & Company Plastocrete, SIKA, Pozzoloth 300N, Master Builders, Lubricon 300, American Admixtures.
- D. Colored Admixture for Integrally Colored Concrete:
Provide the following:
1. Admixture shall be a colored, water-reducing admixture containing no calcium chloride with coloring agents that are lineproof and ultra-violet resistant.
 2. Colored admixture shall conform to the requirements of ACI 3031, ASTM C979, ASTM C494, and ASSHTO M194.
 3. Provide "CHROMIX Admixture" by L.M. Scofield Company in any standard color selected by Architect from manufacturer's fall range.
- E. No accelerators, retarders or admixtures containing chlorides will be permitted.

- F. Use fresh, clean and drinkable water for concrete.
- G. For normal weight concrete use coarse and fine aggregate to conform to ASTM C33.
- H. Super Plasticizer ASTM C494 Type F or G where authorized by the Engineer.
- I. Fly-ash ASTM C618 Type "F" maximum 20% by weight. Do not use for architectural concrete. Do not use for slabs-on-grade.

2.2 PROPORTIONING

- A. Concrete Strength – See structural drawings for minimum concrete compressive strength at 28 days.
- B. Properties:
 - 1. Provide concrete having the general properties specified for each class of concrete shown on drawings to provide workability and consistency so concrete can be worked readily into forms and around reinforcement without segregation or bleeding, and to provide an average compressive strength adequate to meet acceptance requirements of ACI 301.

2.3 PRODUCTION OF CONCRETE

- A. Concrete must be batched, mixed and transported in accordance with specifications for ready-mixed concrete ASTM C 94.
- B. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batches are selected as the method of proportioning, the mix design shall be proportioned to achieve an average 28-day compressive strength of 1200 psi in excess of the design strength indicated on the Contract drawings, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.
- C. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Architect.
- D. Slump Limits: proportion and design mixes to result in concrete slump at point of placement as follows:
 - 1. Ramps and sloping surfaces: Not more than 3 inches.
 - 2. Reinforced foundation systems: Not less than 3 inches and not more than 5 inches.
 - 3. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site-verified 2-3 inch slump concrete.
 - 4. Slabs and beams: Not less than 3 inches and not more than 5 inches.
 - 5. Other concrete: No more than 4 inches.
- E. Provide at the site, delivery tickets for each batch of concrete showing the following:
 - 1. Batch number, volume and date
 - 2. Time of loading
 - 3. Design 28-day compressive strength
 - 4. Concrete type
 - 5. Cement content in pounds per cubic yard
 - 6. Water content in pounds per cubic yard
 - 7. Admixtures in amount per cubic yard
 - 8. Maximum amount of water that may be added at the job site

- F. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.
- G. Restrict the addition of mix water at the job site. Do not add water without the approval of the general contractor and do not exceed slump limitations or total allowable water-to-cement ratio. Use cold water from the truck tank and remix to achieve consistency. The reports shall indicate how much water was added at the job site. Note on delivery ticket amount of water added and name of person authorizing.
- F. During hot weather, conform to the detailed recommendations of ACI 305.

2.4 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
 - 1. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form," Class I.
- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Form Release Agent: Provide commercial formulation form release agent with a maximum of 350 g/L volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- D. Form Ties: Factory-fabricated, adjustable-length, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling of concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches to the plane of the exposed concrete surface.

2.5 REINFORCEMENT

- A. GENERAL
 - 1. Details of concrete reinforcement and accessories not covered herein or shown on drawings to be in accordance with ACI 315.
 - 2. Reinforcement is to be secured in proper position and thoroughly clean of loose rust, scale, grease or other coatings.
- B. REINFORCING MATERIALS
 - 1. Unless otherwise indicated, for all reinforcing shown provide deformed bars conforming to ASTM A 615, or a 616 Grade 60.
 - 2. Smooth dowels - ASTM A 615 and A 616, plain bars having a minimum yield strength of 60,000 psi.
 - 3. Welded wire fabric - ASTM A 185 plain wire fabric in flat sheets.
 - 4. Plain wire to conform to ASTM A 82.
 - 5. Accessories to conform to ACI 315.
 - 6. Where reinforcing rods are used as supports, use rods no lighter than No. 5.
 - 7. Where concrete surfaces are exposed, make those portions of all accessories in contact with the concrete surface or within 1/2 inch thereof, of plastic or stainless steel.

C. FIBROUS REINFORCING

1. Reinforcing fibers to be virgin 100% polypropylene or nylon collated fibers, per ASTM C1116, specifically manufactured for use in concrete, containing no reprocessed olefin materials, with the following minimum physical characteristics:
 - a. Specific gravity: 0.92
 - b. Modulus of elasticity: 500-700 KSI
 - c. Tensile strength: 70-110 KSI
 - d. Fiber length: multi-design gradation, 3/4" min.
2. Reinforcing fibers to be supplied by the following approved manufacturers:
 - a. "FIBERSTRAND 100", Euclid Chemical Company
 - b. "FIBERMESH", Fibermesh, Inc.
 - c. "FORTA SUPER-NET", Forta Corporation
 - d. "NYCON FIBERS", Nycon, Inc.
3. Fibers to be added in manufacturer's approved amount with a minimum of 1.5 pounds per cubic yard for poly and 1.0 pounds per cubic yard for nylon.
4. Concrete to be batched and mixed in accordance with fiber manufacturer's recommendations for uniform and complete dispersion of fiber bundles into single strands within concrete.
5. Reinforcing fibers may be used in concrete slabs-on-grade in lieu of WVF with approval of the engineer. Fibers will not be permitted in integrally colored concrete slabs.
6. Submit product data for review and approval.

2.6 RELATED MATERIALS

- A. Dovetail Anchor Slots: Hot-dip galvanized sheet steel, not less than 0.0336 inch thick with bent tab anchors. Fill slot with temporary filler or cover face opening to prevent intrusion of concrete or debris.
- B. Plastic Vapor Retarder: ASTM E 1745, Class C, not less than 10 mils thick per ACI 302.1R-96. Include manufacturer's recommended pressure-sensitive joint tape.
 1. Products:
 - a. Fortifiber Corporation; Moistop Ultra.
 - b. Reef Industries, Inc.; Griffolyn Type-85.
 - c. Stego Industries, LLC; Stego Wrap, 10 mils.
 2. Pipe Boots
 - a. Construct pipe boots from vapor retarder material and pressure sensitive tape per vapor retarder manufacturer's instructions.
- C. Moisture Retaining Cover: One of the following, complying with ASTM C 171.
 1. Waterproof paper.
 2. Polyethylene film.
 3. Polyethylene-coated burlap.
- D. Liquid Curing, Densifying and Hardening Compounds for application on floor slabs and exterior concrete aprons and walks, and other slabs as scheduled on drawings.
 1. Curing Compound: compatible with integrally colored concrete. Provide the following:
 - a. "Formula One", L.M. Scofield

2. Densifying and Hardening Compound: Compatible with colored concrete . Provide the following:
 - a. "Formula One", L.M. Scofield
- E. Expansion Joint Filler: 1/2" thick closed cell polyethylene foam filler conforming to ASTM D 3575, with pre-scored removable top strip.
 1. Deck-o-Foam # 325 Expansion Joint Filler.
- F. Metal Keyed Control Joints: Galvanized steel keyed joint with removable plastic cap to create straight void at top of joint for sealing.
 1. "QuickKey", BoMetals, Inc, Catalog # 2000 with removable, 1/2 " deep by 13/32 " wide plastic cap.
- G. Epoxy Adhesive (Bonding Agent): ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project requirements.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Spec-Bond 100, Conspec Marketing and Mfg. Co.
 - b. Euco Epoxy System #452, Euclid Chemical Co.
 - c. Concessive Liquid LPL, Master Builders, Inc.

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.
 1. When air temperature is between 85 deg F and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION**3.1 GENERAL**

- A. Coordinate the installation of joint materials, vapor retarder, and other related materials with placement of forms and reinforcing steel.

3.2 FORMS

- A. General: Design, erect, support, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances and surface irregularities complying with the following ACI 301 and 347 limits:
 1. Form Design shall be performed by a Professional Engineer registered in the State of Florida.
 2. Earth cuts may be used as footing forms for vertical surfaces. Increase size by 2 inches.
- B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the Work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom

forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like for easy removal.

- D. Provide temporary openings for clean-outs and inspections where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings and set tightly to forms to prevent losing concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
 - 1. Chamfer all exposed tie beam-to-masonry wall joints using quarter-round molding in bottoms of forms.
- F. Removal strength: The concrete will be presumed to have reached its removal strength when additional test cylinders (paid for by the Contractor) are field cured along with the concrete they represent and have reached the specified strength.
- G. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before placing concrete. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
 - 1. Forms and shoring are the responsibility of the General Contractor.

3.3 VAPOR RETARDER INSTALLATION

- A. General: Place vapor retarder sheeting in position with longest dimension parallel with direction of pour.
- B. Lap vapor retarder over footings and seal to foundation walls.
- C. Lap joints 6 inches and seal with manufacturer's recommended pressure-sensitive tape. Repair all punctures. Seal tightly around penetrations such as pipe and conduit using manufacturer's pipe boot.
- D. Repair damaged areas by cutting patches of vapor retarder, overlapping damaged area 6 inches and taping all four sides with tape.

3.4 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.
 - 1. Avoid cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Architect.

- D. Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
 - 1. Minimum concrete coverage for reinforcing unless otherwise indicated on the Drawings, shall be:
 - a. Sides and bottoms of footings and grade beams: 3".
 - b. Top of footings and grade beams: 2".
 - c. Columns and Beams: 1-1/2"
 - d. Slabs: 3/4" from top, interior; 1-1/2" from top, exterior.
- E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one spacing of cross wires plus 2 inches. Offset laps of adjoining widths to prevent continuous laps in either direction.
- F. Chair welded wire fabric at 3'-0" o.c., max. in each direction.

3.5 JOINTS

- A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to architect.
- B. Provide keyways at least 1-1/2 inches deep in construction joints in slabs. Bulkheads designed and accepted for this purpose may be used for slabs.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements of floors and slabs.
- D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.
- E. Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 1. Provide 1/2" expansion joint filler as specified herein.
 - 2. Provide sealant over all isolation and expansion joints.
 - 3. Joint sealants are specified in Division 7 Section "Joint Sealants."
- F. Contraction (Control) Joints in Slabs-on-Grade: Construct joints to form panels of patterns as shown. If joint pattern is not shown, provide joints not exceeding 15 feet in either direction and locate to conform to bay spacing wherever possible (at column centerlines, half bays, third bays). Provide keyed control joints and sawed joints as indicated on drawings.
 - 1. Saw joints in slabs before the formation of uncontrolled cracking (i.e., cracking that occurs at locations other than construction, control, expansion or contraction joints) and as soon as the concrete has hardened sufficiently to permit curing without chipping, spalling, or tearing. Saw joints both during the day and night as required. In no event shall saw cuts be made more than 6 hours after placement of concrete.
 - a. Saw joints for a depth equal to at least one-fourth of slab thickness.
 - b. Fill sawed joints within the building with self-leveling elastomeric sealant after concrete has cured and dried.
 - 2. Install metal keyed control joints in accordance with manufacturer's instructions.

Remove plastic caps after slab has cured. Fill void with self-leveling elastomeric sealant.

3. If concrete cracks at locations other than construction, control, expansion or contraction joints, the Contractor may be required to remove and replace the defective work (cracked concrete) at no additional cost to the Owner.

3.6 INSTALLING EMBEDDED ITEMS

- A. General: Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.
- B. Install dovetail anchor slots in concrete structures as indicated on drawings.
- C. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.7 PREPARING FORM SURFACES

- A. General: Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before placing reinforcement.
- B. Do not allow excess form-coating material to accumulate in forms or come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply according to manufacturer's instructions.
 1. Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel formwork is not acceptable.

3.8 CONCRETE PLACEMENT

- A. Notification: Notify Architect at least 48 hours prior to pouring any concrete.
- B. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- C. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
 1. Unless otherwise shown or indicated, provide minimum concrete protective covering for reinforcement as follows:
 - a. Concrete deposited against the ground, 3".
 - b. Formed surfaces exposed to weather or in contact with the ground, 2" for reinforcing bars No. 6 or larger, and 1/2" for reinforcing bars No. 5 or smaller.
 - c. Interior surfaces, 1-1/2" for beams, girders and columns, 3/4" for slabs, walls and joists.
 - d. See drawings for special conditions.
- D. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.
- E. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309R.
 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.
- F. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.
1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
 2. Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
 3. Maintain reinforcing in proper position on chairs during concrete placement.
- G. Cold-Weather Placement: Comply with provisions of ACI 306 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
- H. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- I. Hot-Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.
1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F. Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
 3. Fog spray forms, reinforcing steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without puddles or dry areas.
 4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, as acceptable to Architect.

3.9 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: Provide a rough-formed finish on formed concrete surfaces not exposed to view in the finished Work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.
- B. Smooth-Formed Finish: Provide a smooth-formed finish on formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or another similar system. This is an as-cast concrete surface obtained with selected

form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.

- C. Pan formwork to provide Class D finish.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 MONOLITHIC SLAB FINISHES

- A. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and where indicated.
 - 1. After screening, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Finish surfaces to tolerances of F(F) 18 (floor flatness) and F(L) 15 (floor levelness) measured according to ASTM E 1155. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- B. Trowel Finish: Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.
 - 1. After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to tolerances of F(F) 20 (floor flatness) and F(L) 17 (floor levelness) measured according to ASTM E 1155. Grind smooth any surface defects that would telegraph through applied floor covering system.
- C. Trowel and Medium Broom Finish: Required for concrete walks, plaza, ramps, or steps, apply a trowel finish as specified, then immediately follow by slightly scarifying the surface with a medium broom in straight lines perpendicular to main line of traffic. Do not dampen brooms.

3.11 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

3.12 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before

and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing.
- C. Curing Methods: Cure concrete by curing compound.
- D. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and curbs as follows:
 - 1. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Do not over-apply to avoid discoloration of slabs.
 - 2. Do not use membrane-forming curing compounds for curing surfaces to receive the following coverings, unless it has been demonstrated that such compounds will not prevent bond of:
 - a. Flexible flooring
 - b. Resinous Flooring
 - c. Other specified floor systems
 - 3. Apply densifying and hardening compound in accordance with manufacturer's written instructions and as follows:
 - a. Do not apply compound until horizontal joint sealants in slabs have been installed and fully cured.
 - b. Thoroughly clean slab of all dirt and contaminants and allow to dry thoroughly prior to application of compound.
 - c. Do not over-apply to avoid discoloration of slabs.
- D. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

3.13 SHORES AND SUPPORTS

- A. General: Comply with ACI 347 for shoring and reshoring in multistory construction, and as specified.
- B. Extend shoring from ground to roof for structures four stories or less, unless otherwise permitted.

3.14 REMOVING FORMS

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days or until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential

compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.

- C. Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.
- D. Formwork and facing forms for members such as grade beams, foundation walls and spread footings not supporting the weight of concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from the removal operations.

3.15 REUSING FORMS

- A. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use patched forms for exposed concrete surfaces except as acceptable to **Architect**.

3.16 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removing forms, when acceptable to Architect.
- B. Mix dry-pack mortar, consisting of one part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing.
 - 1. Cut out honeycombs, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts down to solid concrete but in no case to a depth less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried.
 - 2. For surfaces exposed to view, blend white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- C. Repairing Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes and fill with dry-pack mortar or precast cement cone plugs secured in place with bonding agent.
 - 1. Repair concealed formed surfaces, where possible, containing defects that affect the concrete's durability. If defects cannot be repaired, remove and replace the concrete.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.
 - 1. Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface defects include crazing and cracks in excess of 0.01 inch wide or that penetrate

- to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
 3. Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Architect.
 4. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

3.17 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. Testing Agency: Engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article.
- B. Sampling and testing for quality control during concrete placement shall include the following:
 1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
 - a. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
 - b. Air Content: ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
 - c. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below, when 80 deg F and above, and one test for each set of compressive-strength specimens.
 - d. Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
 - e. Compressive-Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yd. plus additional sets for each 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
 2. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.
 3. When total quantity of a given class of concrete is less than 50 cu. yd., Architect may waive strength testing if adequate evidence of satisfactory strength is provided.
 4. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
 5. Strength level of concrete will be considered satisfactory if every average of any three consecutive compressive strength tests equals or exceeds specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi.
- C. Test results shall be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain

the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.

- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- E. Additional Tests: The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

3.18 ACCEPTANCE OF STRUCTURE

A. GENERAL

- 1. Acceptance of structure will be made in conformance with ACI 301, except that contractor must pay all costs incurred for providing any additional testing or analysis required when strength of structure is considered potentially deficient.

B. CRACKS

- 1. The contractor will be required to restore without cost to the owner any concrete except for slabs-on-grade which develops cracks within a period of one year after placement which has not been caused by action of the owner or others in overstressing the concrete.
- 2. Repair the cracks by means that will restore the cracked members to their designed strength and appearance by acceptable methods which will not impair the appearance of the affected surfaces, if exposed. Such repairs must be performed using suitable epoxy cements employed by an organization having satisfactorily demonstrated ability in the techniques necessary to effect such repairs, or by other acceptable methods.

END OF SECTION 03300

SECTION 04200 - UNIT MASONRY**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
 - 1. Concrete masonry units.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Wood nailers and blocking built into unit masonry are specified in Division 6 Section "Rough Carpentry."
 - 2. Hollow metal frames in unit masonry openings are specified in Division 8 Section "Hollow Metal Doors and Frames."

1.3 SUBMITTALS

- A. Product data for each different masonry unit, accessory, and other manufactured product specified.
- B. LEED Submittals:
 - 1. Product Certificates for Credit MR 5: For products and materials required to comply with requirements for regional materials indicating location and distance from Project of material manufacturer and point of extraction, harvest, or recovery for each raw material. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.
- C. Shop drawings for reinforcing detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 "Details and Detailing of Concrete Reinforcement" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement.
- D. Samples for verification of the following:
 - 1. Full-size units for each different exposed masonry unit required showing the full range of exposed colors, textures, and dimensions to be expected in the completed construction.
 - 2. Accessories embedded in the masonry.

1.4 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of the following, except where more stringent requirements are shown or specified.
 - 1. A.C.I. 530-99: Building Code Requirements for Masonry Structures.
 - 2. A.C.I. 530.1-99: Specifications for Masonry Structures.

- B. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.
- C. Single-Source Responsibility for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one source and by a single manufacturer for each different product required.
- D. Single-Source Responsibility for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- E. Pre-Installation Meeting:
 - 1. Convene meeting at project site within one week of scheduled start of installation with representatives of the following in attendance: Owner, Architect, General Contractor, Masonry Sub-Contractor and Manufacturer's Representative or Distributor.
 - 2. Review substrate conditions, requirements of related work, installation instructions, storage and handling procedures, and protection measures.
 - 3. Keep minutes of meeting including responsibilities of various parties and deviations from specifications and installation instructions.
 - 4. Distribute minutes to attendees within 72 hours.
- F. Mockup: Prior to installing unit masonry, construct sample wall panels to verify selections made under sample submittals and to demonstrate aesthetic effects as well as other qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.
 - 1. Locate mockup on site in the location as directed by Architect.
 - 2. Mockup shall be approximately 4'-0" high by 6'-8" long.
 - 3. Build mockup of typical radial wall area comprised of 8" thick concrete block.
 - 4. Notify Architect one week in advance of the dates and times when mockups will be constructed.
 - 5. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - a. Acceptance of mockups is for tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
 - b. Acceptance of mockups does not constitute approval of deviations from the Contract Documents contained in mockups, unless such deviations are specifically approved by Architect in writing.
 - c. When directed, demolish and remove mockups from Project site.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not install until they are in an air-dried condition.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

- D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 PROJECT CONDITIONS

- A. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 48 inches down both sides and hold cover securely in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and mortar splatter by coverings spread on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt on completed masonry.
- D. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg F and above.

PART 2 – PRODUCTS

All products specified must be manufactured in the United States.

2.1 CONCRETE MASONRY UNITS

Concrete masonry units must be manufactured in the United States.

- A. General: Provide shapes indicated and as follows for each form of concrete masonry unit required.
 - 1. Provide special shapes for lintels, control joints (sash blocks), bonding, and other special conditions.
 - 2. Provide square-edged units for outside corners.
- B. Regional Materials: CMUs shall be manufactured within 500 miles of Project site from aggregates and cement that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.
- C. Concrete Masonry Units: ASTM C 90 and as follows:
 - 1. Weight Classification: Normal weight.

2. Size: Manufactured to the actual dimensions listed below (within tolerances specified in the applicable referenced ASTM specification) for the corresponding nominal sizes indicated on Drawings:
 - a. 8 inch nominal: 7-5/8 inch actual width by 7-5/8 inch actual height by 7-5/8 inch or 15-5/8 inch actual length.
3. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
4. Compressive strength = 2000 psi, minimum, based on net area; f_m = 1500 psi minimum.

2.2 MORTAR AND GROUT MATERIALS

- A. Masonry Cement: ASTM C 91.
- B. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch, use aggregate graded with 100 percent passing the No. 16 sieve.
- C. Aggregate for Grout: ASTM C 404.
- D. Water: Potable.

2.3 REINFORCING STEEL

- A. Steel Reinforcing Bars: Material and grade as follows:
 1. Billet steel complying with ASTM A 615.
 - a. Grade 60.
- B. Deformed Reinforcing Wire: ASTM A 496, with ASTM A 153, Class B-2 zinc coating.

2.4 JOINT REINFORCEMENT, TIES AND ANCHORING DEVICES

- A. Materials: Comply with ASTM A 951 and requirements indicated below for basic materials and with requirements indicated under each item of joint reinforcement, tie and anchor, for size and other characteristics:
 1. Hot-dip galvanized steel wire: ASTM A 82 for uncoated wire and with ASTM A 153, Class B-2 (1.5 oz. Per sq. ft. of wire surface) for zinc coating applied after prefabrication into units.
- B. Provide welded wire units prefabricated in straight lengths of not less than 10', with matching corner and tee units. Fabricate from cold-drawn steel wire complying the ASTM A 82, with deformed continuous side rods and plain cross rods, into units with widths of approximately 2" less than nominal width of walls and partitions as required to position side rods for full embedment in mortar with mortar coverage of not less than 5/8" on joint faces exposed to exterior, and not less than 1/2" elsewhere.

Provide the following type of joint reinforcing unless otherwise indicated.

1. For single wythe walls, provide ladder type with cross rods spaced not more than 16" o.c.
 2. Wire size for side and cross rods: No. 9.
- C. Manufacturers: Subject to compliance with requirements, provide products of one of the following:

1. AA Wire products Co.
2. Dur-O-Wal, Inc.
3. Heckman Building Products, Inc.
4. Hohmann & Barnard, Inc.
5. Masonry Reinforcing Corp. of America
6. National Wire Products Corp.

2.5 MISCELLANEOUS TIES AND ANCHORS

- A. Corrugated Wall Ties: Hot dipped galvanized steel, 7/8" wide by 7" long; 22 gage.
- B. Anchor Bolts: Steel bolts complying with ASTM A 307; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of diameter and length indicated and in the following configurations:
 1. Headed bolts.
 2. Nonheaded bolts, straight.
 3. Nonheaded bolts, bent in manner indicated.

2.6 MISCELLANEOUS MASONRY ACCESSORIES

- A. Bond Breaker Strips: Asphalt-saturated organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

2.7 MASONRY WALL INSULATION, SINGLE WYTHE WALLS

- A. For single wythe masonry walls requiring thermal insulation, provide nontoxic foamed-in-place masonry wall insulation, R value of not less than 6.0 in 8" concrete masonry, with a density of 125 lbs. or greater. Insulation shall be non-combustible, shall have a Class A flame spread rating, shall be formaldehyde-free, and shall meet all applicable state and federal insulation standards.
 1. Insulation shall be installed only by applicators who have been trained and certified by the insulation manufacturer.
 2. Subject to compliance with specifications; provide insulation by one of the following:
 - a. Tailored Chemical Products, Inc.: "Core-Fill 500".
 - b. Thermco: "Thermco Foam".
 - c. C.P. Chemical Co., Inc.: "Tripolymer Foam Insulation".

2.8 MORTAR AND GROUT MIXES

- B. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 1. Do not use calcium chloride in mortar or grout.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification, for job-mixed mortar; and ASTM C 1142 for ready-mixed mortar, of types indicated below:
 1. Use Type S mortar for all masonry applications.
 2. Include admixture and follow admixture label instructions.

- D. Grout for Unit Masonry: Comply with ASTM C 476. Use grout of consistency indicated or, if not otherwise indicated, of consistency at time of placement that will completely fill spaces intended to receive grout.
1. Minimum Compressive Strength: 2500 psi at 28 days.
 2. Slump Range: 8" minimum - 11" maximum.
 3. Aggregate size: 1/4" maximum for coarse grout.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of unit masonry. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Examine rough-in and built-in construction to verify actual locations of piping connections prior to installation.

3.2 INSTALLATION, GENERAL

- A. Build chases and recesses to accommodate items specified in this and other Sections of the Specifications.
- B. Leave openings for equipment to be installed before completion of masonry. After installing equipment, complete masonry to match construction immediately adjacent to the opening.
- C. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting, where possible. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

3.3 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces of columns, walls, and arrises, do not exceed 1/4 inch in 10 feet, nor 3/8 inch in 20 feet, nor 1/2 inch in 40 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet, nor 1/2 inch in 40 feet or more. For vertical alignment of head joints, do not exceed plus or minus 1/4 inch in 10 feet, nor 1/2 inch maximum.
- B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed 1/4 inch in 20 feet, nor 1/2 inch in 40 feet or more. For top surface of bearing walls, do not exceed 1/8 inch in 10 feet, nor 1/16 inch within width of a single unit.
- C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls, and partitions, do not exceed 1/2 inch in 20 feet, nor 3/4 inch in 40 feet or more.
- D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4 inch nor plus 1/2 inch.

- E. Variation in Mortar-Joint Thickness: Do not vary from bed-joint thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary bed-joint thickness from bed-joint thickness of adjacent course by more than 1/8 inch. Do not vary from head-joint thickness indicated by more than plus or minus 1/8 inch. Do not vary head-joint thickness from adjacent head-joint thickness by more than 1/8 inch

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns, and offsets. Avoid the use of less-than-half-size units at corners, jambs, and where possible at other locations.
- B. Lay walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.
- C. Bond Pattern for Exposed Masonry: Lay exposed masonry in the following bond pattern unless otherwise noted on drawings; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
1. One-half running bond with vertical joint in each course centered on units in courses above and below.
 2. Stack bond where indicated on drawings.
- D. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- E. Stopping and Resuming Work: In each course, rack back 1/2-unit length for one-half running bond; do not tooth. Clean exposed surfaces of set masonry, and remove loose masonry units and mortar prior to laying fresh masonry.
- F. Built-in Work: As construction progresses, build-in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
- G. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.
- H. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
- I. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- J. Build nonload-bearing interior partitions full height of story to underside of roof structure above and as follows:

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow brick and concrete masonry units as follows:
1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

5. Maintain joint widths indicated, except for minor variations required to maintain bond alignment. If not indicated, lay walls with 3/8-inch joints.
- B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
- C. Cut joints flush for masonry walls that are to receive plaster or other direct-applied finishes (other than paint and coatings), unless otherwise indicated.

3.6 HORIZONTAL JOINT REINFORCEMENT

- A. General: Provide continuous horizontal-joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcing a minimum of 6 inches
 1. Space reinforcement not more than 16 inches o.c.
 2. Provide reinforcement in mortar joint 1 block course above and below wall openings and extending 12 inches beyond opening.
 - a. Reinforcement above is in addition to continuous reinforcement.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
 1. Provide an open space not less than 1 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar or other rigid materials.
 2. Anchor masonry to structural members with flexible anchors embedded in masonry joints and attached to structure.
 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.8 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joints in unit masonry where indicated. Build-in related items as the masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.
- B. Form control joints in standard concrete masonry as follows:
 1. Install preformed control-joint gaskets designed to fit standard sash block.

3.9 LINTELS

- A. Provide masonry lintels where shown and wherever openings of more than 1'-0" for brick size units and 2'-0" for block size units are shown without structural steel or other supporting lintels. Provide precast or formed-in-place masonry lintels. Cure precast lintels before handling and installation. Provide minimum of 8" bearing at each end of lintel.

3.10 INSTALLATION OF FILLED CELL MASONRY

- A. All filled cell masonry shall be built to preserve the unobstructed vertical continuity of the cells to be filled with grout.
- B. Units shall be laid with full face shell mortar beds. All head joints shall be continuously filled with mortar for a distance from the face of the wall or unit not less than the thickness of the longitudinal face shells. Cross webs adjacent to vertical cores to be filled shall be fully bedded with mortar to prevent leakage of grout.
- C. All mortar fins or other obstructions or debris shall be removed from the insides of the walls of the cells to be filled with grout. All cells to be filled shall be filled solidly with grout.
- D. Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.
 - 1. Do not exceed the following pour heights for coarse grout:
 - a. For minimum widths of grout spaces of 1-1/2 inches or for minimum grout space of hollow unit cells of 1-1/2 by 3 inches, pour height of 12 inches.
 - b. For minimum widths of grout spaces of 2 inches or for minimum grout space of hollow unit cells of 2-1/2 by 3 inches, pour height of 60 inches.
 - c. For minimum widths of grout spaces of 2-1/2 inches or for minimum grout space of hollow unit cells of 3 by 3 inches, pour height of 12 feet
 - 2. Do not exceed the following pour heights for fine grout:
 - a. For 1 inch wide collar joints between brick veneer and concrete block, pour height of 18 inches.
 - 3. Provide saw-cut cleanout holes 4 inches by 4 inches for grout pours over 48 inches in height.
 - a. Provide cleanout holes at each vertical reinforcing bar.

3.11 INSULATION FOR SINGLE-WYTHE WALLS

- A. At single wythe masonry walls, pump foamed-in-place insulation into concrete block cores so as to fill void spaces completely. Limit lifts of insulation to one-story in height, but not-to-exceed 15'-0".

3.12 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units. Install new units to match adjoining units; install in fresh mortar or grout, pointed to eliminate evidence of replacement.

- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point-up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for application of sealants.
- C. In-Progress Cleaning: Clean unit masonry at least daily as work progresses by dry brushing to remove mortar fins and smears prior to tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain present on exposed surfaces.

END OF SECTION 04200

SECTION 06100 - ROUGH CARPENTRY**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

1. Framing with dimension lumber.
2. Wood furring and grounds; blocking, cants and nailers.
3. Plywood roof sheathing
4. Plywood backing panels

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.

1.4 DEFINITIONS

- A. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NeLMA: Northeastern Lumber Manufacturers' Association.
2. NLGA: National Lumber Grades Authority.
3. RIS: Redwood Inspection Service.
4. SPIB: The Southern Pine Inspection Bureau.
5. WCLIB: West Coast Lumber Inspection Bureau.
6. WWPA: Western Wood Products Association.

1.5 ACTION SUBMITTALS

- B. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.6 SUBMITTALS

- A. **Material Certificates:** For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- B. **Evaluation Reports:** For the following, from ICC-ES:
1. Wood-preserved-treated wood.
 2. Fire-retardant-treated wood.
 3. Engineered wood products.
 4. Shear panels.
 5. Power-driven fasteners.
 6. Powder-actuated fasteners.
 7. Expansion anchors.
 8. Metal framing anchors.
- C. **Product Data:** For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
1. Include data for wood-preserved treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservation used and net amount of preservative retained.
 2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project Site.
 3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.7 QUALITY ASSURANCE

- A. **Forest Certification:** For the following wood products, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria".
1. Plywood.

PART 2 - PRODUCTS**2.1 LUMBER, GENERAL**

- A. **Lumber Standards:** Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.
- B. **Grade Stamps:** Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- C. **Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.**
1. Provide dressed lumber, S4S, unless otherwise indicated.
 2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

- D. Rough carpentry provided in this section shall be obtained from forests certified by an FSC – accredited certification body to comply with FSC STD-01-001 "FSC Principals and Criteria for Forest Stewardship".

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWWPA C2 (lumber) and AWWPA C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
- B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items and the following:
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 3. Wood floor plates installed over concrete slabs directly in contact with earth.
- C. Pressure treat wood members in contact with ground or freshwater with waterborne preservatives to a minimum retention of 0.40 lb/cu. ft.

2.3 DIMENSION LUMBER

- A. General: Provide dimension lumber of grades indicated according to the ALSC National Grading Rule (NGR) provisions of the inspection agency indicated.
- B. Light-Framing (2"-4" thick, 2"-4" wide): construction grade.
- C. Studs (2"-4" thick, 2"-6" wide, 12' and shorter): No. 2 structural light framing grade, Southern Yellow Pine graded under WWPA, WCLIB, SPIB, or NLGS rules.
- D. Structural Joists and Planks (2"-4" thick, 5" and wider): Any species and grade complying with requirements for allowable unit stresses.
1. Fb (minimum extreme fiber stress in bending)... 1,200 psi in single member.
 2. E (minimum modulus of elasticity).....1,600,000 psi
- E. Concealed Boards: Standard grade, any species graded under WWPA rules or No. 3 grade Southern Yellow Pine graded under SPIB rules.
- F. Lumber for Miscellaneous Uses: Unless otherwise indicated, provide Standard grade lumber for support of other work, including cant strips, bucks, nailers, blocking, furring, grounds, stripping and similar members.

2.4 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
- D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWPA; No. 2 grade per SPIB; or Standard grade per NLGA, WCLIB or WWPA of any species.
- E. Wood Blocking and Curbing. Provide pressure treated lumber for all lumber in contact with concrete, masonry or steel. Wolmanizing process is considered best of the treatments for lumber in buildings; Boliden salts are excellent and treatment is equivalent to Wolmanizing if pressure treatment of 100/150 psi is used.

2.5 SHEATHING

- A. Plywood for backing materials:
 - 1. APA rated material, Type AB, Thickness: Not less than 3/4 inch.

2.6 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacturer.
 - 1. For all rough carpentry related to roofing and roof accessories, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.
- B. Nails, Wire, Brads, and Staples: FS FF-N-105.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 – EXECUTION**3.1 INSTALLATION, GENERAL**

- A. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. CABO NER-272 for power-driven staples, P-nails, and allied fasteners.
 2. Published requirements of metal framing anchor manufacturer.
 3. "Table 2306.1--Fastening Schedule," of the Florida Building Code.
- E. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
- F. Use hot-dip galvanized or stainless-steel nails where rough carpentry is related to roofing or roof accessories, in ground contact, or in area of high relative humidity.

3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attaching other work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Provide pressure treated wood grounds in gypsum drywall and plaster partitions for support of fixtures, accessories, fire extinguisher cabinets and brackets, wall-mounted fixtures and furnishings, and hardware. Provide backing for all wall-mounted door stops.
1. Provide solid wood grounds, minimum 2 x 4 lumber, in all partitions scheduled to receive wall-mounted door bumpers. Position directly behind and centered on bumpers. Screw attach securely to metal studs.

3.3 WOOD FRAMING, GENERAL

- A. Framing Standard: Comply with AF & PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Install framing members of size and at spacing indicated.
- C. Do not splice structural members between supports.

3.4 WOOD NAILERS, EDGING, AND BLOCKING FOR ROOF ACCESSORIES:

- A. Provide wherever shown and where required for attachment of other work. Form to shapes, as shown, and cut as required for true line and level on work to be attached. Coordinate location with other work involved.
- B. Where wood members are doubled, ends shall be lapped and thoroughly spiked to each other and to bearing members, maintaining structural integrity, using ring-shank nails.
- C. Where wood members abut concrete, securely fasten to same by bolts or lag screws on staggered centers. Heads of all bolts or lag screws shall be provided with large-head washers.
- D. Round corners of wood plates where flashing occurs.
- E. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required.

- F. Holes drilled oversized or wallowed out shall be redrilled.
- G. For fastening wood to:
 - 1. Metal. Countersunk flat head No. 10 self tapping, self drilling, metal screws, at 4" o.c., staggered; utilizing appropriate size bolt and nut where possible.
 - 2. Wood. Ring-Shank nails, 3/8" round heads at 12" o.c., staggered; 1-1/4" minimum substrate penetration.
 - 3. Plywood. Annular thread nails, 3/8" round heads at 8" o.c. staggered with full penetration.
 - 4. New Masonry or Concrete. 3/4" diameter by 12" long with 3" hook anchor bolts and Hughes WSH 1093 washers, spaced 2'-8" apart, staggered if nailer or blocking is wider than 6 inches.
 - 5. Existing Structural Concrete and Precast Concrete. Countersunk, flat head, threaded, self-tapping masonry screws ("Tapcons"), at 8" o.c., staggered; 1/1/2" minimum substrate penetration.

END OF SECTION 06100

SECTION 06200 - FINISH CARPENTRY**PART ONE - GENERAL****1.1 WORK INCLUDED**

- A. The work covered by this section of the specifications consists of furnishing all plant, labor, equipment, appliances and materials and in performing all operations in connection with the interior shelving, complete, in accordance with the plans and this specification subject to the terms of the Contract.

1.2 PROTECTION

- A. Delivery materials to the job site and store in a safe area out of the way of traffic, and stored up off the ground surface.
- B. Use extreme care in off-loading of lumber to prevent damage, and breaking of materials.

PART TWO - PRODUCTS**2.1 GRADES OF LUMBER AND SPECIES**

- A. Framing Lumber and Blocking: Southern Yellow Pine No. 2
- B. Plywood Shelving: PA, A-B veneer, Exposure 1
- C. Interior Trim: Solid PVC – Paintable
1. Royal Building Products
 2. Fypon
 3. Approved substitution
- D. Construction Sign: Marine Plywood - Marine AA-EXT-DFPA PS 1 66

2.2 STORAGE SHELVING

- A. Storage shelving shall conform to the Architectural Woodwork Quality Standards and Guide Specification, custom grade, and to the design and details shown. Work shall be finished smooth and free from machine or tool marks that will show through the finish. All nail heads shall be set to receive putty, prior to paint.
- B. All joints shall be tight and formed to conceal shrinkage. Shop miters 4 inches or more from heel to point shall be glued and locked. Make dowels and tenons a driving fit. Make shop joints of interior work with waterproof glue or hot glue, under pressure.
- C. Do not install any trim until all surfaces of trim have been primed and back primed. Carefully scribe woodwork to plaster or other adjacent work.

2.3 WORKMANSHIP AND FITTINGS

- A. All work shall be dressed smooth, nails set, cleaned and fine sand-papered ready for painter's finish.
- B. Do all cutting, patching, jobbing, etc., for all trades doing work in the building, in accordance with best building practice.

- C. Do not bring inside finish into the buildings until the buildings are thoroughly dry, and set no finish in place until it has been painted on the back.

2.4 WOOD BLOCK REINFORCING IN WALLS AND PARTITIONS

- A. Wood block reinforcing in conjunction with partitions shall be as shown on the Drawings.
- B. Fire retardant wood blocking or metal in-wall reinforcing is to be provided in all partitions as required for all wall-hung equipment.

2.5 CONSTRUCTION SIGN

- A. Construction sign shall be constructed of marine plywood and shall be as detailed on the drawings.

PART THREE - EXECUTION

3.1 TEMPORARY ROOM IDENTIFICATION DEVICES

- A. To facilitate project progress, install a room identification device on frame of each door. Locate at center of frame head.
- B. Device shall be embossed tape, approximately 3/8 inch wide by length as necessary. Tape shall show room number as indicated on the drawings.
- C. Use an easily readable color combination - such as orange and black - so as to be as conspicuous as possible.
- D. Install tape immediately after installation of frames, or as soon thereafter as practicable. Remove tape just prior to final inspection.

3.2 INSTALLATION OF OTHER ITEMS

- A. Install items in strict accordance with the Drawings, and the recommended methods of the manufacturer, as approved by the Architect; anchoring firmly into position at the prescribed location, straight, plumb, and level.

3.3 CLEANING UP

- A. Keep the premises in a neat, safe, and orderly condition at all times during execution of this portion of the Work, free from accumulation of sawdust, cut-ends, and debris.

END OF SECTION 06200

SECTION 07210 - THERMAL INSULATION**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Concealed acoustical building insulation.
 - 2. Cavity wall insulation.
 - 3. Concealed building insulation.
 - 4. Spray insulation; if spray insulation is used; provide for the thermal barrier and fire barrier requirement of intumescent spray coating.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 4 Section "Unit Masonry Assemblies" for cavity wall insulation.
 - 2. Division 7 Section for insulation specified as part of roofing construction.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of insulation product specified.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products complying with requirements indicated without delaying the Work.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated on Drawings or specified elsewhere in this Section as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 1. Surface-Burning Characteristics: ASTM E 84.
 - 2. Fire-Resistance Ratings: ASTM E 119.
 - 3. Combustion Characteristics: ASTM E 136.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect plastic insulation as follows:
 - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver plastic insulating materials to Project site before installation time.
 - 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide insulation products by one of the following:
 - 1. Glass-fiber insulation:
 - a. CertainTeed Corporation
 - b. John's Manville Corporation
 - c. Owens Corning
 - 2. Slag-Wool-/Rock-Wool-Fiber Insulation:
 - a. Fibrex Inc.
 - b. Partek Insulations, Inc.
 - c. USG Interiors, Inc.
 - d. Owens Corning
 - 3. Rigid Board Insulation:
 - a. Dow Chemical
 - b. Johns Manville
 - c. Owens Corning
 - d. CertainTeed
 - e. As listed in approved roofing system NOA.

2.2 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
- B. Cellular Glass Insulation: ASTM C552 Type I

- C. Unfaced Mineral-Fiber Blanket Insulation: Sound attenuation insulation combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665, Type I (blankets without membrane facing).
 - 1. Mineral-Fiber Type: Fibers manufactured from slag wool or rock wool.
 - 2. Surface-Burning Characteristics: Maximum flame-spread and smoke-developed indices of 25 and 50, respectively.
 - 3. Thickness: As indicated on drawings.

2.3 AUXILIARY INSULATING MATERIALS

- A. Adhesive for Bonding Insulation: Product with demonstrated capability to bond insulation securely to substrates indicated without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, unsoiled, and has not been exposed at any time to ice and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Apply single layer of insulation to produce thickness indicated.

3.3 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units.
- C. Install mineral-fiber blankets in cavities formed by framing members according to the following requirements:
 - 1. Use blanket widths and lengths that fill cavities formed by framing members. Where more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.

2. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.

END OF SECTION 07210

SECTION 07260 – VAPOR BARRIER / RETARDER**PART 1 – GENERAL****1.1 SUMMARY: UNDER-SLAB VAPOR BARRIER**

- A. Products supplied under this section:
 - 1. Vapor barrier, seam tape, and mastic for installation under concrete slabs.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM E 1745-09 Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
 - 2. ASTM E 154-99 (2005) Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
 - 3. ASTM E 96-05 Standard Test Methods for Water Vapor Transmission of Materials.
 - 4. ASTM F 1249-06 Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.
 - 5. ASTM E 1643-09 Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- B. American Concrete Institute (ACI):
 - 1. ACI 302.2R-06 Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.

1.3 SUBMITTALS

- A. Quality control/assurance:
 - 1. Summary of test results as per paragraph 8.3 of ASTM E 1745.
 - 2. Manufacturer's samples, literature.
 - 3. Manufacturer's installation instructions for placement, seaming and penetration repair instructions.

PART 2 – PRODUCTS**2.1 MATERIALS**

- A. Vapor barrier must have all of the following qualities:
 - 1. Permeance of less than 0.01 Perms [$\text{grains}/(\text{ft}^2 \cdot \text{hr} \cdot \text{inHg})$] as tested in accordance with ASTM E 1745 Section 7.
 - 2. Other performance criteria:
 - a. Strength: ASTM E 1745 Class A.
- B. Vapor barrier products:
 - 1. Basis of Design: Stego Wrap Vapor Barrier (15-mil) by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.

2.2 ACCESSORIES

- A. Seam tape:
 - 1. Stego Tape by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.

- B. Vapor-proofing mastic:
 - 1. Stego Mastic by Stego Industries LLC, (877) 464-7834 www.stegoindustries.com.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Ensure that base material is approved by Architect or Geotechnical Engineer.
 - 1. Level and compact base material.

3.2 INSTALLATION

- A. Install vapor barrier in accordance with manufacturer's instructions and ASTM E 1643.
 - 1. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement.
 - 2. Lap vapor barrier over footings and/or seal to foundation walls.
 - 3. Overlap joints 6 inches and seal with manufacturer's tape.
 - 4. Seal all penetrations (including pipes) per manufacturer's instructions.
 - 5. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
 - 6. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all sides with tape.

END OF SECTION 07260

SECTION 07310 - SHINGLE ROOF**PART I GENERAL****1.01 SECTION INCLUDES**

- A. Asphalt roofing shingles.
- B. Leak barrier and roof deck protection.
- C. Metal flashing associated with shingle roofing.

1.02 RELATED SECTIONS.

- A. Section 07600 - Flashing and Sheet Metal.

1.03 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.04 SUBMITTALS

- A. Submit copies of roof product data sheets, detail drawings and samples for each type of roofing product.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier, and ventilation, by a single manufacturer.
- B. Installer Qualifications: Installer must be approved for installation of all roofing products to be installed under this section.

1.06 REGULATORY REQUIREMENTS

- A. Install all roofing products in accordance with all federal, state and local building codes.
- B. All work shall be performed in a manner consistent with current OSHA guidelines.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.
- B. Store products in a covered, ventilated area, at temperature not more than 110 degrees F); do not store near steam pipes, radiators, or in direct sunlight.
- C. Store bundles on a flat surface. Maximum stacking height shall not exceed manufacturers' recommendations. Store all rolls on end.
- D. Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

1.08 WEATHER CONDITIONS

- A. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturers' recommendations.

1.09 WARRANTY

- A. Provide to the owner a warranty covering:
 - 1. Roofs installed by a roof contractor only.
 - 2. Manufacturing defects: 100% coverage for materials and labor for 40 years with the first 20 years non-prorated.
 - 3. Workmanship errors: 100% coverage for workmanship errors for 20 years.
 - 4. Warranted against algae discoloration for 10 years

PART II PRODUCTS**2.01 MANUFACTURERS**

- A. Acceptable Manufacturer: GAF®, 1361 Alps Rd. Wayne NJ 07470. Tel: 1-973-628-3000.
B. Requests for substitutions will be considered in accordance with owners provisions.

2.02 SHINGLES

- A. Self sealing, granule surfaced, asphalt shingle with strong fiberglass reinforcing and which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Architectural laminate styling provides a wood shake appearance with a 5 5/8 inch exposure.
1. Color: As selected from manufacturers' full range.

2.03 HIP AND RIDGE SHINGLES

- A. High profile self sealing hip and ridge cap shingle matching the color of selected roof shingle. Each bundle covers approx. 20 lineal feet.

2.04 STARTER STRIP

- A. Self sealing starter shingle designed for premium roof shingles.

2.05 LEAK BARRIER

- A. Self-adhering, self sealing, bituminous leak barrier surfaced with fine, skid-resistant granules. Approved by UL, Dade County, ICC, State of Florida Department of Insurance.

2.06 SHINGLE UNDERLAYMENT

- A. Premium, water repellant, breather type non-asphaltic underlayment. UV stabilized polypropylene construction. Meets or exceeds ASTM D226 and D4869. Approved by Dade Country, Florida Building Code, and ICC.
B. Synthetic, non-asphaltic, non-woven, anti-skid back coated, polypropylene constructed non breathable underlayment. Meets or exceeds ASTM D226 and D4869 approved by UL, Florida Building Code, ICC and CSA A220.1.
C. Water repellent, breather type cellulose/glass fiber composite roofing underlayment. Meets or exceed ASTM D226 and D4869 and approved by UL and the Florida Building Code.
D. Premium, all-purpose fiberglass reinforced SBS modified underlayment. Meets or exceeds ASTM D226. Approved by UL and ICC.
E. Non-woven fiberglass mat underlayment coated on both sides suing a highly filled polymer. Provides a fire barrier and water resistant. Approved by Dade Country, Florida Building Code, and ICC approval.
F. #30 Roofing Underlayment - By Others: Water repellent breather type cellulose fiber building paper. Meets or exceeds the requirements of ASTM D-4869 Type II.

2.07 ROOFING CEMENT

- A. Asphalt Plastic Roofing Cement meeting the requirements of ASTM D 4586, Type I or II.

2.08 NAILS

- A. Standard round wire, zinc-coated steel or aluminum; 10 to 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch to 7/16 inch in diameter. Length must be sufficient to penetrate into solid wood at least 3/4 inch or through plywood or oriented strand board by at least 1/8 inch.

2.08 METAL FLASHING

- A. 24 gauge hot-dip galvanized steel sheet, complying with ASTM A 653/A 653M, G90/Z275.
B. 0.032-inch aluminum sheet, complying with ASTM B 209.

PART III EXECUTION**3.01 EXAMINATION**

- A. Do not begin installation until the roof deck has been properly prepared.
- B. If roof deck preparation is the responsibility of another installer, notify the architect or building owner of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean deck surfaces thoroughly prior to installation of eaves protection membrane and underlayment.
- B. At areas that receive eaves protection membrane, fill knotholes and cracks with latex filler.
- C. Install crickets on the upslope side of all chimneys in the north, any chimney wider than 24" , and on all roofs steeper than 6/12.

3.05 INSTALLATION OF UNDERLAYMENTS**A. General:**

- 1. Install using methods recommended by manufacturer, in accordance with local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.

B. Eaves:

- 1. Install eaves edge metal flashing tight with fascia boards; lap joints 2 inches and seal with plastic cement or high quality urethane sealant; nail at the top of the flange.
- 2. In the north, and on all roofs between 2/12 and 4/12 (low slopes) install manufacturers' leak barrier up the slope from eaves edge a full 36 inches or to at least 24 inches beyond the interior "warm wall". Lap ends 6 inches and bond.

C. Hips and Ridges:

- 1. Install manufacturer leak barrier along entire lengths. If ridge vents are to be installed, position the leak barrier so that the ridge slots will not be covered.

D. Roof Deck:

- 1. Install one layer of roof deck protection over the entire area not protected by leak barrier at the eaves or valley. Install sheets horizontally so water sheds and nail in place.
- 2. On roofs sloped at more than 4:12, lap horizontal edges at least 2 inches and at least 2 inches over eaves protection membrane.
- 3. On roofs sloped between 2 :12 and 4:12, lap horizontal edges at least 19 inches and at least 19 inches over eaves protection membrane.
- 4. Lap ends at least 4 inches. Stagger end laps of each layer at least 36 inches.
- 5. Lap roof deck protection over leak barrier in valley at least 6 inches.

E. Deck-Armor™ Application

- 1. Deck-Armor shall be installed over a clean, dry deck.
- 2. Install Leak Barrier at eaves, valleys, rakes, skylights, dormers and other vulnerable leak areas.
- 3. Lay Deck-Armor™ over deck and overlap 3" at side laps and 6" at end laps.
- 4. For exposure to rain or snow, overlap 12" at end laps.
- 5. For side and end laps: fasten Deck-Armor 12" o.c. (6" o.c. for high wind areas).
- 6. For middle of the roll: fasten Deck-Armor 24" o.c. (12" o.c. for high wind areas).
- 7. For exposure to rain or snow, completely cover all side laps, end laps and fasteners with tape.
- 8. For long term exposure see complete Deck-Armor installation instructions for side lap detail.
- 9. If roof may be exposed to high winds, apply tape over all fasteners at the center of the roll to prevent rain or snow from entering at the fasteners.
- 10. For slopes less than 2:12, a double application of Deck-Armor is required. See complete Deck-Armor installation instructions for more information.

E. Penetrations:

1. Vent pipes: Install a 24 inch square piece of eaves protection membrane lapping over roof deck underlayment; seal tightly to pipe.
2. Vertical walls: Install eaves protection membrane extending at least 6 inches up the wall and 12 inches on to the roof surface. Lap the membrane over the roof deck underlayment.
3. Rake Edges: Install metal edge flashing over eaves protection membrane and roof deck underlayment; set tight to rake boards; lap joints at least 2 inches (51mm) and seal with plastic cement; secure with nails.

3.06 INSTALLATION OF STARTER SHINGLES**A. General:**

1. Install in accordance with manufacturers' instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Refer to application instructions for the selected starter strip shingles.

B. Placement and Nailing:

1. For maximum wind resistance along rakes & eaves, install any starter strip containing sealant or cement shingles to underlayment and each other in a 4" width of asphalt plastic roof cement.
2. Place starter strip shingles 1/4" – 3/4" over eave and rake edges to provide drip edge.
3. Nail approximately 1-1/2" – 3" above the butt edge of the shingle.
4. Rake starter course should overlap eave edge starter strip at least 3".

3.07 INSTALLATION OF SHINGLES**A General:**

1. Install in accordance with manufacturers' instructions and local building codes. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.
2. Minimize breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge or bundles), and by taking extra precautions in temperatures below 40 degrees F.
3. Handle carefully in hot weather to avoid scuffing the surfacing, or damaging the shingle edges.

B Placement and Nailing:

1. Secure with 4, 5, or 6 nails per shingle per manufacturers' application instructions or local codes.
2. Placement of nails varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.
3. Nails must be driven flush with the shingle surface. Do not overdrive or under drive the nails.
4. Shingle offset varies based on the type of shingle specified. Consult the application instructions for the specified shingle for details.

C. Penetrations

1. All Penetrations are to be flashed according to GAF®, ARMA and NRCA application instructions and construction details.

3.08 INSTALLATION OF ATTIC VENTILATION**A General**

1. Ventilation must meet or exceed current F.H.A., H.U.D. and local code requirements.

B Ridge / Soffit ventilation

1. Install ridge vent along the entire length of ridges:
2. Cut continuous vent slots through the sheathing, stopping 6 inches from each end of the ridge.
3. On roofs without ridge board, make a slot 1 inch wide, on either side of the peak (2 inch overall).
4. On roofs with ridge board, make two slots 1-3/4 inches wide, one on each side of the peak (3 1/2 inch overall).
5. Install ridge vent material along the full length of the ridge, including uncut areas.
6. Butt ends of ridge vent material and join using roofing cement.
7. Install eaves vents in sufficient quantity to equal or exceed the ridge vent area.

C Roof and Gable Louvers:

1. Cut vent hole through sheathing as specified by the manufacturer for the type of vent to be installed.
2. Install a 24 inches square of leak barrier, centered around the hole for roof louvers

3. Install according to manufacturers instructions for flashing vent penetrations
4. Install eave vents in sufficient quantity to equal or exceed the exhaust vent area, calculated as specified by manufacturer.

3.09 PROTECTION

A Protect installed products from foot traffic until completion of the project.

B Any roof areas that are not completed by the end of the workday are to be protected from moisture and contaminants.

END OF SECTION 07310

SECTION 07411 - METAL ROOF PANELS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Exposed fastener metal roof panels, with related metal trim and accessories.

1.2 RELATED REQUIREMENTS

A. Division 07 Section Thermal Insulation.

B. Division 07 Section Sheet Metal Flashing.

C. Division 07 Section Joint Sealants.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Prior to erection of framing, conduct preinstallation meeting at site attended by Owner, Architect, manufacturer's technical representative, inspection agency and related trade contractors.

1. Coordinate building framing in relation to metal panel system.

2. Coordinate openings and penetrations of metal panel system.

3. Coordinate work of Division 07 Sections "Roof Specialties" and "Roof Accessories" and openings and penetrations and manufacturer's accessories with installation of metal panels.

1.4 QUALITY ASSURANCE

A. Manufacturer/Source: Provide metal roof panel assembly and accessories from a single manufacturer providing fixed-base roll forming, and accredited under IAS AC 472 Part B.

B. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum five years experience in manufacture of similar products in successful use in similar applications.

1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:

a. Product data, including certified independent test data indicating compliance with requirements.

b. Samples of each component.

c. Sample submittal from similar project.

d. Project references: Minimum of five installations not less than five years old, with Owner and Architect contact information.

e. Sample warranty.

f. IAS AC 472 certificate.

2. Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements.

3. Approved manufacturers must meet separate requirements of Submittals Article.

C. Installer Qualifications: Experienced Installer with minimum of five years experience with successfully completed projects of a similar nature and scope.

1. Installer's Field Supervisor: Experienced mechanic, able to communicate with Owner, Architect, and installers, supervising work on site whenever work is underway.

1.5 ACTION SUBMITTALS

A. Product Data: Manufacturer's data sheets for specified products.

B. Shop Drawings: Show layouts of metal panels. Include details of each condition of installation, panel profiles, and attachment to building. Provide details at a minimum scale 1-1/2-inch per foot of edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, roof accessories, lightning arresting equipment, and special details. Make distinctions between factory and field assembled work.

1. Indicate points of supporting structure that must coordinate with metal panel system installation.

2. Include data indicating compliance with performance requirements.

3. Include structural data indicating compliance with requirements of authorities having jurisdiction.

D. Samples for Initial Selection: For each exposed product specified including sealants. Provide representative color charts of manufacturer's full range of colors.

E. Samples for Verification: Provide 12-inch- long section of each metal panel profile. Provide color chip verifying color selection.

1.6 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Indicating compliance of products with requirements, witnessed by a professional engineer.

B. Qualification Information: For Installer firm and Installer's field supervisor.

C. IAS Accreditation Certificate: Indicating that manufacturer is accredited under provisions of IAS AC 472.

D. Florida State Building Code Certificate.

E. Manufacturer's Warranty: Sample copy of manufacturer's standard warranty.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance data.

B. Manufacturer's Warranty: Executed copy of manufacturer's standard warranty.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect products of metal panel system during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage. Protect panels and trim bundles during shipping.

1. Deliver, unload, store, and erect metal panel system and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.
2. Store in accordance with Manufacturer's written instructions. Provide wood collars for stacking and handling in the field.

1.9 COORDINATION

A. Coordinate sizes, profiles, and locations of roof curbs and other roof-mounted equipment and roof penetrations, based upon sizes of actual selected equipment.

1.10 WARRANTY

A. Special Manufacturer's Warranty: On manufacturer's standard form, in which manufacturer agrees to repair or replace metal panel assemblies that fail within one year from date of Substantial Completion.

B. Special Panel Finish Warranty: On Manufacturer's standard form, in which Manufacturer agrees to repair or replace metal panels that evidence deterioration of factory-applied finish within 25 years from date of Substantial Completion, including:

1. Fluoropolymer Two-Coat System:

- a. Color fading in excess of 10 Hunter units per ASTM D 2244.
- b. Chalking in excess of No. 8 rating per ASTM D 4214.
- c. Failure of adhesion, peeling, checking, or cracking.

2. Modified Silicone-Polyester Two-Coat System:

- a. Color fading in excess of 7 Hunter units per ASTM D 2244, for vertical applications.
- b. Color fading in excess of 10 Hunter units per ASTM D 2244, for non-vertical applications.
- c. Chalking in excess of No. 7 rating per ASTM D 4214, for vertical applications.
- d. Chalking in excess of No. 6 rating per ASTM D 4214, for non-vertical applications.
- e. Failure of adhesion, peeling, checking, or cracking.

PART 2 - PRODUCTS**2.1 MANUFACTURER**

A. Manufacturer: MBCI Metal Roof and Wall Systems, Division of NCI Group, Inc.; Houston TX. Tel: (877)713-6224; Email: info@mbci.com; Web: www.mbc.com.

1. Provide basis of design product, or comparable product approved by Owner prior to bid.

2.2 PERFORMANCE REQUIREMENTS

A. General: Provide metal roof panel system meeting performance requirements as determined by application of specified tests by a qualified testing facility on manufacturer's standard assemblies.

B. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction. Allow for deflection and design for thermal stresses caused by temperature differences from one side of the panel to the other.

C. Structural Performance: Provide metal panel assemblies capable of withstanding the effects of indicated loads and stresses within limits and under conditions indicated:

1. Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings.

2. Deflection Limits: Withstand inward and outward wind-load design pressures in accordance with applicable building code with maximum deflection of 1/120 of the span with no evidence of failure.

D. Wind Uplift Resistance: Comply with UL 580 for wind-uplift class.

E. FM Approvals Listing: Comply with FM Approvals 4471 as part of a panel roofing system, and that are listed in FM Approvals' "RoofNav" for Class 1 construction. Identify materials with FM Approvals markings.

1. Fire/Windstorm Classification: [Class 1A-60] [Class 1A-90] [Class 1A-165].

2. Hail Resistance Rating: 1-SH.

F. Florida State Building Code Compliance: Comply with requirements of Florida State Building Code. www.floridabuilding.org/pr/pr_app_srch.aspx

G. Air Infiltration: ASTM E 1680: Maximum [0.006 cfm/sq. ft. (0.030 L/s per sq. m) at 6.24 lbf/sq. ft. (300 Pa)] static-air-pressure difference.

H. Air Infiltration: ASTM E 283: Maximum [0 cfm/sq. ft. (0.030 L/s per sq. m) at 6.24 lbf/sq. ft. (300 Pa)] static-air-pressure difference.

J. Water Penetration: ASTM E 1646: No uncontrolled water penetration at a static pressure of 20 lbf/sq. ft. (958 Pa).

K. Water Penetration: ASTM E 331: No uncontrolled water penetration at a static pressure of 13.24 lbf/sq. ft. (334 Pa).

2.3 METAL PANEL MATERIALS

A. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ50 (Grade 340, Coating Class AZM150), prepainted by the coil-coating process per ASTM A 755/A 755M.

B. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ55 (Grade 340, Coating Class AZM165) unpainted Galvalume Plus coating.

2.4 METAL ROOF PANELS

A. Large Tapered-Rib-Profile, Exposed Fastener Metal Roof Panels: Structural metal roof panel consisting of formed metal sheet with trapezoidal major ribs with intermediate stiffening ribs symmetrically placed between major ribs, installed by lapping edges of adjacent panels.

1. Basis of Design: MBCI, PBR Panel, www.mbc.com/pbr.html.
2. Coverage Width: 36 inches (914 mm).
3. Major Rib Spacing: 12 inches (305 mm) on center.
4. Rib Height: 1-1/4 inch (31.8 mm).
5. Nominal Coated Thickness: [0.16 inch/29 gage (0.41 mm)] [0.022 inch/26 gage (0.56 mm)] [0.028 inch/24 gage 0.71 mm)] [0.034 inch/22 gage (0.86 mm)].
6. Panel Surface: [Smooth] [Stucco embossed].
7. Exterior Finish: [Modified silicone-polyester two-coat system] [Fluoropolymer two-coat system] [Unpainted exposed Galvalume Plus coating].
8. Color: [As indicated] [As selected by Architect from manufacturer's standard colors] [Match Architect's custom color].

2.5 METAL ROOF PANEL ACCESSORIES

A. General: Provide complete metal roof panel assembly incorporating ridge, eave, rake, valley, and parapet trims, copings, fascias, gutters and downspouts, and miscellaneous flashings, in [manufacturer's standard profiles] [profiles as indicated]. Provide required fasteners, closure strips, support plates, and sealants as indicated in manufacturer's written instructions.

B. Flashing and Trim: Match material, thickness, and finish of metal panel face sheet.

C. Panel Fasteners: Self-tapping screws and other acceptable fasteners recommended by roof panel manufacturer.

1. Exposed Fasteners: Long life fasteners with EPDM or neoprene gaskets, with heads matching color of metal panels by means of factory-applied coating.

D. Self-Adhering, High-Temperature Underlayment: Self-adhering, cold-applied sheet underlayment, minimum 30 mils (0.76 mm), recommended by metal panel manufacturer for application. Provide primer when recommended by underlayment manufacturer.

E. Joint Sealers: Manufacturer's standard or recommended liquid and preformed sealers and tapes, and as follows:

1. Tape Sealers: Manufacturer's standard non-curing butyl tape, AAMA 809.2.
2. Concealed Joint Sealant: Non-curing butyl, AAMA 809.2.
3. Exposed Joint Sealant: Urethane, single component, ASTM C 920.

F. Steel Sheet Miscellaneous Framing Components: ASTM C 645, with ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized zinc coating.

G. Roof Accessories: Approved by metal roof panel manufacturer. Refer to Section 07 72 00 "Roof Accessories" for requirements for curbs, equipment supports, roof hatches, heat and smoke vents, ventilators, and preformed flashing sleeves.

2.6 FABRICATION

A. General: Provide factory fabricated and finished metal panels and accessories meeting performance requirements, indicated profiles, and structural requirements.

B. Panel Lengths: Form panels in continuous lengths for full length of detailed runs, except where otherwise indicated on approved shop drawings.

C. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions, approved shop drawings, and project drawings. Form from materials matching metal panel substrate and finish.

2.7 FINISHES

A. Finishes, General: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

B. Modified Silicone-Polyester Two-Coat System: 0.20 – 0.25 mil primer with 0.7 – 0.8 mil color coat[, meeting solar reflectance index requirements].

1. Basis of Design: MBCI, Signature 200.

C. Fluoropolymer Two-Coat System: 0.2 – 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF fluoropolymer color coat, AAMA 621[, meeting solar reflectance index requirements].

1. Basis of Design: MBCI, Signature 300.

D. Fluoropolymer Two-Coat Metallic System: 0.2 – 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF metallic fluoropolymer color coat, AAMA 621[, meeting solar reflectance index requirements].

1. Basis of Design: MBCI, Signature 300 Metallic.

E. Interior Finish: 0.5 mil total dry film thickness consisting of primer coat and wash coat of manufacturer's standard light-colored acrylic or polyester backer finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine metal panel system substrate and supports with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal panel installation.

1. Inspect metal panel support substrate to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable supports at recommended spacing to match installation requirements of metal panels.

2. Panel Support Tolerances: Confirm that panel supports are within tolerances acceptable to metal panel system manufacturer but not greater than the following:

- a. 1/4 inch (6 mm) in 20 foot (6.1 m) in any direction.
- b. 3/8 inch (9 mm) over any single roof plane.

B. Correct out-of-tolerance work and other deficient conditions prior to proceeding with metal roof panel system installation.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, girts, furring, and other miscellaneous panel support members according to ASTM C 754 and manufacturer's written instructions.

B. Flashings: Install flashings to cover exposed underlayment per Section 07 62 00 "Sheet Metal Flashing and Trim."

3.3 METAL PANEL INSTALLATION

A. Exposed Fastener Metal Roof Panels: Install weathertight metal panel system in accordance with manufacturer's written instructions, approved shop drawings, and project drawings. Install metal roof panels in orientation, sizes, and locations indicated, free of waves, warps, buckles, fastening stresses, and distortions. Anchor panels and other components securely in place. Provide for thermal and structural movement.

B. Panel Sealants: Install manufacturer's recommended tape sealant at panel sidelaps and endlaps.

C. Panel Fastening: Attach panels to supports using screws, fasteners, and sealants recommended by manufacturer and indicated on approved shop drawings.

1. Fasten metal panels to supports at each location indicated on approved shop drawings, with spacing and fasteners recommended by manufacturer.

2. Provide weatherproof jacks for pipe and conduit penetrating metal panels of types recommended by manufacturer.

3. Dissimilar Materials: Where elements of metal panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.

3.4 ACCESSORY INSTALLATION

A. General: Install metal panel trim, flashing, and accessories using recommended fasteners and joint sealers, with positive anchorage to building, and with weather tight mounting. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel assembly, including trim, copings, flashings, sealants, closure strips, and similar items.

2. Comply with details of assemblies utilized to establish compliance with performance requirements and manufacturer's written installation instructions.

3. Set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently weather resistant.

B. Joint Sealers: Install joint sealers where indicated and where required for weathertight performance of metal panel assemblies, in accordance with manufacturer's written instructions.

1. Prepare joints and apply sealants per requirements of Division 07 Section "Joint Sealants."

3.5 FIELD QUALITY CONTROL

A. Testing Agency: [Owner will engage] [Engage] an independent testing and inspecting agency acceptable to Architect to perform field tests and inspections and to prepare test reports.

3.6 CLEANING AND PROTECTION

A. Remove temporary protective films immediately in accordance with metal roof panel manufacturer's instructions. Clean finished surfaces as recommended by metal roof panel manufacturer.

B. Replace damaged panels and accessories that cannot be repaired to the satisfaction of the Architect.

END OF SECTION 07411

SECTION 07620 - SHEET METAL FLASHING AND TRIM**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, sheet metal roofing, eave, ridge, rake, and all other items necessary for a complete installation.
- B. Precast concrete splash pads.

1.02 RELATED REQUIREMENTS

- A. Section 07411 - Preformed Metal Roof Panels: Roofing system.
- B. Section 07900 - Joint Sealers.
- C. Section 09900 - Paints and Coatings: Field painting.

1.03 REFERENCE STANDARDS

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association; 1998.
- B. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2007.
- C. ASTM B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2007.
- D. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007.
- E. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2003.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Samples: Submit two samples 12 x 12 inch in size illustrating metal finish color.

1.06 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA Architectural Sheet Metal Manual requirements and standard details, except as otherwise indicated.
- B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 5 years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS**2.01 SHEET MATERIALS**

- A. Aluminum: ASTM B 209 (ASTM B 209M); 0.032 inch thick; anodized finish of color as selected.
 - 1. Clear Anodized Finish: AAMA 611 AA-M12C22A41 Class I clear anodic coating not less than 0.7 mils thick.

2.02 ACCESSORIES

- A. Fasteners: Stainless steel, with soft neoprene washers.
- B. Primer: Zinc chromate type.
- C. Protective Backing Paint: Zinc molybdate alkyd.
- D. Sealant: Type specified in Section 07900.
- E. Plastic Cement: ASTM D 4586, Type I.

2.03 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest possible lengths.
- C. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 24 inch long legs; seam for rigidity, seal with sealant.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

2.04 GUTTER AND DOWNSPOUT FABRICATION

- A. Gutters: SMACNA Architectural Sheet Metal Manual, Rectangular profile.
- B. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 5 years in accordance with SMACNA Architectural Sheet Metal Manual.
- C. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.
- D. Downspout Boots: Plastic.
- E. Seal metal joints.

PART 3 EXECUTION**3.01 EXAMINATION**

- A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

- A. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- B. Apply plastic cement compound between metal flashings and felt flashings.
- C. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- D. Seal metal joints watertight.
- E. Secure gutters and downspouts in place using concealed fasteners.
- F. Slope gutters 1/4 inch per foot minimum.
- G. Connect downspouts to downspout boots. Seal connection watertight.
- H. Set splash pads under downspouts.

3.04 FIELD QUALITY CONTROL

- A. See Section 01400 - Quality Requirements, for field inspection requirements.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION 07620

SECTION 07710 - MANUFACTURED SPECIALTIES**PART 1 - GENERAL****1.01 SUMMARY**

A. This Section includes the following

1. Gutters and downspouts.
2. Reglets.
3. Counterflashing.
4. Expansion Joints

B. Related Sections include the following:

1. Division 7 Section "Flashing and Sheet Metal" for shop-and field-fabricated metal flashing and counterflashing, trim, and miscellaneous sheet metal accessories.

1.02 SUBMITTALS

A. Samples for Verification: Of the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare Samples from the same material to be used for the Work. Furnish straight Samples in lengths specified below or where corner pieces are required for Project; furnish corner Samples with each leg in lengths specified below:

1. Gutters and Downspouts: Length and width per plans, including liners, screens, straps, hangers, and other support and attachment devices.
2. Reglets and Counterflashing.

1.03 PERFORMANCE REQUIREMENTS

A. General: Provide manufactured roof specialties capable of withstanding wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

1. Provide manufactured roofing specialties, incorporating roof edge treatment that complies with cover sheet code analysis.

PART 2 – PRODUCTS**2.01 MANUFACTURERS**

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Coil-Coated Galvanized Gutters and Downspouts:
 - a. ATAS International, Inc.
 - b. Hickman: W.P. Hickman Co.
 - c. Merchant and Evans, Inc.
 - d. Metal-Era, Inc.
 - e. Petersen Aluminum Corp.
 - f. MBCI; a division of NCI building systems
2. Galvanized Steel Reglets: (Used for roof systems only)
 - a. Cheney Flashing Company.
 - b. Fry Reglet Corporation.
 - c. Hickman: W.P. Hickman Co.
3. Stainless-Steel Reglets:
 - a. Cheney Flashing Company.
 - b. Fry Reglet Corporation.
 - c. Keystone Flashing Company.

2.02 METALS

A. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 alloy and temper, or as recommended by manufacturer for use intended and as required for proper application of finish indicated.

B. Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy and temper recommended by aluminum producer and finisher for use intended and finish indicated, and with not less than the strength and durability of alloy and temper designated below:

1. Alloy 3003-H14, with a minimum thickness of 0.040 inch (1.0 mm), unless otherwise indicated, for aluminum sheet with mill finish.

2. Alloy 5005-H14, with a minimum thickness of 0.050 inch (1.2 mm), for aluminum sheet with other than mill finish.

C. Galvanized Steel Sheets: ASTM A 653, G90 (ASTM A 653M, Z275) coating designation; commercial quality; at least 0.034 inch (0.85 mm) thick, unless otherwise indicated.

D. Coil-Coated Galvanized Steel Sheet: Galvanized steel sheet prepainted by coil-coating process with indicated coating complying with ASTM A 755 (ASTM A 755M).

E. Stainless-Steel Sheet: ASTM A 666, Type 304, soft annealed, with No. 2D finish, unless harder temper is required for forming or performance; at least 0.0187 inch (0.5 mm) thick, unless otherwise indicated.

2.03 GUTTERS AND DOWNSPOUTS

A. Provide gutters and downspouts in shapes and sizes indicated, with mitered corners. Include straps formed from at least 0.028-inch- (0.7-mm-) thick, compatible metal sheet; provide hangers or other attachment devices; screens; end plates; and trim and other accessories indicated or required for complete installation.

B. Provide gutters and downspouts fabricated from the following metal:

1. Match approved roof material unless otherwise noted.

a. Thickness: 18 gauge.

2.04 REGLETS

A. General: Provide reglets of type, material, and profile indicated, compatible with flashing. Form to securely interlock with counterflashing.

B. Stucco Type: Provide with upturned fastening flange and extension leg of length to match thickness of applied finish materials.

C. Concrete Type: Provide temporary closure tape to keep reglet free of concrete materials; special fasteners for attaching reglet to concrete forms; and guides to ensure alignment of reglet section ends.

D. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.

E. Flexible Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.

F. Count erflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of the counterflashing's lower edge.

G. Material: Fabricate reglets from the following metal in thickness indicated:

1. Galvalume plus, 24 gauge.

2. Stainless-Steel Sheet: 0.0187 inch (0.5 mm) thick where indicated.

2.05 COUNTERFLASHING

A. Provide counterflashing fabricated from the same metal as reglets and compatible with reglet system installed.

B. Provide counterflashing fabricated from the following metal in thickness indicated:

1. Galvalume plus, 24 gauge

2. Stainless-Steel Sheet: 0.0187 inch (0.5 mm) thick where indicated.

2.06 ACCESSORIES

A. General: Provide manufacturer's standard accessories designed and manufactured to match and fit roof edge treatment system indicated.

B. Exposed Fasteners: Stainless steel, nonmagnetic, of manufacturer's standard type and size for product and application indicated. Match finish of exposed heads with material being fastened.

C. Concealed Fasteners: Same metal as item fastened or other noncorrosive metal as recommended by manufacturer.

D. Adhesives: Type recommended by manufacturer for substrate and project conditions, and formulated to withstand minimum 60-lbf/sq. ft. (2.9-kPa) wind-uplift force.

2.07 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations relative to applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.

C. Finish manufactured roof specialties after fabrication and assembly if products are not fabricated from prefinished metals.

D. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

E. Finish color to be selected by the architect. Match colors of visible elements to adjacent approved system surfaces unless noted otherwise.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine walls, roof edges, and parapets for suitable conditions for roof edge system installation. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Coordinate with installation of roof deck and other substrates to receive work of this Section and with vapor retarders, roofing insulation, roofing membrane, flashing, and wall construction, as required to ensure that each element of the Work performs properly and that combined elements are waterproof and weathertight. Anchor products securely to structural substrates to withstand lateral and thermal stresses and inward and outward loading pressures.

B. Isolation: Where metal surfaces of units contact dissimilar metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces or provide other permanent separation as recommended by aluminum producer.

C. Expansion Provisions: Install running lengths to allow controlled expansion for movement of metal components in relation not only to one another but also to adjoining dissimilar materials, including flashing and roofing membrane materials, in a manner sufficient to prevent water leakage, deformation, or damage.

D. Comply with all SMACNA requirements.

END OF SECTION 07710

SECTION 07900 - JOINT SEALANTS**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Sealants and joint backing.

1.02 RELATED REQUIREMENTS

- A. As necessary for the complete installation and per manufacturer's recommendations.

1.03 REFERENCE STANDARDS

- A. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2005.
- B. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005a.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with other sections referencing this section.

1.05 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics.

1.06 QUALITY ASSURANCE**1.07 FIELD CONDITIONS**

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.08 WARRANTY

- A. See Section 01780 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective work within a 1 year period after Date of Substantial Completion.
- C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS: as necessary for a complete installation including the following, but not limited to:

Dow Corning - NS Parking Structure Sealant; installed between all concrete components

2.01 SEALANTS

- A. Sealants and Primers - General: Provide products having volatile organic compound (VOC) content as specified in Section 01616.
- B. Type 1 - General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; single component.
 - 1. Applications: Use for:
 - a. Control, expansion, and soft joints in masonry.
 - b. Joints between concrete and other materials.
 - c. Joints between metal frames and other materials.
 - d. Other exterior joints for which no other sealant is indicated.
- C. Type 2 - Exterior Expansion Joint Sealer: Precompressed foam sealer; urethane with water-

repellent;

1. Size as required to provide weathertight seal when installed.
 2. Provide product recommended by manufacturer for traffic-bearing use.
- D. Type 3 - Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Class 25, Uses T, I, M and A; single component.
- "Sikaflex" Im15; confirm applicability.
1. Color: Gray.
 2. Applications: Use for:
 - a. Joints in sidewalks and vehicular paving.
- E. Type 4 - Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, solvent curing, non-sagging, non-staining, fungus resistant, non-bleeding.

2.02 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C 1193.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer

when sealant cannot be applied within these temperature ranges.

G. Tool joints concave.

3.04 CLEANING

A. Clean adjacent soiled surfaces.

3.05 PROTECTION

A. Protect sealants until cured.

END OF SECTION 07900

SECTION 08110 - METAL DOORS AND FRAMES**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Non-fire-rated steel doors and frames.
- B. Thermally insulated steel doors.
- C. Accessories, including louvers.

1.02 RELATED REQUIREMENTS

- A. Section 08710 - Door Hardware.

1.03 REFERENCE STANDARDS

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.
- B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 2003.
- C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998 (R2004).
- D. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2007.
- E. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames; 2006.
- F. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers; 2007.

1.04 SUBMITTALS

- A. See Section 01300 - Administrative Requirements for submittal procedures.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced grade standard.
- C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.
- B. Maintain at the project site a copy of all reference standards dealing with installation.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store in accordance with NAAMM HMMA 840.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Steel Doors and Frames:
 - 1. Assa Abloy Ceco, Curries, or Fleming: www.assaabloydss.com.
 - 2. Steelcraft; Product: www.steelcraft.com.
 - 3. Substitutions: See Section 01600 - Product Requirements.

2.02 DOORS AND FRAMES

- A. Requirements for All Doors and Frames:
 - 1. Accessibility: Comply with ANSI/ICC A117.1.
 - 2. Door Top Closures: Flush with top of faces and edges.
 - 3. Door Edge Profile: Beveled on both edges.
 - 4. Door Texture: Smooth faces.
 - 5. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
 - 6. Galvanizing for Units in Wet Areas: All components hot-dipped zinc-iron alloy-coated (galvannealed), manufacturer's standard coating thickness.
 - 7. Finish: Factory primed, for field finishing.
- B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 STEEL DOORS

- A. Exterior Doors:
 - 1. Grade: ANSI A250.8 Level 3, physical performance Level A, Model 2, seamless.
 - 2. Core: Polystyrene foam.
 - 3. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A 653/A 653M, with manufacturer's standard coating thickness.
 - 4. Weatherstripping: Separate, see Section 08710.

2.04 STEEL FRAMES

- A. General:
 - 1. Comply with the requirements of grade specified for corresponding door, except:
 - a. ANSI A250.8 Level 1 Doors: min. 16 gage frames.
 - 2. Finish: Same as for door.
 - 3. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
 - 4. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches high to fill opening without cutting masonry units.
- B. Exterior Door Frames: Fully welded.
 - 1. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A 653/A 653M, with manufacturer's standard coating thickness.
 - 2. Weatherstripping: Separate, see Section 08710.
 - 3. Provide top leaf door channel closure at all exterior doors.

2.05 ACCESSORY MATERIALS

- A. Louvers: Roll formed steel with overlapping frame; factory-painted finish, color as selected; factory-installed.
 - 1. Style: Standard straight slat blade.

- 2. Fasteners: Exposed, tamper proof fasteners.
- B. Grout for Frames: Portland cement grout of maximum 4-inch slump for hand troweling; thinner pumpable grout is prohibited.
- C. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.
- D. Temporary Frame Spreaders: Provide for all factory or shop-assembled frames.

2.06 FINISH MATERIALS

- A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.
- B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating, prior to installation against CMU walls.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.

3.02 PREPARATION

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

- A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.
- B. Coordinate frame anchor placement with wall construction.
- C. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
- D. Coordinate installation of hardware.

3.04 TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.05 ADJUSTING

- A. Adjust for smooth and balanced door movement.

END OF SECTION 08110

SECTION 08211 - FLUSH WOOD DOORS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Solid core doors with wood veneer faces.
 - 2. Factory fitting flush wood doors to frames and factory machining for hardware.
- B. Related Sections:
 - 1. Division 9 Section "Painting" for field painting of metal louvers and metal frames for light openings.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract.
- B. Product data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory-finishing specifications.
- C. Shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location, and extent of hardware blocking, fire ratings, and other pertinent data.
 - 1. For factory-machined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.
- D. Samples for Initial Selection: Color charts consisting of actual materials in small sections for the following:
 - a. Faces of Factory-Finished Doors: Show the full range of colors available for stained finishes.
- E. Samples for Verification:
 - a. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.

1.4 QUALITY ASSURANCE

- A. Quality Standard: Comply with the following standard:
 - 1. AWI Quality Standard: Architectural Woodwork Quality Standards® of the Architectural Woodwork Institute for grade of door, core, construction, finish, and other requirements.

- B. Single-Source Responsibility: Obtain doors from one source and by a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's instructions.
- B. Identify each door with individual opening numbers as designated on shop drawings, using temporary, removable, or concealed markings.

1.6 PROJECT CONDITIONS

- A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during the remainder of the construction period to comply with the following requirements applicable to Project's geographical location:
 - 1. AWI quality standard Section 100-S-11 "Relative Humidity and Moisture Content."

1.7 WARRANTY

- A. General Warranty: Door manufacturer's warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form signed by manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span, or do not conform to tolerance limitations of referenced quality standards.
 - 1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.
 - 2. Warranty shall be in effect during the following period of time after date of Substantial Completion.
 - a. Solid Core Interior Doors: One year.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide doors by one of the following:
 - 1. Solid Core Doors:
 - a. Algoma Hardwoods, Inc.
 - b. Eggers Industries
 - c. Marshfield Door Systems
 - d. Mohawk Flush Doors, Inc.
 - e. Oshkosh Door Company
 - f. VT Industries, Inc.

2.2 INTERIOR FLUSH WOOD DOORS

- A. Solid Core Doors for Transparent Finish: Comply with the following requirements:
1. Faces: Running, book-matched, rotary-cut, white birch.
 2. A.W.I. Grade: Premium.
 3. Construction: PC 5 (Particleboard core, 5 ply, with core bonded to faces).
 4. Core: Particleboard core, ANSI A208.1, Grade LD-2.
 5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

2.3 LOUVERS AND LIGHT FRAMES

- A. Metal Louvers:
1. Blade Type: Vision-proof, inverted V.
 2. Metal and Finish: Galvanized steel, 0.0396 inch thick, hot-dip zinc coated and factory primed for paint finish.
- B. Fire Door Louvers: Metal louvers with fusible link and closing device, listed and labeled for use in doors with fire rating of one and one-half hours and less.
- C. Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.0478-inch thick, cold-rolled steel sheet; factory primed and approved for use in doors including fire rated doors where indicated.

2.4 FABRICATION

- A. Fabricate flush wood doors to comply with following requirements:
1. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels:
 - a. Comply with clearance requirements of referenced quality standard for fitting.
 2. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame shop drawings, DHI A115-W series standards, and hardware templates.
 - a. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory machining.
- B. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

2.5 FACTORY FINISHING

- A. General: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated" for factory finishing.
- B. Finish doors at factory.
- C. Transparent Finish:
1. Grade: Premium
 2. Finish: AWI System TR-6 Catalyzed Polyurethane.

3. Staining: As selected by Architect from manufacturer's full range.
4. Sheen: Satin

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine installed door frames prior to hanging door:
 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
 2. Reject doors with defects.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation see Division 8 Section "Door Hardware."
- B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and referenced quality standard and as indicated.
 1. Fitting Clearances for Non-Fire-Rated Doors: Provide 1/8 inch at jambs and heads, 1/16 inch per leaf at meeting stiles for pairs of doors, and 1/8 inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4-inch clearance from bottom of door to top of threshold.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

3.3 ADJUSTING AND PROTECTION

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at the time of Substantial Completion.

END OF SECTION 08211

SECTION 08311 - ACCESS DOORS AND FRAMES**PART 1 - GENERAL****1.01 SUMMARY**

A. This Section includes the following:

1. Ceiling access doors and frames.

1.02 SUBMITTALS

A. Product Data: For each type of door and frame indicated. Include construction details relative to materials, individual components and profiles, finishes, and fire ratings (if required) for access doors and frames.

B. Shop Drawings: Show fabrication and installation details of customized doors and frames. Include plans, elevations, sections, details, and attachments to other Work.

1.03 COORDINATION

A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment, and indicate on schedule specified in "Submittals" Article.

PART 2 - PRODUCTS**2.01 MANUFACTURERS**

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Access Doors:
 - a. Acudor Products, Inc.
 - b. Bar-Co, Inc. Div.; Alfab, Inc.
 - c. Cendrex, Inc.
 - d. Cesco Products.
 - e. Elmdor/Stoneman; Div. of Acorn Engineering Co.
 - f. Jensen Industries.
 - g. J. L. Industries, Inc.
 - h. Karp Associates, Inc.
 - i. Larsen's Manufacturing Company.
 - j. MIFAB Manufacturing, Inc.
 - k. Milcor Limited Partnership.
 - l. Nystrom Building Products Co.
 - m. Precision Plumbing Products, Inc.
 - n. Williams Bros. Corporation of America (The)

2.02 ACCESS DOORS AND FRAMES

A. Lightweight Access Doors and Frames:

1. Locations: Gypsum board ceiling surfaces.
2. Door: Minimum 0.018-inch-thick, metallic-coated steel sheet with a painted embossed finish.
3. Frame: Minimum 0.045-inch extruded aluminum with 1-1/4-inch-wide rolled flange.
4. Hinges: Continuous piano hinge, aluminum.
5. Latrowdriver-operated cam latch.

2.03 STEEL FINISHES

A. Surface Preparation: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface-preparation specifications and environmental exposure conditions of installed metal fabrications:

1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

B. Apply shop primer to uncoated surfaces of metal fabrications. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.

2.04 STAINLESS-STEEL FINISHES

A. Remove tool and die marks and stretch lines or blend into finish.

B. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.

C. Bright, Directional Polish: No. 4 finish.

1. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

END OF SECTION 08311

SECTION 08331 - OVERHEAD COILING DOORS**Part 1 - GENERAL****1.01 RELATED DOCUMENTS**

A. All of the contract documents, including general and supplementary conditions, and division 1 general requirements, apply to the work of this section.

1.02 SUMMARY

A. The work of this section includes Insulated Coiling Doors - interior.

B. Related sections: other specification sections which directly relate to the work of this section include, but are not limited to, the following:

1. SECTION 08710 - finish hardware; key cylinders for locks.

1.03 SUBMITTALS

A. Product data: submit manufacturer's product data and installation instructions for each type of rolling door. include both published data and any specific data prepared for this project.

B. Shop drawings: submit shop drawings for approval prior to fabrication. include detailed plans, elevations, details of framing members, required clearances, anchors, and accessories. include relationship with adjacent materials.

1.04 QUALITY ASSURANCE

A. Manufacturer: coiling doors shall be manufactured by a firm with a minimum of five years experience in the fabrication and installation of rolling doors. manufacturers proposed for use, which are not named in these specifications, shall submit evidence of ability to meet performance and fabrication requirements specified, and include a list of five projects of similar design and complexity completed within the past five years.

B. Installer: installation of coiling doors shall be performed by an authorized representative of the manufacturer.

C. Single-source responsibility: provide doors, guides, motors, and related primary components from one manufacturer for each type of door. provide secondary components from source acceptable to manufacturer of primary components.

D. Pre-installation conference: schedule and convene a pre-installation conference just prior to commencement of field operations, to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials and products in labeled protective packages. store and handle in strict compliance with manufacturer's instructions and recommendations. protect from damage from weather, excessive temperatures and construction operations.

PART 2 - PRODUCTS**2.01 ACCEPTABLE MANUFACTURER**

A. Provide coiling doors by "Overhead Door Corporation", Pennsylvania Division; telephone 800-929-2553 or 717-248-0131; fax 800-929-1274.

2.02 COILING DOORS

A. Trade reference: 625 Series stormtite insulated service doors by overhead door corporation.

B. Curtain: interlocking roll-formed slats as specified following. endlocks shall be attached to each end of alternate slats to prevent lateral movement.

1. Flat profile type f-265i for doors up to 40'0" wide. the front slat shall be fabricated of 24 gauge galvanized steel. the back slat shall be 24 gauge galvanized steel.

2. Slat cavity shall be filled with cfc-free foamed-in-place, polyurethane insulation.

C. Finish:

1. Galvanized steel: slats and hood shall be galvanized steel in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester (powder coated) top coat. non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
2. Stainless steel: slats and hood shall be stainless steel with (no. 4 satin finish).

D. Color: gray polyester top coat.

E. Weatherseals: vinyl bottom seal, exterior guide and internal hood seals.

F. Bottom bar: two prime (galvanized steel) angles, minimum thickness 1/8" bolted back to back to reinforce curtain in the guides.

G. Guides: three (galvanized) structural steel angles with minimum thickness of 3/16". guides shall be weatherstrip

H. Brackets: hot rolled steel (galvanized steel)(stainless steel) to support counterbalance, curtain and hood.

I. Counterbalance: helical torsion spring type designed for standard 20,000 cycle (50,000 cycle) (100,000 cycle) life design. counterbalance shall be housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03" per foot of span. counterbalance shall be adjustable by means of an adjusting tension wheel.

J. Hood: galvanized steel, 24 gauge (stainless steel, 24 gauge)(aluminum) hood with intermediate supports as required. provide with internal hood baffle weatherseal.

K. Manual operation: chain hoist (crank operation).

L. If indicated on drawings - electric motor operation: provide UL listed electric operator, size as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.

1. sensing edge protection: (pneumatic sensing edge.)(electric sensing edge.)

2. operator controls: push-button (key)(push-button and key) operated control stations with open, close, and stop buttons for surface (flush) mounting, for interior (exterior) (both interior and exterior) location.

3. special operation: (vehicle detector operation, radio control operation, card reader control, photocell operation, door timer operation, commercial light package, explosion and dust ignition proof control wiring.)

M. Locking: interior bottom bar slide boltlock for manually operated doors. chain keeper locks for chain hoist operation. (interior slide bolt lock for electric operation with interlock switch.) (cylinder lock for electric operation with interlock switch.)

N. Wall mounting condition: face-of-wall mounting.

PART 3 - EXECUTION

3.01 PREPARATION

A. Take field dimensions and examine conditions of substrates, supports, and other conditions under which this work is to be performed. do not proceed with work until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Strictly comply with manufacturer's installation instructions and recommendations. coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.

B. Instruct owner's personnel in proper operating procedures and maintenance schedule.

3.03 ADJUSTING AND CLEANING

A. Test coiling doors for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. Touch-up damaged coatings and finishes and repair minor damage. clean exposed surfaces using non-abrasive materials and methods recommended by manufacturer of material or product being cleaned.

END OF SECTION 08331

SECTION 08334 – COILING COUNTER DOORS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Roll-up (coiling) counter doors.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 4 Section "Concrete Unit Masonry" for building anchors into and grouting frames in masonry construction.

1.3 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.

1.4 SUBMITTALS

- A. Approval Numbers: Provide State of Florida Product Approval Numbers for exterior door assemblies.
- B. Product Data: Include construction details, material descriptions, finishes, details of installation, associated accessories, and locking hardware for each type of coiling counter door specified.
- C. Shop Drawings:
 - 1. In addition to requirements below, provide a schedule of coiling counter doors using the same reference numbers for details and openings as those on Drawings:
 - a. Elevations of each coiling door design.
 - b. Details of coiling doors.
 - c. Frame details.
 - d. Details for locking hardware.
 - e. Details of each different wall opening condition.
 - f. Details of anchorages, accessories, joints, and connections.
 - 2. State of Florida Product Approval must be applicable to actual door and frame sizes and configurations indicated on drawings.

3. O & M Manual: Submit operation and maintenance manual in accordance with the requirements of Section 017823 – Operation and Maintenance Data.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Provide the services of a manufacturer's representative, experienced in the installation, operation, and maintenance of overhead coiling counter doors of the type specified, for technical assistance and advice during installation and testing.
- C. Exterior, Hurricane-Resistant Door Assemblies: All doors opening to the outside atmosphere shall resist the cyclic pressures, static pressures, and missile impact loads as detailed in the Florida Building Code test protocols TAS 201, TAS 202, and TAS 203.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
- B. Store doors and frames under cover at Project site. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- high wood blocking. Avoid using nonvented plastic or canvas shelters that could create a humidity chamber.
 1. If wrappers on doors become wet, remove cartons immediately. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

1.7 PROJECT CONDITIONS

- A. Field Measurements: Verify openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.8 COORDINATION

- A. Coordinate installation of anchorages for frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Type and Manufacture: Roll-up counter doors shall be complete, factory- fabricated door and frame assemblies, manufactured of 300 Series stainless steel, hand push –up or crank operated, mounted within the provided opening as indicated. Doors shall be counter balanced for smooth and easy operation. Subject to compliance with requirements, provide products by one of the following:
 1. Best Rolling Doors, Inc.

2. Cornell Iron Works.
3. Other than noted above submitted in accordance with required substitution procedures.

2.2 MATERIALS

- A. Curtain: Interlocking insulated slats, flat slat design, manufactured from ASTM A167 Series 300 stainless steel, minimum 22 gage. Size and style of slat shall be as selected by the Engineer from manufacturer's standards.
- B. Guides: 300-Series stainless-steel box guides.
- C. Footpiece: 300-Series stainless-steel tubular section with rubber bumper and with two recessed pulls for hand pushup operated doors.
- D. Hood: Minimum 24 gage 300-Series stainless steel.
- E. Weatherstripping: Wool pile at jambs for weatherproofing, dust protection, and to eliminate metal-to-metal contact.
- F. Security Hardware: Concealed slide bolt operation by thumb knob from interior side only.
- G. Fasteners: 300 Series stainless steel.
- H. Operation: Hand push-up operation for doors up to 4 feet 6 inches in width, and hand crank operation for doors more than 4 feet 6 inches in width.
- I. Gears: Cast iron, with gear ratio designed for maximum 30-pound manual effort.
- J. Counterbalancing: Adjustable oil-tempered torsion springs capable of counterbalancing weight of curtain; with barrel sized to limit deflection to 0.03 inch per foot.
- K. Finish: No. 4 polished satin finish for exposed stainless steel surfaces.

2.3 FABRICATION

- A. General: Fabricate roll-up (coiling) counter doors to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of standard steel doors and frames.

1. Examine roughing-in for embedded and built-in anchors to verify actual locations of frame connections before frame installation.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install roll-up (coiling) counter doors in accordance with the manufacturer's installation instructions and the approved Shop Drawings.
- B. Test, adjust, and service the door assembly as required for proper operation.

3.3 ADJUSTING AND CLEANING

- A. At completion, the counter door assembly shall be square, plumb, and level, accurately aligned, and securely anchored to the supporting structure.
- B. Clean grout and other bonding material off standard steel doors and frames immediately after installation.
- C. Roll-up counter doors shall operate smoothly, quietly, and free from binding, with the footpiece striking sill surface uniformly for its entire length.
- D. Exposed surfaces of assembly shall be clean and free from scratches, dents, tool marks, stains, discoloration, and other defects and damage.
- E. At completion, lubricate moving parts as required for a smooth and quiet operation. Clean and polish all exposed surfaces.

END OF SECTION 08334

SECTION 08520 – ALUMINUM WINDOWS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. The Project Requirements and the Contractual Conditions, Division 1 apply to this Section.

1.2 SCOPE

- A. Work required under this Section consists of providing all necessary services, tools, equipment, material, and labor required to provide and install the windows, window accessories and items essential to complete the Work shown on the Drawings or required by the Specifications, including (but not limited to) the following: (By a Single Source Manufacturer)

1. Fix and By-Pass Windows
2. Anchors and fastenings
3. Glazing beads
4. Hardware pertaining to operating windows
5. Necessary break-metal
6. Subframe and sills
7. Mullions and mullion anchors
8. Insect screens

1.3 CRITERIA FOR STRUCTURAL TEST PRESSURE, AIR INFILTRATION AND WATER PENETRATION.

- A. General: Provide aluminum window systems capable of withstanding loads and thermal and structural movement requirements indicated without failure, based on testing manufacturer's standard units in assemblies similar to those indicated for this Project. Failure includes the following:

1. Air infiltration and water penetration exceeding specified limits.
2. Framing members transferring stresses, including those caused by thermal and structural movement, to glazing units.

- B. Glazing: Physically and thermally isolate glazing from framing members.

- C. Wind Loads: Provide window systems, including anchorage, capable of withstanding the indicated wind-load design pressures calculated according to the requirements of the Florida Building Code and ASCE 7-02.

1. **Positive pressure = Refer to structural drawings for design pressures.**
2. **Negative pressure = Refer to structural drawings for design pressures.**
3. Deflection of framing members in a direction normal to wall plane is limited to 1/175 of clear span or 3/4 inch, whichever is smaller, unless otherwise indicated.

4. Static-Pressure Test Performance: Provide window systems that do not evidence material failures, structural distress, failure of operating components to function normally, or permanent deformation of main framing members exceeding 0.2 percent of clear span when tested according to ASTM E 330.
 - a. Test Pressure: 150 percent of inward and outward wind-load design pressures.
 - b. Duration: As required by design wind velocity; fastest 1 mile of wind for relevant exposure category.
- D. Hurricane-Resistance Test Performance: Provide window systems that pass large and small missile-impact tests, as required by systems' location above grade, and cyclic-pressure tests according to The Florida Building Code, Sections 1606 and 1626.
- E. Dead Loads: Provide window-system members that do not deflect an amount which will reduce glazing bite below 75 percent of design dimension when carrying full dead load.
 1. Provide a minimum 1/8-inch clearance between members and top of glazing or other fixed part immediately below.
 2. Provide a minimum 1/16-inch clearance between members and operable windows and doors.
- F. Live Loads: Provide window systems, including anchorage, that accommodate the supporting structures' deflection from uniformly distributed and concentrated live loads indicated without failure of materials or permanent deformation.
- G. Engineering Responsibility: Window subcontractor shall engage a Florida registered structural engineer to design connections, member reinforcements, and fastening to building structure, and prepare signed and sealed design calculations and engineering data.
- H. Water Penetration: Provide entrance and storefront systems that do not evidence water leakage through fixed glazing and frame areas when tested according to ASTM E 331 at minimum differential pressure of 20 percent of inward-acting wind-load design pressure as defined by ASCE 7, "Minimum Design Loads for Buildings and Other Structures," but not less than 6.24 lbs. per sq. ft. Water leakage is defined as follows:
 1. Uncontrolled water infiltrating systems or appearing on systems' normally exposed interior surfaces from sources other than condensation. Water controlled by flashing and gutters that is drained back to the exterior and cannot damage adjacent materials or finishes is not water leakage.
- I. Thermal Movements: Provide window systems, including anchorage, that accommodate thermal movements of systems and supporting elements resulting from the following maximum change (range) in ambient and surface temperatures without buckling, damaging stresses on glazing, failure of joint sealants, damaging loads on fasteners, failure of doors or other operating units to function properly, and other detrimental effects.
 1. Temperature Change (Range): 100 deg F ambient; 150 deg F material surfaces.
- L. Dimensional Tolerances: Provide window systems that accommodate dimensional tolerances of building frame and other adjacent construction.

1.4 QUALITY ASSURANCE

- A. Windows shall be fabricated and installed in a manner which will meet all pertinent requirements of the AAMA Voluntary Guide Specifications for Aluminum Architectural Windows and shall be certified by the AAMA.
- B. Windows shall meet the requirements of the American National Standard "voluntary Specifications for Aluminum windows and Sliding Glass Doors".
- C. The frame depth specified shall be measured as the depth of the main frame section, leg to leg, excluding all accessories such as screen tracks, drip edges or other protrusions past the outside frame legs. The frame depth identified in each projected or single hung window type has been carefully chosen to provide structural integrity and durability to insure the windows long life and maintainability. To supply windows under this specification the window must meet the minimum frame depth identified and also all other parameters of this specification.
- D. Windows, glass, mullions, anchorage and fastenings shall be designed, fabricated and installed in a manner to be able to successfully resist full reaction to specified design pressure.
- E. Windows, mullions and installation system shall be designed, fabricated and installed in a manner to comply with the minimum air and water penetration requirements set forth.
- F. Air infiltration: Units shall be designed, fabricated and installed in a manner that the air infiltration rate for P-HC65 Heavy Commercial Projected Series shall not exceed 0.10cfm/ft. at 6.24 pounds per square foot. The finished installation may be field quality control tested for compliance. Test method shall be AAMA 502.90. (Note 65 rating is a minimum. Job conditions may require higher rated unit.) See page 1.
- G. Structural performance: Units shall be designed, fabricated and installed in a manner that allows no glass breakage, or permanent damage to hardware or parts and no failure or permanent deflection with a minimum positive (inward) and a negative (outward) test pressure, as set forth in paragraph 3 above as Structural Test Pressure – 1.5 x Design Pressure.
- H. Forced-entry resistance characteristics of the units as designed fabricated, and installed shall conform to AAMA 1302.5
- I. Test reports: Provide, at no expense to the Owner, from an independent testing laboratory acceptable to the Project Architect, test reports indicated compliance (of each type of window in accordance with ANSI/AAMA 101.88 with the requirements of the above paragraphs). The following criteria shall be utilized in testing:
 - 1. Air infiltration ASTM E 283-83
 - 2. Water penetration, ASTM E 331-83/ASTM E 547-83
 - 3. Structural performance ASTM E 330-79
 - 4. Forced entry AAMA Certification.
- J. Hurricane-Resistance Test Performance: Provide window systems that pass large and/or small missile-impact tests, as required by systems' location above grade, and cyclic-pressure tests according to the Florida Building Code, Section 1626 – Impact Tests for Windborne Debris.

K. Test reports must include the following:

1. Series/Model Number (to indicate the pertinent window is being tested).
2. Type, sizes overall, and vent size tested.
3. Glazing – (inside snap-in glazing bead).
4. Weather stripping (same as used on standard units).
5. Frame construction (must be certified that the unit tested is the "typical" assembly line unit).
6. Vent construction (must be certified in the report to insure that the unit tested is the "typical" assembly line unit).
7. Hardware (must be certified that the unit tested is the "typical" assembly line unit).
8. Test procedure (certification as to conformance to specification).
9. Title of test (air, water, uniform load structural, torsion test, horizontal & vertical load, torsion test on intermediate rails, etc).
10. Balance arm tests (for compliance with AAMA 904.1.87 hinge grade "C" for horizontal concentrated load, vertical concentrated load, torsion tests on intermediate frames, and balance any load tests per AAMA 902.2-87 for sash boldness).
11. Optional performance class tests.

1.5 SUBMITTALS

A. Manufacturer's data:

1. Submit manufacturer's data establishing series to be supplied, metal thickness and profile finishes, details, structural characteristics and properties.
2. Evidence indicating compliance with these specifications. Testing laboratory reports must be upon current product manufactured.
3. Warranties, as specified herein.

B. Shop drawings:

1. Submit signed and sealed shop drawings depicting series, profiles and thickness, elevation views and dimensions, mullions, anchorage, quantities, finish and other pertinent data. Also furnish the actual Section Modulus (s) and Moment of Inertia (I) of the mullion proposed to be used. Submit mullion anchorage details. Submit details of periphery anchorage. (See paragraphs on anchorage.)

All calculations shall be signed and sealed by a Florida registered professional structural engineer.

C. Provide test reports required in Section 1.4 - K above.

1.6 PRODUCT DELIVERY AND STORAGE

- A. Deliver materials to the site in manufacturer's original sealed containers with the labels legible and intact.
- B. Comply with manufacturer's recommendations and with the AAMA Voluntary Guide Specifications for Aluminum Architectural Windows as to transportation, handling, storing and protecting materials.

- C. Windows shall be properly packaged and loaded onto trucks under careful supervision of the manufacturer. Windows shall be carefully unloaded at the site, each packaged unit looked at and jointly receipted by the Contractor and the window suppliers. Windows shall be stored in unopened packages on site in space protected from weather or other damage. Windows shall be transported only in the manufacturer's trucks, or if approved by the PA/E, in trucks owned by a company regularly employed by the manufacturer in a shipment only of windows to this site. Damaged cartons shall be opened immediately. Damaged windows shall be replaced immediately.

PART 2 – PRODUCTS

2.1 FIX WINDOWS – IMPACT RESISTANT

- A. Casement windows: Aluminum. Finish to be clear anodized to match existing.
- B. Provide weather drips at heads.
- C. Following manufacturers are approved, subject to compliance with these Specifications.
1. EFCO Corporation – Series 2600
 2. Winco.
 3. PGT Winguard.

2.2 GLAZING

- A. Windows furnished under this Section 08800 shall be factory glazed to match glass specified and scheduled.

2.3 SUBFRAME AND MULLIONS

- A. Subframe: Extruded aluminum to be no less than .125 at head, jamb, and sill.
- B. Horizontal and vertical mullions shall meet requirements of appearance and design details shown and specified, and shall have structural properties equal or greater to those shown on the Drawings. If manufacturer's load tables require greater structural characteristics (for specified wind loads), then the greater requirements shall be provided for. In any event, the specified (S) and (I) shall be provide as a minimum.

2.4 ANCHORAGE

- A. Per approved engineered submittal.

2.5 WORKMANSHIP

- A. Fixed Frame: Components shall be mechanically fastened.
Operable Frame: Components shall be mortised and tenoned.
- B. Seal joints in concealed manner with liquid rubber type sealant to form weather-tight joint.
- C. Do aluminum welding by factory method with proper aluminum alloy rod for color match. Grind welds or flat surfaces smooth to match surrounding metal. Provide 1/8 inch radius on welds in corners; grind where exposed.
- D. Fill, grind and polish welds where exposed, in first class workmanlike manner.

- E. Fastenings, other than welded, shall be made with stainless steel, stainless steel bolts of other stainless steel devices, except where other materials are referenced in these Specifications.
- F. Give metal surfaces to be placed in contact with unlike materials, metals, concrete, cast stone or masonry, heavy coating (6 mil) of alkali-resistant bituminous paint. Designate on shop drawings which surfaces the coating is to be applied to, as well as the type of paint and its manufacturer.

PART 3 – EXECUTION

3.1 INSPECTION

- A. The Installer shall examine the areas and conditions where window work is to be installed and shall notify the Contractor in writing of conditions detrimental to the proper and timely completion of this phase of the Work. Do not proceed with this phase until unsatisfactory conditions have been corrected. Commencement of work shall be construed as acceptance of the conditions by the Installer.

3.2 INSTALLATION

- A. Set windows plumb, square, level, at proper elevation and locate in proper alignment. Properly anchor and make properly operable.
- B. Install work in a watertight manner and caulk in accordance with requirements of the "Caulking and Sealant" Section of these Specifications.
- C. Install windows in accordance with manufacturer's recommendations and the AAMA Voluntary Guide Specifications for Architectural Windows except where requirements of this Specification are greater. Where such are in conflict with these Specification, these Specifications shall govern.
- D. Thoroughly clean aluminum with plain water of a petroleum product such as white gasoline, kerosene or distillate and as recommended by the manufacturer. Use no abrasive cleaning agents.

3.3 WARRANTIES

- A. Total Window System:
 - 1. This contractor shall assume full responsibility and warrant for three (3) years following the date of final Substantial.

Completion the satisfactory performance of the total window installation which includes that of the windows, hardware, parts, glass (including insulating units), glazing, anchorage and setting systems, sealing, flashing, etc., as it related to operating, air, water and structural adequacy.
 - 2. Any deficiencies shall be corrected by this Contractor at no additional cost to the Owner.
- B. Materials, factory workmanship and transportation:

1. The manufacturer shall warrant for five (5) years following the date of final Substantial Completion against defects in materials and factory workmanship and shall correct such defects at no expense to the Owner.
- C. Three original copies of the above warranties, properly executed, shall be delivered via the contractor and the PA/E to the Owner with the Close-Out Documents.

END OF SECTION 08520

SECTION 08710 - FINISH HARDWARE**PART I - GENERAL****1.01 WORK INCLUDED**

- A. The work in this section shall include furnishing of all items of finish hardware as hereinafter specified or obviously necessary to complete the building, except those items that are specifically excluded from this section of the specification.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Hollow Metal Doors and Frames
- B. Aluminum Doors and Frames
- C. Wood Doors and Frames

1.03 DESCRIPTION OF WORK

- A. Furnish labor and material to complete hardware work indicated, as specified herein, or as may be required by actual conditions at building.
- B. Include all necessary screws, bolts, expansion shields, other devices, if necessary, as required for proper hardware application. The hardware supplier shall assume all responsibility for correct quantities.
- C. Hardware shall meet the requirements of Federal, State and Local codes having jurisdiction over this project, notwithstanding any real or apparent conflict therewith in these specifications.
- D. Fire-rated openings:
 - 1. Provide hardware for fire-rated openings in compliance with A.I.A. (NBFU) Pamphlet No. 80, NFPA Standards NO. 101, UBC 702 (1997) and UL10C. This requirement takes precedence over other requirements for such hardware. Provide only hardware that has been tested and listed by UL for the types and sizes of doors required, and complies with the requirements of the door and door frame labels.
 - 2. Panic exit devices are required on fire-rated doors, provide supplementary marking on door UL label indicating Fire Door to be equipped with fire exit hardware and provide UL label on exit device indicating "Fire Exit Hardware".
- E. Hurricane Openings
 - 1. Provide hardware for hurricane openings in compliance with local jurisdiction. This requirement takes precedence over other requirements for such hardware. Provide only hardware that has been tested and listed by local authority for the types and sizes of doors required, and complies with the requirements of the door and door frame.
- F. Fasteners:
 - 1. Hardware as furnished shall conform to published templates generally prepared for machine screw installation.
 - 2. Furnish each item complete with all screws required for installation. Typically, all exposed screws installation.
 - 3. Insofar as practical, furnished concealed type fasteners for hardware units that have exposed screws shall be furnished with Phillips flat head screws, finished to match adjacent hardware.
 - 4. Door closers and exit devices to be installed with closed head through bolts (sex bolts).

1.04 QUALITY ASSURANCE

- A. The supplier to be a directly franchised distributor of the products to be furnished and have in their employ an AHC (Architectural Hardware Consultant). This person is to be

available for consultation to the architect, owner and the general contractor at reasonable times during the course of work.

- B. The finish hardware supplier shall prepare and submit to the architect six (6) copies of a complete schedule identifying each door and each set number, following the numbering system and not creating any separate system himself. He shall submit the schedule for review, make corrections as directed and resubmit the corrected schedule for final approval. Approval of schedule will not relieve Contractor of the responsibility for furnishing all necessary hardware, including the responsibility for furnishing correct quantities.
- C. No manufacturing orders shall be placed until detailed schedule has been submitted to the architect and written approval received.
- D. After hardware schedule has been approved, furnish templates required by manufacturing contractors for making proper provisions in their work for accurate fitting, finishing hardware setting. Furnish templates in ample time to facilitate progress of work.
- E. Hardware supplier shall have an office and warehouse facilities to accommodate the materials used on this project. The supplier must be an authorized distributor of the products specified.
- F. The hardware manufactures are to supply both a pre-installation class as well as a post-installation walk-thru. This is to insure proper installation and provide for any adjustments or replacements of hardware as required.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Wrap, protect finishing hardware items for shipment. Deliver to manufacturing contractors hardware items required by them for their application; deliver balance of hardware to job; store in designated location. Each item shall be clearly marked with its intended location.

1.06 WARRANTY

- A. The material furnished shall be warranted for one year after installation or longer as the individual manufacturer's warranty permits.
- B. Overhead door closers shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a period of ten (10) years commencing on the Date of Final Completion and Acceptance, and in the event of failure, the manufacture is to promptly repair or replace the defective with no additional cost to the Owner.

PART II - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. To the greatest extent possible, obtain each kind of hardware from only one manufacturer.
- B. All numbers and symbols used herein have been taken from the current catalogues of the following manufacturers.

PRODUCT	ACCEPTABLE MANUFACTURER	ACCEPTABLE SUBSTITUTE
1) Hinges	Ives	Hager, Stanley , Bommer
2) Locks & Latches	Schlage	None (Owners standard)
3) Cylinders, Keys, Keying	Schlage Everest	None (Owners standard)
4) Exit Devices	Von Duprin	None (Owners standard)
5) Door Closers	LCN	None (Owners standard)
6) OH Stops/ HOLDERS	Glynn Johnson	Rixson
FINISH HARDWARE		
08710 - 2		

7) Magnetic Hold Opens	LCN	Dor-O-Matic
8) Wall Stops/Floor Stops, Flushbolts	Ives	Rockwood, G J
9) Kick Plates	Ives	Quality, Rockwood
10) Threshold/Weather-strip	National Guard	Pemko, Zero
11) Silencers	Ives	Rockwood, GJ
12) Key Cabinet	Lund	Key Control

- C. If material manufactured by other than that specified or listed herewith as an equal, is to be bid upon, permission must be requested from the architect seven (7) days prior to bidding. If substitution is allowed, it will be so noted by addendum.

2.02 FINISH OF HARDWARE:

- A. Exterior Hinges to be Stainless Steel (32D), Interior Hinges to be Satin Chrome (26D). Door Closers to be Aluminum. Locks to be Satin Chrome (26D), Exit Devices to be Satin Chrome (26D). Overhead Holders to be Satin Chrome (26D), Flat Goods to be Satin Chrome (26D) or Stainless Steel (32D) and the Thresholds to be Mill Finish Aluminum.

2.03 HINGES AND PIVOTS:

- A. Exterior butts shall be Stainless Steel. Butts on all out swinging doors shall be furnished with non-removable pins (NRP).
 B. Interior butts shall be as listed.
 C. Doors 5' or less in height shall have two (2) butts. Furnish one (1) additional butt for each 2'6" in height or fraction thereof. Dutch door shall have two (2) butts per leaf.

2.04 KEYING:

- A. All locks and cylinders shall be Schlage Everest key system; all bittings shall be issued by Schlage Lock.
 B. Provide Two (2) each change keys per lock and Six (6) each grand master and master keys. All keys to be Patent Restricted.
 C. Hardware supplier to provide temporary cylinders or cores during the construction phase. The contractor is to change out the temporary cylinders for the permanent cylinders.

2.05 LOCKSETS:

- A. Locksets shall be Heavy Duty Mortise type, unless specified otherwise, in "L" series, 07A lever design as manufactured by Schlage.

1. Acceptable substitutions:

- A. None (Owners standard)

2.06 EXIT DEVICES:

- A. All devices shall be Von Duprin 98 Series in types and functions specified. All devices must be listed under "Panic Hardware" in accident equipment list of Underwriters Laboratories. All labeled doors with "Fire Exit Hardware" must have labels attached and be in strict accordance with Underwriters Laboratories.
 B. All exit devices shall be tested to ANSI/BHMA A156.3 test requirements by a BHMA certified testing laboratory. A written certification showing successful completion of a minimum of 1,000,000 cycles must be provided.
 C. All surface strikes shall be roller type and come complete with a plate underneath to prevent movement. And shall be provided with a dead-latching feature to prevent latchbolt tampering.

1. Acceptable substitutions:

A. None (Owners standard)

2.07 DOOR CLOSERS:

- A. All closers shall be LCN 4000 series having non-ferrous covers, forged steel arms separate valves for adjusting backcheck, closing and latching cycles and adjustable spring to provide up to 50% increase in spring power. Closers shall be furnished with parallel arm mounted on all doors opening into corridors or other public spaces and shall be mounted to permit 180 degrees door swing wherever wall conditions permit. Furnish with non-hold open arms unless otherwise indicated.
- B. Door closer cylinders shall be of high strength cast iron construction to provide low wear operating capabilities of internal parts throughout the life of the installation. All door closers shall be tested to ANSI/BHMA A156.4 test requirements by a BHMA certified testing laboratory. A written certification showing successful completion of a minimum of 10,000,000 cycles must be provided.
- C. Door closers shall utilize temperature stable fluid capable of withstanding temperature ranges of 120 degrees Fahrenheit to -30 degrees Fahrenheit, without requiring seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with the standards UBC 7-2 (1997) and UL 10C.
- D. Door closers shall incorporate tamper resistant non-critical screw valves of V-slot design to reduce possible clogging from particles within the closer. Closers shall have separate and independent screw valve adjustments for latch speed, general speed, and hydraulic backcheck. Backcheck shall be properly located so as to effectively slow the swing of the door at a minimum of 10 degrees in advance of the dead stop location to protect the door frame and hardware from damage. Pressure relief valves (PRV) are not acceptable.
 - 1. Acceptable substitutions:
 - A. None (Owners standard)

2.08 TRIM AND PLATES:

- A. Kick plates, mop plates, and armor plates, shall be .050 gauge with 630 finish. Kick plates to be 10" high, mop plates to be 4" high. All plates shall be two (2) inches less full width of door.
- B. Push plates, pull plates, door pulls, and miscellaneous door trim shall be shown in the hardware schedule.

2.09 DOOR STOPS:

- A. Doorstops shall be furnished for all doors to prevent damage to doors or hardware from striking adjacent walls or fixtures. Wall bumpers equal to IVES 407 Series are preferred, but where not practical furnish floor stops equal to IVES 436 or 438 series. Where conditions prohibit the use of either wall or floor type stops, furnish surface mounted overhead stops equal to Glynn Johnson, 450 Series.

2.10 THRESHOLDS AND WEATHERSTRIP:

- A. Thresholds and weather-strip shall be as listed in the hardware schedule.

2.11 DOOR SILENCERS:

- A. Furnish rubber door silencers equal to IVES 20 for all new interior hollow metal frames, (2) per pair and (3) per single door frame.

PART III - EXECUTION**3.01 INSTALLATION:**

- A. All hardware shall be applied and installed in accordance with the Finish Hardware schedule. Care shall be exercised not to mar or damage adjacent work.
- B. Contractor to provide a secure lock-up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items that are not immediately replaceable, so that the completion of the work will not be delayed by hardware losses both before and after installation.
- C. No hardware is to be installed until the hardware manufactures have provided a pre-installation class. To insure proper installation of the specified products a post-installation inspection is to be conducted.

3.02 ADJUSTING AND CLEANING:

- A. Contractor shall adjust all hardware in strict compliance with manufacturer's instructions. Prior to turning project to owner, contractor shall clean and make any final adjustments to the finish hardware.

3.03 PROTECTION:

- A. Contractor shall protect the hardware, as it is stored on construction site in a covered and dry place.
- B. Contractor shall protect exposed hardware installed on doors during the construction phase.

3.04 KEY CABINET:

- A. Set up and index one (1) Key Cabinet that allows room for expansion for 150% of the number of keys for the project.

3.05 HARDWARE SCHEDULE:

- A. The following schedule is furnished for whatever assistance it may afford the contractor; do not consider it as entirely inclusive. Should any particular door or item be omitted in any scheduled hardware group, provide door or item with hardware same as required for similar purposes. Quantities listed are for each pair of doors or for each single door.
- B. This hardware schedule was prepared by.

IR – Security Technology
3451 Technological Ave, Suite 7
Orlando FL 32817
Ph: 407-571-2000
Fax 407-571-2006

Hardware Group No. 01

For use on mark/door #(s):

X101 X105 X106 X107 X109

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HW HINGE	3CB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	CLASSROOM LOCK	ND70PD SPA	626	SCH
1	EA	LOCK PROTECTOR	BLP-107	630	DON
1	EA	SURFACE CLOSER	4111 SCUSH SRI	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	SET	SEALS	188S	BLK	ZER
1	EA	THRESHOLD	65A MSLA-10	AL	ZER

Hardware Group No. 02

For use on mark/door #(s):

X103

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HW HINGE	3CB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	ENTRANCE LOCK	ND53PD SPA	626	SCH
1	EA	LOCK PROTECTOR	BLP-107	630	DON
1	EA	SURFACE CLOSER	4111 SCUSH SRI	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	SET	SEALS	188S	BLK	ZER
1	EA	THRESHOLD	65A MSLA-10	AL	ZER

Hardware Group No. 03

For use on mark/door #(s):

101 201 202

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	3PB1 4.5 X 4.5	652	IVE
1	EA	ENTRANCE LOCK	ND53PD SPA	626	SCH
1	EA	OH STOP	450S	630	GLY
3	EA	SILENCER	SR64	GRY	IVE

END OF SECTION 08710

SECTION 08900 – LOUVERS AND VENTS**PART 1 - GENERAL****1.1 LOUVER**

- A. Horizontal, Florida Building Code Approved Drainable Louver
 - 1. Products:
 - a. Ruskin Company Model ELF6375DFL
 - b. Industrial Louvers, Inc. Model 653XPDC
 - c. Airolite Company, LLC, Model K6746X
 - 2. Louver Depth: 6"
 - a. Provide extended sill accessory; screen not required.
 - 3. Frame and Blade Nominal Thickness: As required to comply with structural performance requirements, but not less than 0.080 inch for frames and blades.
 - 4. Performance Requirements
 - a. Percent Free Area: Not less than 54%.
 - 5. AMCA Seal: Mark units with AMCA Certified Ratings Seal.

1.2 LOUVER SCREENS

- A. General: Provide bird screen behind each exterior louver in building walls.
- B. Secure screens to louver frames with stainless-steel machine screws, spaced a maximum of 6 inches from each corner and at 12 inches o.c.
- C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated.
 - 1. Metal: Same kind and form of metal as indicated for louver to which screens are attached. Reinforce extruded-aluminum screen frames at corners with clips.
 - 2. Finish: Same finish as louver frames to which louver screens are attached.
 - 3. Type: Rewirable frames with a driven spline or insert for securing screen mesh.
- D. Louver Screening for Aluminum Louvers:
 - 1. Insect Screening: Fiberglass, 16x18 mesh (51% free area), 0.0048-inch wire.

1.3 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

END OF SECTION 08900

SECTION 09221 - PORTLAND CEMENT PLASTER**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. This Section includes the following:
 - 1. Metal Lath and accessories.
 - 2. Plastic accessories
 - 3. Portland cement plaster.
 - 4. Portland cement finishes

1.02 RELATED REQUIREMENTS

- A. Section 04810 - Unit Masonry Assemblies:.

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data for each product specified.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver cementitious materials to Project site in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.
- B. Store materials inside, under cover, and dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

1.05 PROJECT CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of ASTM C 926 for application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application.
- B. Warm-Weather Requirements: Protect plaster against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster as required by climatic and job conditions to prevent dry out during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.
- C. Exterior Plaster Work: Do not apply plaster when ambient temperature is below 40 deg F.
- D. Protect contiguous work from soiling and moisture deterioration caused by plastering. Provide temporary covering and other provisions necessary to minimize harmful spattering of plaster on other work.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Expanded-Metal Lath:
 - a. Alabama Metal Industries Corp. (AMICO).
 - b. California Expanded Metal Products Co.
 - c. Dale//Incor Industries, Inc.
 - d. Marino/Ware; Division of Ware Industries, Inc.

- e. Phillips Manufacturing Company.
- f. Unimast, Inc.
- g. Western Metal Lath Co.
- 2. Metal Accessories:
 - a. Alabama Metal Industries Corp. (AMICO).
 - b. California Expanded Metal Products Co.
 - c. Dale//Incor Industries, Inc.
 - d. Dietrich Industries, Inc.
 - e. Flannery, Inc.
 - f. Fry Reglet Corporation.
 - g. Gordon, Inc.
 - h. Metalex (Keene Products).
 - i. National Gypsum Co.
 - j. Pittcon Industries.
 - k. Stockton Products.
 - l. Unimast, Inc.
 - m. United States Gypsum Co.
 - n. Western Metal Lath Co.
- 3. Plastic Accessories:
 - a. Alabama Metal Industries Corp. (AMICO).
 - b. Plastic Components, Inc.
 - c. Vinyl Corp.
- 4. Stucco:
 - a. California Stucco Products Corp.
 - b. Florida Stucco Corp.
 - c. Highland Stucco.
 - d. IPA Systems, Inc.
 - e. United States Gypsum Co.

2.02 ACCESSORIES

- A. General: Comply with material provisions of ASTM C 1063 and the requirements indicated below; coordinate depth of accessories with thicknesses and number of plaster coats required.
 - 1. Zinc-Alloy Components: ASTM B 69, 99 percent pure zinc.
 - 2. Plastic Components: ASTM D 4216, high-impact polyvinyl chloride (PVC) for building products.
- B. Cornerbeads: Small nose cornerbeads fabricated from the following metal, with expanded flanges of large-mesh diamond-metal lath allowing full plaster encasement.
 - 1. Zinc Alloy: Minimum 0.0207 inch thick.
 - 2. PVC Plastic: Minimum 0.035 inch thick.
- C. Casing Beads: Square-edged style, with expanded flanges of the following material:
 - 1. Zinc Alloy: Minimum 0.0207 inch thick.
 - 2. PVC Plastic: Minimum 0.035 inch thick.
- D. Control Joints: Prefabricated, of material and type indicated below:
 - 1. Zinc Alloy: Minimum 0.0207 inch thick.
 - 2. PVC Plastic: Minimum 0.035 inch thick.
 - 3. One-Piece Type: Folded pair of nonperforated screeds in M-shaped configuration, with expanded or perforated flanges.
- E. Reveals, Drip Screeds, Control Screeds, and Channel Screeds: Shapes as indicated on drawings, of material indicated below.
 - 1. PVC Plastic: Minimum 0.035 inch thick.
 - 2. Aluminum: Extruded alloy 6063 T5, clear anodized finish.
- F. Lath Attachment Devices: Material and type required by ASTM C 1063 for installations indicated.

2.03 PLASTER MATERIALS

- A. Base-Coat Cements: Type as indicated below:
 - 1. Portland cement, ASTM C 150, Type I.
- B. Stucco Finish Coat: Manufacturer's standard factory-packaged stucco, including Portland cement, aggregate, and other proprietary ingredients.
- C. Sand Aggregate for Base Coats: ASTM C 897.

2.04 MISCELLANEOUS MATERIALS

- A. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, ½ inch long, free of contaminants, manufactured for use in Portland cement plaster.
- B. Water for Mixing: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories. Water shall be mixed 1 part Acryl 60, 3 parts water prior to addition to the mix.
- C. Bonding Agent: ASTM C 932.
- D. Acid-Etching Solution: Muriatic acid (10 percent solution of commercial hydrochloric acid) mixed 1 part to not less than 6 nor more than 10 parts water.
- E. Non re-waterable primer, apply over CMU: "Ecoseal" or "Thoroseal" solution, applied 24 to 48 hours after the wall is erected.
- F. Steel drill screws complying with ASTM C 1002 for fastening metal lath to wood or steel members less than 0.033 inch thick.
- G. Steel drill screws complying with ASTM C 954 for fastening metal lath to steel members 0.033 to 0.112 inch thick.

2.05 PLASTER MIXES AND COMPOSITIONS

- A. General: Comply with ASTM C 926 for base- and finish-coat mixes as applicable to plaster bases, materials, and other requirements indicated.
- B. Base-Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and plaster base indicated. Adjust mix proportions below within limits specified to attain workability.
- C. Fiber Content: Add fiber to following mixes after ingredients have mixed at least 2 minutes. Comply with fiber manufacturer's written instructions but do not exceed 1 lb/cu. ft. of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.
- D. Two-Coat Work Over concrete unit masonry: ½" total thickness; base-coat proportions as indicated below:
 - 1. Base Coat: 1 part Portland cement, ¾ to 1-1/2 parts lime, 3 to 4 parts aggregate; 3/8" thickness.
- E. Three-Coat Work over Metal Lath: 7/8" total thickness; Base-coat proportions as indicated below:
 - 1. Scratch Coat: 1 part Portland cement, 0 to ¾ parts lime, 2-1/2 to 4 parts aggregate; 3/8" thickness.
 - 2. Brown Coat: 1 part Portland cement, 0 to ¾ parts lime, 3 to 5 parts aggregate; 3/8" thickness.
- F. Job-Mixed Finish Coats: Proportion materials for finish coats in parts by volume for cementitious materials and parts by volume per sum of cementitious materials to comply with the following requirements:
 - 1. Proportions using sand aggregates as indicated below:

- a. 1 part Portland cement, 3/4 to 1-1/2 parts lime, 3 parts sand; 1/8" thickness.
- G. Stucco Finish Coat: (May be used in lieu of above described job mixed finish coat). Add water only; comply with stucco manufacturer's written instructions; 1/8" thickness.

2.06 MIXING

- A. Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced application standard and with recommendations of plaster manufacturer.

PART 3 EXECUTION

3.01 INSTALLATION OF LATH AND FURRING, GENERAL

- A. Standards: Comply with ML/SFA 920, "Guide Specifications for Metal Lathing and Furring," and with requirements of ASTM C 1063.
- B. Install supplementary framing, blocking, and bracing at terminations in work and for support of fixtures, equipment services, heavy trim, and similar work to comply with details indicated or, if not otherwise indicated, to comply with applicable written instructions of lath and furring manufacturer.
- C. Isolation: Where lathing and metal support system abuts building structure horizontally and where partition or wall abuts overhead structure, sufficiently isolate from structural movement to prevent transfer of loading from building structure. Install slip- or cushion-type joints to absorb deflections but maintain lateral support.
 - 1. Frame both sides of control joints independently and do not bridge joints with furring and lathing or accessories.
- D. Install additional framing, furring, runners, lath, and beads, as required to form openings and frames for other work as indicated. Coordinate support system for proper support of framed work that is not indicated to be supported independently of metal furring and lathing system.

3.02 INSTALLATION OF CEILING SUSPENSION SYSTEM

- A. Suspend ceiling hangers from building structure as follows:
 - 1. Install hangers plumb and free of contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to limit deflection to 1/360 of span while supporting ceiling loads.
 - 3. Rod and Flat Hangers: Secure to structure, including intermediate framing members, by attaching to fasteners that are secure and appropriate for substrate and hanger, in a manner that will not cause hangers to deteriorate or otherwise fail.
 - 4. Do not support ceilings directly from permanent metal forms. Secure to fastener devices that extend through forms.
 - 5. Do not attach hangers to steel deck tabs.
 - 6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 7. Do not connect steel framing to or suspend it from ducts, pipes, or conduit.
- B. Installation Tolerances: Install steel framing components for ceilings so members are level to within ¼ inch in 10 feet measured lengthwise on each member and transversely between parallel members.

- C. Sway-brace suspended steel framing with hangers used for support.
- D. Install steel framing components for ceilings in sizes and spacings indicated but not less than that required by the referenced steel framing and installation standards.
 - 1. Hanger Spacing: 48 inches o.c.
 - 2. Main Runner (Carrying Channel) Spacing: For suspended ceilings, 36 inches o.c.
 - 3. Cross-Furring Spacing: For suspended ceilings, 16 inches o.c.

3.03 LATHING

- A. Install metal lath for the following applications where plaster base coats are required. Provide appropriate type, configuration, and weight of metal lath selected from materials indicated that comply with referenced ML/SFA specifications and ASTM lathing installation standards.
 - 1. Suspended and furred ceilings and soffits using 3.4-lb/sq. yd. minimum weight, diamond-mesh lath, with paper backing.
 - 2. Vertical metal framing and furring using 3.4-lb/sq. yd. minimum weight, diamond-mesh with paper backing.

3.04 PREPARATIONS FOR PLASTERING

- A. Clean plaster bases and substrates for direct application of plaster, removing loose material and substances that may impair the Work.
- B. Etch concrete and concrete unit masonry surfaces indicated for direct plaster application. Scrub with acid-etching solution on previously wetted surface and rinse thoroughly with clean water. Repeat application, if necessary, to obtain adequate suction and mechanical bond of plaster (where dash coat, bonding agent, or additive is not used).
- C. Apply bonding agent on concrete and concrete unit masonry surfaces indicated for direct plaster application; comply with manufacturer's written instructions for application.
- D. Install temporary grounds and screeds to ensure accurate rodding of plaster to true surfaces; coordinate with scratch-coat work.

3.05 INSTALLATION OF PLASTERING ACCESSORIES

- A. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering. Install accessories of type indicated at following locations:
 - 1. External Corners: Install corner reinforcement at external corners.
 - 2. Terminations of Plaster: Install casing beads, unless otherwise indicated.
 - 3. Control Joints: Install at locations indicated or, if not indicated, at locations complying with the following criteria and approved by Architect:
 - a. Where an expansion or contraction joint occurs in surface of construction directly behind plaster membrane.
 - b. Distance between Control Joints: Not to exceed 18 feet in either direction or a length-to-width ratio of 2-1/2 to 1.
 - c. Wall Areas: Not more than 144 sq. ft.
 - d. Horizontal Surfaces: Not more than 100 sq. ft. in area.
 - e. Where plaster panel sizes or dimensions change, extend joints full width or height of plaster membrane.

3.06 PLASTER APPLICATION

- A. Plaster Application Standard: Apply plaster materials, composition, and mixes to comply with ASTM C 926.
- B. Do not use materials that are frozen, caked, lumpy, dirty, or contaminated by foreign materials.

- C. Do not use excessive water in mixing and applying plaster materials.
- D. Flat Surface Tolerances: Do not deviate more than plus or minus 1/8 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed at any location on surface.
- E. Sequence plaster application with installation and protection of other work so that neither will be damaged by installation of other.
- F. Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where interior plaster is not terminated at metal frame by casing beads, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
- G. Corners: Make internal corners and angles square; finish external corners flush with cornerbeads on interior work, square and true with plaster faces on exterior work.
- H. Finish Coats: Apply finish coats to comply with the following requirements:
 - 1. Float Finish: Apply finish coat to a minimum thickness of 1/8 inch to completely cover base coat, uniformly floated to a true even plane with "sand float" finish.
 - 2. Prepared Finish: Apply factory-prepared finish coats according to manufacturer's written instructions.
- I. Moist-cure plaster base and finish coats to comply with ASTM C 926, including written instructions for time between coats and curing in "Annex A2 Design Considerations."

3.07 CUTTING AND PATCHING

- A. Cut, patch, replace, repair, and point up plaster as necessary to accommodate other work. Repair cracks and indented surfaces. Point-up finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace work to eliminate blisters, buckles, check cracking, dry outs, efflorescence, excessive pinholes, and similar defects. Repair or replace work as necessary to comply with required visual effects.

3.08 CLEANING AND PROTECTING

- A. Remove temporary covering and other provisions made to minimize spattering of plaster on other work. Promptly remove plaster from door frames, windows, and other surfaces not to be plastered. Repair surfaces stained, marred or otherwise damaged during plastering work. When plastering work is completed, remove unused materials, containers, equipment, and plaster debris.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, that ensure plaster work is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09221

SECTION 09255 - GYPSUM BOARD ASSEMBLIES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Non-load-bearing steel framing members for gypsum board assemblies.
 - 2. Gypsum board assemblies attached to steel framing.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 7 Section "Building Insulation" for sound attenuation insulation and thermal insulation.

1.3 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 ASSEMBLY PERFORMANCE REQUIREMENTS

- A. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
- B. Fire Resistance: Provide gypsum board assemblies with fire-resistance ratings indicated.

1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified.

1.6 QUALITY ASSURANCE

- A. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer, unless otherwise indicated.
- B. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.
- C. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.

- D. Fire-Test-Response Characteristics: Where fire-resistance-rated gypsum board assemblies are indicated, provide gypsum board assemblies that comply with the following requirements:
1. Fire-Resistance Ratings: As indicated by GA File Numbers in GA-600 "Fire Resistance Design Manual" or design designations in UL "Fire resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
 2. Gypsum board assemblies indicated are identical to assemblies tested for fire resistance according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 3. Deflection and Firestop Track: Top runner provided in fire-resistance-rated assemblies indicated is labeled and listed by UL, Warnock Hersey, or another testing and inspection agency acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.

1.8 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 requirements or gypsum board manufacturer's recommendations, whichever are more stringent.
- B. Room Temperatures: For non-adhesive attachment of gypsum board to framing, maintain not less than 40 deg F. For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F for 48 hours before application and continuously after until dry. Do not exceed 95 deg F when using temporary heat sources.
- C. Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Steel Framing and Furring:
 - a. Clark Steel Framing, Inc.
 - b. Consolidated Systems, Inc.
 - c. Dale Industries, Inc.
 - d. Dietrich Industries, Inc.
 - e. Marino/Ware (formerly Marino Industries Corp.).
 - f. National Gypsum Co.; Gold Bond Building Products Division.
 - g. Unimast, Inc.
 2. Grid Suspension Assemblies:
 - a. Armstrong World Industries, Inc.
 - b. Chicago Metallic Corp.

- c. USG Interiors, Inc.
- d. Worthington Steel Company (formerly National Rolling Mills).

3. Gypsum Board and Related Products:

- a. Domtar Gypsum.
- b. Georgia-Pacific Corp.
- c. National Gypsum Co.; Gold Bond Building Products Division.
- d. United States Gypsum Co.

2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

- A. General: Provide components complying with ASTM C 754 for conditions indicated.
- B. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung grid suspension system composed of main beams and cross-furring members that interlock to form a modular supporting network.

2.3 STEEL FRAMING FOR WALLS AND PARTITIONS

- A. General: Provide steel framing members complying with the following requirements:
 - 1. Protective Coating: ASTM A 653, G 40 hot-dip galvanized coating.
- B. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 degrees and doubled over to form 3/16-inch- wide minimum lip (return), and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
 - 1. Thickness: 0.0329 inch (20 gage) unless otherwise indicated.
 - 2. Thickness: 0.0329 inch (20 gage) at jambs of all door openings in metal framed partitions, and at all gypsum backing board assemblies to receive a ceramic tile finish.
 - 3. Depth: 1-5/8 – 2-1/2 - 3-5/8 – 6 inches, and as indicated on drawings.
- C. Steel Rigid Furring Channels: ASTM C 645, hat shaped, depth and minimum thickness of base (uncoated) metal as follows:
 - 1. Depth: as indicated on drawings.
 - 2. Thickness: 0.0329 inch min. unless specifically indicated otherwise.
- D. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

2.4 GYPSUM BOARD PRODUCTS

- A. General: Provide gypsum board of types indicated in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application.
1. Widths: Provide gypsum board in widths of 48 inches.
- B. GYPSUM WALLBOARD: ASTM C 36 and as follows:
1. Type: High-impact for vertical surfaces, unless otherwise indicated.
 2. Type: Type X.
 3. Edges: Tapered.
 4. Thickness: 5/8 inch unless otherwise indicated on drawings.
- C. MOLD RESISTANT GYPSUM BOARD: ASTM D3273 and as follows:
1. Basis-of-Design Product: The design is based on United States Gypsum product named. SHEETROCK® brand MOLD TOUGH™ gypsum panels.
 2. Type: Type X.
 3. Edges: Tapered long edges.
 4. Thickness: 5/8 inch unless otherwise indicated on drawings.
 5. Provide in all ceilings of toilet rooms.
- D. EXTERIOR SHEATHING FOR EXTERIOR WALL, CEILINGS AND/OR SOFFITS
1. Glass-Mat Gypsum Sheathing Board: ASTM C1177.
 2. Basis-of-Design Product: The design is based on G-P Gypsum product named. Subject to compliance with requirements, provide the named product or a comparable product. provide "Dens-Glass Gold" by G-P Gypsum, subject to compliance with requirements.
 3. Core: 5/8 inch, Type X.
 4. Long Edges: Square.

2.5 TRIM ACCESSORIES

- A. Accessories for Interior Installation: Corner bead, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
1. Material: Formed metal complying with the following requirement:
 - a. Steel sheet zinc coated by hot-dip process or rolled zinc.
 2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
 - a. Corner bead on outside corners, unless otherwise indicated.
 - b. J-bead with both face and back flanges; face flange formed to receive joint compound. Use J-beads for edge trim, unless otherwise indicated.
 - c. One-piece control joint formed with V-shaped slot and removable strip covering slot opening.
 - d. Reveal with face flange formed to receive joint compound.
- B. Accessory for Curved Edges: Corner bead formed of metal with either notched or flexible flanges that are bendable to curvature radius.

2.6 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.
- C. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
 - 1. Ready-Mixed Formulation: Factory-mixed product.
 - a. All-purpose compound formulated for both taping and topping compounds.
- D. Underlayment Joint Reinforcement:
 - 1. Provide manufacturer's recommend product at tile backer board. DUROCK™ Brand Interior Joint Tape (alkali-resistant), 2" x 50', or 2" x 250' wide alkali-resistant glass fiber mesh tape at tile backer board with specified product.

2.7 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard non-sag, paintable, non-staining latex sealant complying with ASTM C 834 and the following requirements:
 - 1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- B. Acoustical Sealant for Exposed and Concealed Joints:
 - a. PL Acoustical Sealant; ChemRex, Inc.; Contech Brands.
 - b. AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
 - c. SHEETROCK Acoustical Sealant; United States Gypsum Co.

2.8 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
- B. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot-grouting hollow metal door frames.
- C. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0.112 inch thick.
- D. Exterior application, backer board underlayment fasteners:
 - 1. Corrosion-resistant #6 wood screws: 1¼" at 6" o.c. in panel field and 3" o.c. at panel perimeter.
- E. Gypsum Board Nails: ASTM C 514.
- F. Foam Gaskets: Closed-cell vinyl foam adhesive-backed strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit metal stud size indicated.

2.9 DECK SUSPENDED CEILING HANGERS:

- A. The sound isolation materials specified herein shall be designed and manufactured by Kinetics Noise Control, Inc. Dublin, Ohio.
- B. Ceilings suspended below either concrete and/or metal deck composite construction or structural framing shall be supported by resilient isolation hangers Model ICC - 210. Resilient hangers shall have sufficient capacity to sustain continuously applied ceiling weight without settling after initial deflection.
- C. The isolation hanger shall be a combination high-deflection steel spring in series with a resilient, molded neoprene noise and vibration isolation pad. The steel spring and neoprene pad shall be incorporated into a stamped steel hanger assembly that resiliently supports the isolated ceiling.
- D. The hanger assembly bracket shall be designed to allow fifteen (15) degrees of vertical alignment of the suspension member without making metal-to-metal contact between the suspension and hanger assembly members. The hanger bracket shall be designed with an integral spring pre-load bracket selected to minimize change in elevation once a load is applied to the hanger and to hold the isolator assembly steady during attachment of gypsum board. The hanger assembly bracket shall consist of a leveling rod with an attached channel carrier designed to accept 1-1/2" x 1/2", 16-gauge cold-rolled steel. The isolation hanger deflection shall be selected by the manufacturer to provide a maximum natural frequency of 4.4 Hz. The steel spring element shall have a minimum Kx to Ky of 1 at its 1" rated deflection.
- E. Resiliently suspended ceilings shall be separated where non-isolated building components abut. Isolation material shall be 3/8" thick Model SRP perimeter isolation board. Model SRP shall not be penetrated by nail, screw, or similar fastener. Model SRP shall be adhered to non-isolated structure. Resiliently-suspended ceiling shall be constructed against Model SRP. Model SRP shall be sealed using resilient, non-hardening caulk.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

3.3 INSTALLING STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, door bumpers, furnishings, or similar construction. Comply with details indicated and with recommendations of

gypsum board manufacturer or, if none available, with United States Gypsum Co.'s "Gypsum Construction Handbook."

3.4 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

- A. Suspend ceiling hangers from building structural members and as follows:
1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 3. Secure wire hangers by looping and wire-typing, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or otherwise fail.
 4. Secure flat, angle, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or otherwise fail.
 5. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 6. Do not attach hangers to steel deck tabs.
 7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 8. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- B. Install suspended steel framing components in sizes and at spacing indicated, but not less than that required by the referenced steel framing installation standard.
1. Wire Hangers: 48 inches O.C.
 2. Main Tees: 48 inches O.C.
 3. Cross Channels 24 inches O.C.
 4. Cross Tees: As required for installation of recessed fluorescent light fixtures.
- C. Installation Tolerances: Install steel framing components for suspended ceilings so that grid suspension members are level to within 1/8 inch in 12 feet as measured both lengthwise on each member and transversely between parallel members.
- D. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
1. Where studs are installed directly against exterior walls, install asphalt felt strips or foam gaskets between studs and wall.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.

- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
 - 1. For STC-rated and fire-resistance-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed, to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.
- D. Terminate partition framing at suspended ceilings where indicated.
- E. Install steel studs and furring in sizes and at spacing indicated.
 - 1. Single-Layer Construction: Space studs 16 inches O.C., unless otherwise indicated.
- F. Frame door openings to comply with GA-219, and with applicable published recommendations of gypsum board manufacturer, unless otherwise indicated. Attach 20 gage vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - 1. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- G. Frame openings other than door openings to comply with details indicated or, if none indicated, as required for door openings. Install framing below sills of openings to match framing required above door heads.

3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.
- B. Install sound-attenuation blankets, where indicated, prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- E. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Avoid joints other than control joints at corners of framed openings where possible.
- F. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- G. Attach gypsum panels to framing provided at openings and cutouts.

- H. Spot grout hollow metal door frames for solid-core wood doors, hollow metal doors, and doors over 32 inches wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.
- I. Form control and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
- J. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases that are braced internally.
 - 1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect open concrete coffer, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffer, joists, and other structural members; allow 1/4 - to 3/8-inch wide joints to install sealant.
- K. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4- to 1/2-inch wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- L. Where STC-rated gypsum board assemblies are indicated, seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of the partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
 - 1. Sealing of penetrations in sound walls which are identified as also being fire-rated or smoke-resistant is the work of Section 07840. Fire and smoke requirements take precedence.
- M. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.
 - 1. Space screws a maximum of 12 inches O.C. for vertical applications.
- N. Space fasteners in panels that are tile substrates a maximum of 8 inches O.C.
- O. Sealing of perimeters of and penetrations through fire-rated or smoke-resistant assemblies is the work of Section 07840.
- P. Identify rated walls above ceilings with the note "fire and smoke barrier-protect all openings", complying with requirements of local jurisdictions.

3.7 GYPSUM BOARD APPLICATION METHODS

- A. Single-Layer Application: Install gypsum wallboard panels as follows:
 - 1. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles of framing, unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints.

- a. Stagger abutting end joints not less than one framing member in alternate courses of board.
- 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
- B. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:
 - 1. Fasten with screws.

3.8 INSTALLING TRIM ACCESSORIES

- A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
- B. Install corner bead at external corners.
- C. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
 - 1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
 - 2. Install aluminum trim and other accessories where indicated.
- D. Install control joints according to ASTM C 840 and manufacturer's recommendations and in specific locations approved by architect for visual effect.

3.9 INSTALLING SUSPENDED ISOLATION HANGER

- A. The installation of all sound isolation materials specified herein, including those installed under other sections of the specifications, shall be in accordance with procedures submitted by the isolation material manufacturer, and approved by the Architect.
- B. All building components supported by the isolation hangers shall be free from rigid contact with any part of the non-isolated building structure to prevent unwanted sound flanking.

3.10 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, flanges of corner bead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.
- B. Pre-fill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.
- C. Apply joint tape over gypsum board joints and to flanges of trim accessories as recommended by trim accessory manufacturer.
- D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
 - 1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
 - 2. Level 4 for gypsum board surfaces, unless otherwise indicated.
- E. Use one of the following joint compound combinations as applicable to the finish levels specified:

1. Embedding and First Coat: Ready-mixed drying-type, all purpose or taping compound. Fill (second) Coat: Ready-mixed, drying-type, all-purpose or topping compound. Finish (third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
- F. For Level 4 gypsum board finish, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration.
- G. Where Level 1 gypsum board finish is indicated, embed tape in joint compound.
- H. Finish glass-mat, water-resistant gypsum backing board to comply with gypsum board manufacturer's directions.

3.11 FIELD QUALITY CONTROL

- A. Above-Ceiling Observation: Architect will conduct an above-ceiling observation prior to installation of gypsum board ceilings and soffits and report any deficiencies in the work observed. Do not proceed with installation of gypsum board to ceiling or soffit support framing until deficiencies have been corrected.
1. Notify architect one week in advance of the date and the time when the project, or part of the project, will be ready for an above-ceiling observation.
 2. Prior to notifying architect, complete the following in areas to receive gypsum board ceilings:
 - a. Installation of 80 percent of lighting fixtures, powered for operation.
 - b. Installation, insulation, and leak and pressure testing of water piping systems.
 - c. Installation of air duct systems.
 - d. Installation of air devices.
 - e. Installation of mechanical system control air tubing.
 - f. Installation of ceiling support framing.

3.12 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.
- B. Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure gypsum board assemblies are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09255

SECTION 09671 – EPOXY FLOORING**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to work of this Section.

1.2 SUMMARY

- A. Work of this section includes all labor, materials, equipment and services necessary to complete the resinous flooring as scheduled on the drawings and specified herein.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product Data: Submit manufacturer's technical data, application instructions and general recommendations for the resinous flooring.
- C. Samples:
 - 1. Submit 2-1/2" x 4" color samples of resinous flooring material for initial color selection by the architect.
 - 2. Submit 12" x 12" sample for selection of surface texture.
- D. Material certificates signed by manufacturer certifying that the resinous flooring complies with requirement specified herein.
- E. Maintenance Instructions: Submit manufacturer's written instructions for recommended maintenance practices.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer or applicator who has specialized in installing resinous flooring types similar to that required for this project and who is acceptable to manufacturer of primary materials.
- B. Single-Source Responsibility: Obtain flooring system materials, including primers, resins, hardening agents, quartz granule aggregates, and finish or sealing coats, from a single manufacturer.
- C. Requests for substitution: Request for material approvals must be submitted to the architect two weeks prior to the bid date, including complete application specifications, physical characteristics and chemical data. Requests will not be accepted after this date. Failure of performance requires immediate removal and replacement of substituted materials with those originally specified at no cost to the owner, architect, or construction manager.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers with seals unbroken and bearing manufacturer's labels containing brand name and directions for storage and mixing with other components.

- B. Store materials to comply with manufacturer's directions to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

1.5 PROJECT CONDITIONS

- A. Environmental Conditions: Comply with resinous flooring manufacturer's directions for maintenance of ambient and substrate temperature, moisture, humidity, ventilation, and other conditions required to execute and protect work.
- B. Lighting: Permanent lighting shall be in place and working before installing resinous flooring.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Resinous flooring shall be 1/8 inch thick decorative quartz epoxy flooring, Dex-O-Tex "Decor-Flor" as manufactured by Crossfield Products Corp., or approved substitute.
- B. Color: Mixture of Gray, White, and Teal or as directed by owner.
- C. Anti-Microbial Additive: Incorporate anti-microbial chemical additive to control growth of most bacteria, fungi, algae, and actinomycetes.

2.2 PROPERTIES

- A. Physical Properties: Provide decorative quartz epoxy flooring system that meets or exceeds the listed minimum physical property requirements when tested according to the referenced standard test method in parentheses.
 - 1. Compressive Strength: (ASTM C-109) 8,556 psi
 - 2. Tensile Strength: (ASTM D-638) 4,400psi
 - 3. Surface Hardness: (ASTM D-2240) Durometer "D" 85
 - 4. Water Absorption: (MIL-D-3134) Less than 1%.
 - 5. Indentation: (MIL-D-3134) 0.005 indentation
 - 6. Impact Resistance: 0.011 indentation; no cracking or loss of bond
 - 7. Adhesion: (A.C.I. Comm. No. 403) 345psi
 - 8. Flammability: (NFPA 101) Class 1 Interior Finish

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where the resinous flooring is to be installed and notify the architect of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected by the contractor in conformance with the Contract Documents.

3.2 PREPARATION

- A. Substrate: Perform preparation and cleaning procedures according to resinous flooring manufacturer's instructions for particular substrate conditions involved, and as specified. Provide clean, dry, and neutral substrate for application of flooring. A moisture reading should be done on the concrete sub-floor prior to epoxy installation and should not exceed three pounds per thousand.

- B. Concrete Surfaces: Shot-blast as required to obtain optimum bond of flooring to concrete. Remove sufficient material to provide a sound surface free of laitance, glaze, efflorescence, and any bond-inhibiting curing compounds or form release agents. Remove grease, oil, and other penetrating contaminants. Repair damaged and deteriorated concrete to acceptable condition. Leave surface free of dust, dirt, laitance, and efflorescence.
- C. Materials: Mix epoxy resin components when required, and prepare materials according to resinous flooring system manufacturer's instructions.

3.3 APPLICATION

- A. General: Apply each component of resinous flooring system according to manufacturer's directions to produce a uniform, monolithic, surface of thickness indicated.
 - B. Broadcast Coats: Apply liberal application of clear epoxy resin mixture, allow to self-level. Broadcast (by hand or spray machine) ceramic-coated quartz aggregate, allow to set to hardness, sweep off excess unbonded aggregate and repeat process to achieve total minimum nominal thickness of 1/8".
 - C. Finish or Sealing Coats: After quartz-filled broadcast coats have cured sufficiently, apply two coats finish coat of type recommended by flooring manufacturer to produce finish matching approved submittal sample and in number of coats and spreading rates recommended by manufacturer.
- 1. Finished floor shall be minimum 1/8" thick, uniform in color and free of trowel marks.
 - D. Cove Base: Apply cove base mix to wall surfaces at locations shown to form cove base height of 4 inches unless otherwise indicated. Follow manufacturer's printed instructions and details including taping, mixing, priming, troweling, sanding, and top-coating of cove base.

3.4 CURING, PROTECTION AND CLEANING

- A. Cure decorative quartz epoxy flooring materials according to manufacturer's directions, taking care to prevent contamination during application stages and before completing curing process. Close application area for a minimum of 24 hours.

END OF SECTION 09671

SECTION 09900 – PAINTING**PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Surface preparation.
- B. Field application of paints and other coatings.
- C. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
 - 2. Exposed surfaces of steel lintels and ledge angles.
 - 3. Mechanical and Electrical:
 - a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
 - b. In finished areas, paint shop-primed items.
- D. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
 - 5. Stainless steel, anodized aluminum, bronze, terne, and lead items.
 - 6. Floors, unless specifically so indicated.
 - 7. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D 16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2007.
- C. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.

1.03 SUBMITTALS

- A. See Section 01300 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on all finishing products, including VOC content.
- C. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum 5 years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 5 years experience.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

PART 2 PRODUCTS**2.01 MANUFACTURERS**

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Duron, Inc: www.duron.com.
 - 2. ICI Paints: www.icipaintsinna.com.
 - 3. Pratt and Lambert
 - 4. Sherwin-Williams
 - 5. Benjamin Moore & Co: www.benjaminmoore.com.
- C. Substitutions: See Section 01600 - Product Requirements.

2.02 PAINTS AND COATINGS (including concrete slab coating) - GENERAL

- A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.
 - 1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 - 3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
 - 4. Supply each coating material in quantity required to complete entire project's work from a single production run.
 - 5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
- B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

- C. Volatile Organic Compound (VOC) Content:
1. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
- D. Colors: To be selected from manufacturer's full range of available colors.
1. Selection to be made by Architect after award of contract.
 2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

FERROUS METAL:

- a. Shop applied primer and field applied finish:
 - 1) **Surface Preparation** – SSPC-SP-6 Commercial Blast Cleaning – Removal of mill scale, rust, rust scale, paint or foreign matter by the use of abrasives propelled through nozzles or by centrifugal wheels, to the degree specified. Commercial Blast Cleaned Surface Finish is defined as one from which all oil, grease, dirt, rust scale, and foreign matter have been completely removed except for slight shadows, streaks, or discoloration caused by rust stain, mill scale oxides or slight tight residues of paint or coating that may remain; if the surface is pitted slight residues of rust or paint may be found in the bottom of the pits; at least two-thirds of each square inch of surface area shall be free of visible residues and the remainder shall be limited to light discoloration, slight staining or tight residues mentioned above.

2.03 PAINT SYSTEMS – EXTERIOR

- A. Paint CE-OP-3L - Masonry/Concrete, Opaque, Latex, 3 Coat:
1. One coat of block filler.
 2. Flat: Two coats of latex enamel;
- B. Paint ME-OP-3A - Ferrous Metals, Unprimed, Alkyd, 3 Coat:
1. One coat of alkyd primer.
 2. Semi-gloss: Two coats of alkyd enamel;
- D. Paint MgE-OP-3A - Galvanized Metals, Alkyd, 3 Coat:
1. One coat galvanize primer.
 2. Semi-gloss: Two coats of alkyd enamel;
- E. Paint MaE-OP-3A - Aluminum, Unprimed, Alkyd, 3 Coat:
1. One coat etching primer.
 2. Semi-gloss: Two coats of alkyd enamel;

EXPOSED STRUCTURAL STEEL

"Tnemec" Coating - Surface Preparation: Grind all weld seams smooth. Remove all rust, and rust stain by Commercial Blast Cleaning (SSPC-SP6).

All surfaces must be clean and dry prior to the application of any coatings. All prepared surfaces must be primed the same day as surface preparation in order to prevent flash rusting or re-contamination of the substrate.

- a. Primer: Tnemec Series 90-97 at 2.5-3.5 mils DFT
Notes: Tnemec Series 90-97 should be spray applied. Brush or roller application is acceptable for small areas.
- b. Intermediate Coat: Tnemec Series 27WB @ 4.0-6.0 mils DFT
- c. Finish Coat: Tnemec Series 1070 (gloss) Fluoronar at 2.0-3.0. Note: two coats may be necessary to achieve the specified DFT if applied by brush or roller
- d. Field Repair of Welded or Damaged Areas

Areas where the Series 90-97 Primer has been damaged are to be repaired by Power to Bare Metal (SSPC-SP11). Spot apply Tnemec Series 90-97 at a dry film thickness of 2.5-3.5 mils.

Notes: Tnemec Series 90-97 should be spray applied.
Brush or roller application is acceptable for small areas.
For spray application of Series 740 or 750, thin up to 5% with 41-68 Thinner
For brush / roller application of Series 740 or 750, thin 5% with 41-49 thinner

CONCRETE POURED-IN-PLACE AND PRE-FORMED AS SHOWN ON DRAWINGS:

- a. 1 coat of 100% Acrylic Primer, 1.5 mils minimum DFT.
- b. 2 coats of 2 part acrylic semi-gloss exterior-grade coating to full opacity to achieve 2.0 mils minimum DFT per coat.

2.04 PAINT SYSTEMS - INTERIOR

- A. Paint CI-OP-3L - Concrete/Masonry, Opaque, Latex, 3 Coat:
 1. One coat of block filler.
 2. Flat: Two coats of latex enamel;
- B. Paint MI-OP-3A - Ferrous Metals, Unprimed, Alkyd, 3 Coat:
 1. One coat of alkyd primer.
 2. Semi-gloss: Two coats of alkyd enamel;
- C. Paint MI-OP-2A - Ferrous Metals, Primed, Alkyd, 2 Coat:
 1. Touch-up with alkyd primer.
 2. Semi-gloss: Two coats of alkyd enamel;
- D. Paint Mgl-OP-3A - Galvanized Metals, Alkyd, 3 Coat:
 1. One coat galvanize primer.
 2. Semi-gloss: Two coats of alkyd enamel;
- E. Paint Mal-OP-3A - Aluminum, Unprimed, Alkyd, 3 Coat:
 1. One coat etching primer.
 2. Semi-gloss: Two coats of alkyd enamel;
- F. Paint CI-OP-3Af - Concrete/Masonry, Alkyd Floor Enamel, 3 Coat:
 1. One coat of alkali resistant primer.
 2. Gloss: Two coats of alkyd floor enamel;
- G. Paint GI-OP-3LA - Gypsum Board/Plaster, Latex-Acrylic, 3 Coat:
 1. One coat of alkyd primer sealer.

2. Eggshell: Two coats of latex-acrylic enamel;
3. Flat: Two coats of latex enamel-acrylic;

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Test shop-applied primer for compatibility with subsequent cover materials.
- D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 1. Plaster and Stucco: 12 percent.
 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 3. Concrete Floors and Traffic Surfaces: 8 percent.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.
- D. Seal surfaces that might cause bleed through or staining of topcoat.
- E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- F. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- G. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- H. Plaster Surfaces to be Painted: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- I. Concrete Floors and Traffic Surfaces to be Painted: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.
- J. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

- K. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).
- L. Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand or power tool wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- M. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply products in accordance with manufacturer's instructions.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.
- E. Sand metal surfaces lightly between coats to achieve required finish.
- F. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- G. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FIELD QUALITY CONTROL

- A. See Section 01400 - Quality Requirements, for general requirements for field inspection.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

END OF SECTION 09900

SECTION 10155 - TOILET COMPARTMENTS**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes toilet compartments and screens as follows:
1. Type: Solid Phenolic.
 2. Compartment Style: Overhead braced and anchored.
 3. Screen Style: Wall hung.
- B. Related Sections include the following:
1. Division 10 "Toilet and Bath Accessories" for grab bars and toilet paper holders.

1.3 SUBMITTALS

- A. Product Data: For each type and style of toilet compartment and screen specified. Include details of construction relative to materials, fabrication, and installation. Include details of anchors, hardware, and fastenings.
- B. Shop Drawings: For fabrication and installation of toilet compartment and screen assemblies. Include plans, elevations, sections, details, and attachments to other work.
1. Show locations of reinforcement and cutouts for compartment-mounted toilet accessories.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of sections of actual units showing the full range of colors, textures, and patterns available for each type of compartment or screen indicated.
- D. Samples for Verification: Of each compartment or screen color and finish required, prepared on 6-inch-square Samples of same thickness and material indicated for Work.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating units without field measurements. Coordinate supports, adjacent construction, and fixture locations to ensure actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Scranton – Santana Corp.
 2. Accurate Partitions Corporation.
 3. American Sanitary Partition Corporation.
 4. Bobrick Washroom Equipment, Inc.
 5. Global Steel Products Corp.

2.2 MATERIALS

- A. General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are unacceptable.
- B. Phenolic solid panel 1" nominal thickness, color and pattern as follows:
1. Color and Pattern: One color and pattern in each room as selected by Architect from manufacturer's full range of colors and patterns.
 1. Doors, Panels, Pilasters, and Screens: as per manufacture's product specifications.
- C. Pilaster Sleeves (Caps): ASTM A 666, Type 302 or 304 stainless steel, not less than 0.0312 inch thick and 3 inches high, finished to match hardware.
- D. Stirrup Brackets: Manufacturer's standard ear or U-brackets for attaching panels and screens to walls and pilasters of the following material:
1. Material: Chrome-plated, nonferrous, cast zinc alloy (zamac), clear-anodized aluminum or stainless steel.
- E. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories of the following material:
1. Material: Chrome-plated, nonferrous, cast zinc alloy (zamac), clear-anodized aluminum or stainless steel.
- F. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile in manufacturer's standard finish.
- G. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match hardware, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel.

2.3 FABRICATION

- A. General: Provide standard doors, panels, screens, and pilasters fabricated for compartment system. Provide units with cutouts and drilled holes to receive compartment-mounted hardware, accessories, and grab bars, as indicated.

- B. Phenolic Solid Compartments and Panels.
- C. Overhead-Braced Anchored Compartments: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit conditions. Make provisions for setting and securing continuous head rail at top of each pilaster.
- D. Wall-Hung Screens: Provide units in sizes indicated of same construction and finish as compartment panels, unless otherwise indicated, required by ADA grab bar installation requirements, etc.
- E. Doors: Unless otherwise indicated, provide 24-inch- wide in-swinging doors for standard toilet compartments and 36-inch- wide out-swinging doors with a minimum 32-inch- wide clear opening for compartments indicated to be handicapped accessible.
 - 1. Hinges: Manufacturer's standard self-closing type. Outswinging doors to return to fully closed position when unlatched; inswinging doors to stand open approximately 30 degrees when unlatched.
 - 2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit with combination rubber-faced door strike and keeper designed for emergency access. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be handicapped accessible.
 - 3. Coat Hook: For in-swinging doors, manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories; for outswinging doors, Bobrick surface-mounted robe hook #B-818 mounted at 48" above finished floor.
 - 4. Door Bumper: Manufacturer's standard rubber-tipped bumpers at out-swinging doors or entrance screen doors.
 - 5. Door Pull: Manufacturer's standard unit that complies with accessibility requirements of authorities having jurisdiction at out-swinging doors. Provide units on both sides of doors at compartments indicated to be handicapped accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, plumb, and level. Provide clearances of not more than 2 inch between pilasters and panels and not more than 1 inch between panels and walls. Secure units in position with manufacturer's recommended anchoring devices.
 - 1. Secure panels to walls and pilasters with not less than 3 stirrup brackets attached near top, middle and bottom of panel. Locate wall brackets so holes for wall anchors occur in masonry. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced Anchored Compartments: Secure pilasters to ceiling, not floors and level, plumb, and tighten. Secure continuous head rail to each pilaster with not less than 2 fasteners. Hang doors and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Screens: Attach with not less than 3 stirrup brackets near top, middle and bottom of screen. Set units level and plumb and to resist lateral impact.

3.2 ADJUSTING AND CLEANING

- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and swing doors in entrance

screens to return to fully closed position.

- B. Provide final protection and maintain conditions that ensure toilet compartments and screens are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 10155

SECTION 10425 - SIGNAGE**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division One Specification Sections, apply to this Section.
- B. Signs, letters, plaques and directories referenced to in the drawings shall pertain to this Section including the school's identification logo sign and the teams athletic symbols.

1.2 SUMMARY

- A. This Section specifies:

BUILDING IDENTIFICATION SIGNS
ADA RESTROOMS, STALL,
PERMANENT ROOM DESIGNATIONS

1.3 SUBMITTALS

- A. Manufacturer's Product Data:

- 1. Submit five (5) copies of manufacturer's technical information, installation instructions and maintenance recommendations.

- B. Shop Drawings:

- 1. Submit five (5) copies of shop drawings clearly indicating:
 - a. Size, type, layout, colors and wording of signs, letters, and plaques.
 - b. Fabrication, construction and installation details of anchors, grounds, reinforcements and accessories. Provide setting drawings, templates and directions for installation of all anchors to be installed, as a unit of work in other sections, for all signs, letters, plaques and directories anchored to permanent construction.
 - c. Plans and elevations which indicate the locations of all signs, letters, plaques and directories as specified for this project.
 - d. Large scale sections of typical members and other components.
 - e. Message list for each sign required.
 - f. Proof copy of metal plaques.

- C. Samples:

- 1. General:
 - a. The Architect shall make "ALL" selections from the samples of "STANDARD" colors, patterns and surface textures submitted by the manufacturer.
 - 2. Signs and Letters:
 - a. Submit one (1) "full - size" sample, representative of each type of sign and letter specified.

- D. Sign Schedule:

1. Submit schedule of signs to be used, indicating ROOM NAME and NUMBER, for review. ROOM NUMBERS may be different than indicated on the schedule depending upon FINAL NUMBERING issued by the Owner; match existing size, style & pattern. "VERIFY PRIOR TO SIGN FABRICATION".

1.4 QUALITY ASSURANCE:

A. Codes and Standards:

1. Comply with all Codes and Standards applicable to this Section, specifically, the "Americans with Disabilities Act" of 1991 (ADA) including any subsequent revisions and the 1997 State Requirements for Educational Facilities (SREF) including any subsequent revisions.

B. Single Source Responsibility:

1. For each separate TYPE of sign required, obtain signs from a SINGLE MANUFACTURER capable of producing first quality work.

C. Installation:

1. Manufacturer/Supplier shall be responsible to provide installation in accordance with the requirements of these specifications including providing all fasteners and/or adhesives required. In the event of difference between these specifications and the manufacturer's recommendations, these specifications shall govern.
2. Remove and replace imperfect or damaged material prior to substantial completion.
3. Throughout the one (1) year warranty period, any broken, faded, delaminated or otherwise defective product shall be replaced with a new and like product without material and labor cost to the Owner.

PART 2 – PRODUCTS

2.1 BUILDING IDENTIFICATION SIGNS

A. General:

1. Provide Building Identification Signs for each building in this project as indicated on drawings, which identifies the building both by name and number.
2. Signs shall conform to 2.4 - NON ADA COMPLIANT PANEL SIGNS, A.3. (Excluding a.).
3. Install signs at locations determined in field by Owner and Architect.

2.2 PERMANENT ROOM DESIGNATIONS

A. General:

1. Permanent Room Designations shall include Room Names and/or Numbers and shall conform to the Americans with Disabilities Act of 1991 (ADA) including any subsequent revisions.
2. Permanent Room Designations shall be considered "Panel Signs".
3. Letters and numbers shall be considered "Tactile Text".

B. Character Proportion:

1. Letters and numbers on signs shall have a width to height ratio between 3:5 and 1:1 and a stroke-width to height ratio between 1:5 and 1:10.
- C. Character Height:
 1. Characters and numbers on signs shall be sized according to the viewing distance from which they are to be read. The minimum height is measured using an upper case X. Use "UPPER CASE" characters only. Overhead projected wall signs or signs suspended from the ceiling shall have a minimum character height of 3".
- D. Raised and Brailled Characters & Pictorial Symbol Signs:
 1. Letters and numbers (tactile text) on signs shall be raised 1/32", upper case, sans serif or simple serif type and shall be accompanied with Grade II Braille, raised 1/32", on the bottom of the sign. Raised tactile text shall be at least 5/8" high, but no higher than 2". Pictograms, in a minimum 6" x 6" area, may be reverse engraved/subsurface and shall be accompanied by the equivalent verbal description placed directly below the pictogram.
- E. Finish and Contrast:
 1. The characters and background of signs shall be eggshell, matte or other non-glare finish.
 2. Characters and symbols shall contrast with their background - either light characters on a dark background or dark characters on a light background.
 3. Colors: See 1.3 SUBMITTALS, C.1.a., page 10425-2.
- F. Sign Materials and Product Manufacturers:
 1. The signs shall be fabricated from modified acrylic polymers (MAP) suitable for outdoor use.

Approved Modified Acrylic Polymer PRODUCT MANUFACTURERS:

1. Rowmark "Ultra Mattes"
Rowland, Inc.
15 Massirio Drive, Kensington, Connecticut 06037
(800) 243-3339
 2. "2Plex"
New Hermes, Inc.
2200 Northmont Pkwy. Duluth, Georgia 30136
(800) 843-7637
 3. "Crystals"
Innovative Plastics, Inc.
P. O. Box 7065, Algonquin, Illinois 60102
(815) 477-0778
- G. Sign Fabrication:
1. Signs shall be a minimum of 1/8" thick, not including raised characters, non-glare (matte) finished surface with straight edges free of saw marks or any other imperfections.
 2. Signs shall be fabricated by applying a thin layer of ink to the back of the clear base sheet and a clear protective coating over the ink. Ink colors shall be as specified in 1.3 SUBMITTALS, C.1.a., page 10425-2.
 3. Raised "Tactile Text" shall be achieved by chemically welding 1/16" thick computer cut, colorfast MAP text characters into the 1/32" computer recessed area of the face of the base sheet. The text

- shall be chemically welded to the recessed surface of the base sheet using methylene chloride and shall, after fabrication, remain raised 1/32" above the face of the base sheet.
4. Grade II Braille shall be achieved by pressing optically correct acrylic raster balls into .003 in. computer drilled holes in the base sheet surface. The acrylic raster balls shall be U.V. protected and shall be guaranteed against fading. Bordered, depressed Braille is NOT acceptable.
 5. Sign edges shall be square and the corners shall have a 1/2" radius.
 6. Text style shall be HELVETICA upper case letters. Text height shall be 3/4" and Number height shall be 3/4".

Approved Modified Acrylic Polymer "SIGN" MANUFACTURERS:

"All" SIGN MANUFACTURERS shall comply with the specified product and fabrication requirements.

7. Sign Names, Type and Size:

Room Names shall be as listed on the attached HCSB Document Number 10400:

1. Sign types and sizes as indicated on the drawings.

2.3 PERMANENT ROOM DESIGNATIONS, page 10425-4, with the following changes:

- a. The text shall be surface engraved into a modified acrylic polymer panel with a white core and a red background.
- b. This signage is not required to have tactile text and braille.
- c. Text height shall be 1/2"
- d. Sign size shall be 8x8 to 12x12 or as indicated on the drawings.

PART 3 - EXECUTION

3.1 GENERAL

- A. Signs, Letters, Plaques and Directories shall be located where shown on the drawings and as called out in these specifications.
- B. Signs, Letters, Plaques and Directories shall be installed level and plumb with sign surfaces free from distortion or other defects of appearance.
- C. Where Signs, Letters, Plaques and Directories are installed on masonry walls, align them appropriately with the horizontal and vertical masonry coursing.
- D. Mounting Heights:
 1. Signs mounted Flat against the wall:
 - a. Building Identification Signs, Building Directories, Exit Map Signs, Permanent Room Designations, Non ADA Compliant Panel Signs, Directional Signs and any other Panel Wall Signs shall be mounted 60" above the finish floor to the centerline of the sign.
 - a. Conform to ADAAG 4.4 Protruding Objects for all flat wall mounted signage.
 2. Protruding/Overhead Wall Signs or Suspended Ceiling Signs:
 - a. Signs shall have a minimum 80" clearance between the bottom of the sign and the floor.

3.2 BUILDING IDENTIFICATION SIGNS:

- A. Signs shall be located as shown on the drawings and as directed by the Architect.
- B. Signs shall be installed as follows:
 - 1. The vertical side of the sign shall be attached to the wall with at least two (2) #8 cadmium plated, (or equivalent) steel threaded, tamper/vandal proof fasteners into expansion shields penetrating not less than 3/4" into the substrate. All holes shall be silicone filled.
 - 2. The horizontal side of the sign shall be attached to the wall with one (2) #8 cadmium plated, (or equivalent) steel threaded, tamper/vandal proof fasteners using expansion shields penetrating not less than 3/4" into the substrate every 18". All holes shall be silicone filled.
 - 3. Both the vertical and the horizontal sides of the signs shall be installed into a bed of silicone sealant which shall be screeded even with the outside square edge of the signs.
 - 4. Should shim plates be necessary to obtain a true and level secure attachment, they shall be aluminum with pre-drilled and counter sunk holes, silicone filled.

3.4 PERMANENT ROOM DESIGNATIONS:

- A. Signs shall be located as shown on the drawings and as directed by the Architect.
 - 1. Signs shall be mounted on the wall adjacent to the latch side of the door unless noted otherwise, located where a person can approach within 3" of the door and avoid the door swing and protruding objects.
 - 2. Signs shall be installed as follows:
 - a. Signs shall be attached to the wall with two (2) #8 flat head cadmium plated, (or equivalent) steel threaded, tamper/vandal proof fasteners into expansion shields penetrating not less than 3/4" into the substrate. All holes shall be silicone filled.
 - b. Both the vertical and the horizontal sides of the signs shall be installed into a bed of silicone sealant which shall be screeded even with the outside square edge of the signs.
 - c. Should shim plates be necessary to obtain a true and level secure attachment , they shall be aluminum with pre-drilled and counter sunk holes, silicone filled.
 - d. Signs shall be mounted to glass with standard liquid silicone adhesive. Use double sided vinyl tape where recommended by the manufacturer to hold the sign in place until the silicone adhesive has fully cured. Use a backer plate, of the same material and color of the sign, on the opposite side of the glass to hide the silicone adhesive.

END OF SECTION 10425

SECTION 10520 – FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 Section includes:

A. Fire extinguishers

PART 2 - PRODUCTS

A. Fire extinguishers:

1. Type DC10 (60 B:C) with #546 wall bracket as manufactured by Larsen's Manufacturing Company or approved substitution.
2. Provide one each DC type extinguisher in Storage Room, Janitor's Closet and the Concession Area or as shown on drawings.

B. Type DC extinguishers shall be mounted on brackets

C. All extinguishers must be made of metal parts on the valve mechanism

D. All extinguishers must have a current inspection tag.

PART 3 – EXECUTION

A. Install all fire extinguishers per manufacturer's recommendation.

END OF SECTION 10520

SECTION 10800 - TOILET AND BATH ACCESSORIES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Coordinate with Owner-supplied toilet accessories as indicated on drawings.

1.2 SUMMARY

- A. This Section includes toilet and bath accessory items as scheduled.

1.3 SUBMITTALS

- A. General: Submit the following according to Conditions of Contract and Division 1 Specifications Sections.
- B. Product data for each toilet accessory item specified, including construction details relative to materials, dimensions, gages, profiles, mounting method, specified options, and finishes.
- C. Setting drawings where cutouts are required in other work, including templates, substrate preparation instructions, and directions for preparing cutouts and installing anchorage devices.
- D. Maintenance instructions including replaceable parts and service recommendations.

1.4 QUALITY ASSURANCE

- A. Inserts and Anchorages: Furnish accessory manufacturers' standard inserts and anchoring devices that must be set in concrete or built into masonry; coordinate delivery

1.5 PROJECT CONDITIONS

- A. Coordination: Coordinate accessory locations, installation, and sequencing with other work to avoid interference with and ensure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

PART 2 – PRODUCTS**2.1 ACCEPTABLE MANUFACTURERS**

- A. Specifications are based upon products by Bobrick Washroom Equipment, Inc. Subject to compliance with requirements, equivalent toilet accessories by one of the following manufacturers are also acceptable:
 - 1. A & J Washroom Accessories.
 - 2. American Specialties, Inc.
 - 3. Bradley Corporation.
 - 4. McKinney/Parker.
 - 5. Continental

2.2 MATERIALS, GENERAL

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 0.034 inch minimum thickness.
- B. Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B 16 (ASTM B 16M); Castings, ASTM B 30.
- C. Sheet Steel: Cold-rolled, commercial quality ASTM A 366 (ASTM A 366M), 0.04 inch minimum. Surface preparation and metal pretreatment as required for applied finish.
- D. Galvanized Steel Sheet: ASTM A 527 G60 (ASTM A 527M Z180).
- E. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.
- F. Mirror Glass: Nominal 6.0 mm thick, conforming to ASTM C 1036, Type I, Class 1, Quality q2, and with silvering, electro-plated copper coating, and protective organic coating.
- G. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- H. Fasteners: Screws, bolts, and other devices of same material as accessory unit, or of galvanized steel where concealed.

Letters shown in parentheses indicate symbol shown on drawings:

2.3 PAPER TOWEL DISPENSERS (PTD) – Coordinate installation with plan layout.

- A. "Bobrick" Model: B-2620 – Classic Series, surface mounted SS finish.

2.4 TOILET PAPER DISPENSERS (TPD) – Coordinate installation with plan layout.

- A. "Bobrick" Model: B-6999 Surface mounted dispenser with SS hood for 2 rolls.

2.5 GRAB BARS (GB)

- A. Stainless Steel Type: Provide grab bars with wall thickness not less than 18 gage (.050 inch) and as follows:
 - 1. Mounting: Concealed, manufacturer's standard flanges and anchorages.
 - 2. Clearance: 1-1/2 inches clearance between wall surface and inside face of bar.
 - 3. Gripping Surfaces: Smooth satin finish.
 - 4. Heavy-Duty Size: Outside diameter of 1-1/2 inches.
 - 5. Product: Bobrick's "Series B-6206", for 36 inch (GB-36) and 42 inch (GB-42) lengths at toilet stall/room locations as shown.

2.6 SOAP DISPENSERS (SD) – Coordinate with each lavatory location.

- A. Product: Bobrick "Model B-2908-1836".

2.7 WASTE RECEPTACLE (WR)

- A. Product: Bobrick "Model B-2300". Locations: ADA stalls and near exits (total of 6).

2.8 MOP AND BROOM HOLDER/UTILITY SHELF (MBH)

- A. Combination unit with 0.05-inch (18 gage), Type 304, stainless steel shelf with ½-inch returns, 0.062-inch (16 gage) support brackets for wall mounting. Provide 0.062-inch (16 gage) stainless steel hooks for wiping rags on front of shelf, together with spring-loaded, rubber hat, cam-type mop/broom holders; 1/4 inch diameter stainless steel drying rod suspended beneath shelf. Provide unit 30 inches long and complete with three mop/broom holders and two hooks.

1. Product: Bobrick "Model B-224 x 30".

2.9 SANITARY NAPKIN DISPOSAL (ND)

- A. Product: Bobrick "Model B-254". Locations: at each women's toilet stalls.

2.10 INFANT CHANGING STATION (CS)

- A. "Bradley" Model 962-11 Surface Mounted, SS finish - Baby Changing Station Unit.

2.11 HAND DRYER (HD): Locations: in the Unisex toilet and near exits (total of 3).

- A. "Bobrick" AirCraft Automatic, surface mounted dryer Model: B-7007 – 115V, 20A.

2.12 FABRICATION

- A. General: Only a maximum 1-1/2 inch diameter, unobtrusive stamped manufacturer logo, as approved by Architect, is permitted on exposed face of toilet or bath accessory units. On either interior surface not exposed to view or back surface, provide additional identification by either a printed, waterproof label or a stamped nameplate, indicating manufacturer's name and product model number.
- B. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.
- C. Framed Mirror Units, General: Fabricate frames for glass mirror units to accommodate wood, felt, plastic, or other glass edge protection material. Provide mirror backing and support system that will permit rigid, tamperproof glass installation and prevent moisture accumulation, as follows:
1. Provide galvanized-steel backing sheet, not less than 0.034 inch and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.
- D. Keys: Provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of six keys to Owner's representative.

PART 3 – EXECUTION**3.1 INSTALLATION**

- A. Install toilet accessory units according to manufacturers' instructions, using fasteners appropriate to substrate as recommended by unit manufacturer. Install units plumb and level, firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, according to manufacturer's instructions for type of substrate involved.
- C. Install grab bars to withstand a downward load of at least 250 lbs, complying with ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces strictly according to manufacturer's recommendations after removing temporary labels and protective coatings.

END OF SECTION 10800

Manatee County, Florida

BLACKSTONE PARK, LITTLE LEAGUE FIELDS

Concession Building

CITY OF PALMETTO, FLORIDA

APPENDIX A: Geotechnical Report

March 6th, 2013

APPENDIX - A



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GEOTECHNICAL ENGINEERING SERVICES REPORT

For the

**BLACKSTONE PARK – ADDITIONAL LITTLE
LEAGUE FIELDS AND PARKING
23RD STREET SITE
PAMETTO, FLORIDA**

Prepared for

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Prepared by

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PSI Project No. 0775-1607 rev 2

September 20, 2012 (Reissued November 21, 2012)




David S. Harris, P.E.
Project Engineer
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September 20, 2012 (Reissued November 21, 2012)

Manatee County Property Management Dept.
1112 Manatee Ave., Suite 803
Bradenton, FL 34205

Attention: Tom Yarger, PMP
Construction Services Manager

Re: Geotechnical Engineering Services Report
Blackstone Park – Additional Little League Fields and Parking
23rd Street Site
Palmetto, Florida
PSI Project No. 0775-1607 rev 1

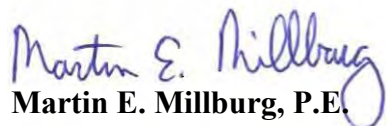
Dear Mr. Yarger:

Professional Service Industries, Inc. (PSI) is pleased to present our geotechnical engineering services report for the referenced project. The results of the study are discussed in the accompanying report, three (3) copies of which are enclosed. We have updated this report with information regarding the regulatory status of the allowable pond depth.

Should there be any questions, please do not hesitate to contact our office at (813) 886-1075. PSI would be pleased to continue providing construction materials testing (CMT) services throughout the implementation of the project. We look forward to working with you and your organization on this and future projects.

Respectfully submitted,

Professional Service Industries, Inc.


Martin E. Millburg, P.E.

Senior Geotechnical Engineer
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Enclosures

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1.0 PROJECT INFORMATION

1.1 PROJECT AUTHORIZATION

Professional Service Industries, Inc. (PSI) has completed a geotechnical exploration for the proposed Additional Little League Fields and Parking for the Blackstone Park complex located at 2112 14th Ave. W., in Palmetto, Florida. Our services were authorized by Manatee County and conducted per PSI proposal No. 775-77690, issued August 30, 2012.

1.2 PROJECT DESCRIPTION

Based on the information provided, baseball fields, parking areas, and stormwater ponds are planned for the above referenced site. A 1- to 2-story concession stand/storage building is planned in conjunction with this development. A stormwater pond is planned for the west end of this site.

We anticipate building loads will not exceed wall and column loads of 4 kips per foot and 50 kips, respectively. We anticipate the maximum fill or cut depth at this site will not exceed 3 feet.

The geotechnical recommendations presented in this report are based on the available project information, building location, and the subsurface materials described in this report. If any of this project description information is incorrect or has changed, please inform PSI so that we may amend, if appropriate, the recommendations presented in this report.

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this study is to explore the subsurface conditions at the site to provide foundation, stormwater management and pavement recommendations for the proposed construction. The subsurface materials encountered were then evaluated with respect to the available project characteristics. In this regard, engineering assessments of the following items have been formulated:

1. Feasibility of utilizing a shallow foundation system for support of the proposed structure, with a slab-on-grade floor member.
2. Design parameters required for the foundation system, including allowable bearing pressures, foundation sizes, foundation levels and soil subgrade treatments.
3. General pavement section recommendations and construction considerations.
4. Soil subgrade preparation, including stripping, grubbing and compaction. Engineering criteria for placement and compaction of approved structural fill materials.

5. Suitability and availability of materials on-site that may be moved during site grading for use as structural fill in the building area and as general backfill.
6. General location and description of potentially deleterious materials encountered in the borings which may interfere with construction progress or structure performance, including existing fills or surficial organics.
7. Stormwater design criteria such as depth to confining layer, infiltration rate and porosity.
8. Identification of groundwater levels and an estimation of seasonal high groundwater levels.

The following services have been provided in order to achieve the preceding objectives:

1. Executed a requested program of subsurface exploration consisting of subsurface sampling and field testing. We performed two (2) Standard Penetration Test (SPT) borings to depths of 20 feet below the existing ground surface within the proposed building footprint. In the borings, samples were collected and Standard Penetration Test resistances were measured virtually continuously for the top 10 feet and on intervals of 5 feet thereafter. Hand augers were used in the upper 4 feet to reduce the potential for damaging any unknown utilities.
2. We performed four (4) hand auger borings in proposed pavement areas.
3. One (1) Double Ring Infiltrometer (DRI) test was performed in the proposed stormwater retention area at a depth of 2 feet below the existing ground surface.
4. We performed two (2) hand auger borings in proposed stormwater retention area.
5. An environmental study being performed at this site included the installation of a monitoring well in the proposed pond area and groundwater elevations. That data was reviewed and used to help establish an estimated Seasonal High Water Level.
6. Visually classified representative soil samples in the laboratory using the Unified Soil Classification System (USCS). Identified soil conditions and formed an opinion of the soil stratigraphy at each boring location.
7. The results of the exploration have been used in the engineering analysis and the formulation of recommendations. The results of the subsurface exploration, including the recommendations and the data on which they are based, are presented in this written report supervised by a professional engineer.

2.0 SITE AND SUBSURFACE CONDITIONS

2.1 SITE LOCATION AND DESCRIPTION

Blackstone Park is a sports complex with baseball and soccer fields located the Northeast Corner of 21st Street West and 14th Avenue West in Palmetto, Florida. The property address is 2112 14th Ave W, Palmetto, FL 34221

The project site is located within Section 11, of Township 34 South, Range 17 East, according to the "Palmetto, Florida," Quadrangle map. Site elevation is approximately +10 feet.

2.2 MANATEE COUNTY SOIL SURVEY

The "Soil Survey of Manatee County, Florida," published by the USDA SCS, was reviewed for general near-surface soil information within the project vicinity. The SCS indicates that *Bradenton fine sand, limestone substratum*, is the predominant mapping unit. A brief description of the mapped soil group is provided below.

Soil Series	Depth (inches)	Unified Classification	USDA Seasonal High Groundwater Table Depth (feet)
(5) Bradenton fine sand, limestone substratum	40 to 80	SP, SC, SP-SM, SP-SC, Limestone	0 to 1

Bradenton soils are composed of sandy and loamy marine deposits over limestone. This soil type is poorly drained with a low available water capacity and moderately high to high permeability. The seasonal high water table is normally at a depth of 0 to 1 foot.

It should be noted that information contained in the USDA Soil Survey is very general and may be outdated. It may not therefore be reflective of actual soil and groundwater conditions, particularly if recent development in the project vicinity has modified soil conditions or surface/subsurface drainage.

2.3 FIELD INVESTIGATION

Subsurface conditions at the site were explored by drilling a total of eight (8) soil borings at the approximate locations shown on the Boring Location Plan included on **Sheet 2** of the **Appendix**.

Two (2) Standard Penetration Test (SPT) borings were performed to depths of 20 feet within the areas of the proposed building. In each boring, samples were collected and SPT resistances were measured virtually continuously for the top 10 feet and on intervals of 5 feet thereafter.

Four (4) hand auger borings were performed to depths of 5 feet in the proposed pavement areas, and two (2) hand auger borings were performed to depths of 5 feet in the proposed stormwater pond. Soil samples were taken at each soil change.

One (1) Double Ring Infiltrometer (DRI) test was performed in the proposed stormwater management area at a depth of 2 feet below the existing ground surface.

The number of borings, boring locations and boring depths were selected by Stantec and PSI. The borings were located in the field by PSI personnel by measuring distances from known site reference points based on the site plan provided to PSI.

Elevations of the ground surface at the boring locations were not provided to PSI and should be determined by others prior to construction. Therefore, all references to depth of the various materials encountered are from the existing grade at the time of drilling (September 13, 2012). The SPT borings were advanced utilizing rotary mud drilling methods and soil samples were routinely obtained at selected intervals during the drilling process. Drilling and sampling techniques were accomplished in general accordance with ASTM standards. Select soil samples were returned to our laboratory for visual classification. Classifications were performed in general accordance with the Unified Soil Classification System (USCS).

2.4 SUBSURFACE CONDITIONS

The subsurface conditions at the site consist primarily of sandy soils from the ground surface to about three to five feet. This layer was underlain by limestone and other calcareous and/or clayey soils to the boring termination depths. The soil profiles presented on **Sheet 3** of the **Appendix** include soil descriptions, stratifications and penetration resistances. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual. Water level information obtained during field operations is also shown on these boring logs.

2.5 GROUNDWATER INFORMATION

Groundwater was not encountered in any of the borings. However, we think the clayey soils at this site prevented accurate water levels from being obtained in the limited time during which the field work was completed. We expect the shallow clayey soils will act to inhibit downward percolation of groundwater, resulting in a perched water table in the upper 5 feet of soils during rainy periods.

A monitoring well was installed about 50 to 75 feet northeast of SW-2. The ground surface elevation at that location was about 10.9' NGVD 29 elevation. The groundwater elevation on 9/20/2012 was reported to be about 5.5' NGVD 29 elevation. Since this water level was obtained during after an exceptionally rainy summer and during a rainy period, we think this water level represents the Seasonal High Water Level in the pond.

2.6 DOUBLE RING INFILTRATION TEST RESULTS

PSI performed one (1) Double Ring Infiltration Test in the proposed underground stormwater retention area. The test was performed at a depth of 2 feet below the ground surface on September 12, 2012. The soil at this depth is slightly silty, slightly clayey to clayey sand (USCS Classification SP-SC/SP-SM, SP-SM/SC). The results of the test yielded a stabilized

infiltration rate of 1.2 inches per hour or 2.4 feet per day. A graph of the test results is included on **Sheet 4** in the **Appendix** of this report.

3.0 EVALUATION AND RECOMMENDATIONS

3.1 GENERAL

Based on our observations, it is our opinion that subsurface soil conditions at the project site are generally favorable for the planned development from a geotechnical engineering perspective provided that the recommendations presented herein are followed. It should be noted that hard limestone and/or very stiff clay was encountered within about 3 to 5 feet from the ground surface at several boring locations. If excavations into this material are required during construction, specialized rock excavating equipment may be required to remove these hard shallow soils.

The following design recommendations have been developed on the basis of the previously described project characteristics and subsurface conditions encountered. If there are any changes in these project criteria, including project location on the site, a review must be made by PSI to determine if any modifications in the recommendations will be required. The findings of such a review should be presented in a supplemental report.

Once final design plans and specifications are available, a general review by PSI is strongly recommended as a means to check that the evaluations made in preparation of this report are correct and that earthwork and foundation recommendations are properly interpreted and implemented.

3.2 SITE PREPARATION

The following are our recommendations for overall site preparation. These recommendations should be used as a guideline for the project general specifications prepared by the design engineer.

1. Organics, vegetation or any other deleterious materials present within proposed building and pavement areas should be removed. All encountered deleterious materials should be removed and disposed of properly. At a minimum, it is recommended that the clearing operations extend at least 5 feet beyond the development perimeters.
2. The proposed footprint area should be compacted to a minimum depth of 1 foot below stripped grade to a dry density of at least 95% of the modified Proctor maximum dry density within the proposed structure areas. Any area where the recommended density has not been achieved should be undercut to firm soils and backfilled with structural fill.

3. Following satisfactory completion of the initial compaction, the structure areas may be brought up to finished subgrade levels, if needed, using structural fill. The on-site clayey soils are well suited for use as fill. Off-site fill soils should be tested and approved by PSI prior to hauling to the site. Imported fill should consist of fine sand with less than 12% passing the No. 200 sieve, free of rubble, organics, clay, debris and other unsuitable material. Fill should be tested and approved prior to acquisition. Approved sand fill should be placed in loose lifts not exceeding 12 inches in thickness and should be compacted to a minimum density of 95% of the modified Proctor maximum dry density. Density tests to confirm compaction should be performed in each fill lift before the next lift is placed.
4. Prior to beginning compaction, soil moisture contents may need to be controlled in order to facilitate proper compaction. If additional moisture is necessary to achieve compaction objectives, then water should be applied in such a way that it will not cause erosion or removal of the subgrade soils. A moisture content within the percentage range needed to achieve compaction (typically +/- 3%) is recommended prior to compaction of the natural ground and fill.
5. After compaction, building foundation excavations can begin. All foundation excavations should be observed by the geotechnical engineer or their representative to evaluate the extent of any loose, soft, or otherwise undesirable materials, if present. If the foundation excavations appear suitable as load bearing materials, the bottom of the foundation excavations should be compacted to a minimum density of 95% of the modified Proctor maximum dry density for a minimum depth of one foot below the bottom of the footing depth, as determined by field density/ compaction tests. Backfill soils placed adjacent to footings or walls should be carefully compacted with a light rubber-tired roller or vibratory plate compactor to avoid damaging the footings or walls. Approved sand fills to provide foundation embedment constraint should be placed in loose lifts not exceeding 12 inches and should be compacted to a minimum density of 95% of the modified Proctor maximum dry density.
6. If soft pockets or debris are encountered in the footing excavations, the unsuitable materials should be removed and the proposed footing elevation may be re-established by backfilling after the undesirable material has been removed. This backfilling may be done with a very lean concrete or with a well-compacted, suitable fill such as clean sand, gravel, or crushed FDOT No. 57 or FDOT No. 67 stone. Backfill should be compacted to a minimum density of 95% of the modified Proctor maximum dry density.
7. Immediately prior to reinforcing steel placement, it is suggested that the bearing surfaces of all footing and floor slab areas be compacted using hand operated mechanical tampers. In this manner, any localized areas which have been loosened by excavation operations should be adequately recompacted.

8. A representative from our firm should be retained to provide on-site observation of earthwork and ground modification activities. Density tests should be performed in the top 1 foot of compacted existing ground, each fill lift, and the bottom of foundation excavations. It is important that PSI be retained to observe that the subsurface conditions are as we have discussed herein, and that foundation construction, ground modification and fill placement is in accordance with our recommendations.

3.3 SHALLOW FOUNDATION RECOMMENDATIONS

With proper subgrade preparation, column footings and continuous wall foundations can be designed for a net allowable soil bearing pressure of 2,500 pounds per square foot, based on dead load plus design live load. Minimum dimensions of 24 inches for column footings and 18 inches for continuous footings should be used in foundation design to account for variable subsurface conditions, regardless of whether the maximum allowable foundation bearing pressures have been fully developed.

Exterior footings should be at a depth of at least 12 to 18 inches below the final exterior grade. The greater depth reduces the potential that adjacent excavations or erosion may undermine the exterior footings. Interior footings may bear on properly compacted soils at a minimum depth of 12 inches, if desired.

The foundation excavations should be observed by a representative of PSI prior to steel or concrete placement to confirm that the compacted fill foundation materials are capable of supporting the design loads and are consistent with the materials discussed in this report. If the foundation excavations appear suitable as load bearing materials, the bottom of the foundation excavations should be compacted to a minimum density of 95% of the modified Proctor maximum dry density for a minimum depth of one foot below the bottom of the footing depth, as determined by field density compaction tests. Soft or loose soil zones encountered at the bottom of the footing excavations should be removed and replaced with fill soils (as directed above), lean concrete or dense graded compacted crushed stone (FDOT No. 57). Some of the foundations may bear in clayey soils, which can be difficult to compact as specified. If compaction of clayey soils is not able to be achieved, clayey soils can be excavated and replaced as specified in Section 3.2, Item 6. Another option is to have the geotechnical engineer inspect the foundation excavation to verify the clayey soils are suitable as foundation bearing soils.

After opening, footing excavations should be observed and concrete placed as quickly as possible to avoid exposure of the footing bottoms to wetting and drying. Surface run-off water should be drained away from the excavations and not be allowed to pond. The foundation concrete should be placed promptly after the excavation is made.

3.4 SETTLEMENT

The settlement of shallow foundations supported on compacted sand fill should occur rapidly after loading. Thus, the expected settlement should occur during construction as structural loads are imposed. Provided the recommended site preparation operations are properly performed,

any organic materials have been removed and the recommendations previously stated are utilized, the total settlement of wall and isolated column footings should not exceed approximately 1 inch. Differential settlement is estimated to be on the order of 50 percent of the total settlement. Settlement of this magnitude is usually considered tolerable for the anticipated construction; however, the tolerance of the proposed structure to the predicted total and differential settlement should be confirmed by the structural engineer.

3.5 FLOOR SLAB RECOMMENDATIONS

Slab-on-grade construction should be supported on soils compacted to a minimum dry density of at least 95% of their modified Proctor value. We have assumed no extraordinary floor slab performance requirements such as very low allowable deflections or smoothness requirements are necessary. Any cuts that are made in the building pad for utility installation should be backfilled with clean granular materials that are compacted to at least 95 percent of their ASTM D-1557 maximum dry density. Material to be placed within 12 inches of the bottom of the slab should have no single particle greater than 3 inches in size, and should meet the requirements of approved structural fill (Item 3, Section 3.2).

The floor slab should be reinforced to reduce the risk of cracking due to settlement. An impervious membrane should be installed between the soil subgrade and bottom of floor slabs to be overlain with moisture sensitive coverings to avoid slab moisture problems. Floor slab design should conform to American Concrete Institute (ACI) design standards and practices.

3.6 PAVEMENT RECOMMENDATIONS

The recommended fill materials or compacted in-place soils should be acceptable for construction and support of a flexible (limerock, crushed concrete or shell base) or rigid (Portland cement) type pavement section after subgrade preparation. Any fill utilized to elevate the cleared pavement areas to subgrade elevation should consist of clean to slightly silty fine sands (SP/SP-SM) uniformly compacted to a minimum density of 95 percent of the modified Proctor maximum dry density (ASTM D-1557) up to the bottom of the pavement subgrade.

The upper 12 inches of subgrade immediately beneath the pavement base should be compacted to a density of no less than 98 percent of the modified Proctor value.

3.6.1 BASE

The choice of pavement base type basically will depend on final pavement grades. If there is a minimum separation of 18-inches between the bottom of the base and the normal seasonal high groundwater level at this site like the borings and USDA system suggests, a limerock, or bank-run shell base can be utilized.

Limerock, bank-run shell base and crushed concrete base materials should meet FDOT requirements including compaction to 98 percent of its maximum dry density as determined by the modified Proctor test (ASTM D-

1557) and a minimum LBR of 100. Crushed concrete should be graded in accordance with FDOT Standard Specification Section 204.

Based on the expected traffic conditions, we recommend that the base course be a minimum of 6 inches thick in light duty areas and 8 inches thick in medium duty areas. If heavy duty traffic areas are expected, such as in a loading area, thicker flexible pavement sections or a rigid concrete pavement section should be used. Traffic should not be allowed on the subgrade as the base is placed to avoid rutting.

3.6.2 ASPHALTIC CONCRETE PAVEMENT

Based on the results of our evaluation, it is recommended that the total asphaltic concrete thickness consist of Type S-1 (or SP-12.5) asphaltic concrete material with a minimum of 1½ inches for parking and 2 inches for driveway areas. The asphaltic concrete should meet standard FDOT material requirements and placement procedures as outlined in the current FDOT Standard Specifications for Road and Bridge Construction. The asphaltic concrete should be compacted to a minimum of 98% of the Marshall maximum laboratory unit weight (or 93% of the maximum theoretical specific gravity (Gmm) if using type SP-12.5). Flexible pavement design recommendations are summarized in the following table.

FLEXIBLE PAVEMENT RECOMMENDATIONS		
Material	Minimum Thickness (inches)	
	Light Traffic	Medium Traffic
Type S-1 Asphaltic Concrete	1.5	2.0
Base Minimum LBR = 100	6.0	8.0
Stabilized Subgrade Minimum LBR = 40	12.0	12.0

3.6.3 RIGID CONCRETE PAVEMENT

Rigid (concrete) pavements could also be used. The concrete should have a minimum compressive strength of 4,000 psi at 28 days when tested in accordance with ASTM C-39. Based on our experience, a minimum thickness of 5 inches should be utilized for standard duty applications and a minimal thickness of 7 inches should be utilized for medium duty applications. The rigid pavement should be dowelled in accordance with FDOT Standard Index 305, as designed by the civil engineer.

The upper 12 inches of subgrade immediately beneath the pavement surface should be compacted to a density of no less than 98 percent of the modified Proctor value. Rigid pavement design recommendations are summarized in the following table.

RIGID PAVEMENT RECOMMENDATIONS		
Material	Minimum Thickness (inches)	
	Light Traffic	Medium Traffic
Portland Cement (Concrete 4,000 psi minimum)	5	7
Compacted Subgrade	12	12

All pavement materials and construction procedures should conform to the more stringent of Florida DOT or appropriate county/city requirements.

3.7 POND DESIGN RECOMMENDATIONS

DRIT-1 was performed in the proposed stormwater retention area. Low infiltration rates may preclude the design of a dry retention pond on this site, and a “wet” pond may be a preferred alternative. Also, the shallow limestone encountered on the site may cause difficulty in excavating a pond. Our understanding is that SWFWMD requires at least 2 feet of cover be left in place over rock. This consideration may also impact pond design at this site.

3.7.1 BASE OF AQUIFER

For the design of the stormwater retention area, the base of the aquifer can be determined by the depth to the confining layer. A confining layer is generally regarded as a soil stratum that will significantly impede the infiltration of water. Based on the soil borings performed on the site, the layer of weathered limestone beginning at approximately three feet is the top of the confining layer.

The Southwest Florida Water Management District (SWFWMD) Part B Basis of Review Section 6.4.1 b. reads:

“Depth - The detention or retention area shall not be excavated to a depth that breaches an aquitard such that it would allow for lesser quality water to pass, either way, between the two systems. In those geographical areas of the District where there is not an aquitard present, the depth of the pond shall not be excavated to within two (2) feet of the underlying limestone which is part of a drinking water aquifer.”

Since limestone is typically considered to be the drinking water aquifer, excavating any closer than 2 feet above the rock (found at a depth of 3 feet) may not be permitted by SWFWMD. SWFWMD would regard that limestone to be part of the aquifer. If it can be demonstrated that the limestone was not part of a drinking water aquifer, possibly by researching local wells and their construction and water source, it may be possible to avoid the 2 foot buffer.

Communication with SWFWMD regarding this issue is included in the Appendix of this report. SWFWMD data indicates water supply wells in the area obtain their water from a

depth of about 35 feet or deeper. Accordingly, SWFWMD may not regard the upper limestone formation encountered by PSI in the pond area to be part of a drinking water aquifer. Excavation near or into this upper limestone formation may be permitted. We suggest this issue be verified with SWFWMD in a pre-application meeting prior to submitting a permit application for this stormwater pond.

3.7.2 FILLABLE POROSITY

The porosity of a soil is the percentage of the total volume of the material that is occupied by pores or interstices. These pores may be filled with water or air and are referred to as void space. Generally, it is assumed 90 percent of the unsaturated void space is available for filling. From St. Johns Water Management District, special publication SJ93-SP10 (1993), the value for fillable porosity for fine sands can be expected to vary from 20 to 30 percent. Based on the soil profile encountered, we believe a value on the order of 20% should be assumed for the fillable porosity.

3.7.3 SUMMARY OF STORMWATER POND DESIGN RECOMMENDATIONS

Approximate Depth to Confining Layer	3 feet deep
Estimated Seasonal High Groundwater Depth	Elevation 5.5' NGVD 29
Stabilized Infiltration Rate	2.4 ft/day
Fillable Porosity	20 percent

3.8 FILL AVAILABILITY

Only a few feet of fine sand and slightly silty fine sand (SP, SP-SM) that was encountered in the upper 3 feet of the borings performed in the building and parking areas can be considered for use as fill material. The material encountered in the majority of the borings should not be used as structural fill material for this project due to the elevated clay content.

4.0 CONSTRUCTION CONSIDERATIONS

4.1 GENERAL

It is recommended that PSI be retained to provide observation and testing of construction activities involved in the foundation, earthwork and related activities of this project. This will promote project continuity and will reduce the potential for misinterpretation of our recommendations

4.2 DRAINAGE AND GROUNDWATER CONCERNS

Water should not be allowed to collect in the foundation excavations, on the floor slab areas, or on prepared subgrades of the construction area either during or after construction. Undercut or excavated areas should be sloped toward one corner to facilitate removal of any collected

rainwater, groundwater, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the building and beneath the floor slabs. The grades should be sloped away from the building and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill and floor slab areas of the building.

4.3 EXCAVATIONS

In Federal Register, Volume 54, No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its “Construction Standards for Excavations, 29 CFR, Part 1926, Subpart P”. This document was issued to better insure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that excavations, whether they be utility trenches, basement excavations or footing excavations, be constructed in accordance with current OSHA guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractors “responsible person”, as defined in 29 CFR, Part 1926, should evaluate the soil exposed in the excavations as part of the contractor’s safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in all local, state, and federal safety regulations.

We are providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor’s or other party’s compliance with local, state, and federal safety or other regulations. It is the policy of PSI not to provide recommendations regarding temporary slopes during construction which is the sole responsibility of the contractor as indicated above.

5.0 REPORT LIMITATIONS

The Geotechnical Engineer warrants that the findings, recommendations, specifications or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed. The services provided were conventional in nature and did not include any special services that may lessen the risk of conditions that can contribute to moisture, mold or other microbial contaminant growth in buildings. You may be aware that mold is abundant throughout nature and is comprised of a wide variety of microscopic fungi. Due to its nature, the potential for mold infestations cannot be completely eliminated.

The scope of services also does not include an environmental assessment for determining the presence or absence of wetlands, or hazardous or toxic materials in the soil, bedrock, surface

water, groundwater, or air on or below, or around this site. Any statements in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes.

Florida is underlain by a soluble limestone formation, which can dissolve and result in surface subsidence and the formation of sinkholes. A more comprehensive assessment of the site for the potential for sinkhole development typically includes Ground Penetrating Radar (GPR) studies and the extension of deeper soil borings into the underlying limestone formation. Such an assessment is beyond the scope of this proposed study, but can be performed at significant additional cost, if desired.

The recommendations submitted are based on the available subsurface information obtained by PSI and design details furnished by Stantec for the proposed project. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the recommendations are required.

After the plans and specifications are more complete, the Geotechnical Engineer should be retained and provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of Manatee County and its consultants for the specific application to the proposed Additional Little League Fields and Parking at Blackstone Park located at 2112 14th Ave. West in Palmetto, Florida.

APPENDIX

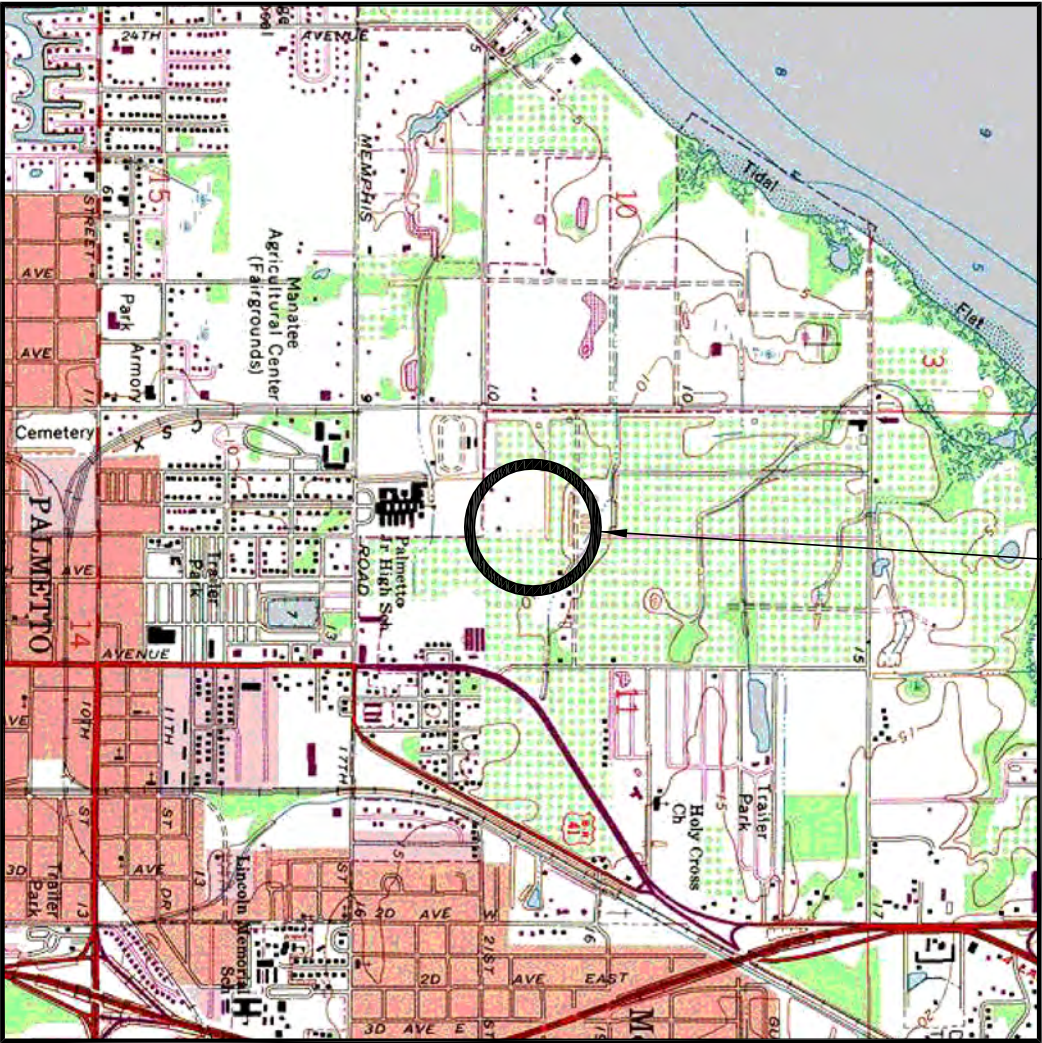


APPROXIMATE SITE LOCATION

REFERENCE: USDA SCS, "SOIL SURVEY OF MANATEE COUNTY, FLORIDA"
TOWNSHIP: 34 SOUTH
RANGE: 17 EAST
SECTION: 11

ISSUED: 1983
PHOTO: 1979
SCALE: 1" = 2000'

USDA VICINITY MAP



APPROXIMATE SITE LOCATION

REFERENCE: USGS "PALMETTO, FLORIDA" QUADRANGLE MAP
TOWNSHIP: 34 SOUTH
RANGE: 17 EAST
SECTION: 11

MAP VERSION: 1984
PHOTOREVISED: -
SCALE: 1" = 2000'

USGS VICINITY MAP



DRAWN	DJC
CHECKED	DH
APPROVED	MEM
SCALE	NOTED

USDA & USGS VICINITY MAPS
BLACKSTONE PARK
MANATEE COUNTY, FLORIDA

psj *Information*
To Build On
Engineering • Consulting • Testing

DATE
SEPT 12

PROJ. NO.
07751607

SHEET 1

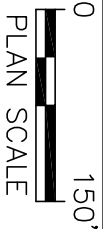


LEGEND


-  Approximate SPT boring location
-  Approximate Hand Auger boring location

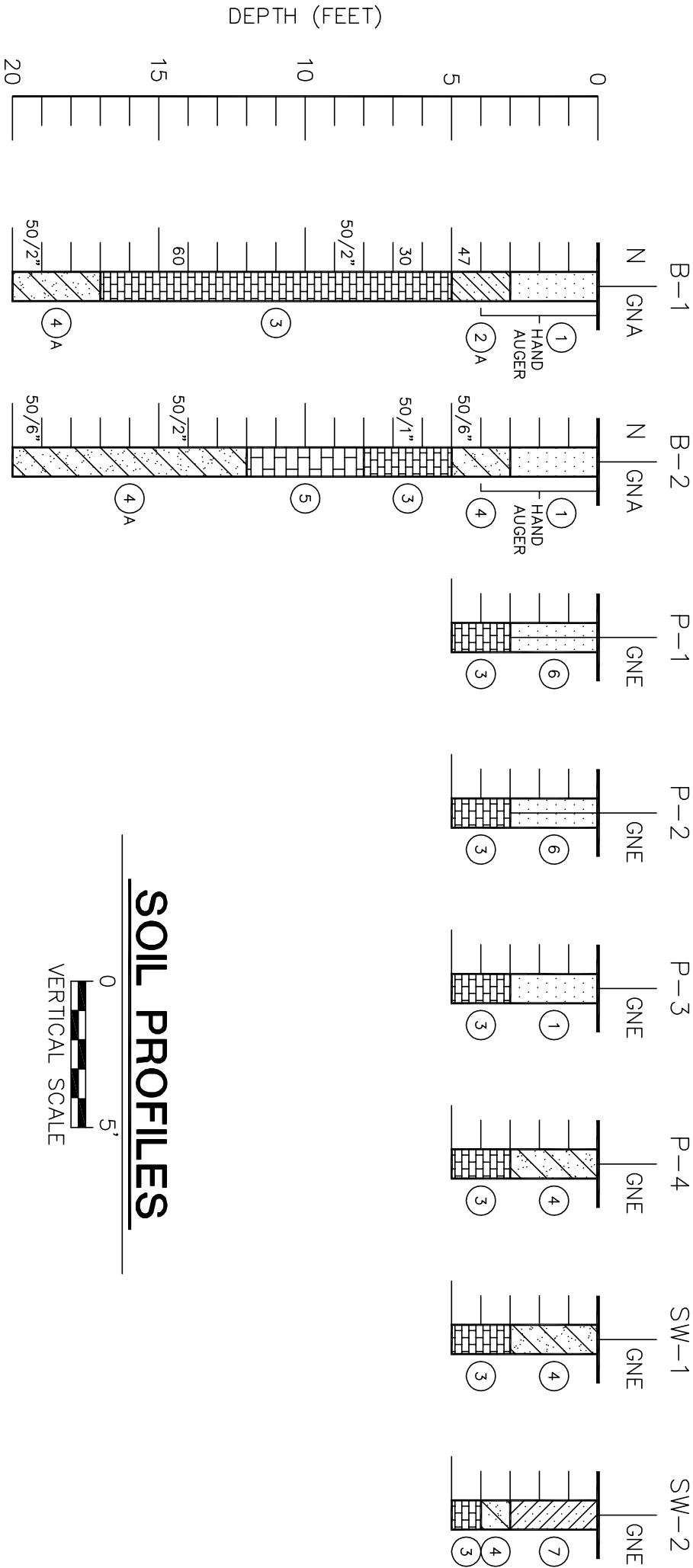
NOTE: Based upon site plan provided to PSI by WilsonMiller Stantec

BORING LOCATION PLAN



DRAWN	DJC
CHECKED	DH
APPROVED	MEM
SCALE	NOTED

GEOTECHNICAL SERVICES		
BLACKSTONE PARK		
MANATEE COUNTY, FLORIDA		
 <i>Information To Build On</i> Engineering • Consulting • Testing		
DATE	PROJ. NO.	SHEET
SEPT 12	07751607	2



SOIL PROFILES



LEGEND

- ① Brown to gray fine SAND (SP)
 - ② Gray clayey SAND (SC)
 - ③ Weathered LIMESTONE
 - ④ Gray or green slightly clayey to slightly silty fine SAND (SP-SC/SP-SM)
 - ⑤ LIMESTONE
 - ⑥ Dark gray slightly silty fine SAND (SP-SM)
 - ⑦ Gray slightly silty to clayey fine SAND (SP-SM/SC)
- SP Unified Soil Classification System (ASTM D 2487)
group symbol as determined by visual review
- GNA Groundwater level not apparent
- GNE Groundwater level not encountered
- N SPT N-value in blows/foot
- 50/6" Fifty blows for six inches
- A Calcareous

DRAWN	DUG
CHECKED	DH
APPROVED	MEM
SCALE	NOTED

GEOTECHNICAL SERVICES

BLACKSTONE PARK

MANATEE COUNTY, FLORIDA

PSI

To Build On

Engineering • Consulting • Testing

DATE

SEPT 12

PROJ. NO.

07751607

SHEET

3

From: rob.brown@mymanatee.org [<mailto:rob.brown@mymanatee.org>]
Sent: Wednesday, November 14, 2012 12:22 PM
To: Michael Bair
Subject: Fw: Blackstone Park

Mike:

According to Hank Barker (SWFWMD), this stipulation that Marty is referencing is used primarily in the northern part of the District and not applicable here. A review of well construction data in the area shows that the beginning of the Intermediate Aquifer System (IAS) where potable wells could be constructed, would be at -25 msl.

Rob Brown

Natural Resources Department
Manager, Environmental Protection Division
(941)742-5980 ext. 1870
cell: (941) 737-5218
202 6th Avenue East
Bradenton, FL 34208
www.MyManatee.org/naturalresources



----- Forwarded by Robert Brown/MCG on 11/14/2012 12:16 PM -----

From: Wes Ripperger/MCG
To: Robert Brown/MCG@MCG
Date: 11/14/2012 11:14 AM
Subject: Fw: Blackstone Park

Hey Rob,

Hank Barker (SWFWMD Hydrologist) looked into the formation surrounding Blackstone Park. Attached below is the well data from ROMP TR 8-1 and surrounding wells.

Wes Ripperger

Natural Resources Department
Environmental Specialist
(941)742-5980 ext. 1878
cell: (352) 281-9182
202 6th Avenue East
Bradenton, FL 34208
www.MyManatee.org/naturalresources



----- Forwarded by Wes Ripperger/MCG on 11/14/2012 11:06 AM -----

From: Hank Barker <Henry.Barker@swfwmd.state.fl.us>
To: "wes.ripperger@mymanatee.org" <wes.ripperger@mymanatee.org>
Date: 11/14/2012 10:34 AM

Subject: RE: Blackstone Park

Hey Wes, ROMP TR 8-1 shows the IAS starts at about -25 ft. msl. Attached is the well construction for this area.

From: wes.ripperger@mymanatee.org [<mailto:wes.ripperger@mymanatee.org>]

Sent: Wednesday, November 14, 2012 9:36 AM

To: Hank Barker

Subject: Blackstone Park

Hank,

The location of the park is 2112 14th Ave W, Palmetto. The lat/long is 27 31 59.79, 82 34 46.72. Any data that would assist us in resolving this ERP issue would be very helpful.

Thanks again,

Wes Ripperger

Natural Resources Department

Environmental Specialist

(941)742-5980 ext. 1878

cell: (352) 281-9182

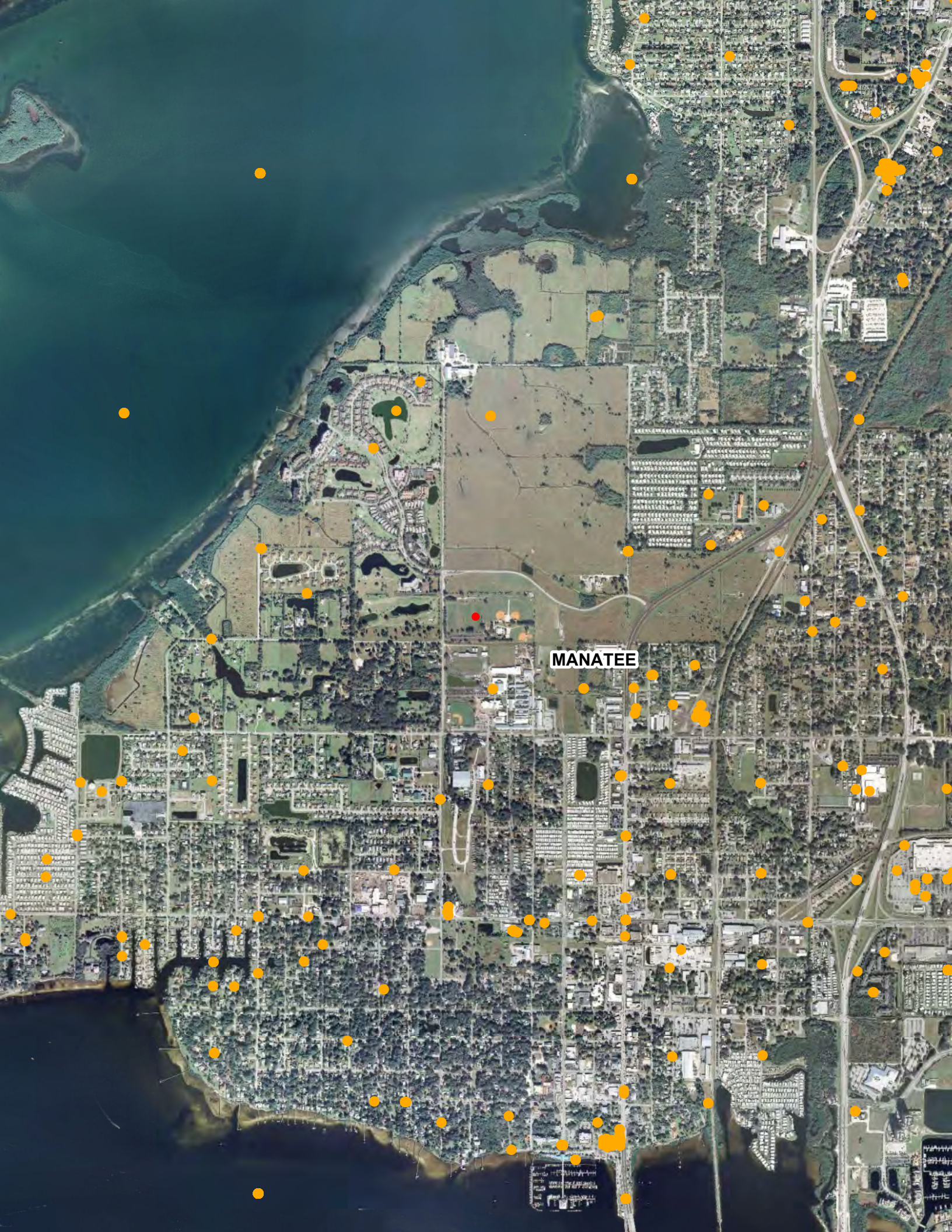
202 6th Avenue East

Bradenton, FL 34208

www.MyManatee.org/naturalresources



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MANATEE

Manatee County, Florida

BLACKSTONE PARK, LITTLE LEAGUE FIELDS

Concession Building

CITY OF PALMETTO, FLORIDA

APPENDIX B: Project NOA's/ Florida Approval

March 6th, 2013

APPENDIX – B



FleischmanGarcia
Architecture • Planning • Interior Design
5967 Cattlemen Lane
Sarasota, Florida 34232
Phone 941 / 342-9293



DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY
AFFAIRS (PERA)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION

11805 SW 26 Street, Room 208

Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599

www.miamidade.gov/building

NOTICE OF ACCEPTANCE (NOA)

NCI Group, Inc.
14031 West Hardy
Houston, TX 77060

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County PERA-Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. PERA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: 'R-Panels' 22 ga. & 24 ga. Structural Galvalume Steel 1-1/4" x 36" Roof Panels

APPROVAL DOCUMENT: Drawing with no number, titled "PBR Panel Flashing Detail", sheets 1 through 11, prepared by NCI Group, Inc., dated July 27, 2011, signed and sealed by Mark Detwiler, P.E., on July 27, 2011, bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and the expiration date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: Large and Small Missile Impact Resistant

LABELING: Each panel shall bear a permanent label with the manufacturer's name or logo, city, state and the following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA # 08-0212.06 and consists of this page 1, evidence submitted pages E-1, E-2, E-3 & E-4 as well as approval document mentioned above.

The submitted documentation was reviewed by **Helmy A. Makar, P.E., M.S.**



Helmy A. Makar
12/08/2011

NOA No. 11-0810.07
Expiration Date: 02/27/2013
Approval Date: 12/08/2011
Page 1

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

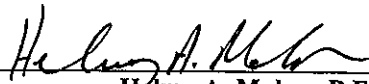
1. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 96-0529.03

A. DRAWINGS

- | | | |
|----|----------------|-----------------------------|
| 1. | Title: | "R-Panel" Roof Panel |
| | Number: | R95, sheets 100 through 110 |
| | Signature: | Terrence E. Wolfe, P.E. |
| | Date: | 05/23/96 |
| | Revision Date: | 01/30/97 |

B. TESTS

- | | | |
|----|-------------|---|
| 1. | Laboratory | Farabaugh Engineering and testing, Inc. |
| | Number | T103-96, dated 01/18/96. |
| | Type: | Uniform static air pressure loading, per ASTM 1592 (22 ga R-Panel) |
| | Signature: | Daniel G. Farabaugh, P.E. |
| 2. | Laboratory | Farabaugh Engineering and testing, Inc. |
| | Number | T102-96, dated 01/11/96 |
| | Type: | Uniform static air pressure loading, per ASTM 1592 (24 ga R-Panel) |
| | Signature: | Daniel G. Farabaugh, P.E. |
| 3. | Laboratory | Farabaugh Engineering and testing, Inc. |
| | Number | T104-96, dated 01/05/96 |
| | Type: | Large missile impacts, per PA 201-94 (24 ga R-Panel) |
| | Signature: | Daniel G. Farabaugh, P.E. |
| 4. | Laboratory | Farabaugh Engineering and testing, Inc. |
| | Number | T118-96, dated 04/26/96 |
| | Type: | Susceptibility to leakage for class 1 metal roof panel, per "FM 4471-G" (24 ga R-Panel) |
| | Signature: | Daniel G. Farabaugh, P.E. |
| 5. | Laboratory: | West Penn Testing Laboratories, Inc. |
| | Number: | WP-9048 (Report # 034), dated 01/31/96 |
| | Type: | Tensile Strength (22 ga R-Panel) |
| | Signature: | Todd A. Ault |
| 6. | Laboratory: | West Penn Testing Laboratories, Inc. |
| | Number: | WP-9048 (Report # 034), dated 01/31/96 |
| | Type: | Tensile Strength (22 ga and 24 ga R-Panels) |
| | Signature: | Todd A. Ault |


Helmy A. Makar, P.E., M.S.
PERA, Product Control Unit Supervisor
NOA No. 11-0810.07
Expiration Date: 02/27/2013
Approval Date: 12/08/2011

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

7. Laboratory: Center For Applied Engineering, Inc.
Number: MTS No. 257558, dated 03/27/96
Type: Wind Driven Rain Test per PA 100-95 (24 ga R-Panels)
Signature: R. G. Miller, P.E.

C. CALCULATIONS

1. Title: 22 gage and 24 gage R-Panel
Signature: Terrence E. Wolfe, P.E.
Date: 05/23/96

2. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 99-0823.04

A. DRAWINGS

1. *None.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. MATERIAL CERTIFICATIONS

1. *None.*

E. STATEMENTS

1. *Letter requesting renewal of NOA No. 96-0529.03 and stating that the product has not changed, dated August 12, 1999, signed by Brian N. Jaks.*

3. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 02-1016.04

A. DRAWINGS

1. *None.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*



Henry A. Makar, P.E., M.S.
PERA, Product Control Unit Supervisor
NOA No. 11-0810.07
Expiration Date: 02/27/2013
Approval Date: 12/08/2011

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

D. MATERIAL CERTIFICATIONS

1. *None.*

4. EVIDENCE SUBMITTED UNDER PREVIOUS APPROVAL # 08-0212.06

A. DRAWINGS

1. *None.*

B. TESTS

1. *Test report on Large Missile Impact Test, Cyclic Wind Pressure Test, and Uniform Static Air Pressure Test on R-Panel 24 ga. X 36" wide, prepared by Farabaugh Engineering and Testing Inc., Report No. T216-07, dated 06/15/2007, signed and sealed by Patrick J. Farabaugh, P.E. and Daniel G. Farabaugh, P.E.*
2. *Test report on Uniform Static Air Pressure Test on PRB-Panel 22 ga. X 36" wide, per ASTM 1592-01, prepared by Force Engineering & Testing Inc., Report No. 07-0004T-08A, B, dated 01/28/2008, signed and sealed by Terrence E. Wolfe, P.E.*
3. *Test report on Uniform Static Air Pressure Test on PRB-Panel 22 ga. X 36" wide, per ASTM 1592-01, prepared by Force Engineering & Testing Inc., Report No. 07-0004T-08C, dated 01/28/2008, signed and sealed by Terrence E. Wolfe, P.E.*
4. *Test report on Uniform Static Air Pressure Test on PRB-Panel 24 ga. X 36" wide, per ASTM 1592-01, prepared by Force Engineering & Testing Inc., Report No. 07-0004T-08D, E, dated 01/28/2008, signed and sealed by Terrence E. Wolfe, P.E.*
5. *Test report on Uniform Static Air Pressure Test on PRB-Panel 24 ga. X 36" wide, per ASTM 1592-01, prepared by Force Engineering & Testing Inc., Report No. 07-0004T-08F, dated 01/28/2008, signed and sealed by Terrence E. Wolfe, P.E.*
6. *Test procedure for wind and wind driven rain resistance of discontinuous roof systems performance for R-Panel Steel Roof 36" wide x 24 ga. Per TAS 100-95, test report # T351-07, dated 12/20/07, signed and sealed by Daniel G. Farabaugh, P.E.*

C. CALCULATIONS

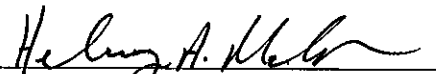
1. *None.*

D. QUALITY ASSURANCE

1. *By Miami-Dade County Building Code Compliance Office.*

E. MATERIAL CERTIFICATIONS

1. *Tensile Test foe 22 ga. From test # 07-0004T-08A, B.*
2. *Tensile Test foe 24 ga. From test # 07-0004T-08A, B.*



Helmy A. Makar, P.E., M.S.
PERA, Product Control Unit Supervisor

NOA No. 11-0810.07

Expiration Date: 02/27/2013

Approval Date: 12/08/2011

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

5. NEW EVIDENCE SUBMITTED

A. DRAWINGS

1. *Drawing with no number, titled "PBR Panel Flashing Detail", sheets 1 through 11, prepared by NCI Group, Inc., dated July 27, 2011, signed and sealed by Mark Detwiler, P.E., on July 27, 2011.*

B. TESTS

1. *None.*

C. CALCULATIONS

1. *None.*

D. QUALITY ASSURANCE


1. *By Miami-Dade County Department of Permitting, Environment, and Regulatory Affairs.*

E. MATERIAL CERTIFICATIONS

1. *None.*

F. OTHERS

1. *Bill of Sale, assignment and Assumption Agreement.*



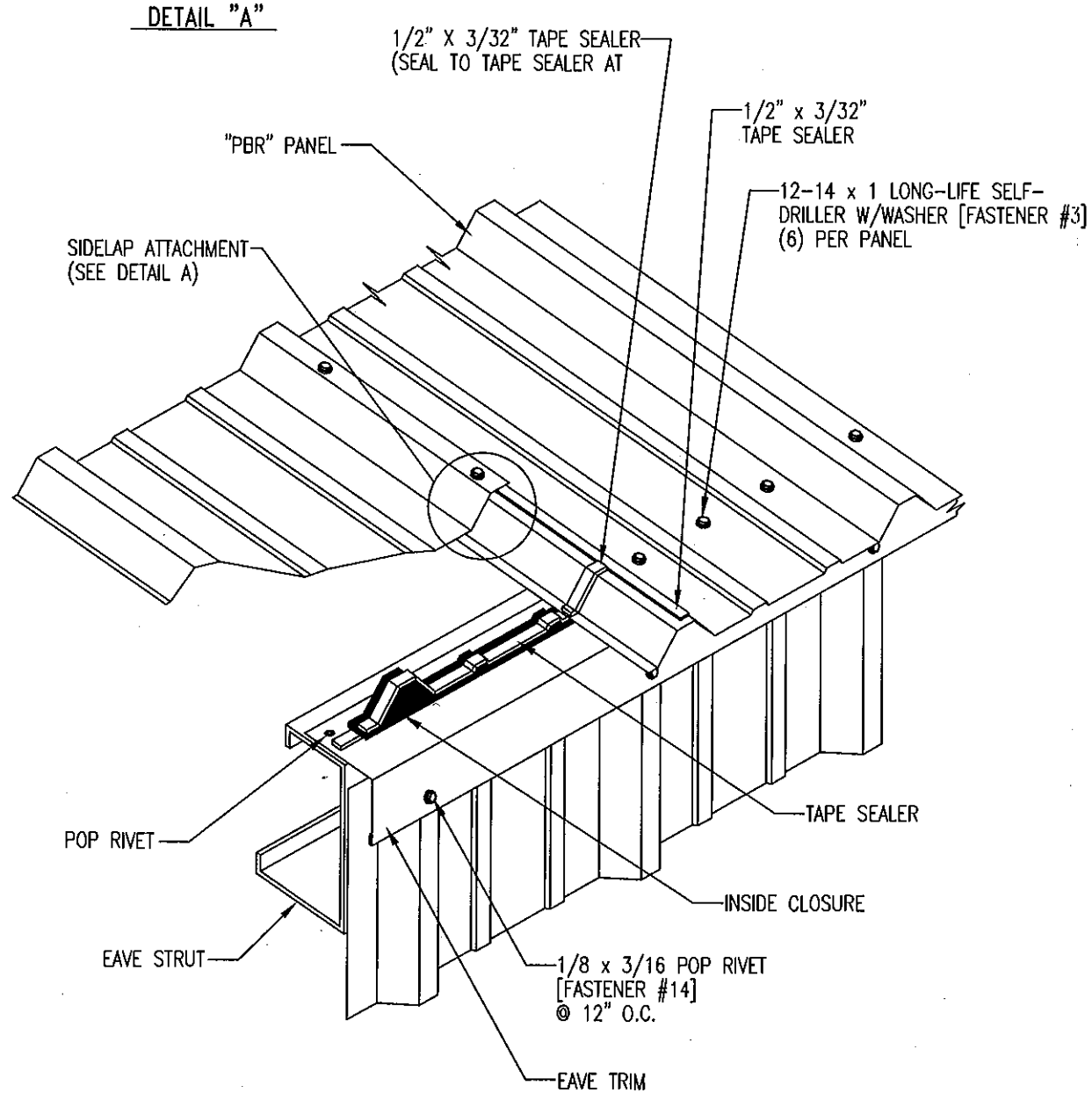
Helmy A. Makar, P.E., M.S.

PERA, Product Control Unit Supervisor

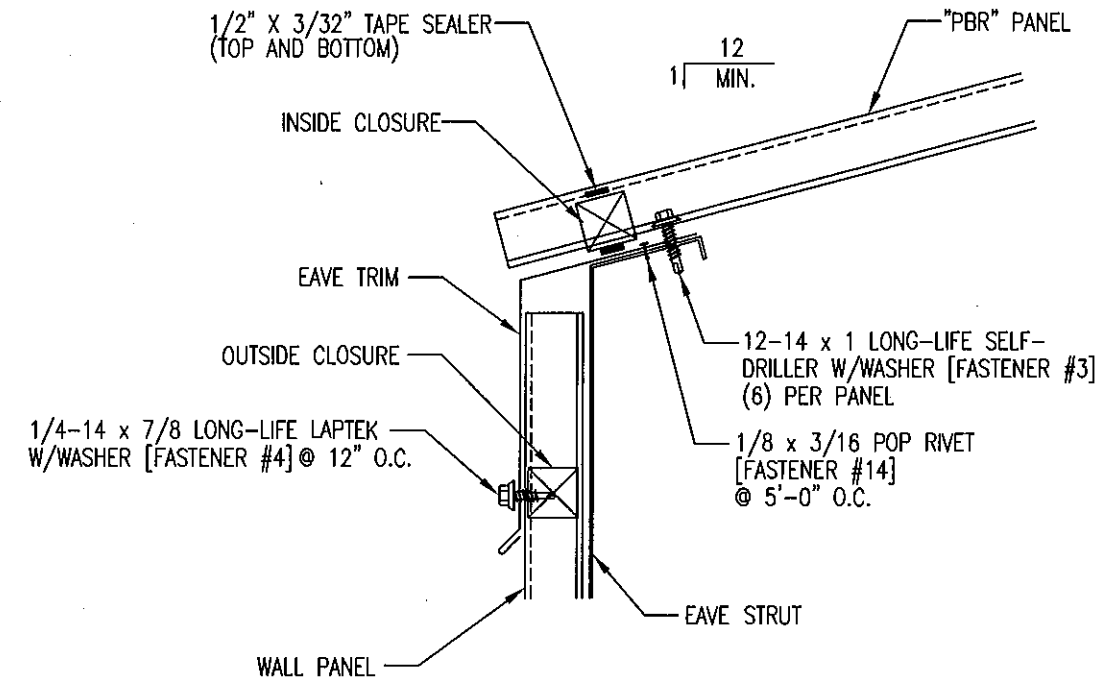
NOA No. 11-0810.07

Expiration Date: 02/27/2013


Approval Date: 12/08/2011

[illegible]

ISOMETRIC VIEW OF EAVE TRIM



CROSS SECTION OF EAVE TRIM

 CORPORATE OFFICES: 17301 FAIRVIEW DR. HOUSTON, TX 77041 281-771-5278 MAILING: P.O. BOX 46220 HOUSTON, TX 77246-0620	<i>Project Name and Location:</i> DADE COUNTY PRODUCT APPRAISAL DADE COUNTY, FLORIDA
<i>SHEET TITLE:</i> FIBER PANEL FLASHING DETAIL	

Scale: NOT TO SCALE

Drawn by: EH

Checked by: JA

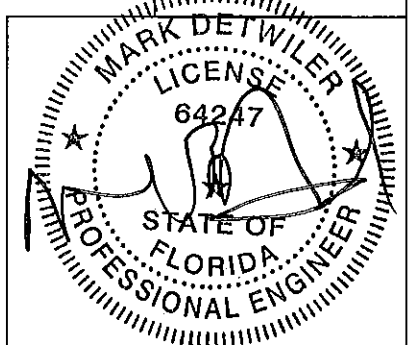
Job Number:

Page Number: _____

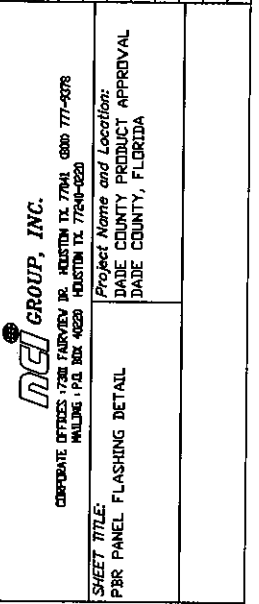
Sheet Number: 1/11

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PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 11-0810-07
Expiration Date 02/27/2015
By Heung A. Noh
Miami Dade Product Control



7-27-11

[illegible]

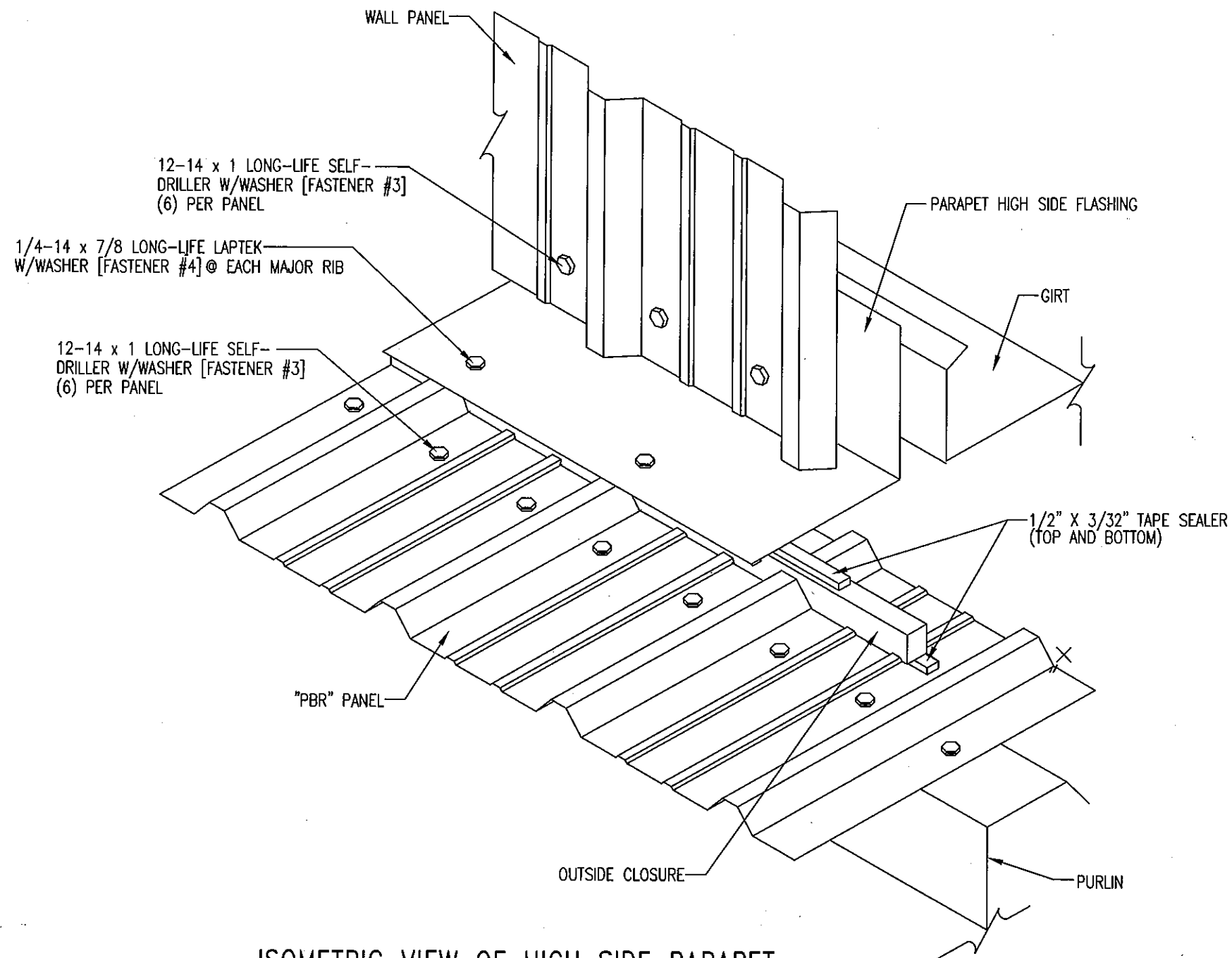
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Drawn by:	EH
Checked by:	JA
Job Number:	
Sheet Number:	3/11

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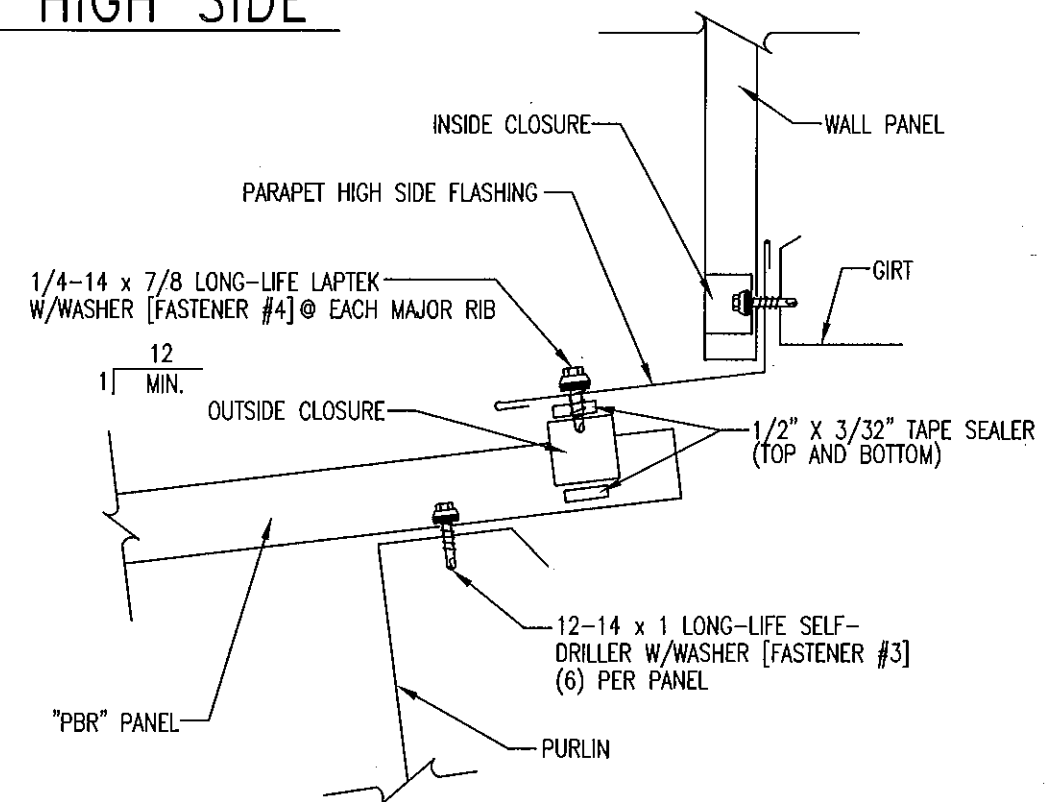
A circular professional engineer seal for the State of Florida. The outer ring contains the text "MARK DETWEILER" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by stars. The inner circle contains the text "LICENSE" and the number "64247". A five-pointed star is positioned below the license number. The seal is stamped over a document with a grid background.

7-27-17

TYPICAL DETAILS OF PARAPET HIGH SIDE

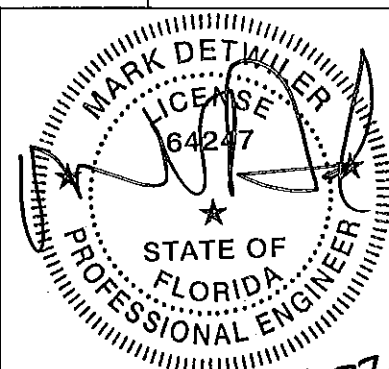


ISOMETRIC VIEW OF HIGH SIDE PARAPET



CROSS SECTION OF HIGH SIDE PARAPET

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 11-0810-07
Expiration Date 02/27/2013
By H. L. A. Nelson
Miami Dade Product Control



7-27-11

[illegible]

<p>ndj GROUP, INC.</p> <p>CORPORATE OFFICES: 7301 FAIRVIEW DR. HOUSTON TX 77041 6800 771-0078 MAILING: 1721 BOX 4628 HOUSTON TX 77260-0628</p>	<p>SHEET TITLE: GYPBR PANEL FLASHING DETAIL</p> <p>Project Name and Location: DADE COUNTY PRODUCT APPROVAL DADE COUNTY, FLORIDA</p>
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Scale: NOT TO SCALE

Drawn by: EH

Checked by: JA

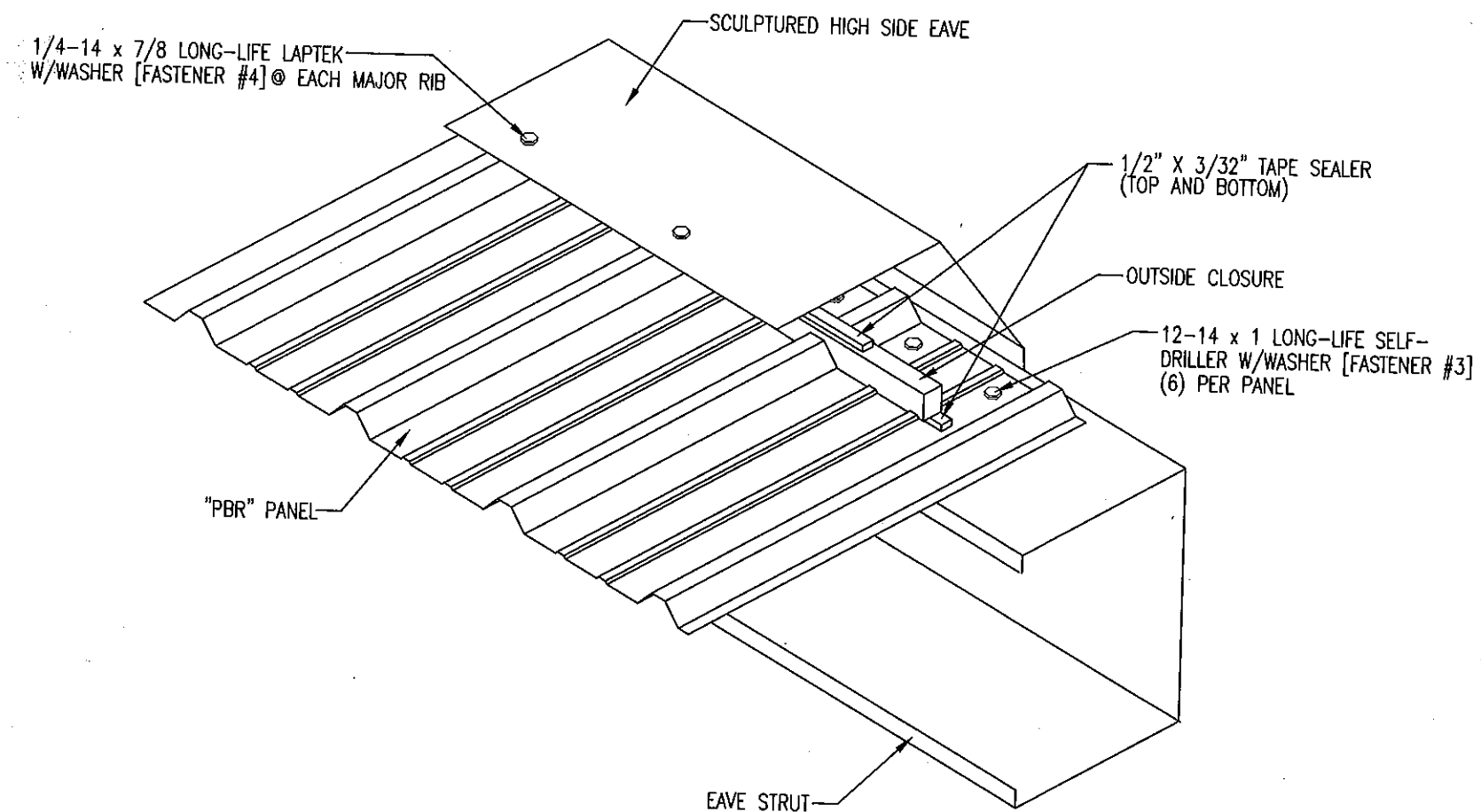
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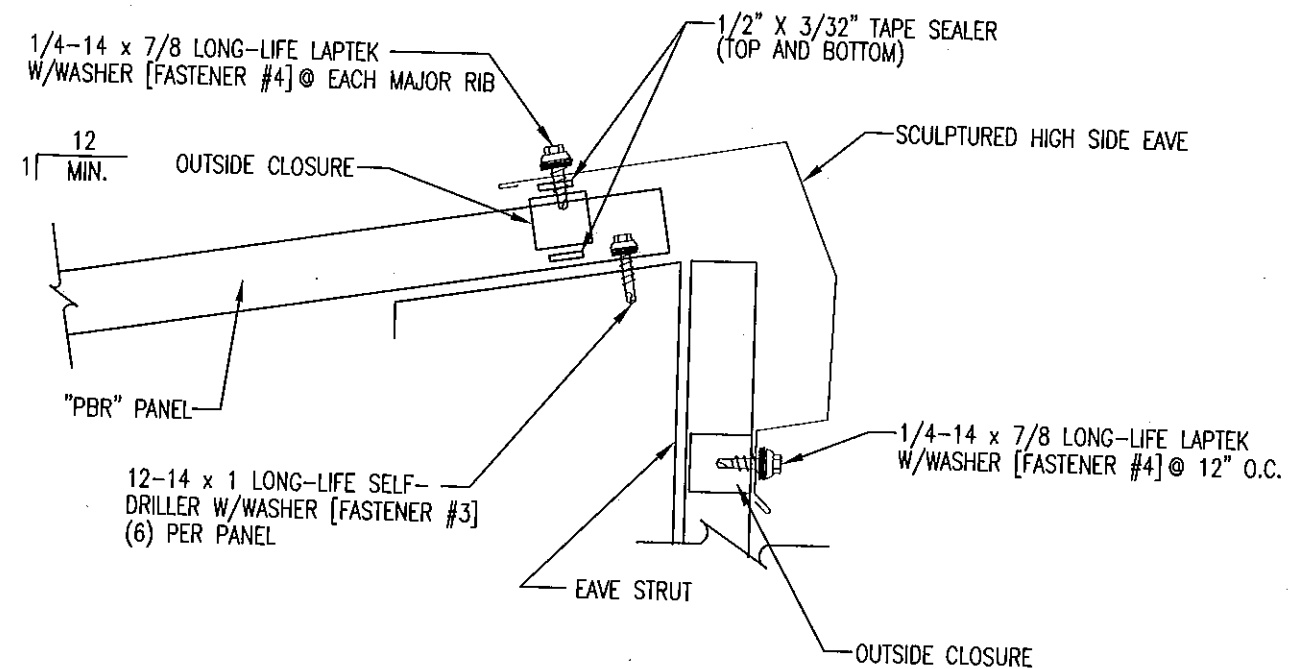
Sheet Number: 5/11

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TYPICAL DETAILS OF HIGH SIDE EAVE

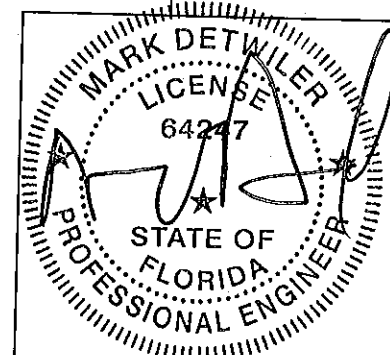



ISOMETRIC VIEW OF HIGH SIDE EAVE



CROSS SECTION OF HIGH SIDE EAVE

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-0810-07
Expiration Date 02/27/2013
By H. A. [Signature]
Miami Dade Product Control

[illegible]

 <p> CORPORATE OFFICES: 17001 FAIRVIEW BL. HOUSTON, TX 77041 8300 771-5078 MAILING: P.O. BOX 40223 HOUSTON, TX 77240-0223 </p>	<p> <u>Project Name and Location:</u> DADE COUNTY PRODUCT APPROVAL DADE COUNTY, FLORIDA </p>
<p> <u>SHEET TITLE:</u> 2"X8" PANEL FLASHING DETAIL </p>	

Scale: NOT TO SCALE

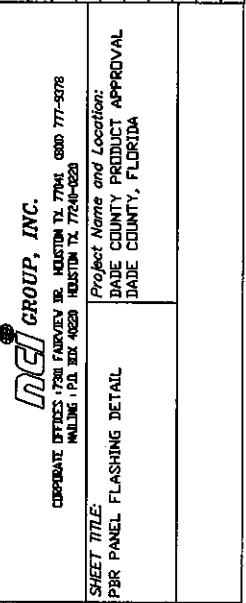
Drawn by: EH

Checked by: JA

Job Number:

Sheet Number: 12 of 11

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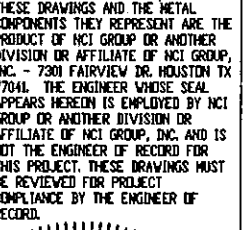
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Drawn by: EH

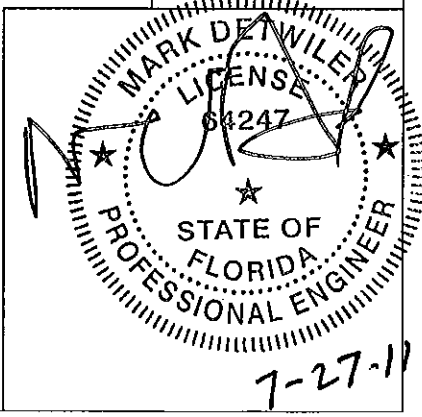
Checked by: JA

Job Number:

Sheet Number: 10/11



PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No 11-0810.07
Expiration Date 02/27/2013
By: Heather A. Miller
Miami Dade Product Control





DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY
AFFAIRS (PERA)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY, FLORIDA
PRODUCT CONTROL SECTION
11805 SW 26th Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/pera/

PGT Industries, Inc.
1070 Technology Drive
North Venice, FL 34275

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County PERA -Product Control Section to be used in Miami-Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami-Dade County) and/ or the AHJ (in areas other than Miami-Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. PERA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code. This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

DESCRIPTION: Series "PW-520 Vinyl" White PVC Fixed Window - L.M.I.

APPROVAL DOCUMENT: Drawing No. 5190-1 titled "Vinyl Picture Window, Large Missile Impact", sheets 1 through 10 of 10, prepared by manufacturer, dated 08/04/08 with the latest revision "B" dated 10/18/11, prepared by PGT Industries, Inc., signed and sealed by Anthony Lynn Miller, P. E., bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and Expiration date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: Large and Small Missile Impact Resistant.

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, model/ series and following statement: "Miami-Dade County Product Control Approved" unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA No. 08-0820.15 and consists of this page 1, evidence pages E-1 and E-2, as well as approval document mentioned above.

The submitted documentation was reviewed by **Jaime D. Gascon, P. E.**



J. Gascon
2/9/12

NOA No. 11-1114.18
Expiration Date: January 08, 2014
Approval Date: February 16, 2012
Page 1

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. Manufacturer's die drawings and sections.
(Submitted under NOA's No. 08-0820.15)
2. Drawing No. 5190-1 titled "Vinyl Picture Window, Large Missile Impact", sheets 1 through 10 of 10, prepared by manufacturer, dated 08/04/08 with the latest revision "B" dated 10/18/11, prepared by PGT Industries, Inc., signed and sealed by Anthony Lynn Miller, P. E.

B. TESTS

1. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
2) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94
3) Water Resistance Test, per FBC, TAS 202-94
4) Large Missile Impact Test per FBC, TAS 201-94
5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
6) Forced Entry Test, per FBC 2411 3.2.1, TAS 202-94

Along with marked-up drawings and installation diagram of a vinyl fixed window, prepared by Fenestration Testing Laboratory, Inc., Test Reports No.'s **FTL-5712** and **FTL-5729**, dated 08/13 and 09/09/08, all signed and sealed by Carlos S. Rionda, P. E.

(Submitted under NOA No. 08-0820.15)

C. CALCULATIONS

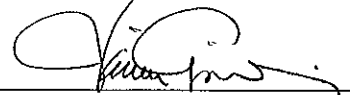
1. Anchor verification calculations and structural analysis, complying with FBC-2004 and 2007, prepared by PGT Industries, Inc., dated 11/25/08, signed and sealed by Robert L. Clark, P. E.
(Submitted under previous NOA No. 08-0820.15)
2. **Complies with ASTM E1300-02/ 04**

D. QUALITY ASSURANCE

1. Miami-Dade Department of Permitting, Environment, and Regulatory Affairs (PERA)

E. MATERIAL CERTIFICATIONS

1. Notice of Acceptance No. 11-0624.01 issued to **E.I. DuPont DeNemours & Co., Inc.** for their "**DuPont Butacite® PVB Interlayer**" dated 09/08/11, expiring on 12/11/16.
2. Notice of Acceptance No. 11- 0830.09 issued to Mikron Industries, Inc., for their "**White Rigid PVC Exterior Extrusions for Windows and Doors**" dated 10/6/11, expiring on 12/26/16.



Jaime D. Gascon, P. E.
Product Control Section Supervisor
NOA No. 11-1114.18
Expiration Date: January 08, 2014
Approval Date: February 16, 2012

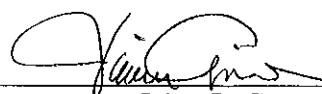
NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

F. STATEMENTS

1. Statement letter of conformance and compliance with the FBC-2007 (with the 2009 supplement) and FBC-2010, dated 10/26/11, signed and sealed by Anthony Lynn Miller, P. E.
2. Statement letter of no financial interest and independence, dated 10/26/11, signed and sealed by Anthony Lynn Miller, P. E.
3. Letter of *Adoption of as his Own, the Work of another Engineer* per Section 61G15-27.001 of the F.B.P.E., dated 10/07/11 signed and sealed by Anthony Lynn Miller, P. E.
4. Statement letter of conformance and compliance with the FBC, dated 08/12/08, signed and sealed by Robert L. Clark, P. E.
(Submitted under previous NOA No. 08-0820.15)
5. Statement letter of no financial interest and independence, dated 08/12/08, signed and sealed by Robert L. Clark, P. E.
(Submitted under previous NOA No. 08-0820.15)
6. Laboratory compliance letter for Test Reports No.'s **FTL-5712** and **FTL-5729**, dated 08/13 and 09/09/08, all signed and sealed by Carlos S. Rionda, P.E.
(Submitted under previous NOA No. 08-0820.15)
7. Laboratory compliance letter for Test Report No. **ATI-84576.01-401-47**, dated 10/31/08, signed and sealed by Joseph A. Reed, P. E. *(For Reference only)*
(Submitted under previous NOA No. 08-0820.15)

G. OTHERS

1. Notice of Acceptance No. **08-0820.15**, issued to PGT Industries, Inc. for their Series "PW-701 Aluminum Picture Window, Non-Impact", approved on 01/08/09 and expiring on 02/19/14.
2. Test reports on:
 - 1) Air Infiltration Test, per FBC, TAS 202-94
 - 2) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94
 - 3) Water Resistance Test, per FBC, TAS 202-94
 - 4) Large Missile Impact Test per FBC, TAS 201-94
 - 5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
 - 6) Forced Entry Test, per FBC 2411 3.2.1, TAS 202-94Along with marked-up drawings and installation diagram of a vinyl fixed window, prepared by Architectural Testing, Inc., Test Report No. **ATI-84576.01-401-47**, dated 10/31/08, signed and sealed by Joseph A. Reed, P. E. *(For Reference only)*
(Submitted under NOA No. 08-0820.15)


Jaime D. Gascon, P. E.
Product Control Section Supervisor
NOA No. 11-1114.18
Expiration Date: January 08, 2014
Approval Date: February 16, 2012

NOTES: LARGE MISSILE WINDOWS

1. GLAZING OPTIONS:
- A. 7/8" LAMI I.G. GLASS COMPRISED OF (1) LITE OF 3/16" TEMPERED OR ANNEALED GLASS, AIRSPACE AND 5/16" LAMINATED GLASS WHICH IS COMPRISED OF (2) LITE OF 1/8" ANNEALED GLASS WITH AN .090 INTERLAYER OF DUPONT PVB.
 - B. 1" LAMI I.G. GLASS COMPRISED OF (1) LITE OF 3/16" TEMPERED OR ANNEALED GLASS, AIRSPACE AND 5/16" LAMINATED GLASS WHICH IS COMPRISED OF (2) LITES OF 1/8" ANNEALED GLASS WITH AN .090 INTERLAYER OF DUPONT PVB.
2. DESIGN PRESSURE RATINGS: (SEE TABLE 1 AND NOTES BELOW)
- A. NEGATIVE DESIGN LOADS BASED ON TESTED PRESSURE AND ASTM E 1300-02 GLASS TABLES .
 - B. POSITIVE DESIGN LOADS BASED ON TESTED PRESSURE, WATER TEST PRESSURE, AND ASTM E 1300-02 GLASS TABLES .
3. ANCHORAGE: THE 33 1/3% STRESS INCREASE HAS NOT BEEN USED IN THE DESIGN OF THIS PRODUCT. MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, CURRENT EDITION.
4. FOR ANCHORAGE INFORMATION SEE SHEETS 9 AND 10.
5. SHUTTER REQUIREMENT: NONE REQUIRED FOR UNITS LESS THAN 30'.
6. REFERENCES: TEST REPORTS, FTL-5712 & FTL-5729.
ELCO TEXTRON NOA: 04-0721.01, 03-0225.05
ANSI/AF&PA NDS-2005 FOR WOOD CONSTRUCTION
7. THIS PRODUCT HAS BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ).

NOA DRAWING TABLE OF CONTENTS	
SHEET	
GENERAL NOTES.....	1
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GLAZING DETAILS.....	5
SECTIONS, BOX FRAME.....	6
CORNER ASS'Y, BOX FRAME.....	6
SECTIONS, I.F. FRAME.....	7
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TABLE 1. DESIGN PRESSURES (PSF)									
GLASS TYPES: A. 7/8" LAMINATED INSULATED GLASS (3/16"A - AIRSPACE - 1/8"A., .090, 1/8"A.)									
B. 1" LAMINATED INSULATED GLASS (3/16"A. - AIRSPACE 1/8"A., .090, 1/8"A.)									
WINDOW HEIGHT	GLASS TYPE	WINDOW WIDTH							
		59.000		60.000		61.000		62.000	
44.000	A,B	+80.0	-80.0	+80.0	-80.0	+80.0	-80.0	+80.0	-80.0
AREA		18.03 SQ.FT.		18.33 SQ.FT.		18.64 SQ.FT.		18.94 SQ.FT.	
45.000	A,B	+80.0	-80.0	+80.0	-80.0	+80.0	-80.0	+79.6	-79.6
AREA		18.44 SQ.FT.		18.75 SQ.FT.		19.06 SQ.FT.		19.38 SQ.FT.	
46.000	A,B	+80.0	-80.0	+80.0	-80.0	+80.0	-80.0	+78.5	-78.5
AREA		18.85 SQ.FT.		19.17 SQ.FT.		19.49 SQ.FT.		19.81 SQ.FT.	
47.000	A,B	+80.0	-80.0	+79.9	-79.9	+79.0	-79.0	+77.4	-77.4
AREA		19.26 SQ.FT.		19.58 SQ.FT.		19.91 SQ.FT.		20.24 SQ.FT.	
48.000	A,B	+80.0	-80.0	+78.8	-78.8	+78.0	-78.0	+76.3	-76.3
AREA		19.67 SQ.FT.		20.00 SQ.FT.		20.33 SQ.FT.		20.67 SQ.FT.	

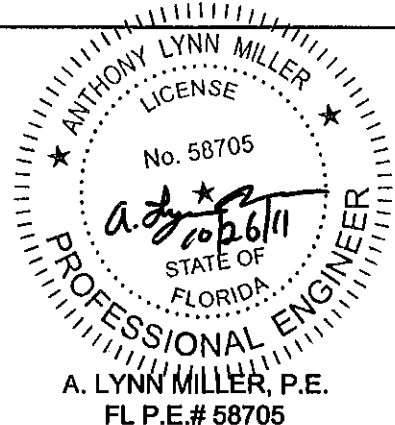
- NOTE:
- 1. THE MAXIMUM ALLOWABLE DESIGN PRESSURE FOR 1/2 CIRCLES IS +/-80.0 PSF FOR ALL SIZES.
 - 2. IF A TEMPERED CAP IS USED MAX. DP IS +/-50.0 PSF.

Revsd By:	Date:	Revisions:	
D.G.	11/25/08	A	PER MIAMI-DADE LETTER DATED 10/31/08
Revsd By:	Date:	Revisions:	
J.J.	10/18/11	B	FBC 2010 CODE CHANGE
Revsd By:	Date:	Revisions:	
Drawn By:	Date:	Checked By:	Date:
D.G.	8/4/08		

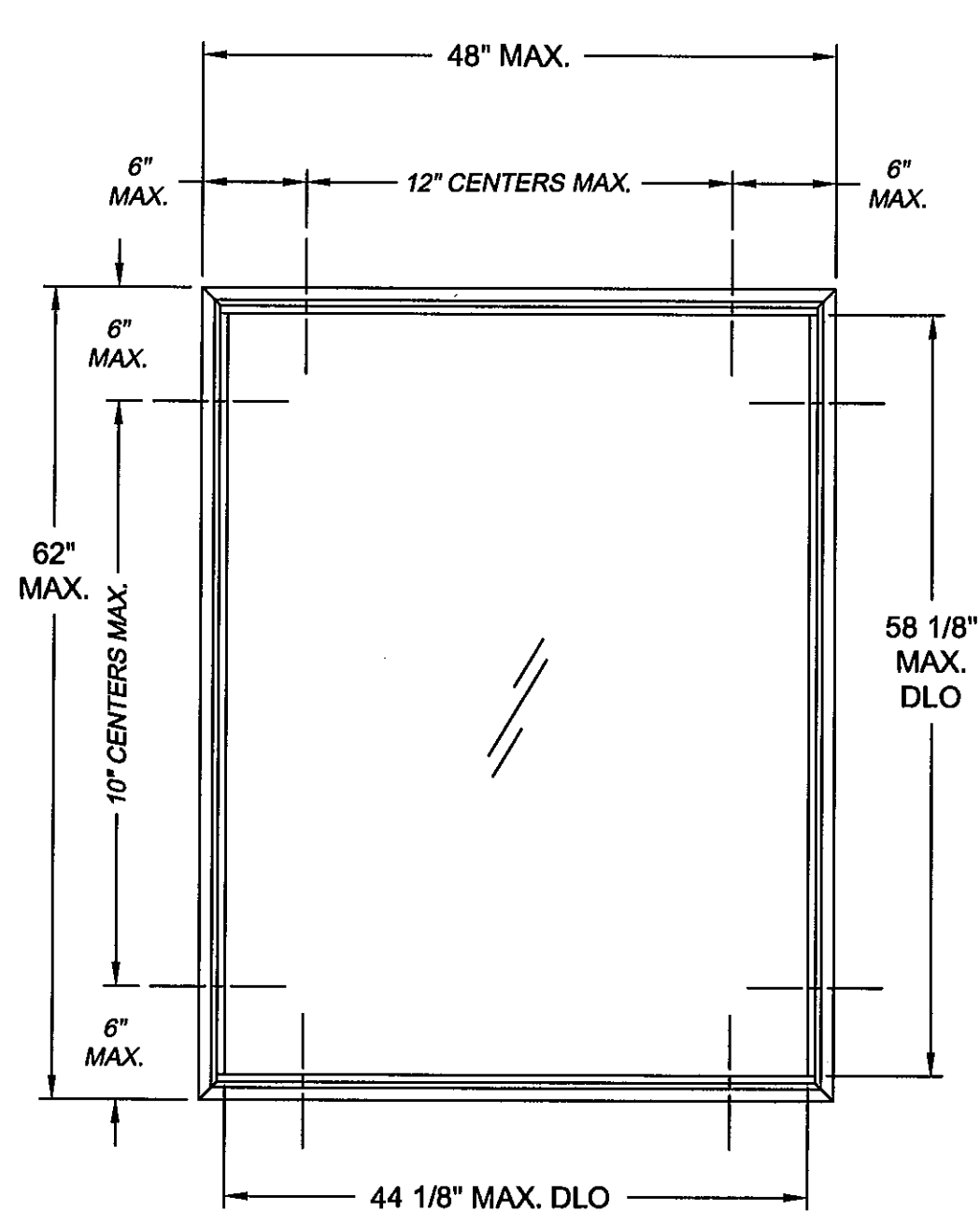
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



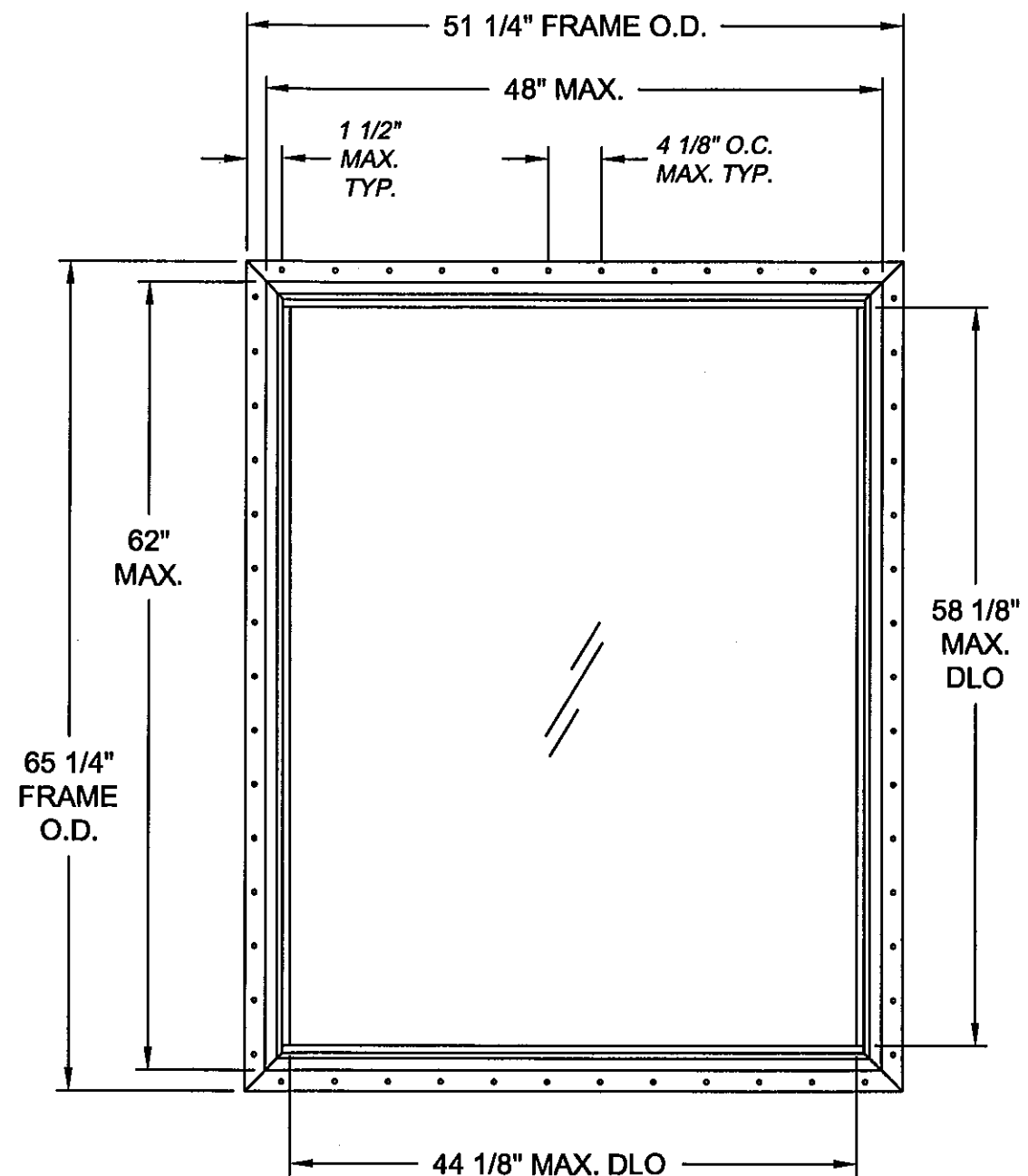
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NOTES, TABLE OF CONTENTS & PRESSURES				
Title:				
Vinyl Picture Window, Large Missile Impact				
Series/Model:	Scale:	Sheet:	Drawing No.	Rev:
PW-520	NTS	1 of 10	5190-1	B



PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114-18
Expiration Date 11/08/2014
By: [Signature]
Miami Dade Product Control



BOX FRAME
MAX. SIZE = 48" X 62"



INTEGRAL FIN
MAX. SIZE = 48" X 62"

NOTE:

FOR ANCHORAGE INFORMATION SEE SHEETS 9 AND 10.

Revsd By: D.G.	Date: 11/25/08	Revisions: A	PER MIAMI-DADE LETTER DATED 10/31/08
Revsd By: J.J.	Date: 10/18/11	Revisions: B	NO CHANGE THIS SHEET
Revsd By:	Date:	Revisions:	
Drawn By: D.G.	Date: 8/04/08	Checked By:	Date:

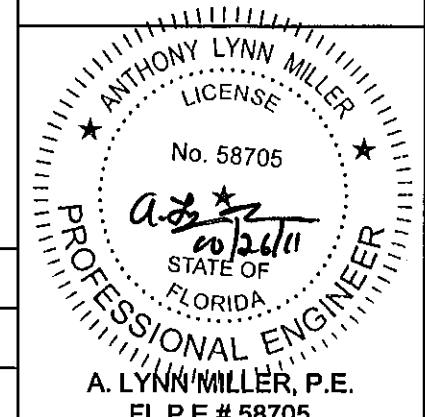
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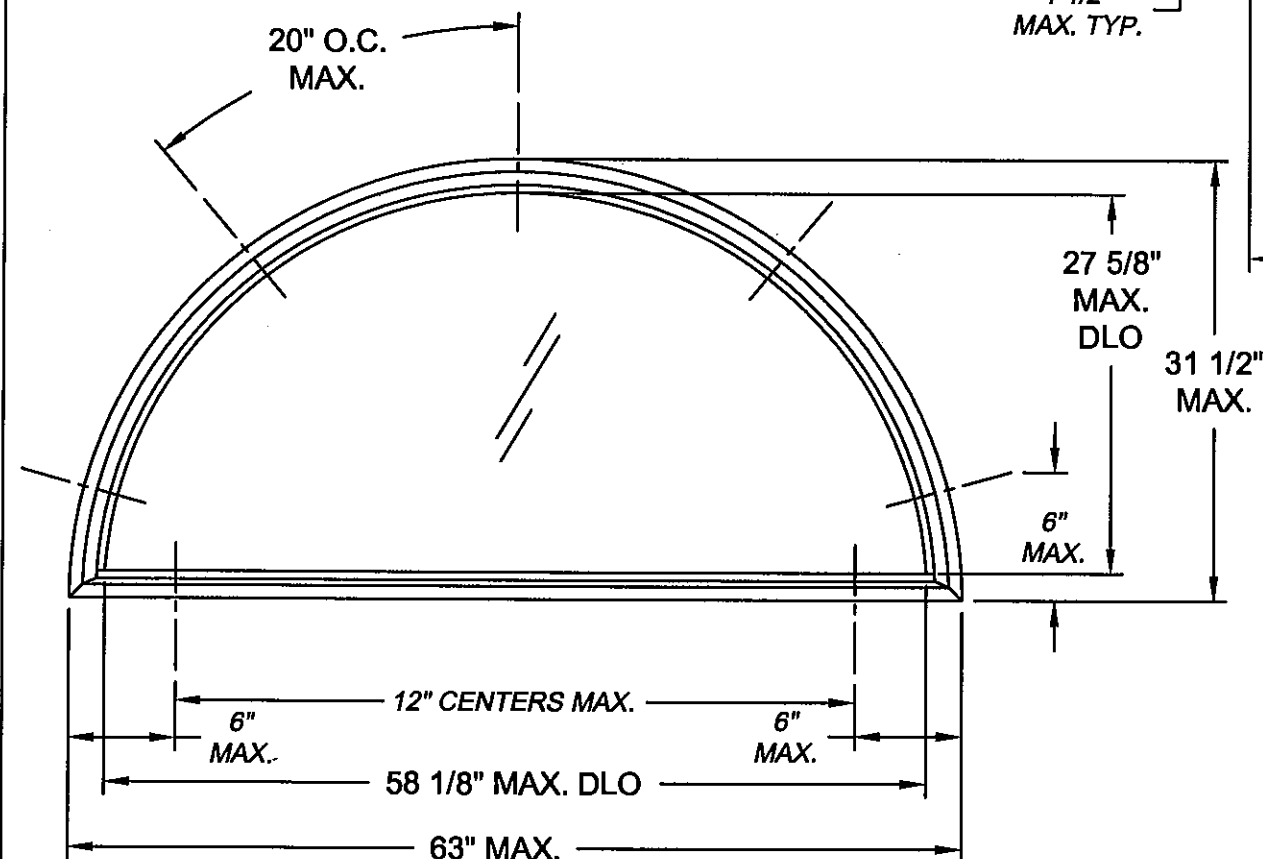
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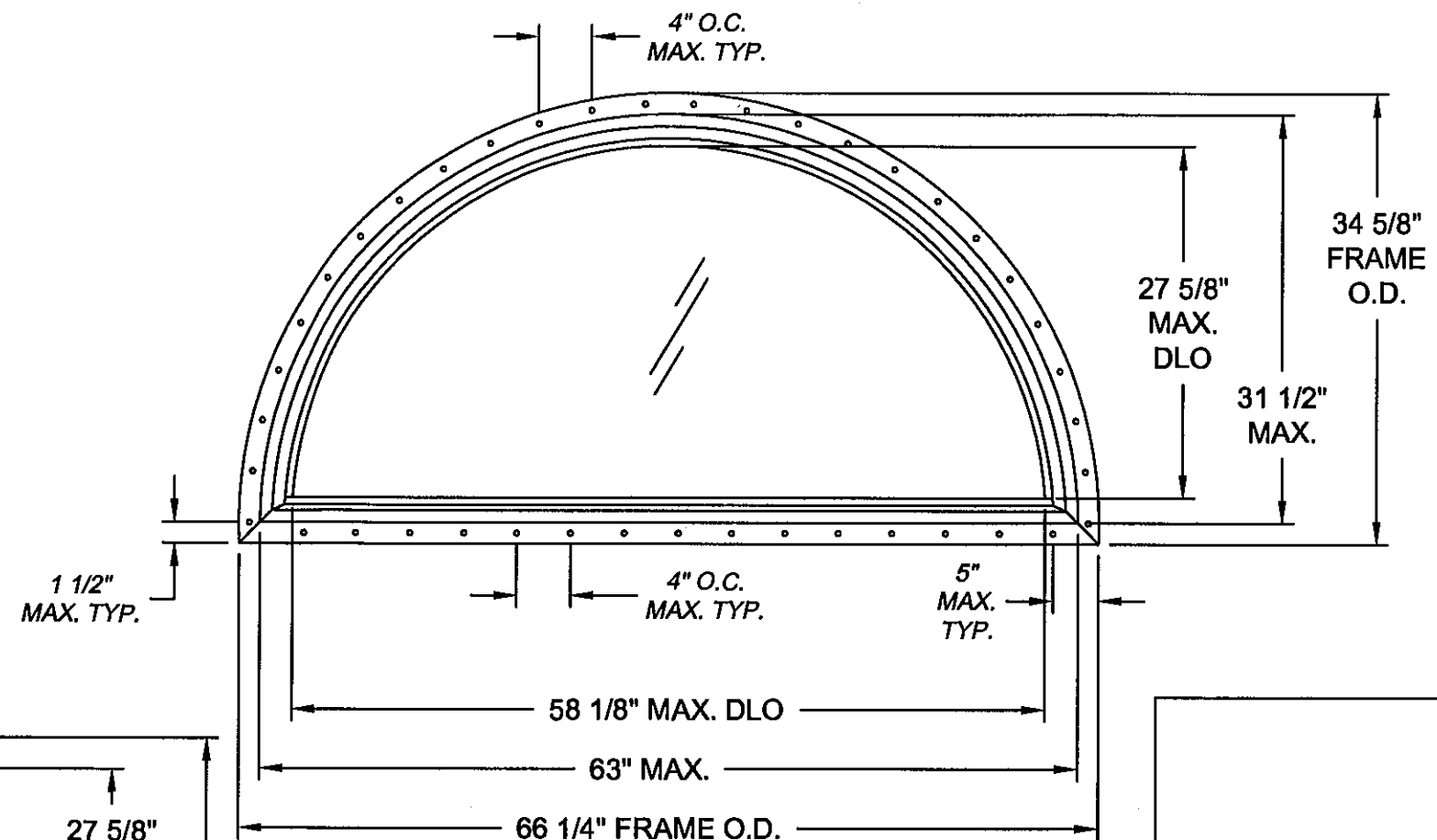
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Series/Model: PW-520	Scale: NTS	Sheet: 2 of 10	Drawing No. 5190-1
Rev: B			

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-114.18
Expiration Date 07/08/2014
By: *[Signature]*
Miami Dade Product Control





HALF CIRCLE - BOX FRAME
MAX. SIZE = 63" X 31.5"



HALF CIRCLE - INTEGRAL FIN
MAX. SIZE = 63" X 31.5"

NOTE:

FOR ANCHORAGE INFORMATION SEE SHEETS 9 AND 10.

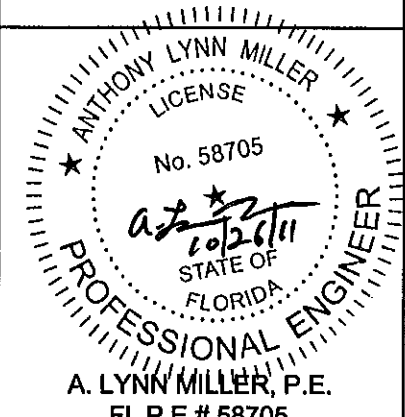
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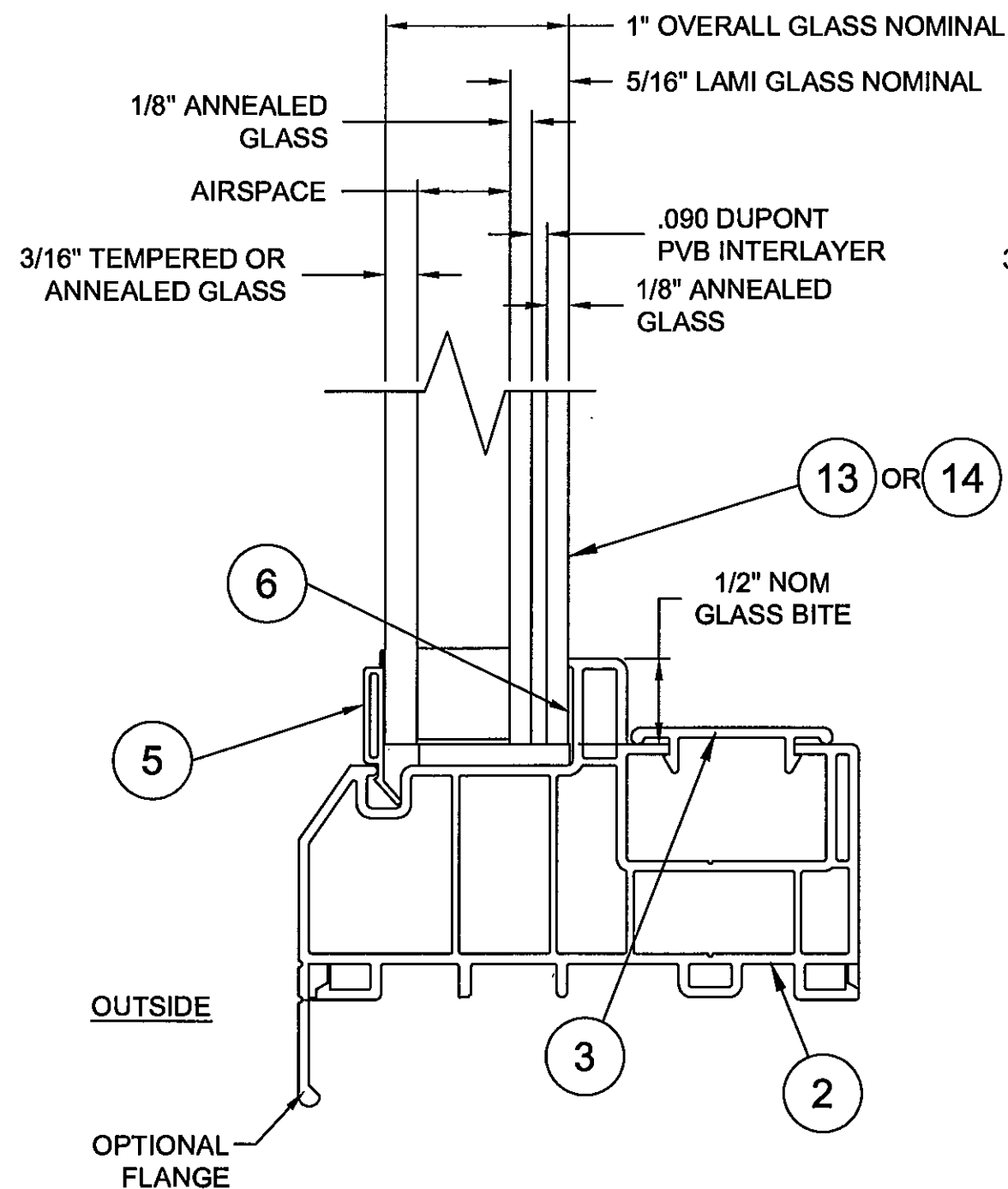
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



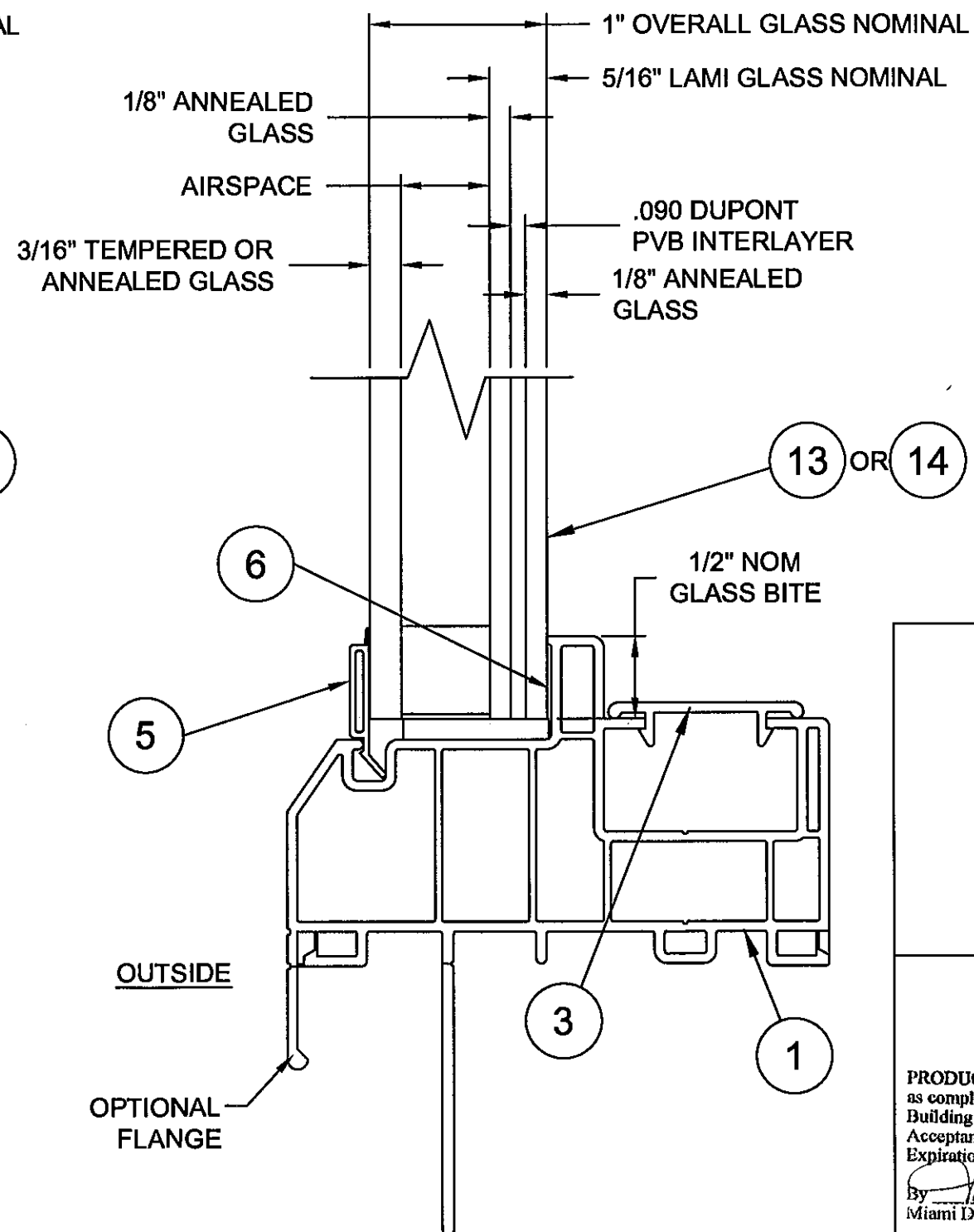
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Rev: B			

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114.18
Expiration Date 07/08/2014
By: *[Signature]*
Miami Dade Product Control



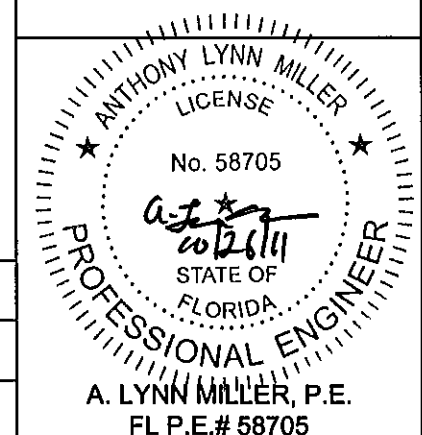


**1" LAMI I.G. GLAZING DETAIL
WITH 5/16" LAMI GLASS
BOX OR INTEGRAL FIN FRAME
(BOX FRAME SHOWN)**



**1" LAMI I.G. GLAZING DETAIL
WITH 5/16" LAMI GLASS
BOX OR INTEGRAL FIN FRAME
(INTEGRAL FIN FRAME SHOWN)**

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114-18
Expiration Date 01/08/2014
By *[Signature]*
Miami Dade Product Control

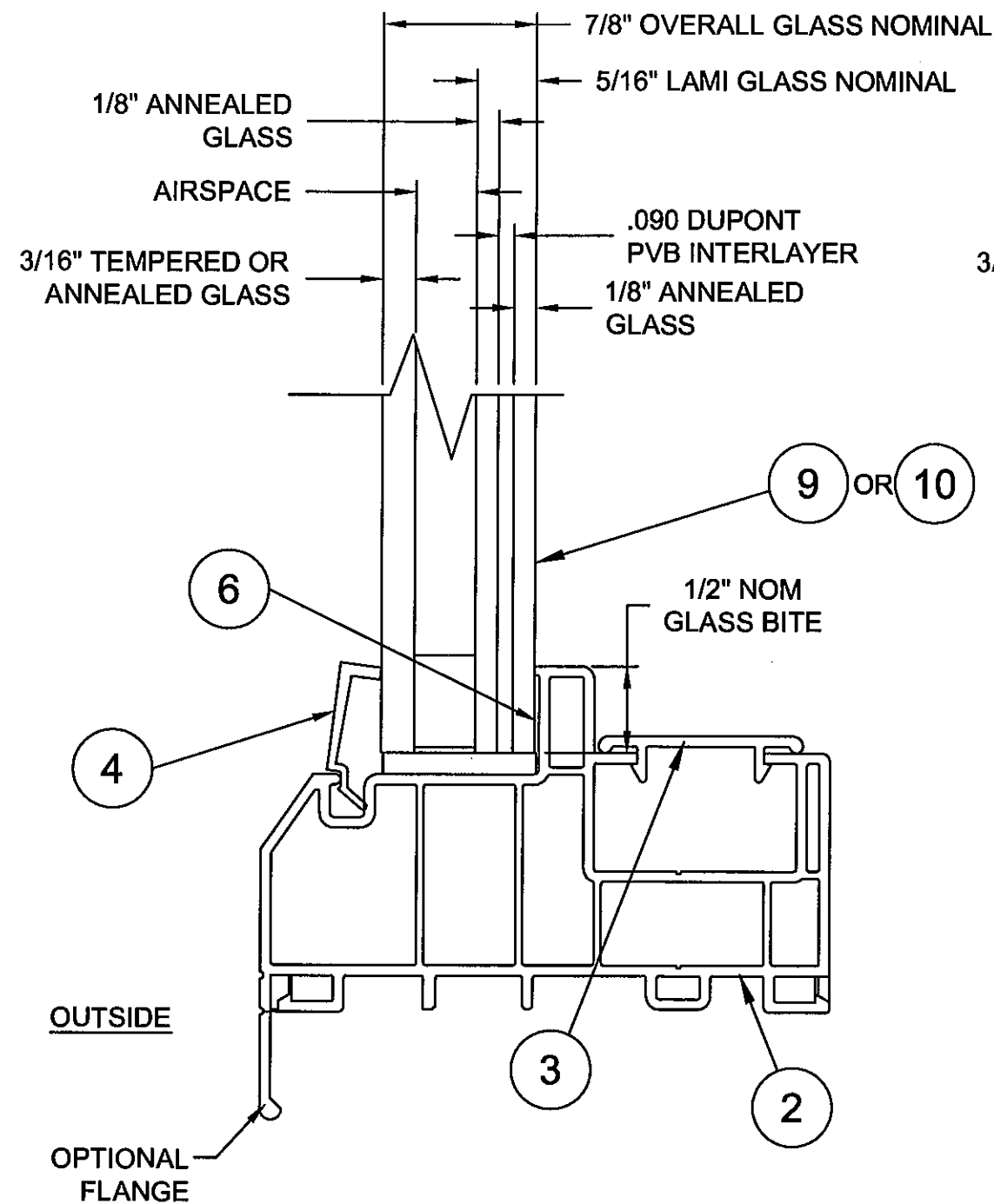


Revised By: D.G.	Date: 11/25/08	Revisions: A	PER MIAMI-DADE LETTER DATED 10/31/08
Revised By: J.J.	Date: 10/18/11	Revisions: B	NO CHANGE THIS SHEET
Revised By:	Date:	Revisions:	
Drawn By: D.G.	Date: 8/4/08	Checked By:	Date:

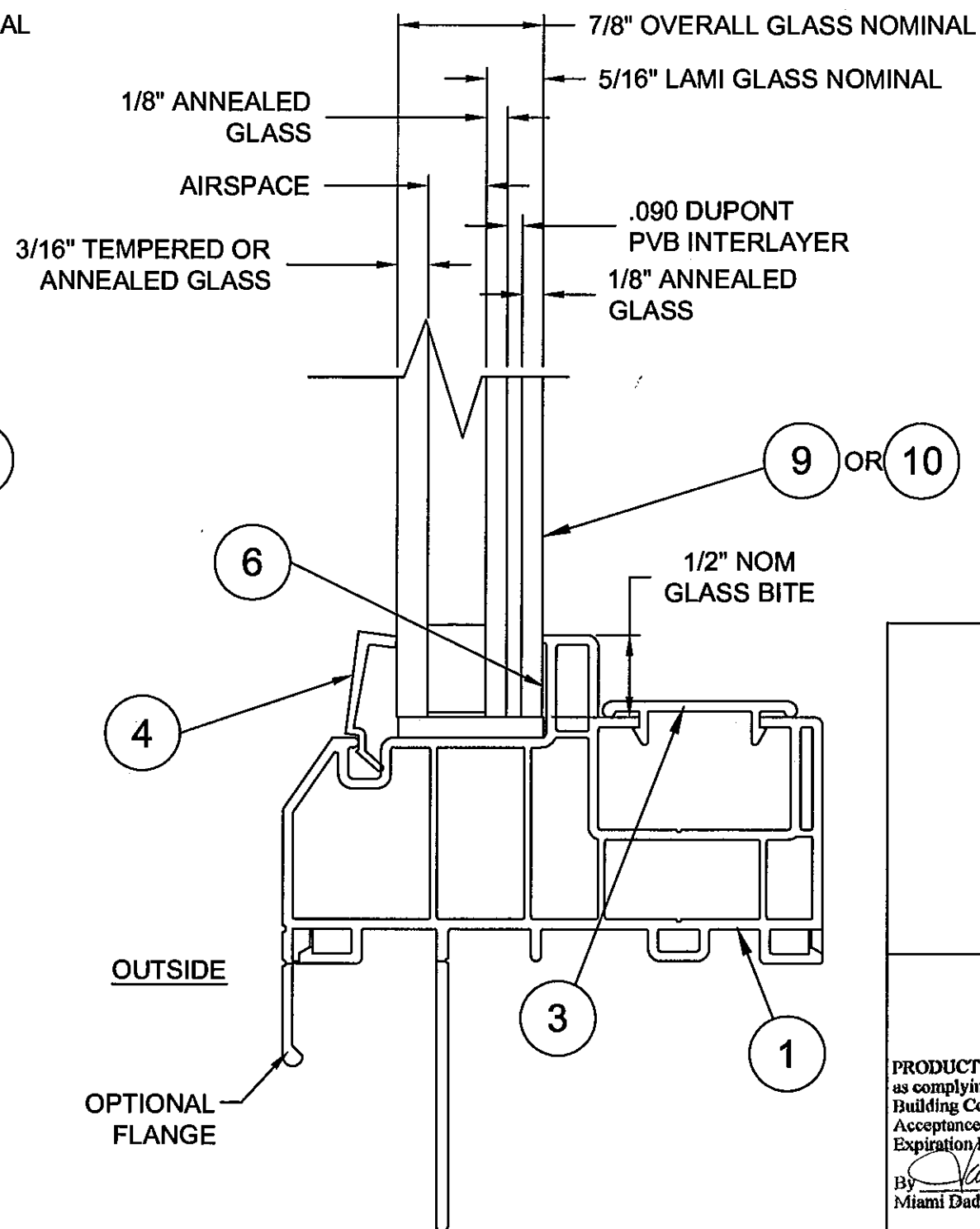
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: GLAZING DETAILS			
Title: Vinyl Picture Window, Large Missile Impact			
Series/Model: PW-520	Scale: FULL	Sheet: 4 of 10	Drawing No. 5190-1
			Rev: B

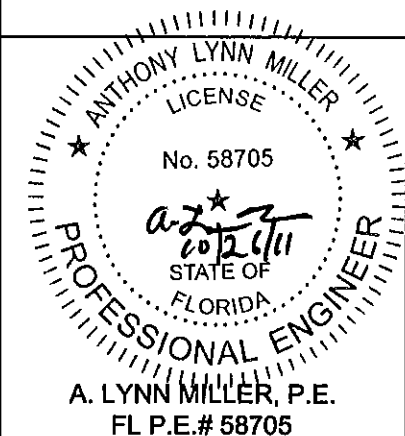


**7/8" LAMI I.G. GLAZING DETAIL
WITH 5/16" LAMI GLASS
BOX OR INTEGRAL FIN FRAME
(BOX FRAME SHOWN)**



**7/8" LAMI I.G. GLAZING DETAIL
WITH 5/16" LAMI GLASS
BOX OR INTEGRAL FIN FRAME
(INTEGRAL FIN FRAME SHOWN)**

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114-18
Expiration Date 01/28/2014
By *[Signature]*
Miami Dade Product Control

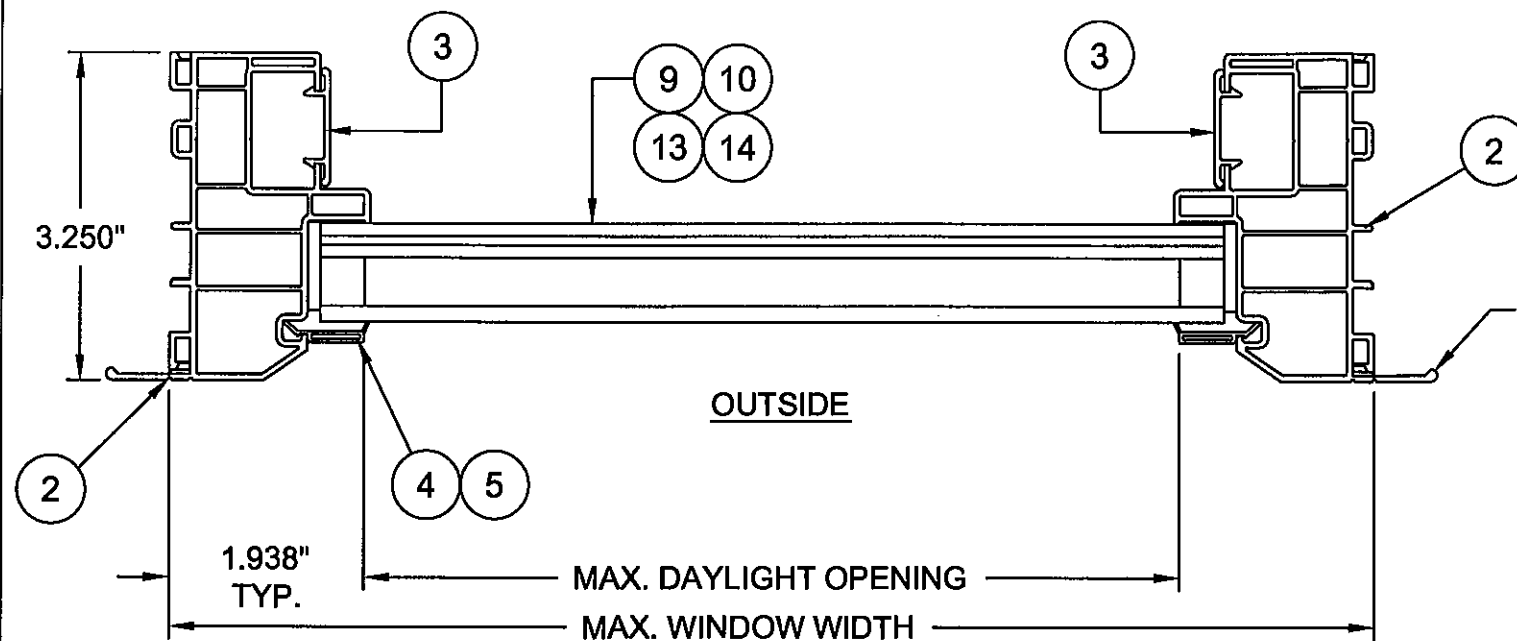


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Revsd By: J.J.	Date: 10/18/11	Revisions: B	NO CHANGE THIS SHEET
Revsd By:	Date:	Revisions:	
Drawn By: D.G.	Date: 8/4/08	Checked By:	Date:

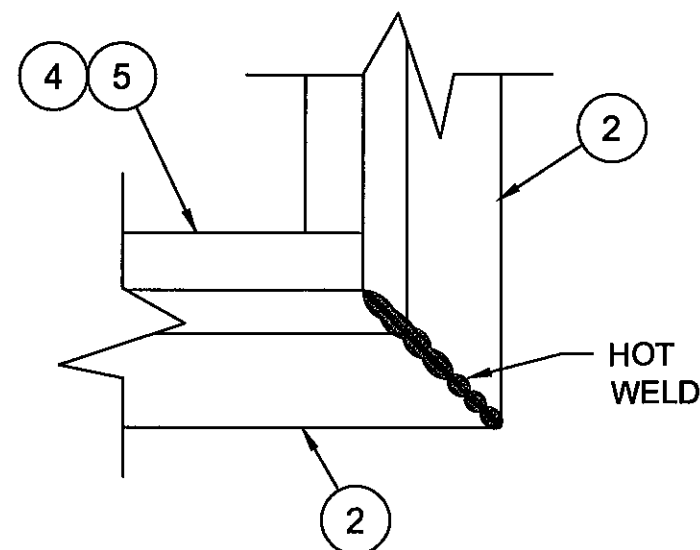
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

PGI
Visibly Better

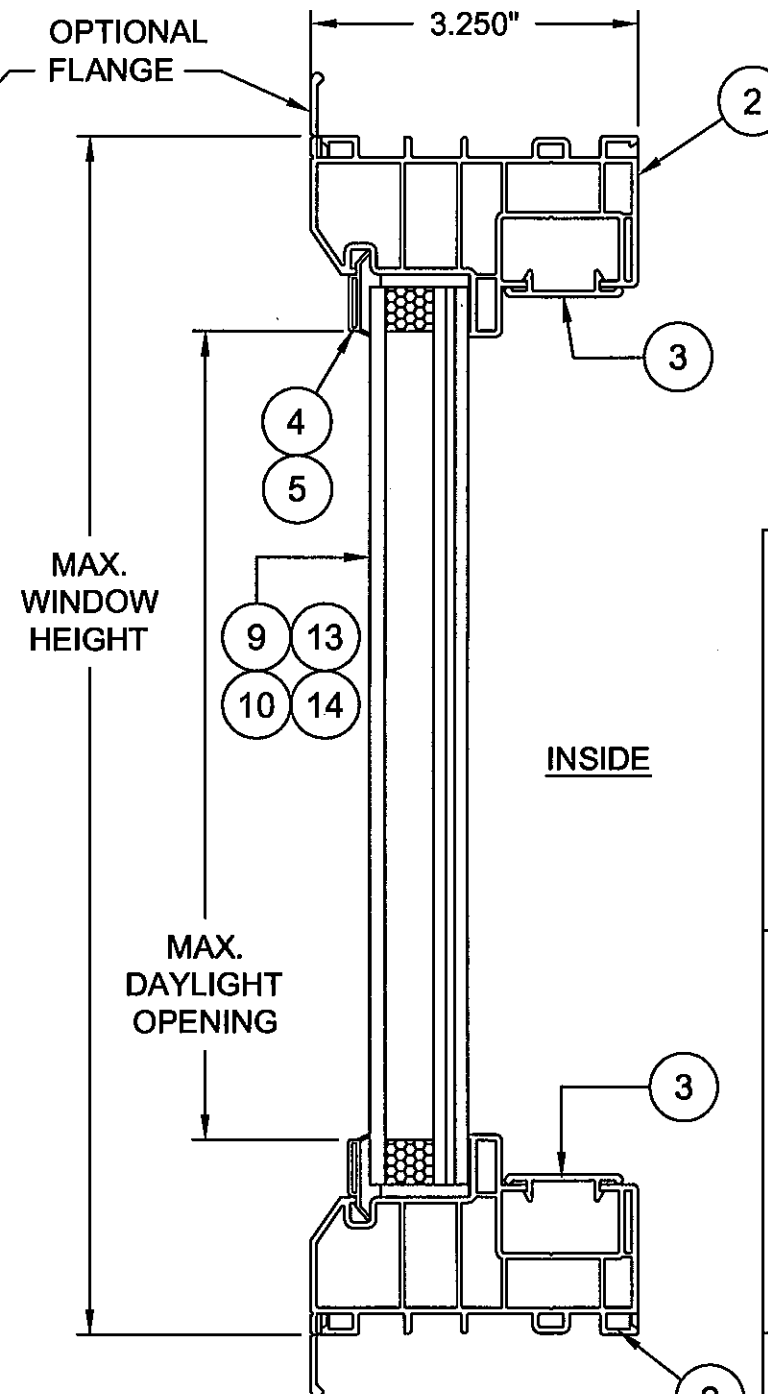
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Title: Vinyl Picture Window, Large Missile Impact			
Series/Model: PW-520	Scale: FULL	Sheet: 5 of 10	Drawing No. 5190-1
Rev: B			



**HORIZONTAL SECTION
(BOX FRAME)**

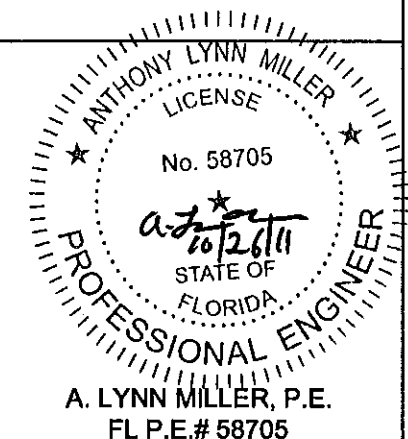


**HOT WELD CORNER ASSEMBLY
(BOX FRAME)**



**VERTICAL SECTION
(BOX FRAME)**

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. **11-1114.18**
Expiration Date: **07/08/2014**
By *[Signature]*
Miami Dade Product Control



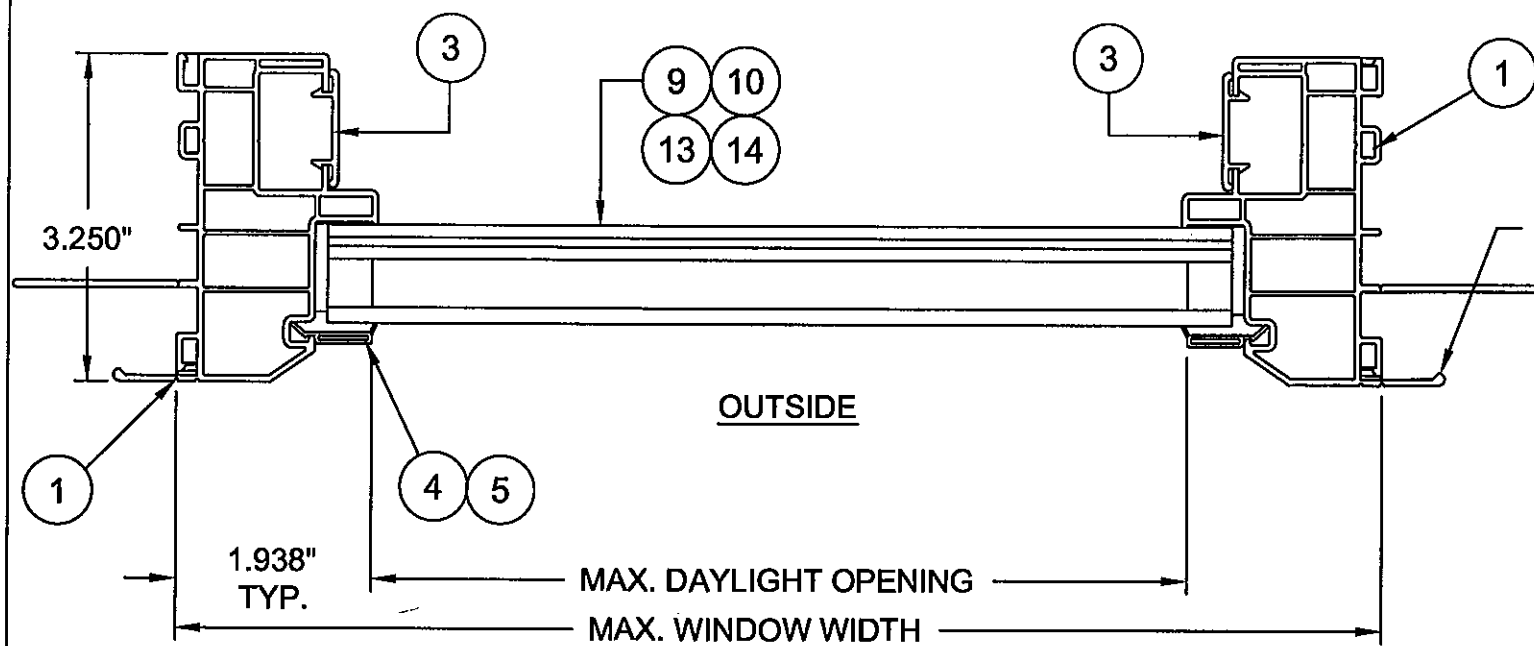
A. LYNN MILLER, P.E.
FL P.E.# 58705

Revsd By: D.G.	Date: 11/25/08	Revisions: A	PER MIAMI-DADE LETTER DATED 10/31/08
Revsd By: J.J.	Date: 10/18/11	Revisions: B	NO CHANGE THIS SHEET
Revsd By:	Date:	Revisions:	
Drawn By: D.G.	Date: 8/04/08	Checked By:	Date:

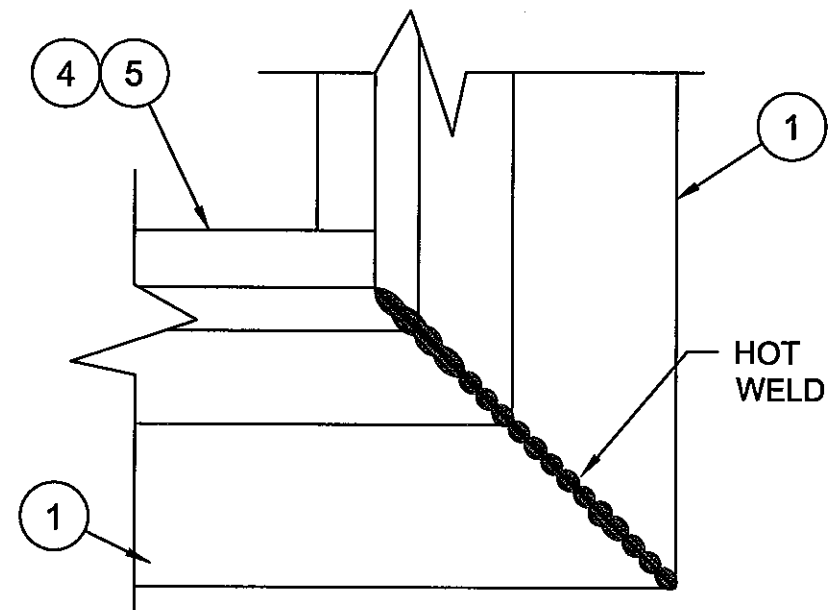
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



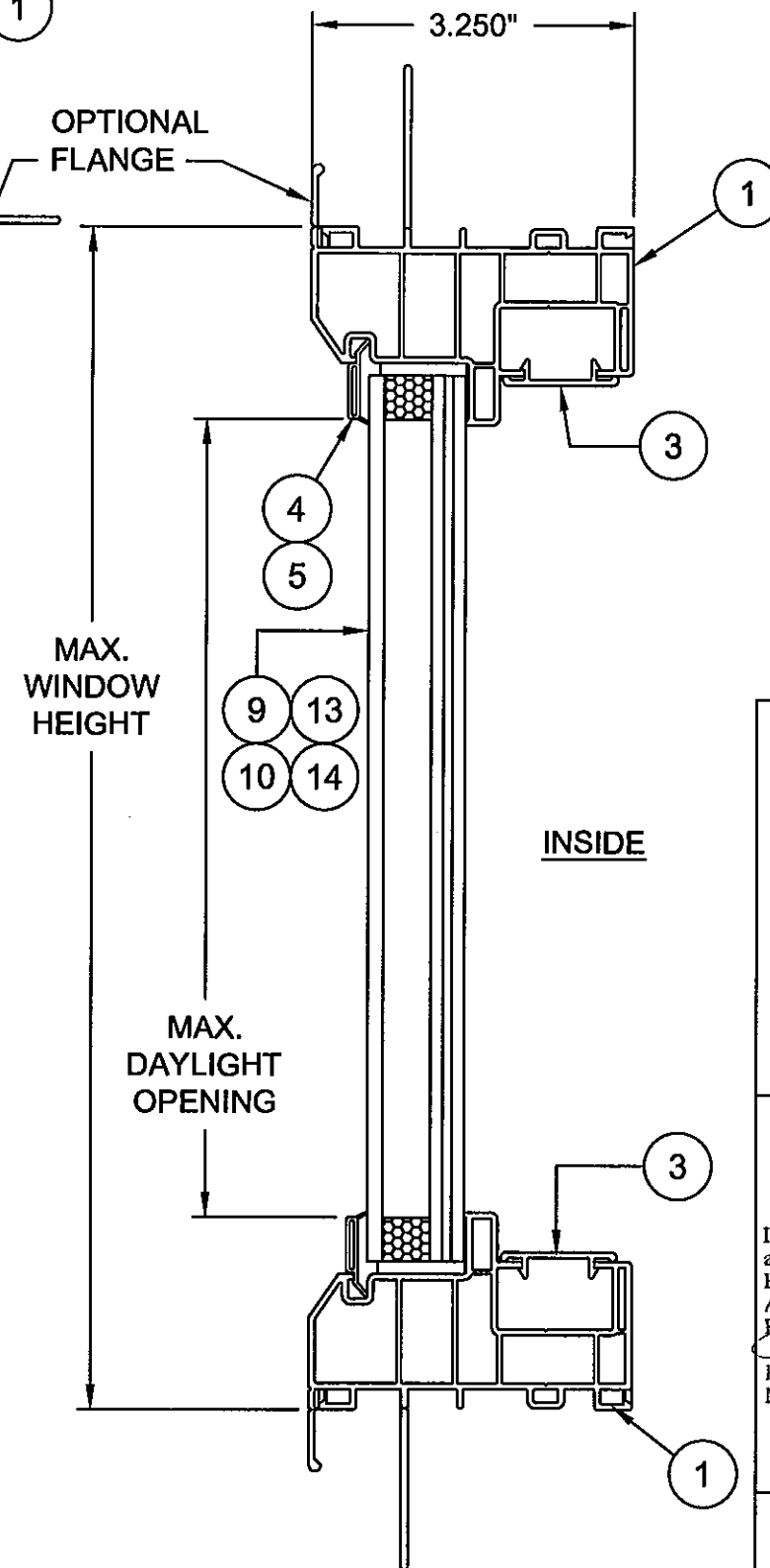
Description: SECTIONS & CORNER ASS'Y, BOX FRAME			
Title: Vinyl Picture Window, Large Missile Impact			
Series/Model: PW-520	Scale: HALF	Sheet: 6 of 10	Drawing No. 5190-1
Rev: B			



**HORIZONTAL SECTION
(INTEGRAL FIN)**

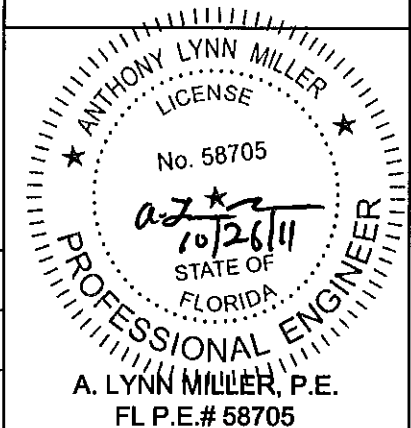


**HOT WELD CORNER ASSEMBLY
(INTEGRAL FIN)**



**VERTICAL SECTION
(INTEGRAL FIN)**

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114.18
Expiration Date 07/08/2014
By *[Signature]*
Miami Dade Product Control



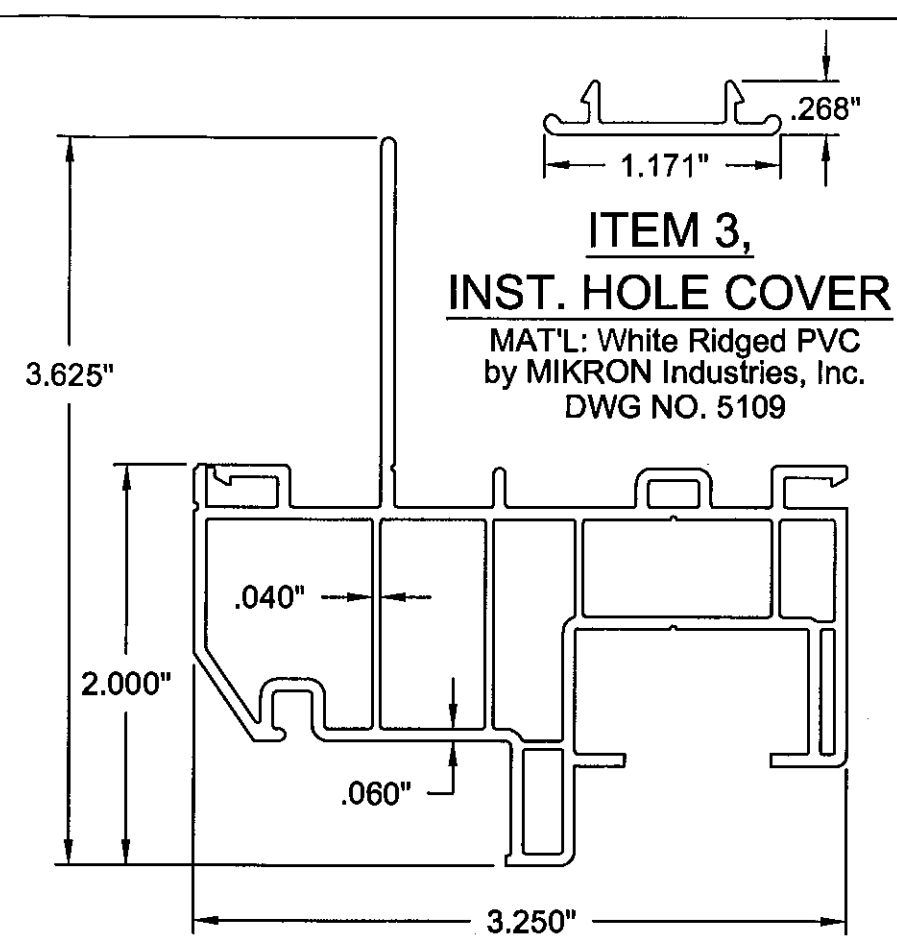
Rev'd By: D.G.	Date: 11/25/08	Revisions: A	PER MIAMI-DADE LETTER DATED 10/31/08
Rev'd By: J.J.	Date: 10/18/11	Revisions: B	NO CHANGE THIS SHEET
Rev'd By:	Date:	Revisions:	
Drawn By: D.G.	Date: 8/04/08	Checked By:	Date:

1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

PGT
Visibly Better

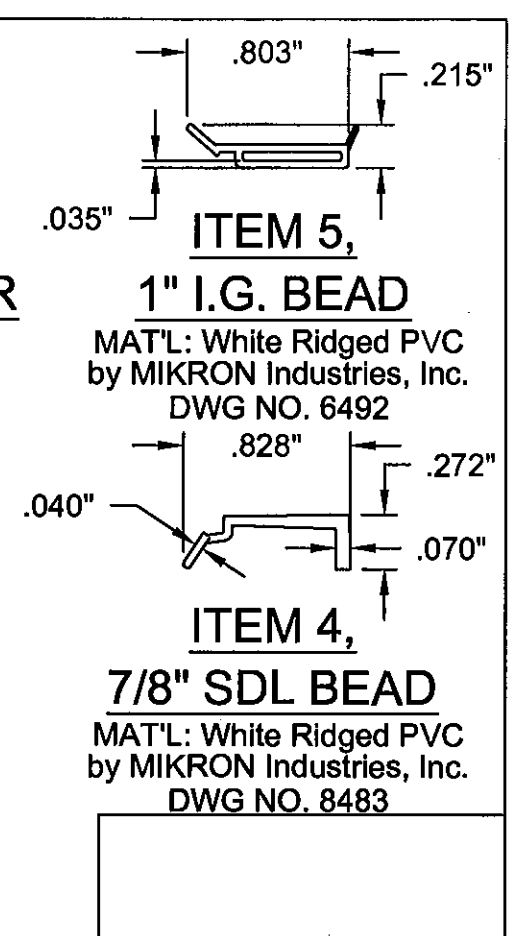
Description: SECTIONS, INTEGRAL FIN			
Title: Vinyl Picture Window, Large Missile Impact			
Series/Model: PW-520	Scale: HALF	Sheet: 7 of 10	Drawing No. 5190-1
Rev: B			

ITEM	DWG NO.	PART #	DESCRIPTION
1	5165	65165	INTEGRAL FIN FRAME HEAD, SILL & JAMB
2	5135	65135	BOX FRAME HEAD, SILL & JAMB
3	5109	65109	FILLER - INSTALL HOLE COVER
4	8483	65148	SDL 7/8" I.G. BEAD
5	6492	65112	STD 1" I.G. BEAD
6			DOW 1199 SILICONE
7			
8			
9			7/8" LAMI I.G. GLASS: 3/16" TEMPERED OUTBOARD - AIRSPACE - 1/8" ANNEALED - .090 PVB INTERLAYER - 1/8" ANNEALED (5/16" LAMI)
10			7/8" LAMI I.G. GLASS: 3/16" ANNEALED OUTBOARD - AIRSPACE - 1/8" ANNEALED - .090 PVB INTERLAYER - 1/8" ANNEALED (5/16" LAMI)
11			
12			
13			1" LAMI I.G. GLASS: 3/16" TEMPERED OUTBOARD - AIRSPACE - 1/8" ANNEALED - .090 PVB INTERLAYER - 1/8" ANNEALED (5/16" LAMI)
14			1" LAMI I.G. GLASS: 3/16" ANNEALED OUTBOARD - AIRSPACE - 1/8" ANNEALED - .090 PVB INTERLAYER - 1/8" ANNEALED (5/16" LAMI)



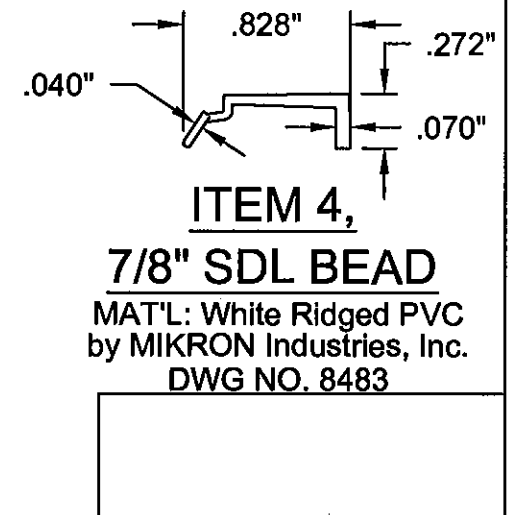
**ITEM 3,
INST. HOLE COVER**

MAT'L: White Ridged PVC
by MIKRON Industries, Inc.
DWG NO. 5109



**ITEM 5,
1" I.G. BEAD**

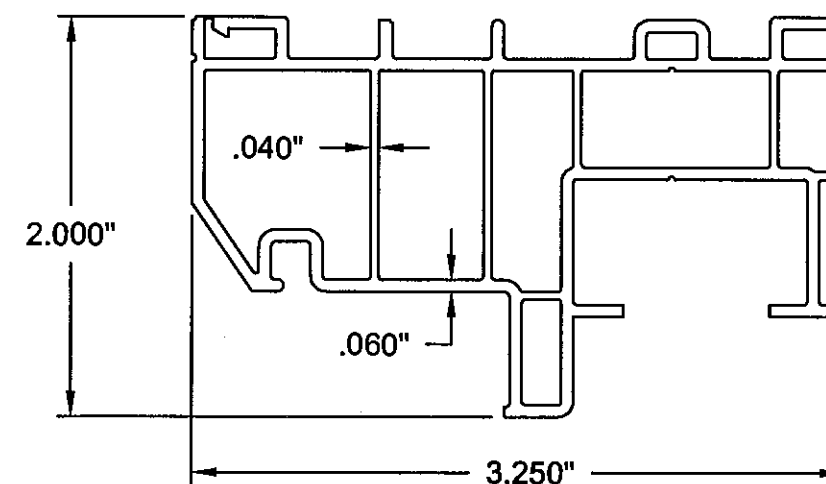
MAT'L: White Ridged PVC
by MIKRON Industries, Inc.
DWG NO. 6492



**ITEM 4,
7/8" SDL BEAD**

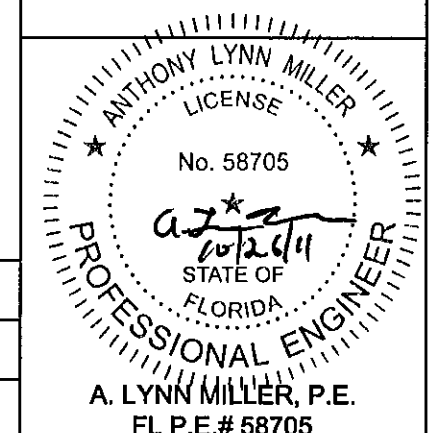
MAT'L: White Ridged PVC
by MIKRON Industries, Inc.
DWG NO. 8483

ITEM 1, INTEGRAL FIN FRAME
MAT'L: White Ridged PVC by MIKRON Industries, Inc.
DWG NO. 5165



ITEM 2, BOX FRAME
MAT'L: White Ridged PVC by MIKRON Industries, Inc.
DWG NO. 5135

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114.18
Expiration Date 01/28/2014
By *[Signature]*
Miami Dade Product Control



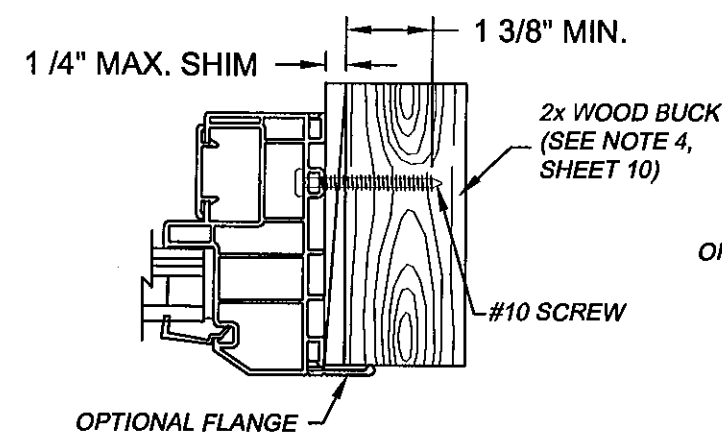
Revised By: D.G.	Date: 11/25/08	Revisions: A	PER MIAMI-DADE LETTER DATED 10/31/08
Revised By: J.J.	Date: 10/18/11	Revisions: B	NO CHANGE THIS SHEET
Revised By:	Date:	Revisions:	
Drawn By: D.G.	Date: 8/04/08	Checked By:	Date:

1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275

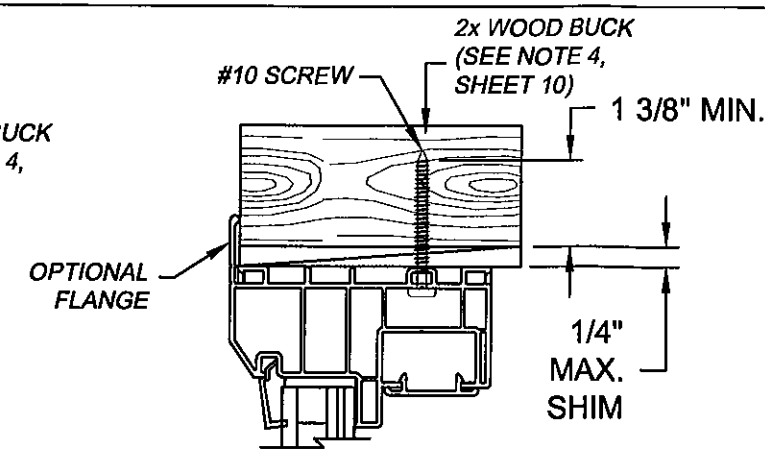
P.O. BOX 1629
NOKOMIS, FL 34274



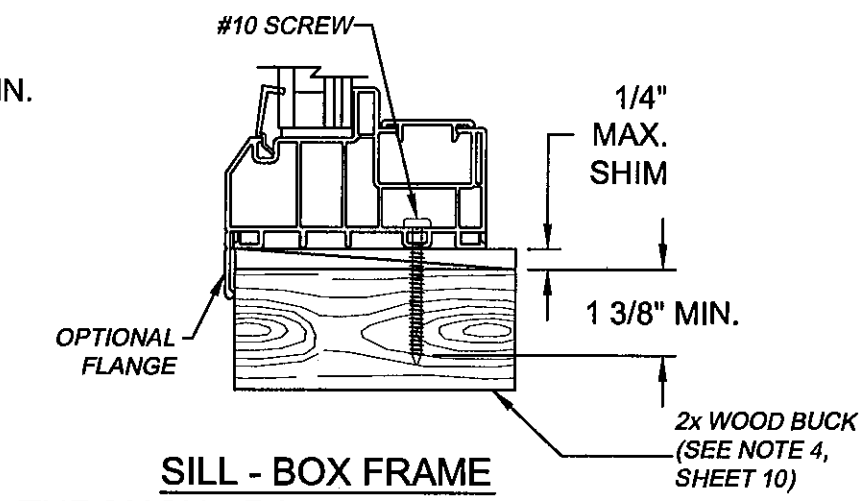
Description: EXTRUSION PROFILES & PARTS LIST			
Title: Vinyl Picture Window, Large Missile Impact			
Series/Model: PW-520	Scale: HALF	Sheet: 8 of 10	Drawing No. 5190-1
Rev: B			



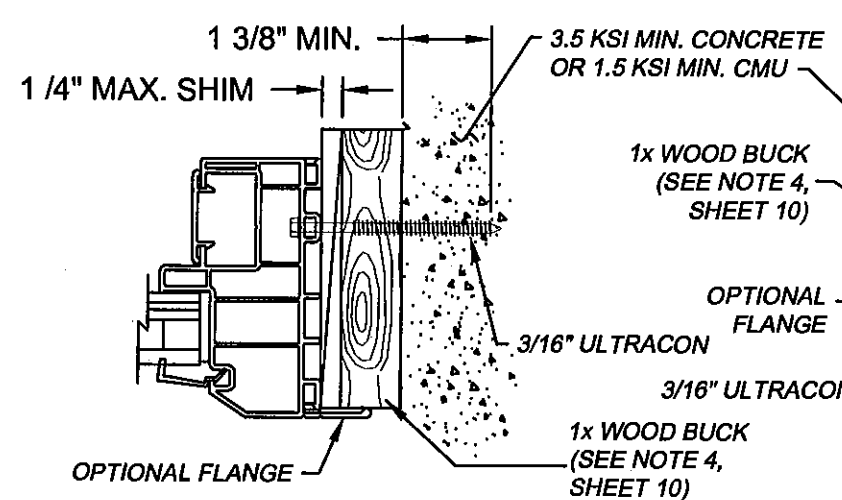
**JAMB - BOX FRAME
THROUGH FRAME INTO 2x WOOD**



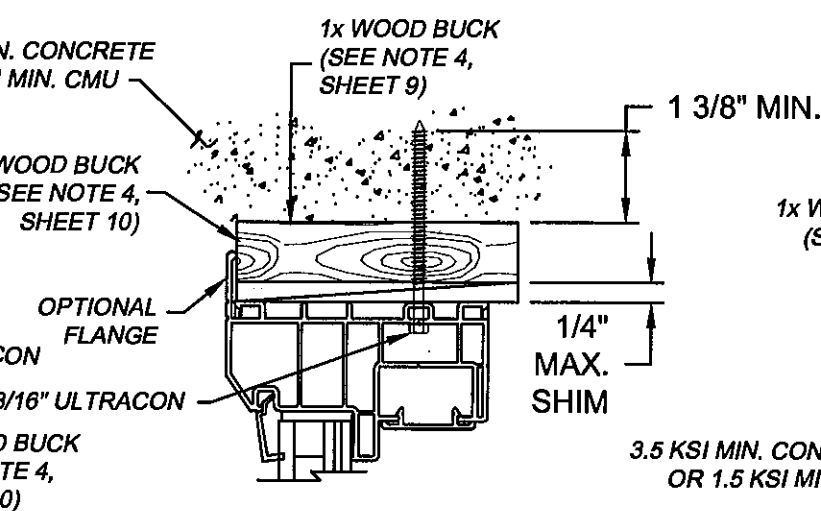
**HEAD - BOX FRAME
THROUGH FRAME INTO 2x WOOD**



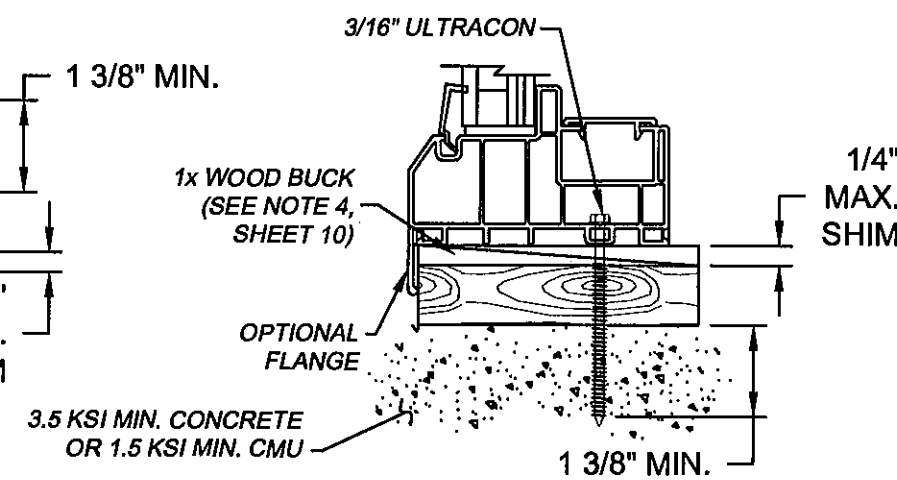
**SILL - BOX FRAME
THROUGH FRAME INTO 2x WOOD**



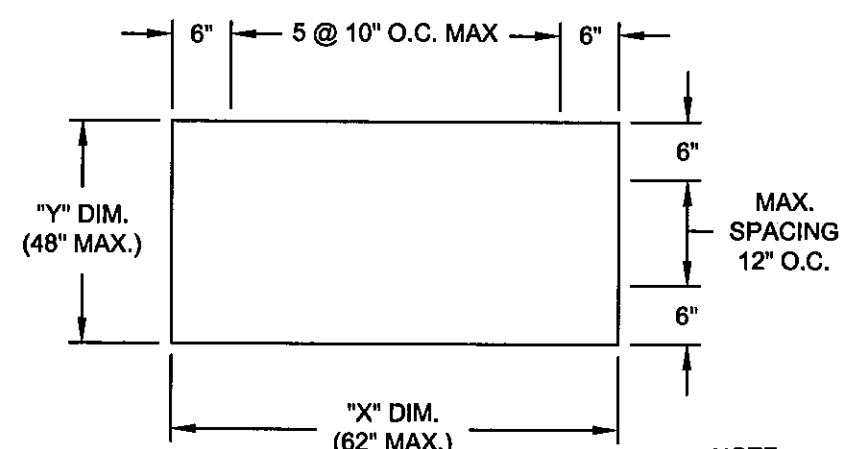
**JAMB - BOX FRAME
THROUGH FRAME INTO CONCRETE
1x BUCK OPTIONAL**



**HEAD - BOX FRAME
THROUGH FRAME INTO CONCRETE
1x BUCK OPTIONAL**



**SILL - BOX FRAME
THROUGH FRAME INTO CONCRETE
1x BUCK OPTIONAL**



NOTE:
1. FOR ALL 1/2 CIRCLES START ANCHORS 6" FROM THE CORNERS AND A MAX. OF 12" O.C..

* FOR WINDOWS LESS THAN 40", USE 12" ON CENTER DIMENSION.

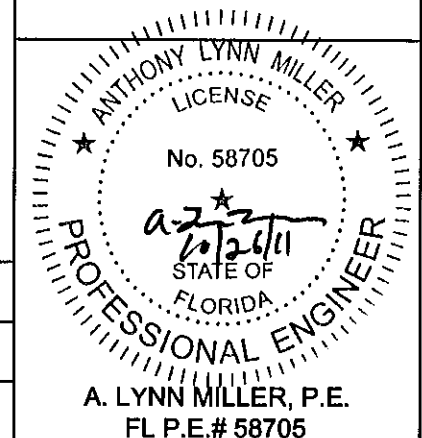
Revised By: D.G.	Date: 11/25/08	Revisions: A	PER MIAMI-DADE LETTER DATED 10/31/08
Revised By: J.J.	Date: 10/18/11	Revisions: B	NO CHANGE THIS SHEET
Revised By:	Date:	Revisions:	
Drawn By: D.G.	Date: 8/04/08	Checked By:	Date:

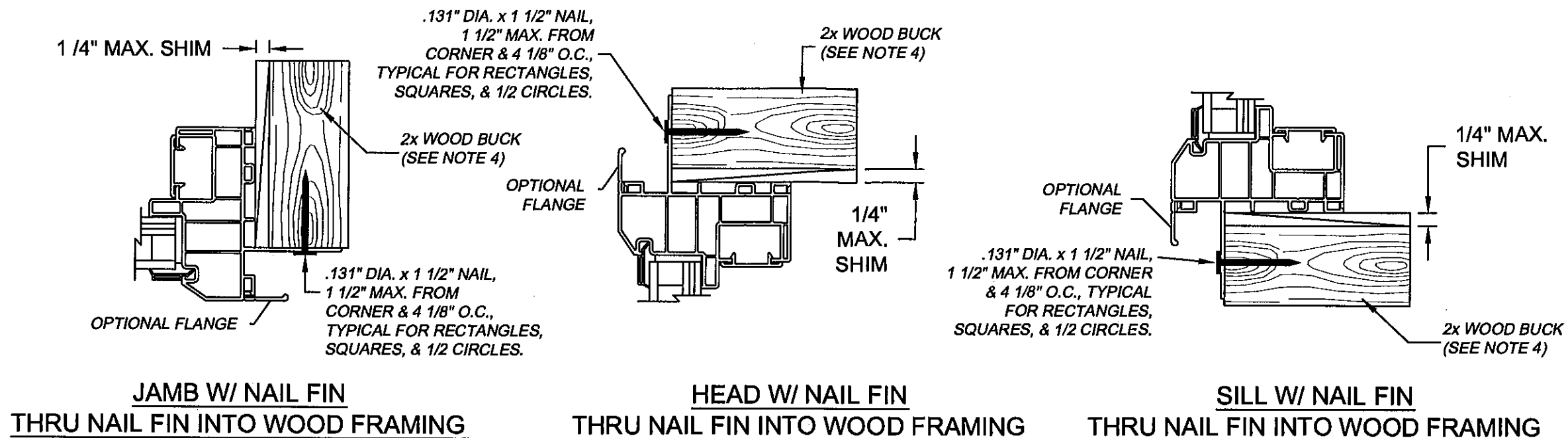
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: ANCHORAGE DETAILS, BOX FRAME			
Title: Vinyl Picture Window, Large Missile Impact			
Series/Model: PW-520	Scale: NTS	Sheet: 9 of 10	Drawing No. 5190-1
			Rev: B

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. **11-1114.18**
Expiration Date **07/08/2014**
By *[Signature]*
Miami Dade Product Control

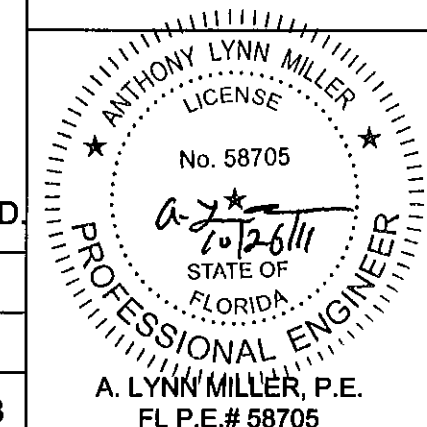




NOTES:

1. FOR CONCRETE APPLICATIONS IN MIAMI-DADE COUNTY, USE ONLY MIAMI-DADE COUNTY APPROVED 3/16" ULTRACON, EMBEDDED 1 3/8" MIN., DISTANCE FROM ANCHOR TO CONCRETE EDGE IS 1" MINIMUM.
2. FOR WOOD APPLICATIONS IN MIAMI-DADE COUNTY, USE #10 STEEL SCREW, EMBEDDED 1 3/8" MIN..
3. FOR INTEGRAL FIN APPLICATIONS IN MIAMI-DADE COUNTY, USE 1/8" DIA. x 1 1/2" NAIL.
4. WOOD BUCKS DEPICTED IN THE SECTIONS ON THIS PAGE AS 1x ARE BUCKS WHOSE TOTAL THICKNESS IS LESS THAN 1 1/2". 1x WOOD BUCKS ARE OPTIONAL IF UNIT CAN BE INSTALLED DIRECTLY TO SOLID CONCRETE. WOOD BUCKS DEPICTED AS 2x ARE 1 1/2" THICK OR GREATER. INSTALLATION TO THE SUBSTRATE OF WOOD BUCKS TO BE ENGINEERED BY OTHERS OR AS APPROVED BY AUTHORITY HAVING JURISDICTION.
5. FOR ATTACHMENT TO ALUMINUM: THE MATERIAL SHALL BE A MINIMUM STRENGTH OF 6063-T5 AND A MINIMUM OF 1/8" THICK. THE ALUMINUM STRUCTURAL MEMBER SHALL BE OF A SIZE TO PROVIDE FULL SUPPORT TO THE WINDOW FRAME SIMILAR TO THAT SHOWN IN THESE DETAILS FOR 2x WOOD BUCKS. THE ANCHOR SHALL BE A #10 SHEET METAL SCREW WITH FULL ENGAGEMENT INTO THE ALUMINUM. IF THESE CRITERIA ARE MET, THE RESPECTIVE DESIGN PRESSURES AND ANCHORAGE SPACING FOR ULTRACONS MAY BE USED.

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114.18
Expiration Date 07/08/2014
By *[Signature]*
Miami Dade Product Control



Revsd By: D.G.	Date: 11/25/08	Revisions: A	PER MIAMI-DADE LETTER DATED 10/31/08
Revsd By: J.J.	Date: 10/18/11	Revisions: B	NO CHANGE THIS SHEET
Revsd By:	Date:	Revisions:	
Drawn By: D.G.	Date: 8/04/08	Checked By:	Date:

1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

PGI
Visibly Better

Description: ANCHORAGE DETAILS, INTEGRAL FIN			
Title: Vinyl Picture Window, Large Missile Impact			
Series/Model: PW-520	Scale: NTS	Sheet: 10 of 10	Drawing No. 5190-1
Rev: B			



DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY
AFFAIRS (PERA)
BOARD AND CODE ADMINISTRATION DIVISION
NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY, FLORIDA
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidadecounty.gov/pera/

PGT Industries
1070 Technology Drive
Nokomis, FL 34275

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County PERA-Product Control Section to be used in Miami-Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (in Miami-Dade County) and/or the AHJ (in areas other than Miami-Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. PERA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

DESCRIPTION: Series "PW-701" Aluminum Fixed Window - L.M.I.

APPROVAL DOCUMENT: Drawing No. 4259-4 titled "Aluminum Picture Window, Impact", sheets 1 through 8 of 8, prepared by manufacturer, dated 07/14/03 with revision "D" dated 10/18/11, signed and sealed by Anthony Lynn Miller, P. E., bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and Expiration date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: Large and Small Missile Impact Resistant.

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, model/ series and following statement: "Miami-Dade County Product Control Approved" unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA No. 10-0504.05 and consists of this page 1, evidence pages E-1 and E-2, as well as approval document mentioned above.

The submitted documentation was reviewed by **Jaime D. Gascon, P. E.**



J. Gascon
1/25/12

NOA No. 11-1110.15
Expiration Date: February 19, 2014
Approval Date: February 02, 2012
Page 1

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. Manufacturer's die drawings and sections.
(Submitted under previous NOA No. 03-1105.01)
2. Drawing No. **4259-4** titled "Aluminum Picture Window, Impact", sheets 1 through 8 of 8, prepared by manufacturer, dated 07/14/03 with revision "**D**" dated 10/18/11, signed and sealed by Anthony Lynn Miller, P. E.

B. TESTS

1. Test reports on:
 - 1) Air Infiltration Test, per FBC, TAS 202-94
 - 2) Uniform Static Air Pressure Test, Loading per FBC, TAS 202-94
 - 3) Water Resistance Test, per FBC, TAS 202-94
 - 4) Large Missile Impact Test per FBC, TAS 201-94
 - 5) Cyclic Wind Pressure Loading per FBC, TAS 203-94along with marked-up drawings and installation diagram of aluminum fixed window, prepared by Fenestration Testing Laboratory, Inc., Test Reports No.'s **FTL-3835** and **FTL-3850**, dated 07/18 and 31/03, all signed and sealed by Joseph C. Chan, P. E.
(Submitted under previous NOA No. 03-1105.01)

C. CALCULATIONS

1. Anchor verification calculations and structural analysis, dated 08/19/10 complying with FBC-2007, prepared by manufacture, signed and sealed by Anthony L. Miller, P. E.
(Submitted under previous NOA No. 10-0504.05)
2. Glazing complies with **ASTM E1300-02/ 04**

D. QUALITY ASSURANCE

1. Miami-Dade Department of Permitting, Environment, and Regulatory Affairs (PERA)

E. MATERIAL CERTIFICATIONS

1. Notice of Acceptance No. **11-0325.05** issued to **Solutia, Inc.** for their "**Saflex - Clear or colored Interlayer**" dated 04/21/11, expiring on 04/21/16.
2. Notice of Acceptance No. **11-0624.01** issued to **E. I. DuPont DeNemours & Co., Inc.** for their "**DuPont Butacite® PVB Interlayer**" dated 09/08/11, expiring on 12/11/16.

F. STATEMENTS

1. Statement letter of conformance and compliance with the FBC-2007 (with the 2009 supplement) and FBC-2010, dated 10/29/11, signed and sealed by Anthony Lynn Miller, P. E.
2. Statement letter of no financial interest and independence, dated 10/29/11, signed and sealed by Anthony Lynn Miller, P. E.



Jaime D. Gascon, P. E.

Product Control Section Supervisor

NOA No. 11-1110.15

Expiration Date: February 19, 2014

Approval Date: February 02, 2012

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

F. STATEMENTS

3. Letter of *Adoption of as his Own, the Work of another Engineer* per Section 61G15-27.001 of the F.B.P.E., dated 08/19/10 signed and sealed by Anthony Lynn Miller, P. E.
(Submitted under previous NOA No. 10-0504.08)
4. Statement letter of conformance and compliance with the Florida Building Code, dated 08/19/10 signed and sealed by Anthony Lynn Miller, P. E.
(Submitted under previous NOA No. 10-0504.08)
5. Statement letter of no financial interest and independence, dated 08/19/10 signed and sealed by Anthony Lynn Miller, P. E.
(Submitted under previous NOA No. 10-0504.08)
6. Laboratory compliance letter for Test Reports No.'s **FTL-3835** and **FTL-3850**, issued by Fenestration Testing Laboratory, Inc., dated 07/31/03, signed and sealed by Joseph C. Chan, P. E.
(Submitted under previous NOA No. 03-1105.01)

G. OTHERS

1. Notice of Acceptance No. **10-0504.05**, issued to PGT Industries for their Series "PW-701 Aluminum Fixed Window - L.M.I." approved on 09/22/10 and expiring on 02/19/14.



Jaime D. Gascon, P. E.
Product Control Section Supervisor
NOA No. 11-1110.15
Expiration Date: February 19, 2014
Approval Date: February 02, 2012

NOTES: SERIES 701 ALUMINUM FIXED WINDOW

1. DIRECTIONS FOR USE:
- A. DETERMINE THE PRODUCT'S MAXIMUM DESIGN PRESSURE FROM EITHER TABLES ON SHEET 2 (DEPENDING ON YOUR GLASS TYPE).
- B. DETERMINE THE TYPE AND QUANTITY OF ANCHORS REQUIRED TO MEET THE WINDOWS DESIGN PRESSURE FROM SHEET 6 FOR WOOD SUBSTRATES, OR SHEET 7 FOR MASONRY SUBSTRATES. SPACE ANCHORS APART EQUALLY PER NOTES ON SHEET.
- C. USE SHEETS 3 THROUGH 6 TO INSTALL PRODUCT, REFERENCING NOTES FROM SHEETS 6 & 7.

2. DESIGN PRESSURE RATINGS: NEGATIVE DESIGN LOADS BASED ON TESTED PRESSURE AND ASTM E1300-02, 3-SECOND GUST. POSITIVE DESIGN LOADS BASED ON WATER TEST PRESSURE AND ASTM E1300-02, 3-SECOND GUST.

3. ANCHORAGE: THE 33-1/3% STRESS INCREASE HAS NOT BEEN USED IN THE DESIGN OF THIS PRODUCT. MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE. LOAD DURATION, CD, OF 1.6 WAS USED IN WOOD SUBSTRATES ONLY.

4. SHUTTER REQUIREMENT: NONE REQUIRED

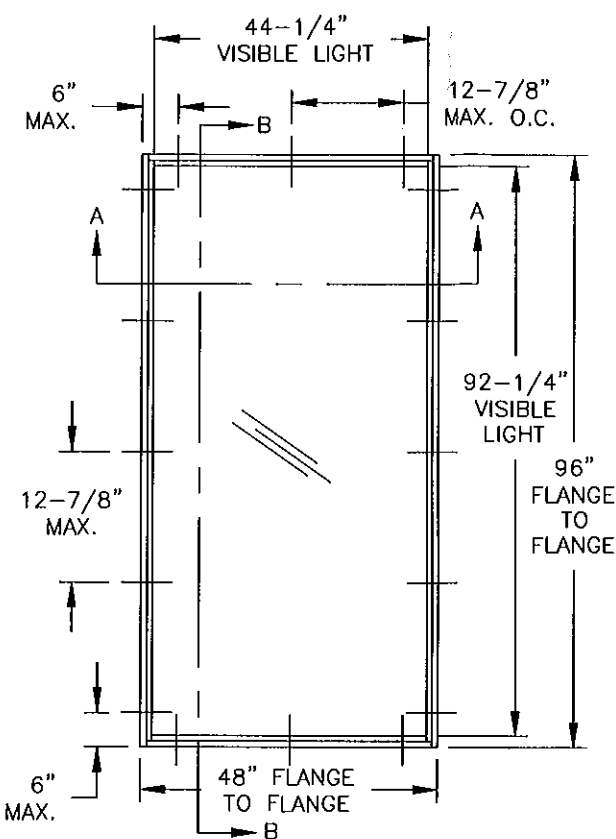
5. MATERIALS USED FOR ANCHOR EVALUATIONS WERE SOUTHERN PINE, C-90 CONCRETE MASONRY UNITS AND CONCRETE WITH MIN. KSI PER ANCHOR TYPE, SEE SHEET 7.

6. REFERENCES: TEST REPORTS, FTL-3835 & FTL-3850, NOA: 07-0425.01 (ULTRACON), 03-0225.05 (CRETE-FLEX), ANSI/AF&PA NDS-2005 FOR WOOD CONSTRUCTION, ADM-2005 ALUMINUM DESIGN MANUAL.

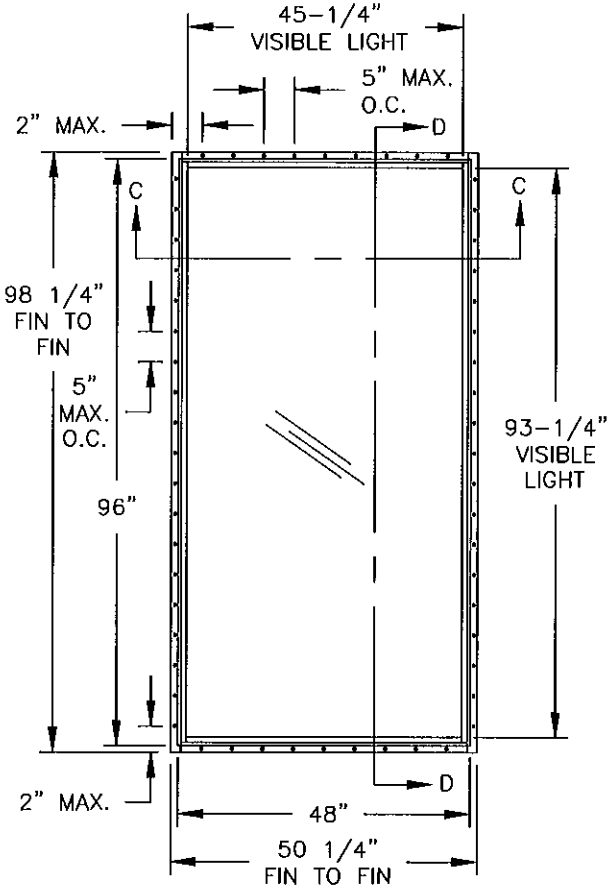
7. THIS PRODUCT HAS BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ).

8. SHIMS ARE REQUIRED AT EACH ANCHOR LOCATION WHERE THE PRODUCT IS NOT FLUSH TO THE SUBSTRATE. USE SHIMS CAPABLE OF TRANSFERRING APPLIED LOADS. WOOD BUCKS, BY OTHERS, MUST BE SUFFICIENTLY ANCHORED TO RESIST LOADS IMPOSED ON THEM BY THE WINDOW.

9. NARROW JOINT SEALANT IS USED ON ALL FOUR CORNERS OF THE FRAME. INSTALLATION ANCHORS SHOULD BE SEALED. ADHESIVE SEALANT SHALL BE USED BETWEEN SUBSTRATE AND FLANGE OR FIN. OVERALL SEALING/FLASHING STRATEGY FOR WATER RESISTANCE OF INSTALLATION SHALL BE DONE BY OTHERS.



TYP. FLANGED FRAME ELEVATION
(TESTED UNIT)

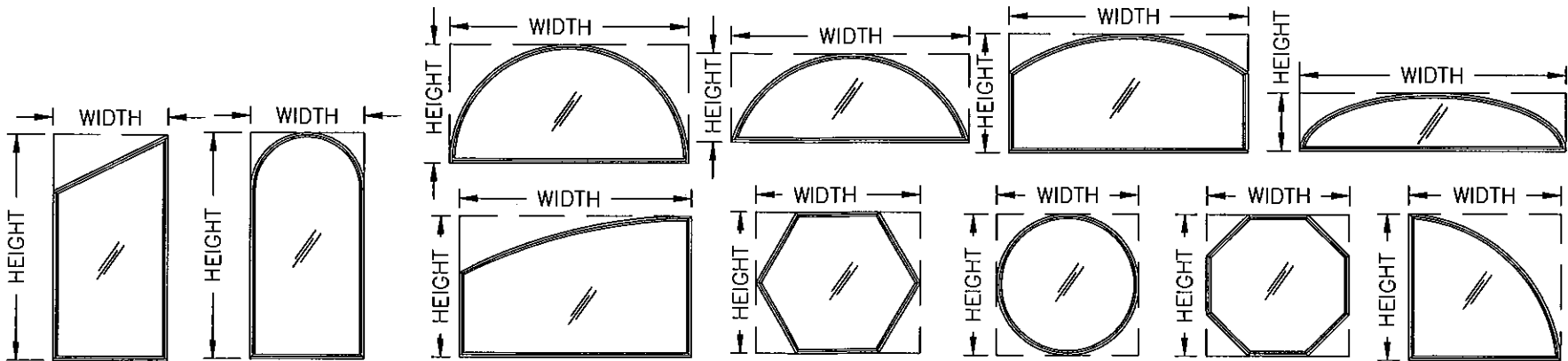


TYP. INTEGRAL FIN FRAME ELEVATION
(TESTED UNIT)

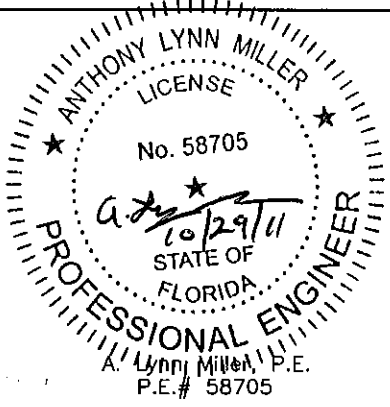
NOA DRAWING TABLE OF CONTENTS

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ELEVATIONS, INTEGRAL FIN.....	1
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INSTALLATION, INTEGRAL FIN.....	3
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INSTALLATION, FLANGED.....	4
CORNER ASS'Y, FLANGED.....	4
INSTALLATION, MISC.....	5
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EXTRUSION PROFILES.....	8
PARTS LIST.....	8

OTHER SHAPES AS SHOWN BELOW OR SIMILAR, MAY BE USED BY INSCRIBING THE SHAPE IN A BLOCK AND OBTAINING DESIGN PRESSURES FOR THAT BLOCK SIZE FROM THE TABLES ON SHEET 2.



PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1110.15
Expiration Date 02/19/2014
By [Signature]
Miami Dade Product Control



Revsd By: J.J.	Date: 10/18/11	Revisions: D	2010 FBC UPDATE
Revsd By: J.R.	Date: 3/31/10	Revisions: C	COMPLETE REDRAW AND REORGANIZATION TO INCLUDE INFORMATION FOR LARGER WINDOWS.
Revsd By: F.K.	Date: 4/4/07	Revisions: B	CHG. NOTE 2 TO REF. ASTM E 1300-02 AND REVISE ANCHORAGE NOTE 3.
Drawn By: F.K.	Date: 7/14/03	Checked By:	

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: ELEVATIONS AND NOTES			
Title: ALUMINUM PICTURE WINDOW, IMPACT			
Series/Model: PW-701	Scale: NTS	Sheet: 1 of 8	Drawing No. 4259-4
Rej: D			

Fin and Flanged Windows		Maximum Design Pressure (+/- psf)		7/16 Lami: 3/16A - .090 PVB - 3/16HS 7/16 Lami IG: 3/16TMP - 7/16 AIR - 3/16A - .090 PVB - 3/16HS						
				"A" or "B" Dimension (in)						
		24	30	36	42	48	54	60	67.875	
"B" or "A" Dimension (in)	36	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	
	48	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	
	60	80.0	80.0	80.0	80.0	80.0	71.1	71.1	64.0	
	67.875	80.0	80.0	80.0	80.0	80.0	71.1	64.0	62.1	
	72	80.0	80.0	80.0	80.0	79.3	71.1	64.0		
	76.8	80.0	80.0	80.0	80.0	75.0	70.0	64.0		
	84	80.0	80.0	80.0	74.3	68.3	63.6			
	85.3	80.0	80.0	80.0	73.5	67.4	62.5			
	96	80.0	80.0	77.2	64.7	58.2				
	109.7	80.0	80.0	72.3	58.3					
	120	80.0	80.0	70.4						
	128	80.0	80.0	70.0						
	145	80.0	80.0							

Fin and Flanged Windows		Maximum Design Pressure (+/- psf)		7/16 Lami: 3/16HS - .090 PVB - 3/16HS 7/16 Lami IG: 3/16TMP - 7/16 AIR - 3/16HS - .090 PVB - 3/16HS						
				"A" or "B" Dimension (in)						
		24	30	36	42	48	54	60	67.875	
"B" or "A" Dimension (in)	36	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	
	48	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	
	60	80.0	80.0	80.0	80.0	80.0	71.1	71.1	64.0	
	67.875	80.0	80.0	80.0	80.0	80.0	71.1	64.0	62.1	
	72	80.0	80.0	80.0	80.0	80.0	71.1	64.0		
	76.8	80.0	80.0	80.0	80.0	80.0	71.1	64.0		
	84	80.0	80.0	80.0	80.0	80.0	71.1			
	85.3	80.0	80.0	80.0	80.0	80.0	71.1			
	96	80.0	80.0	80.0	80.0	80.0				
	109.7	80.0	80.0	80.0	80.0					
	120	80.0	80.0	80.0						
	128	80.0	80.0	80.0						
	145	80.0	80.0							

NOTES:

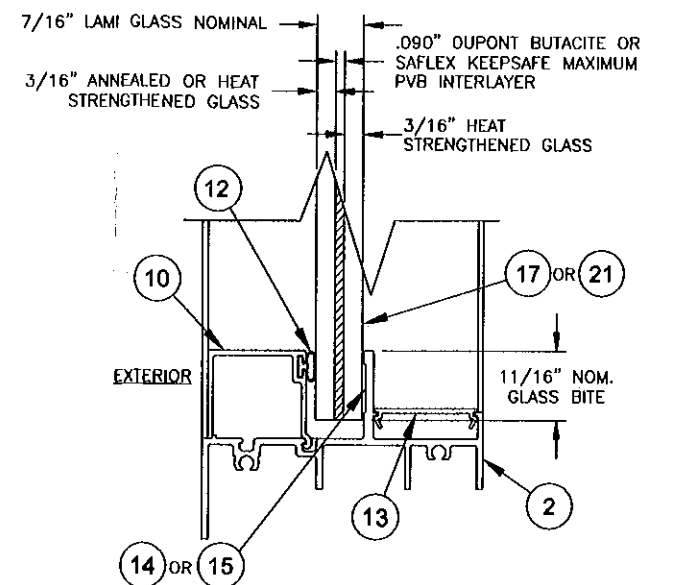
1. ANY ONE SIDE OF THE WINDOW CANNOT BE MORE THAN 145" NOR CAN THE WINDOW AREA EXCEED 32FT².
2. FOR SIZES NOT SHOWN, ROUND UP TO THE NEXT AVAILABLE WIDTH OR HEIGHT DIMENSION.
3. FOR ARCHITECTURAL WINDOWS, FIND THE SMALLEST WINDOW SIZE IN THE TABLE ABOVE WHICH THE OVERALL WIDTH AND HEIGHT DIMENSIONS COMPLETELY FIT WITHIN.
4. THE WINDOWS WIDTH AND HEIGHT (DIMENSIONS "A" AND "B") MAY BE REVERSED TO OBTAIN A MORE ACCURATE RESULT FROM THE TABLE (SEE FIGURE, THIS SHEET).

Revsd By: J.J.	Date: 10/18/11	Revisions: D	CHANGED HS CAP TO TMP FOR 30' RULE
Revsd By: J.R.	Date: 3/31/10	Revisions: C	COMPLETE REDRAW AND REORGANIZATION TO INCLUDE INFORMATION FOR LARGER WINDOWS.
Revsd By: F.K.	Date: 4/4/07	Revisions: B	NO CHANGE THIS SHEET
Drawn By: F.K.	Date: 7/14/03	Checked By:	

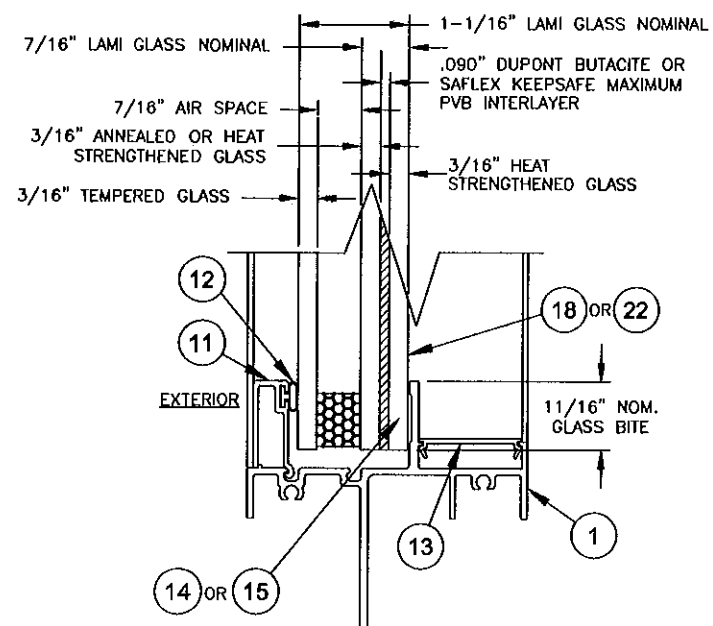
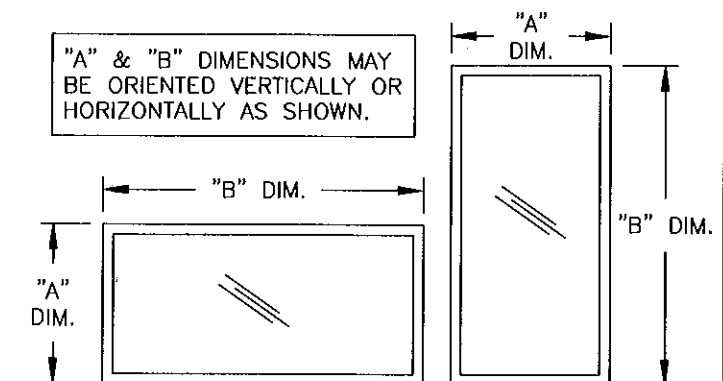
1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: GLAZING DETAILS			
Title: ALUMINUM PICTURE WINDOW, IMPACT			
Series/Model: PW-701	Scale: NTS	Sheet: 2 of 8	Drawing No. 4259-4
Rev: D			

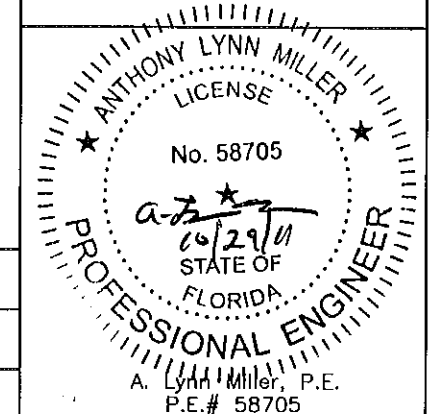


7/16" LAMI GLAZING DETAIL
FLANGED OR INTEGRAL FIN FRAME
(FLANGE FRAME SHOWN)

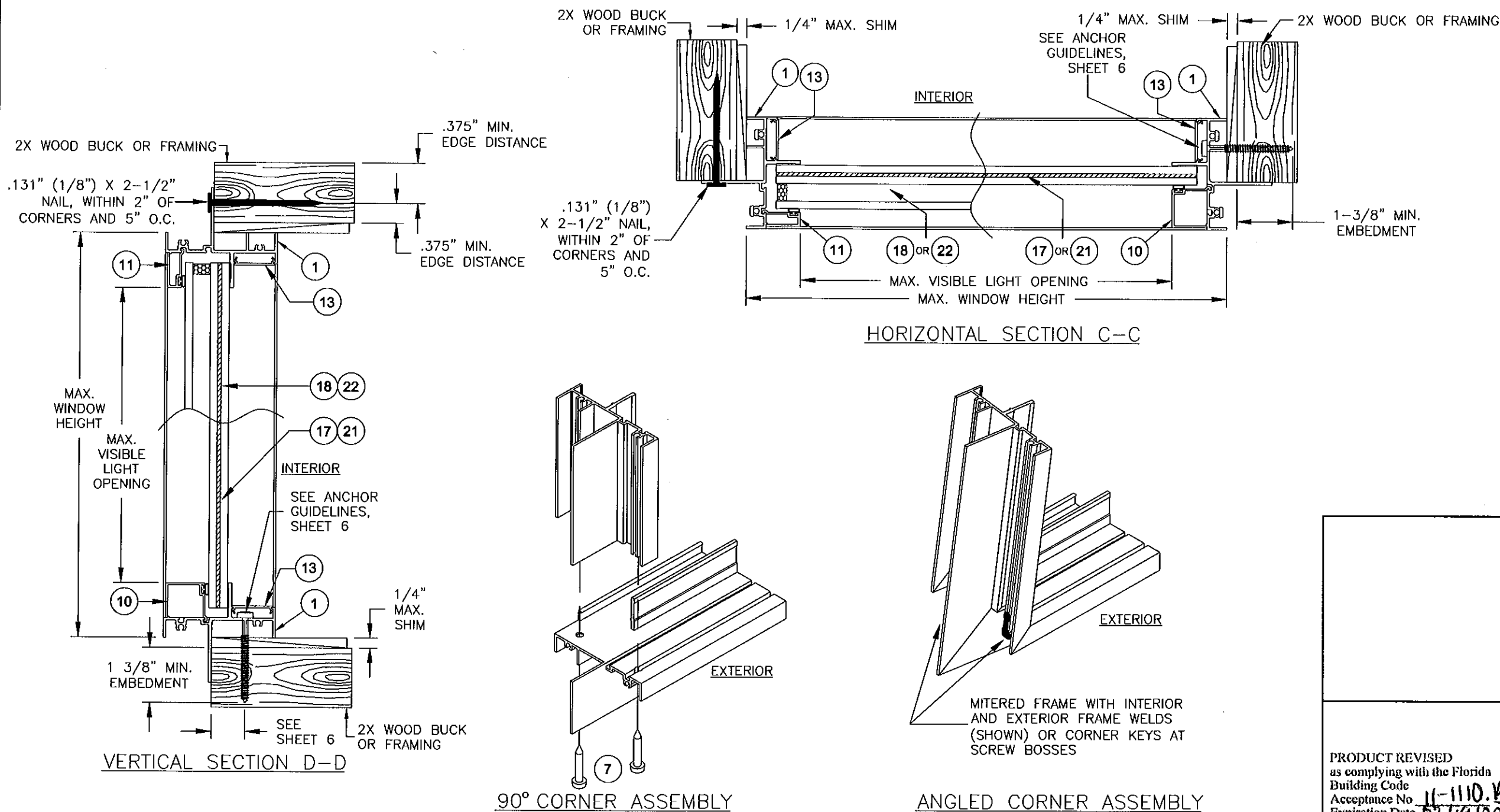


1-1/16" LAMI I.G. GLAZING DETAIL
FLANGED OR INTEGRAL FIN FRAME
(INTEGRAL FIN FRAME SHOWN)

PRODUCT REVISED
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Building Code
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Expiration Date 12/14/2014
By *[Signature]*
Miami Dade Product Control



INSTALLATION DETAILS FOR FINNED FRAMES



NOTES

1. USE ONLY NAILS PER ABOVE, OR ANCHORS LISTED ON SHEET 6. FOLLOW EMBEDMENT AND EDGE DISTANCE LIMITS.

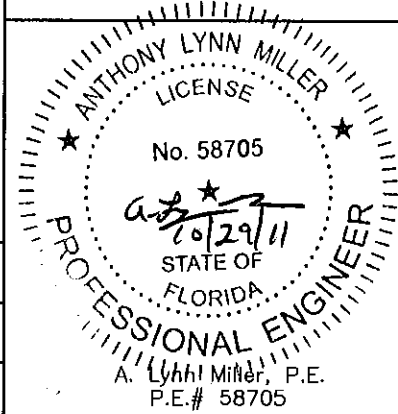
Revsd By: J.J.	Date: 10/18/11	Revisions: D	NO CHANGE THIS SHEET
Revsd By: J.R.	Date: 3/31/10	Revisions: C	COMPLETE REDRAW AND REORGANIZATION TO INCLUDE INFORMATION FOR LARGER WINDOWS.
Revsd By:	Date:	Revisions:	
Drawn By: F.K.	Date: 7/14/03	Checked By:	Date:

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

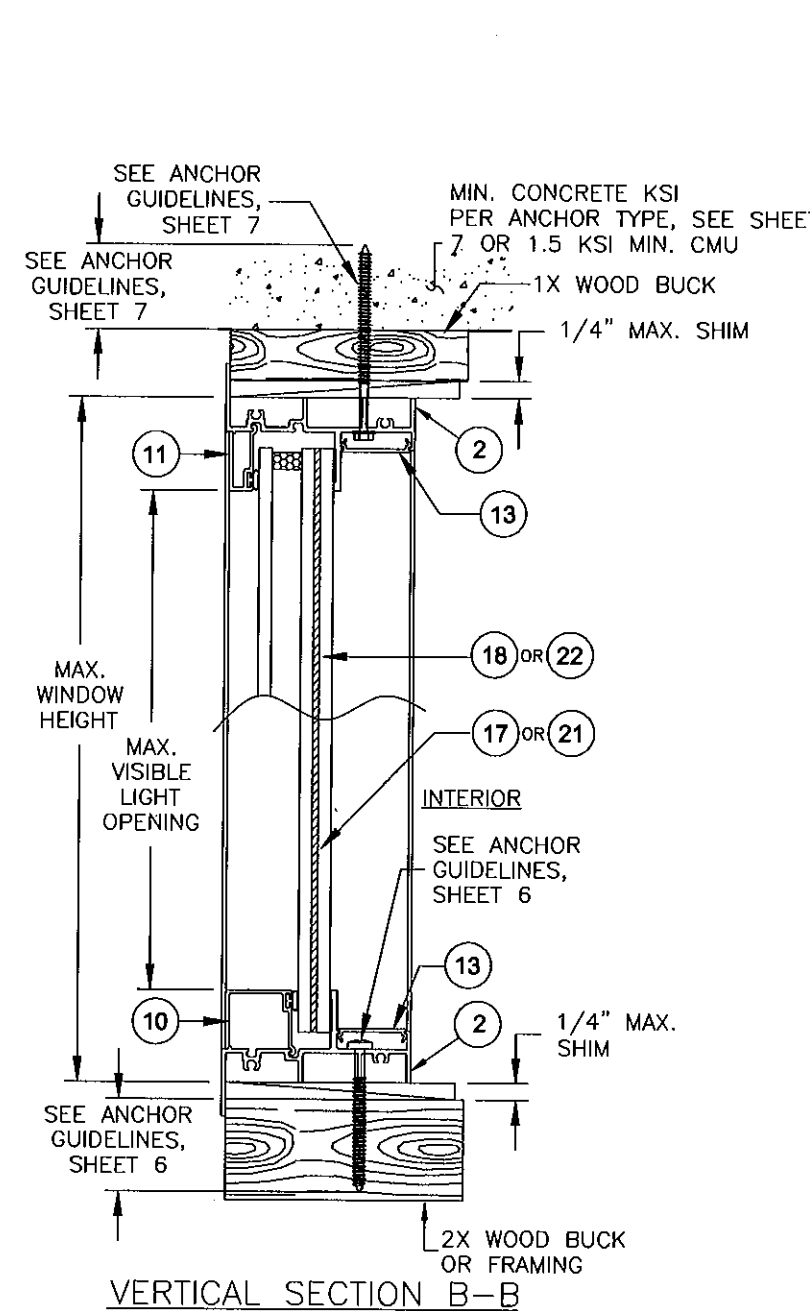


Description: INSTALLATION, FINNED FRAME			
Title: ALUMINUM PICTURE WINDOW, IMPACT			
Series/Model: PW-701	Scale: NTS	Sheet: 3 of 8	Drawing No. 4259-4
Rev: D			

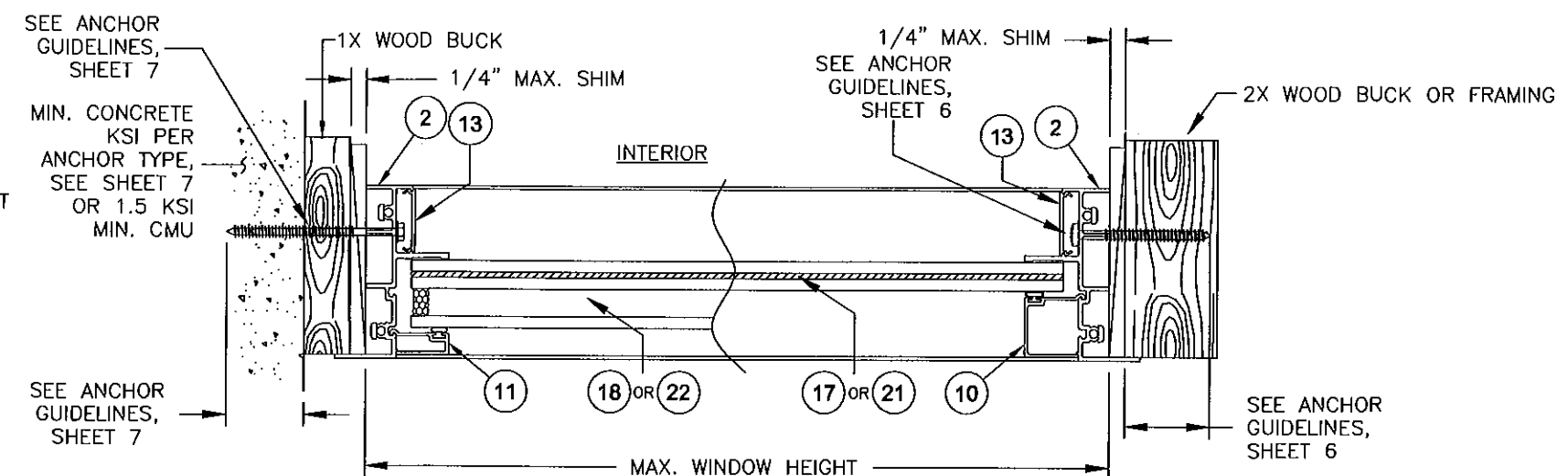
PRODUCT REVISED
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Building Code
Acceptance No. 11-1110.5
Expiration Date 02/19/2014
By: [Signature]
Miami Dade Product Control



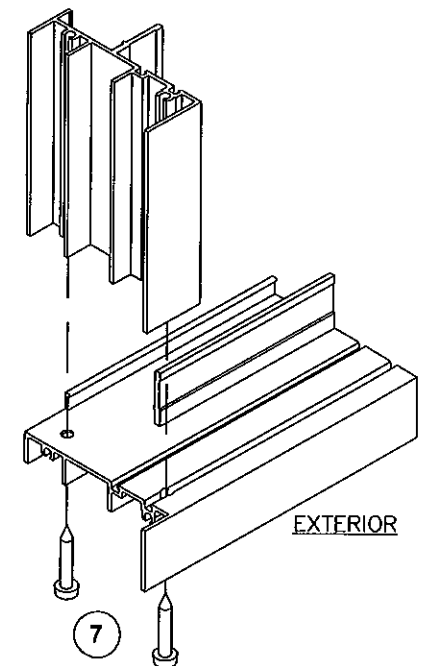
INSTALLATION DETAILS FOR FLANGED FRAMES



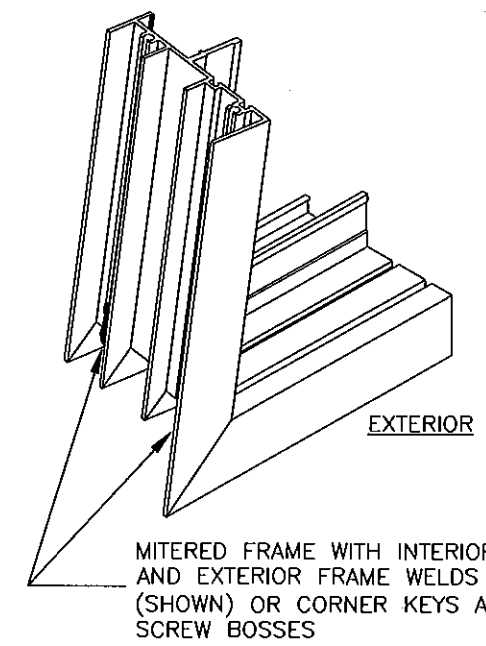
VERTICAL SECTION B-B



HORIZONTAL SECTION A-A




90° CORNER ASSEMBLY



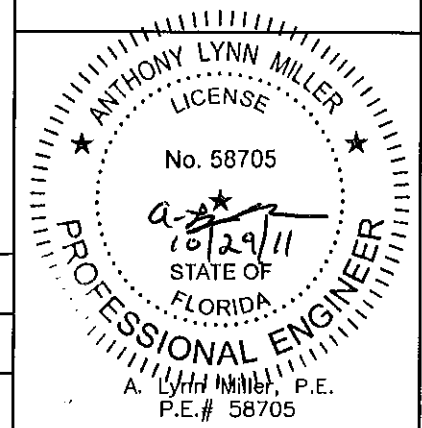
ANGLED CORNER ASSEMBLY

NOTES

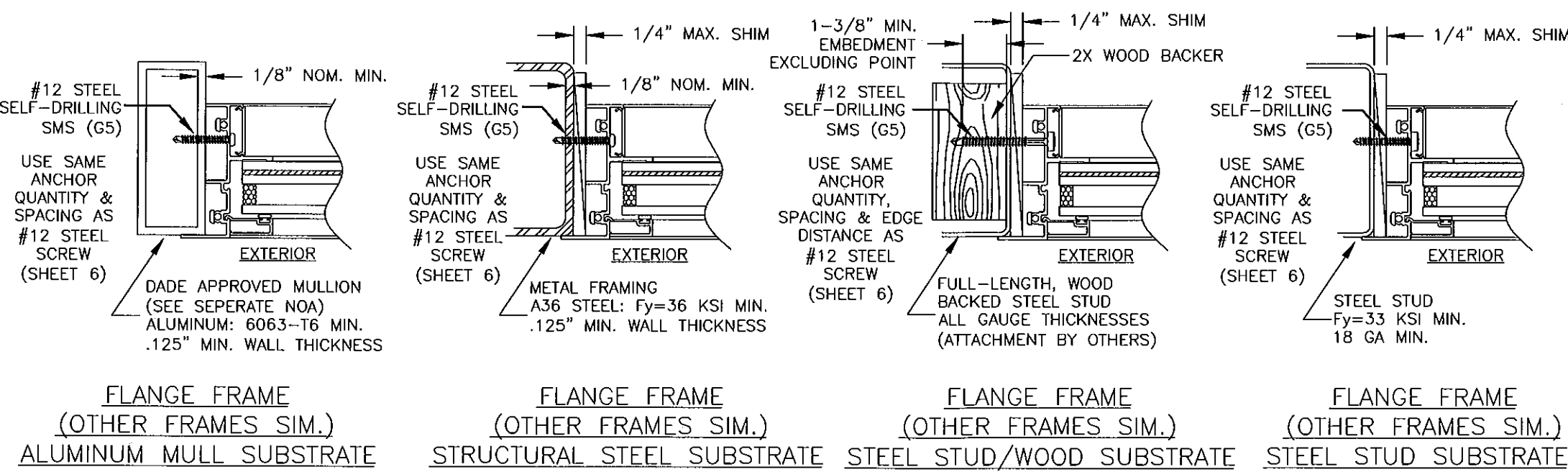
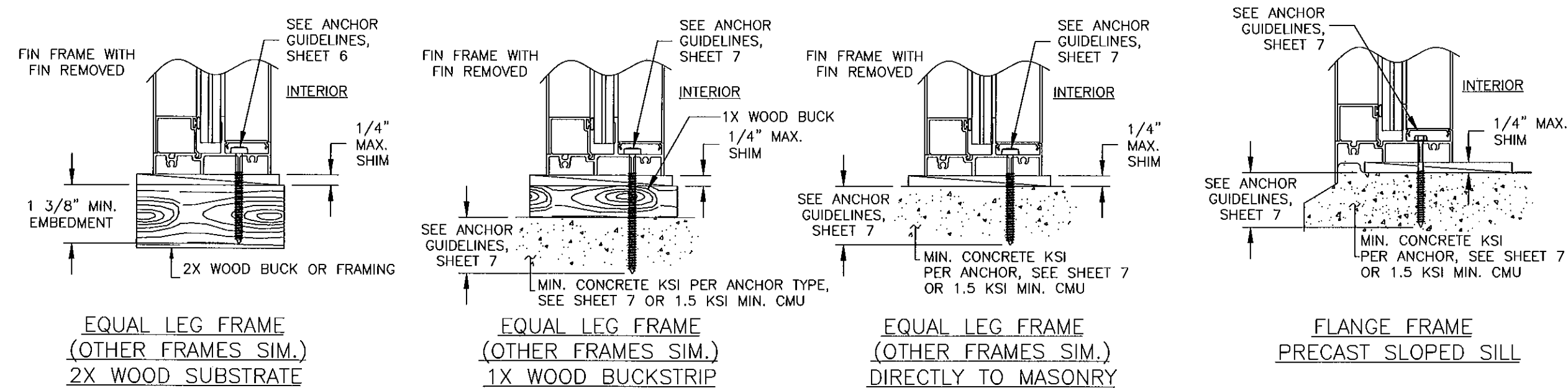
1. USE ONLY ANCHORS LISTED ON SHEETS 6 AND 7. FOLLOW EMBEDMENT AND EDGE DISTANCE LIMITS.
2. WOOD BUCKS DEPICTED IN THE SECTIONS ON THIS PAGE AS 1X ARE BUCKS WHOSE TOTAL THICKNESS IS LESS THAN 1-1/2". 1X WOOD BUCKS ARE OPTIONAL IF UNIT CAN BE INSTALLED DIRECTLY TO SOLID CONCRETE. WOOD BUCKS DEPICTED AS 2X ARE 1-1/2" THICK OR GREATER. INSTALLATION TO THE SUBSTRATE OF WOOD BUCKS TO BE ENGINEERED BY OTHERS OR AS APPROVED BY AUTHORITY HAVING JURISDICTION.

Revsd By: J.J.	Date: 10/18/11	Revisions: D	NO CHANGE THIS SHEET	1070 TECHNOLOGY DRIVE N. VENICE, FL 34275 P.O. BOX 1529 NOKOMIS, FL 34274		Description: INSTALLATION, FLANGED FRAME					Rev: D
Revsd By: J.R.	Date: 3/31/10	Revisions: C	COMPLETE REDRAW AND REORGANIZATION TO INCLUDE INFORMATION FOR LARGER WINDOWS.			Title: ALUMINUM PICTURE WINDOW, IMPACT					
Revsd By:	Date:	Revisions:				Series/Model: PW-701	Scale: NTS	Sheet: 4 of 8	Drawing No. 4259-4		
Drawn By: F.K.	Date: 7/14/03	Checked By:	Date:								

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Expiration Date 6/29/2014
By
Miami Dade Product Control




MISC INSTALLATION DETAILS

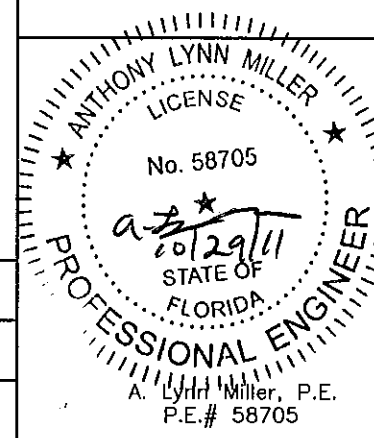


NOTES

1. USE ONLY ANCHORS LISTED ON SHEETS 6 AND 7. FOLLOW EMBEDMENT AND EDGE DISTANCE LIMITS.
2. WOOD BUCKS DEPICTED IN THE SECTIONS ON THIS PAGE AS 1X ARE BUCKS WHOSE TOTAL THICKNESS IS LESS THAN 1-1/2". 1X WOOD BUCKS ARE OPTIONAL IF UNIT CAN BE INSTALLED DIRECTLY TO SOLID CONCRETE. WOOD BUCKS DEPICTED AS 2X ARE 1-1/2" THICK OR GREATER. INSTALLATION TO THE SUBSTRATE OF WOOD BUCKS TO BE ENGINEERED BY OTHERS OR AS APPROVED BY AUTHORITY HAVING JURISDICTION.
3. FOR ATTACHMENT TO METAL: THE STRUCTURAL MEMBER SHALL BE OF A SIZE TO PROVIDE FULL SUPPORT TO THE WINDOW FRAME.
4. IF APPLICABLE, LOWER DESIGN PRESSURE FROM EITHER WINDOW OR MULLION NOA APPLIES TO WHOLE SYSTEM.

Revsd By: J.J.	Date: 10/18/11	Revisions: D	NO CHANGE THIS SHEET	1070 TECHNOLOGY DRIVE N. VENICE, FL 34275 P.O. BOX 1529 NOKOMIS, FL 34274		Description: INSTALLATION, FINNED FRAME					Rev: D
Revsd By: J.R.	Date: 3/31/10	Revisions: C	COMPLETE REDRAW AND REORGANIZATION TO INCLUDE INFORMATION FOR LARGER WINDOWS.			Title: ALUMINUM PICTURE WINDOW, IMPACT					
Revsd By:	Date:	Revisions:				Series/Model: PW-701	Scale: NTS	Sheet: 5 of 8	Drawing No. 4259-4		
Drawn By F.K.	Date: 7/14/03	Checked By	Date:								

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Expiration Date 02/19/2014
By
Miami Dade Product Control



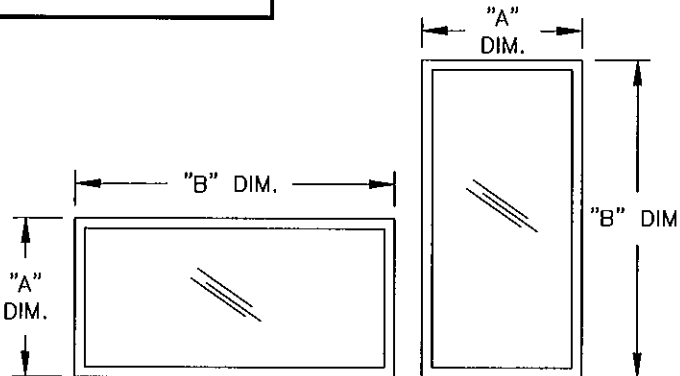
Head, Sill and Jamb Anchor Quantities into Wood or Metal (Anchor Types 1-4)

		Anchor Type	"A" or "B" Dimension (in)																															
			24				30				36				42				48				54				60				67.875			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
"B" or "A" Dimension (in)	36	Jamb	3	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	3	4	
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	5	5	6	5	6	5	6	6	6	6	7	6	7	6
	48	Jamb	4	4	5	4	5	4	5	4	5	5	5	5	5	5	6	5	5	5	6	5	5	5	6	5	5	5	6	5	5	5	6	5
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	6	5	6	6	7	6	6	6	7	6	7	7	8	7
	60	Jamb	5	5	6	5	6	5	6	5	6	6	6	6	6	6	7	6	6	6	7	6	7	6	7	6	7	6	7	6	7	6	7	6
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	6	5	6	6	7	6	7	6	7	6	8	7	8	7
	67.875	Jamb	6	6	7	6	7	6	7	6	7	6	7	6	7	7	8	7	7	7	8	7	7	7	8	7	8	7	8	7	8	7	8	7
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	6	5	6	6	7	6	7	6	7	6	8	7	8	7
	72	Jamb	6	6	8	6	7	6	8	6	7	7	8	7	7	7	8	7	7	7	9	7	8	7	9	7	8	7	9	7				
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	6	5	6	6	7	6	7	6	7	6				
	76.8	Jamb	7	7	8	7	8	7	8	7	8	7	8	7	8	8	8	8	8	8	9	8	8	8	9	8	9	8	9	8				
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	6	5	6	6	7	6	7	6	7	6				
	84	Jamb	7	7	9	7	8	7	9	7	8	8	9	8	8	8	9	8	8	8	10	8	9	8	10	8								
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	6	5	6	6	7	6								
	85.3	Jamb	7	7	9	7	8	7	9	7	8	8	9	8	8	8	9	8	8	8	10	8	9	8	10	8								
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	6	5	6	6	7	6								
	96	Jamb	8	8	10	8	9	8	10	8	9	9	10	9	9	9	10	9	9	9	11	9												
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4	5	5	6	5												
	109.7	Jamb	9	9	12	9	10	9	12	9	10	10	12	10	10	10	12	10																
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3	5	4	5	4																
	120	Jamb	10	10	13	10	11	10	13	10	11	11	13	11																				
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3																				
	128	Jamb	11	11	13	11	12	11	13	11	12	12	13	11																				
		Head/Sill	2	2	2	2	3	3	3	3	4	3	4	3																				
	145	Jamb	12	12	15	12	13	12	15	12																								
		Head/Sill	2	2	2	2	3	3	3	3																								

* Width and Height dimensions may be reversed to locate anchor quantities on the table. If so, the Head/Sill and Jamb rows must also be reversed so that the longer dimension gets the most anchors.

* Width and Height dimensions may be reversed to locate anchor quantities on the table. If so, the Head/Sill and Jamb rows must also be reversed so that the longer dimension gets the most anchors.

"A" & "B" DIMENSIONS MAY BE ORIENTED VERTICALLY OR HORIZONTALLY AS SHOWN.



- NOTES:
1. ANY ONE SIDE OF THE WINDOW CANNOT BE MORE THAN 145" NOR CAN THE WINDOW AREA EXCEED 32FT².
 2. FOR SIZES NOT SHOWN, ROUND UP TO THE NEXT AVAILABLE WIDTH OR HEIGHT DIMENSION.
 3. FOR ARCHITECTURAL WINDOWS, FIND THE SMALLEST WINDOW SIZE IN THE TABLE ABOVE WHICH THE OVERALL WIDTH AND HEIGHT DIMENSIONS COMPLETELY FIT WITHIN.
 4. THE WINDOWS WIDTH AND HEIGHT (DIMENSIONS "A" AND "B") MAY BE REVERSED TO OBTAIN A MORE ACCURATE RESULT FROM THE TABLE (SEE FIGURE, THIS SHEET).
 5. DIFFERENT ANCHORS MAY BE CHOSEN FROM MULTIPLE TABLE COLUMNS TO MATCH THE SUBSTRATE.

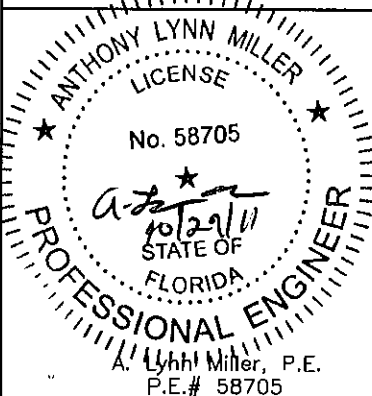
Revsd By: J.J.	Date: 10/18/11	Revisions: D	NO CHANGE THIS SHEET
Revsd By: J.R.	Date: 3/31/10	Revisions: C	COMPLETE REDRAW AND REORGANIZATION TO INCLUDE INFORMATION FOR LARGER WINDOWS.
Revsd By: F.K.	Date: 4/4/07	Revisions: B	NEW SHEET
Drawn By: F.K.	Date: 7/14/03	Checked By:	

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: ANCHORAGE, WOOD SUBSTRATE			
Title: ALUMINUM PICTURE WINDOW, IMPACT			
Series/Model: PW-701	Scale: NTS	Sheet: 6 of 8	Drawing No. 4259-4
Rev: D			

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Head, Sill and Jamb Anchor Quantities into Masonry (Anchor Types 5-7)																										
		Anchor Type	"A" or "B" Dimension (in)																							
			24			30			36			42			48			54			60			67.875		
		Anchor Location*	5	6	7	5	6	7	5	6	7	5	6	7	5	6	7	5	6	7	5	6	7	5	6	7
"B" or "A" Dimension (in)	36	Jamb	4	3	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4	3	4	4	3
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	5	5	4	6	6	5	6	6	5	7	7	6
	48	Jamb	5	4	4	5	5	4	5	5	4	6	5	5	6	5	5	6	5	5	6	5	5	6	5	5
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	6	5	5	7	6	6	7	6	6	8	7	7
	60	Jamb	6	5	5	6	6	5	6	6	5	7	6	6	7	6	6	7	6	6	7	6	6	7	6	6
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	6	5	5	7	6	6	7	6	6	8	7	7
	67.875	Jamb	7	6	6	7	6	6	7	7	6	8	7	7	8	7	7	8	7	7	8	7	7	8	8	7
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	6	5	5	7	6	6	7	6	6	8	8	7
	72	Jamb	8	6	6	8	7	6	8	7	6	8	7	7	9	7	7	9	7	7	9	8	7			
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	6	5	5	7	6	6	7	6	6			
	76.8	Jamb	8	7	7	8	7	7	8	8	7	8	8	8	9	8	8	9	8	8	9	8	8			
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	6	5	5	7	6	6	7	6	6			
	84	Jamb	9	7	7	9	8	7	9	8	7	9	8	8	10	8	8	10	8	8						
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	6	5	5	7	6	6						
	85.3	Jamb	9	7	7	9	8	7	9	8	7	9	8	8	10	8	8	10	8	8						
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	6	5	5	7	6	6						
	96	Jamb	10	8	8	10	9	8	10	9	8	10	9	9	11	9	9									
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4	6	5	5									
	109.7	Jamb	12	9	9	12	10	9	12	10	9	12	10	10												
		Head/Sill	2	2	2	3	3	3	4	4	3	5	5	4												
	120	Jamb	13	10	10	13	11	10	13	11	10															
		Head/Sill	2	2	2	3	3	3	4	4	3															
	128	Jamb	13	11	11	13	12	11	13	12	11															
		Head/Sill	2	2	2	3	3	3	4	4	3															
	145	Jamb	15	12	12	15	13	12																		
		Head/Sill	2	2	2	3	3	3																		

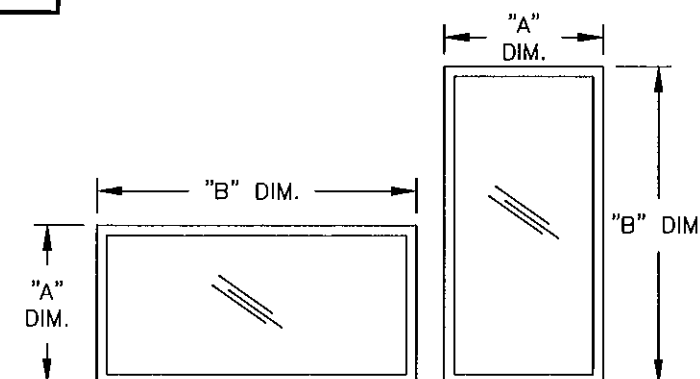
* Width and Height dimensions may be reversed to locate anchor quantities on the table. If so, the Head/Sill and Jamb rows must also be reversed so that the longer dimension gets the most anchors.

* Width and Height dimensions may be reversed to locate anchor quantities on the table. If so, the Head/Sill and Jamb rows must also be reversed so that the longer dimension gets the most anchors.

Anchor Type	Anchor Description	Substrate	Min. Edge Distance	Min. Embedment
5	1/4" Steel Ultracon	Hollow Block	1"	1.25"
	1/4" Steel Ultracon	2.7k Concrete	1"	1.375"
6	1/4" 410 SS CreteFlex	Hollow Block	1"	1.25"
	1/4" 410 SS CreteFlex	3.35k Concrete	1"	1"
7	5/16" Steel Ultracon	Hollow Block	1.563"	1.25"
	5/16" Steel Ultracon	3.5k Concrete	1.25"	1"

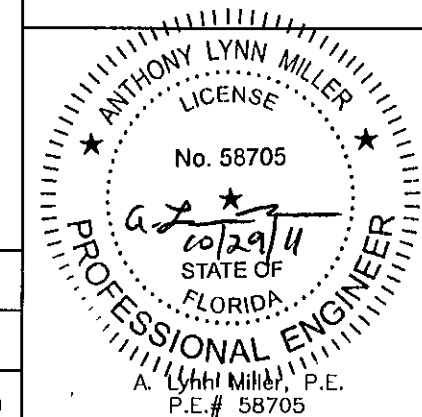
NOTES:

1. ANY ONE SIDE CANNOT BE MORE THAN 145" AND HAVE AN AREA OF MORE THAN 32FT².
2. FOR SIZES NOT SHOWN, ROUND UP TO THE NEXT AVAILABLE WIDTH OR HEIGHT DIMENSION.
3. FOR ARCHITECTURAL WINDOWS, FIND THE SMALLEST WINDOW SIZE IN THE TABLE ABOVE WHICH THE OVERALL WIDTH AND HEIGHT DIMENSIONS COMPLETELY FIT WITHIN.
4. THE WINDOWS WIDTH AND HEIGHT (DIMENSIONS "A" AND "B") MAY BE REVERSED TO OBTAIN A MORE ACCURATE RESULT FROM THE TABLE (SEE FIGURE, THIS SHEET).
5. DIFFERENT ANCHORS MAY BE CHOSEN FROM MULTIPLE TABLE COLUMNS TO MATCH THE SUBSTRATE.



"A" & "B" DIMENSIONS MAY BE ORIENTED VERTICALLY OR HORIZONTALLY AS SHOWN.

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Expiration Date 02/19/2014
By *[Signature]*
Miami Dade Product Control

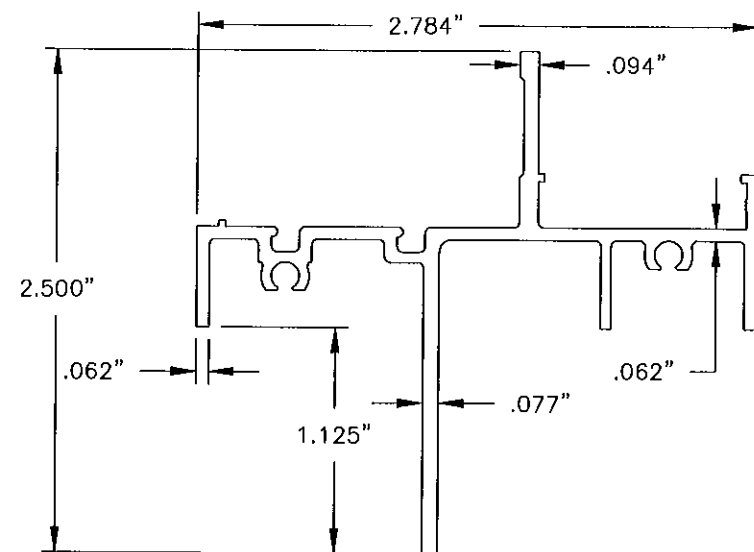


Revsd By: J.J.	Date: 10/18/11	Revisions: D	NO CHANGE THIS SHEET
Revsd By: J.R.	Date: 3/31/10	Revisions: C	COMPLETE REDRAW AND REORGANIZATION TO INCLUDE INFORMATION FOR LARGER WINDOWS.
Revsd By: F.K.	Date: 4/4/07	Revisions: B	NEW SHEET
Drawn By: F.K.	Date: 7/14/03	Checked By:	

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

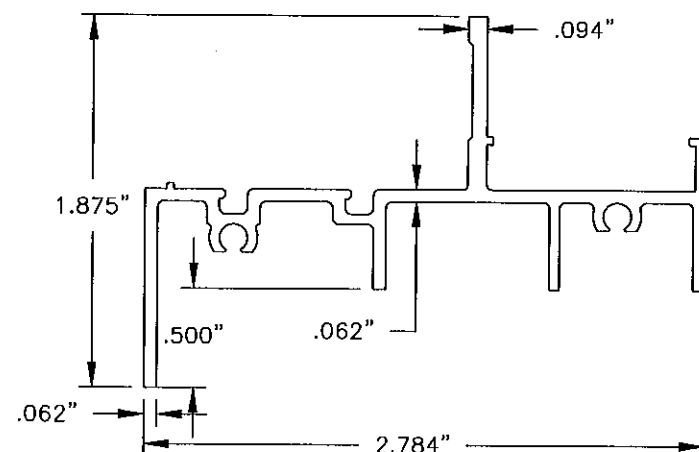


Description: ANCHORAGE, MASONRY SUBSTRATE			
Title: ALUMINUM PICTURE WINDOW, IMPACT			
Series/Model: PW-701	Scale: NTS	Sheet: 7 of 8	Drawing No. 4259-4
Rev: D			



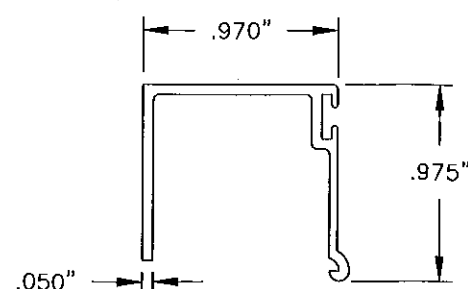
INTEGRAL FIN FRAME

① MAT'L: 6063-T5
DWG NO. 4256A



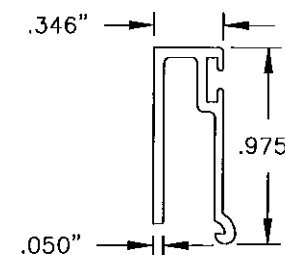
FLANGED FRAME

② MAT'L: 6063-T5
DWG NO. 4253



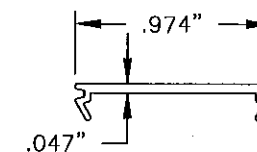
7/16" LAMI GLASS BEAD

⑩ MAT'L: 6063-T5
DWG NO. 4255



1-1/16" LAMI I.G. GLASS BEAD

⑪ MAT'L: 6063-T5
DWG NO. 4254

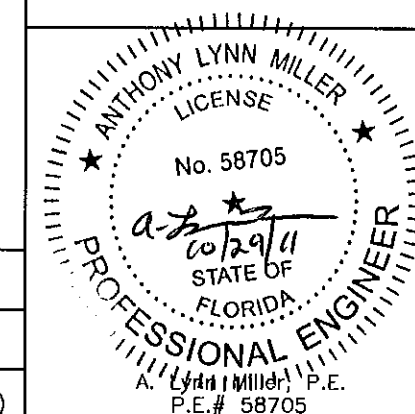


INSTALL. FASTENER COVER

⑬ MAT'L: 6063-T5
DWG NO. 4224

ITEM	DWG #	PART #	DESCRIPTION
1	4256A	64256	Integral fin frame head, sill & jamb
2	4253	64253	Flanged frame head, sill & jamb
7	1155	781PQX	#8 x 1 Quad PH SMS stainless steel
8			Schnee-Morehead SM5504 acryl-r narrow joint sealant or
10	4255	64255	7/16 lami glass bead
11	4254	64254	1-1/16 lami I.G. glass bead
12	1224	6TP247	Vinyl bulb weatherstrip (thick)
13	4224		Installation fastener cover
14			Dow Corning 899 glazing sealant or equivalent
15			Dow Corning 995 silicone structural sealant, black
17			7/16" lami glass: 3/16" annealed - .090 DuPont Butacite or Saflex KeepSafe Maximum PVB interlayer - 3/16" heat strengthened
18			1-1/16" lami I.G. glass: 3/16" heat strengthened outboard - 7/16" airspace - 3/16" annealed - .090 DuPont Butacite or Saflex KeepSafe Maximum PVB interlayer - 3/16" heat strengthened
20	4262	64262	Architectural corner key
21			7/16" lami glass: 3/16" heat strengthened - .090 DuPont Butacite or Saflex KeepSafe Maximum PVB interlayer - 3/16" heat strengthened
22			1-1/16" lami I.G. glass: 3/16" heat strengthened outboard - 7/16" airspace - 3/16" heat strengthened - .090 DuPont Butacite or Saflex KeepSafe Maximum PVB interlayer - 3/16" heat strengthened

PRODUCT REVISED
as complying with the Florida
Building Code 11-1110.15
Acceptance No.
Expiration Date 02/19/2014
By *[Signature]*
Miami Dade Product Control



Revsd By: J.J.	Date: 10/18/11	Revisions: D	NO CHANGE THIS SHEET
Revsd By: J.R.	Date: 3/31/10	Revisions: C	COMPLETE REDRAW AND REORGANIZATION TO INCLUDE INFORMATION FOR LARGER WINDOWS.
Revsd By:	Date:	Revisions:	
Drawn By: F.K.	Date: 7/14/03	Checked By:	Date:

1070 TECHNOLOGY DRIVE
N. VENICE, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: EXTRUSION PROFILES & PARTS LIST			
Title: ALUMINUM PICTURE WINDOW, IMPACT			
Series/Model: PW-701	Scale: NTS	Sheet: 8 of 8	Drawing No. 4259-4
Rev: D			



DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY
AFFAIRS (PERA)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY, FLORIDA
PRODUCT CONTROL SECTION
11805 SW 26th Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/pera/

PGT Industries, Inc.
1070 Technology Drive
North Venice, FL 34275

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County PERA -Product Control Section to be used in Miami-Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami-Dade County) and/ or the AHJ (in areas other than Miami-Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. PERA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code. This product is approved as described herein, and has been designed to comply with the Florida Building Code, including the High Velocity Hurricane Zone.

DESCRIPTION: Series "HR-710" Aluminum Horizontal Sliding Window - L.M.I.

APPROVAL DOCUMENT: Drawing No. 4127-10, titled "Alum. Horizontal Roller Window, Impact", sheets 1 through 11 of 11, dated 02/28/2006 with the latest revision "E" dated 10/17/2011, prepared by PGT Industries, Inc., dated 02/01/2012, signed and sealed by Anthony Lynn Miller, P. E., bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and Expiration date by the Miami-Dade County Product Control Section.

MISSILE IMPACT RATING: Large and Small Missile Impact Resistant.

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state, model/ series and following statement: "Miami-Dade County Product Control Approved" unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA No. 11-0630.02 and consists of this page 1, evidence pages E-1, E-2 and E-3, as well as approval document mentioned above.

The submitted documentation was reviewed by **Jaime D. Gascon, P. E.**



J. Gascon
2/8/12

NOA No. 11-1114.04
Expiration Date: December 21, 2016
Approval Date: February 16, 2012
Page 1

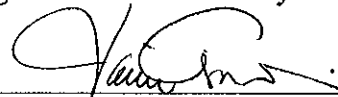
NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

A. DRAWINGS

1. Manufacturer's die drawings and sections.
(Submitted under NOA's No.'s 07-0815.09 and 06-0405.06)
2. Drawing No. **4127-10**, titled "Alum. Horizontal Roller Window, Impact", sheets 1 through 11 of 11, dated 02/28/2006 with the latest revision "**E**" dated 10/17/2011, prepared by PGT Industries, Inc., dated 02/01/2012, signed and sealed by Anthony Lynn Miller, P. E.

B. TESTS

1. Test reports on: 1) Large Missile Impact Test per FBC, TAS 201-94
2) Cyclic Wind Pressure Loading per FBC, TAS 203-94
Along with marked-up drawings and installation diagram of XOX aluminum horizontal sliding window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-5330**, dated 07/18/2007, signed and sealed by Carlos S. Rionda P. E.
(Submitted under NOA No. 07-0815.09)
2. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
2) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94
3) Water Resistance Test, per FBC, TAS 202-94
4) Large Missile Impact Test per FBC, TAS 201-94
5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
6) Forced Entry Test, Type "C" sliding window, Grade 10, per FBC 2411 3.2.1, TAS 202-94 and per ASTM F 842-04
Along with marked-up drawings and installation diagram of XOX aluminum horizontal sliding window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-4858**, dated 03/08/2006, signed and sealed by Edmundo Largaespada, P. E.
(Submitted under NOA No. 06-0405.06)
3. Test reports on: 1) Air Infiltration Test, per FBC, TAS 202-94
2) Uniform Static Air Pressure Test, Loading per FBC TAS 202-94
3) Water Resistance Test, per FBC, TAS 202-94
4) Large Missile Impact Test per FBC, TAS 201-94
5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
6) Forced Entry Test, Type "C" sliding window, Grade 10, per FBC 2411 3.2.1, TAS 202-94 and per ASTM F 842-04
Along with marked-up drawings and installation diagram of XOX aluminum horizontal sliding window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL-4859**, dated 03/08/2006, signed and sealed by Edmundo Largaespada, P. E.
(Submitted under NOA No. 06-0405.06)



Jaime D. Gascon, P. E.
Product Control Section Supervisor
NOA No. 11-1114.04

Expiration Date: December 21, 2016
Approval Date: February 16, 2012

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

C. CALCULATIONS

1. Anchor verification calculations and structural analysis, complying with FBC, prepared by PGT Industries, Inc., dated 10/26/06, signed and sealed by Robert L. Clark, P. E.
(Submitted under previous NOA No. 07-0815.09)
2. **Complies with ASTM E1300-98/ 04**

D. QUALITY ASSURANCE

1. Miami-Dade Department of Permitting, Environment, and Regulatory Affairs (PERA)

E. MATERIAL CERTIFICATIONS

1. Notice of Acceptance No. **11-0624.01** issued to **E.I. DuPont DeNemours & Co., Inc.** for their **"DuPont Butacite® PVB Interlayer"** dated 09/08/11, expiring on 12/11/16.
2. Notice of Acceptance No. **08-0206.01** issued to Solutia Inc. for their **"Saflex HP Glass Interlayer"** dated 04/17/2008, expiring on 04/17/2013.

F. STATEMENTS

1. Statement letter of conformance and compliance with the FBC-2007 (with the 2009 supplement) and FBC-2010, dated 10/25/11, signed and sealed by Anthony Lynn Miller, P. E.
2. Statement letter of no financial interest and independence, dated 10/25/11, signed and sealed by Anthony Lynn Miller, P. E.
3. Letter of *Adoption of as his Own, the Work of another Engineer* per Section 61G15-27.001 of the F.B.P.E., dated 10/07/11 signed and sealed by Anthony Lynn Miller, P. E.
4. Statement letter of no financial interest, conformance and compliance with the FBC-2007, dated 06/29/2011, signed and sealed by Robert L. Clark, P. E.
(Submitted under previous NOA No. 11-0630.02)
5. Laboratory compliance letter for Test Report No. **FTL-5330**, issued by Fenestration Testing Laboratory, Inc., dated 07/18/2007, signed and sealed by Carlos S. Rionda, P.E.
(Submitted under previous NOA No. 07-0815.09)



Jaime D. Gascon, P. E.

Product Control Section Supervisor

NOA No. 11-1114.04

Expiration Date: December 21, 2016

Approval Date: February 16, 2012

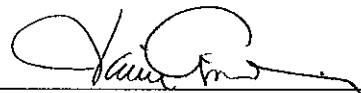
NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

F. STATEMENTS (CONTINUED)

6. Laboratory compliance letter for Test Reports No.'s **FTL-4858 and FTL-4859**, issued by Fenestration Testing Laboratory, Inc., dated 03/08/2006, signed and sealed by Edmundo Largaespada, P. E.
(Submitted under NOA No. 06-0405.06)

G. OTHERS

1. Notice of Acceptance No. **11-0630.02**, issued to PGT Industries, Inc. for their Series "HR-710 Aluminum Horizontal Roller Window – L.M.I.", approved on 08/18/2011 and expiring on 12/21/2016.



Jaime D. Gascon, P. E.
Product Control Section Supervisor
NOA No. 11-III14.04
Expiration Date: December 21, 2016
Approval Date: February 16, 2012

GENERAL NOTES: IMPACT HORIZONTAL ROLLER FLANGED AND INTEGRAL FIN WINDOW

1. GLAZING OPTIONS: (SEE DETAILS ON SHEET 2). FOR INSTALLATION ABOVE 30 FT, GLASS TYPES G THRU L MUST HAVE A TEMPERED GLASS CAP.
- A. 5/16" LAMI CONSISTING OF (2) LITES OF 1/8" ANNEALED GLASS WITH A .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- B. 5/16" LAMI CONSISTING OF (1) LITE OF 1/8" ANNEALED GLASS AND (1) LITE OF 1/8" HEAT STRENGTHENED GLASS WITH A .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- C. 5/16" LAMI CONSISTING OF (2) LITES OF 1/8" HEAT STRENGTHENED GLASS WITH AN .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- D. 7/16" LAMI CONSISTING OF (2) LITES OF 3/16" ANNEALED GLASS WITH AN .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- E. 7/16" LAMI CONSISTING OF (1) LITE OF 3/16" ANNEALED GLASS AND (1) LITE OF 3/16" HEAT STRENGTHENED GLASS WITH AN .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- F. 7/16" LAMI CONSISTING OF (2) LITES OF 3/16" HEAT STRENGTHENED GLASS WITH AN .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- G. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 5/16" OR 3/8" AIR SPACE AND 5/16" LAMI CONSISTING OF (2) LITES OF 1/8" ANNEALED GLASS WITH A .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- H. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 5/16" OR 3/8" AIR SPACE AND 5/16" LAMI CONSISTING OF (1) LITE OF 1/8" ANNEALED GLASS AND (1) LITE OF 1/8" HEAT STRENGTHENED GLASS WITH A .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- I. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 5/16" OR 3/8" AIR SPACE AND 5/16" LAMI CONSISTING OF (2) LITES OF 1/8" HEAT STRENGTHENED GLASS WITH AN .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- J. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 3/16" OR 1/4" AIR SPACE AND 7/16" LAMI CONSISTING OF (2) LITES OF 3/16" ANNEALED GLASS WITH AN .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- K. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 3/16" OR 1/4" AIR SPACE AND 7/16" LAMI CONSISTING OF (1) LITE OF 3/16" ANNEALED GLASS AND (1) LITE OF 3/16" HEAT STRENGTHENED GLASS WITH AN .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.
- L. 13/16" LAMI IG: (1) LITE OF 1/8" OR 3/16" ANNEALED (MIN.) GLASS, 3/16" OR 1/4" AIR SPACE AND 7/16" LAMI CONSISTING OF (2) LITES OF 3/16" HEAT STRENGTHENED GLASS WITH AN .090 DUPONT BUTACITE OR SAFLEX/KEEPSAFE MAXIMUM PVB INTERLAYER.

2. CONFIGURATIONS: OX, XO, XOX

3. DESIGN PRESSURES: (SEE TABLES, SHEET 3)

- A. NEGATIVE DESIGN LOADS BASED ON TESTED PRESSURE AND GLASS TABLES ASTM E 1300-02.
- B. POSITIVE DESIGN LOADS BASED ON WATER TEST PRESSURE AND GLASS TABLES ASTM E 1300-02.

4. ANCHORAGE: THE 33 1/3% STRESS INCREASE HAS NOT BEEN USED IN THE DESIGN OF THIS PRODUCT. SEE SHEETS 8 THROUGH 11 FOR ANCHORAGE DETAILS.

5. SHUTTERS ARE NOT REQUIRED.

6. FRAME AND PANEL CORNERS SEALED WITH NARROW JOINT SEALANT OR GASKET.

7. REFERENCES: TEST REPORTS FTL-4858, FTL-4859 AND FTL-5330.
ELCO TEXTRON NOA: 04-0721.01, 03-0225.05
ANSI/AF&PA NDS-2005 FOR WOOD CONSTRUCTION
ADM-2005 ALUMINUM DESIGN MANUAL

8. THIS PRODUCT HAS BEEN DESIGNED & TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ).

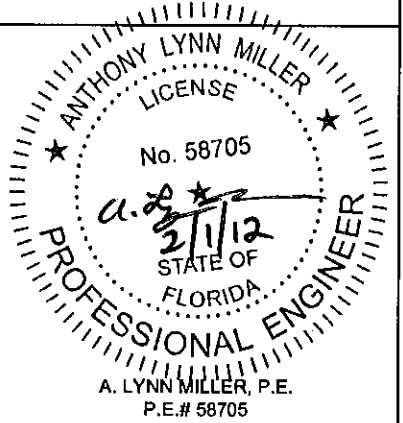
9. FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

NOA DRAWING MAP

SHEET

GENERAL NOTES.....	1
GLAZING DETAILS.....	2
DESIGN PRESSURES.....	3
ELEVATIONS.....	4
VERT. SECTIONS.....	5
HORIZ. SECTIONS.....	5
PARTS LIST.....	6
EXTRUSIONS.....	7
CORNER DETAIL.....	5
ANCHORAGE.....	8-11

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114-04
Expiration Date 12/27/2016
By [Signature]
Miami Dade Product Control

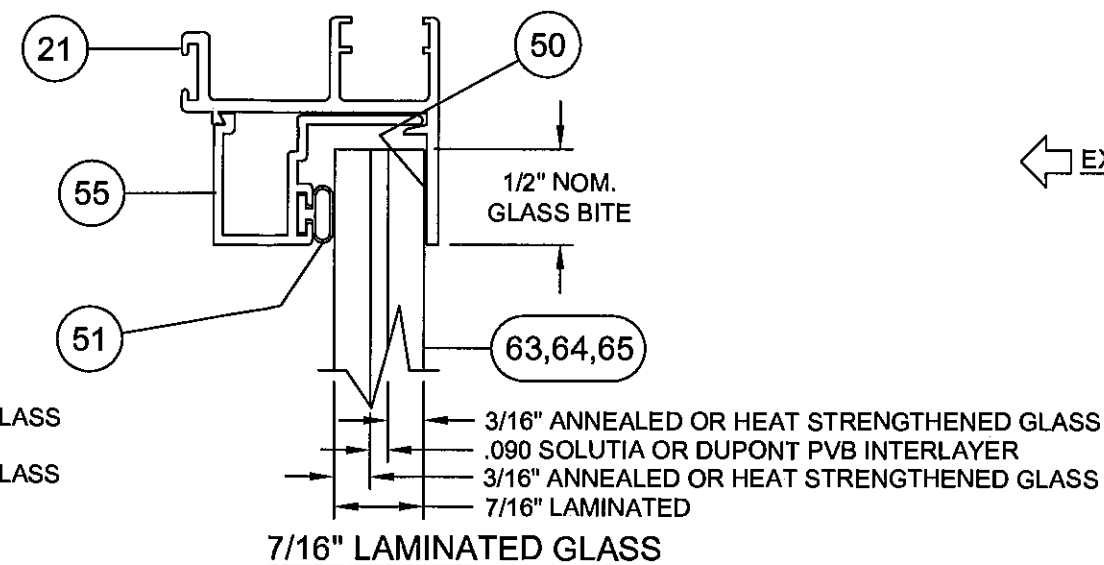
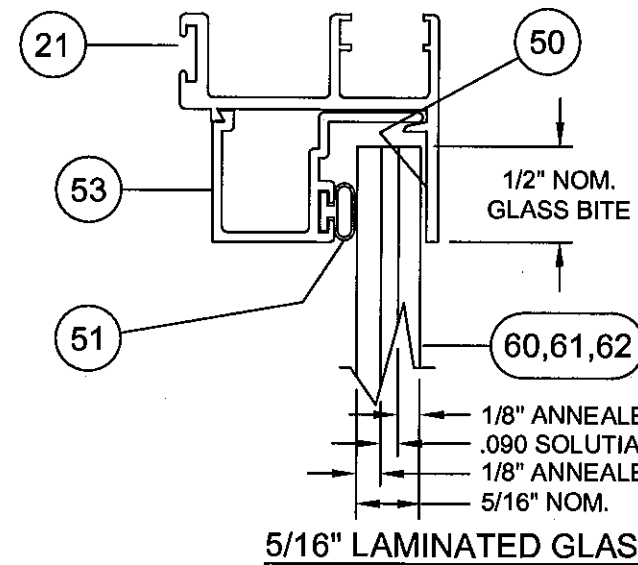


Revised By:	Date:	Revisions:	
J.J.	10/17/11	E	FBC 2010 CODE CHANGE
Revised By:	Date:	Revisions:	
J.R.	6/20/11	D	ADDED IG CAP TO BE TEMPERED @ +30FT NOTE.
Revised By:	Date:	Revisions:	
F.K.	4/15/07	C	ADD FTL-5330 TO NOTES 7 & CHG. NOTE 8 TO CURRENT EDIT.
Drawn By:	Date:	Checked By:	Date:
F.K.	2/28/06	J.J.	3/23/06

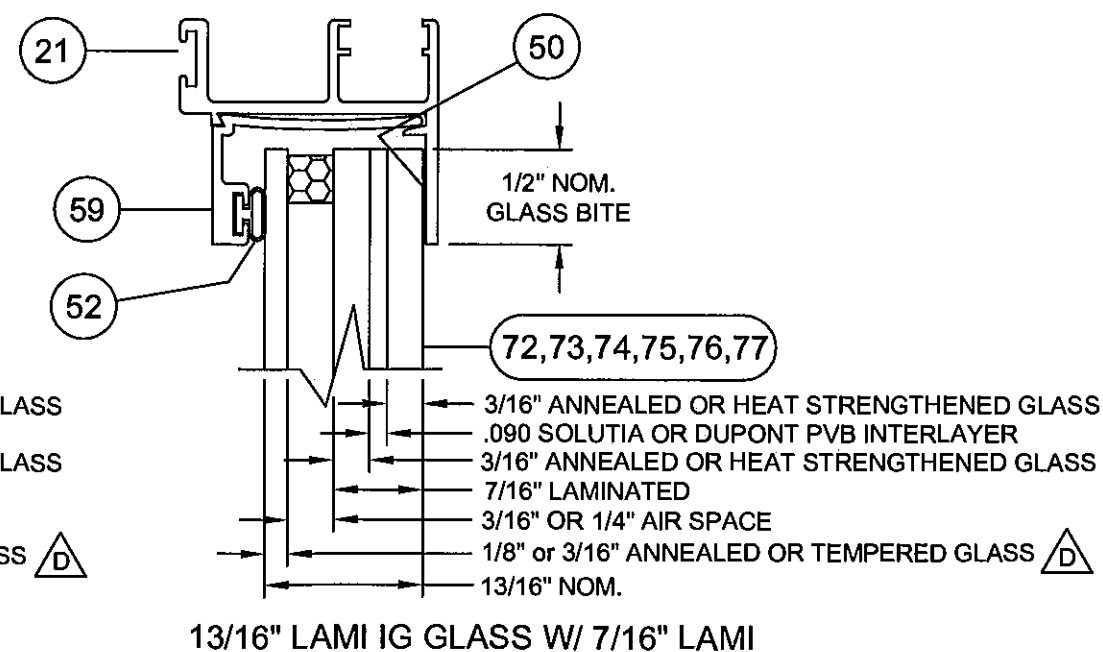
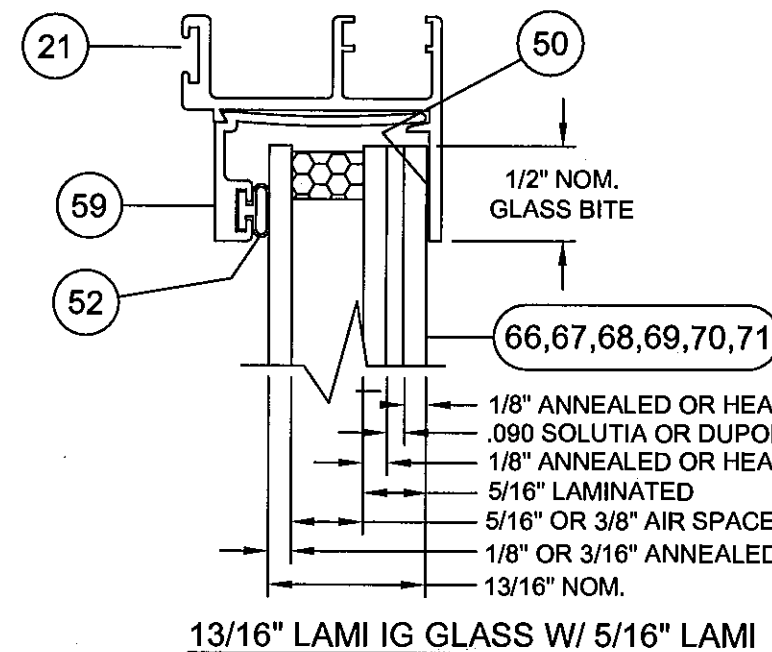
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description:	GENERAL NOTES			
Title:	ALUM. HORIZONTAL ROLLER WINDOW, IMPACT			
Series/Model:	Scale:	Sheet:	Drawing No.	Rev:
HR710	NTS	1 of 11	4127-10	E



← EXTERIOR INTERIOR →
(ALL SECTIONS)



△ FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY TO REMAIN UNCHANGED.

Revised By: J.J.	Date: 10/17/11	Revisions: E	NO CHANGE THIS SHEET
Revised By: J.R.	Date: 6/20/11	Revisions: D	ADDED IG CAP TO BE TEMPERED @ +30FT NOTE.
Revised By: F.K.	Date: 4/15/07	Revisions: C	NO CHANGE THIS SHEET
Drawn By: F.K.	Date: 2/28/06	Checked By: J.J.	Date: 3/23/06

1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

PGT
Visibly Better

Description: GLAZING DETAILS				
Title: ALUM. HORIZONTAL ROLLER WINDOW, IMPACT				
Series/Model: HR710	Scale: Full	Sheet: 2 of 11	Drawing No. 4127-10	Rev: E

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114004
Expiration Date 12/21/2016
By *[Signature]*
Miami Dade Product Control

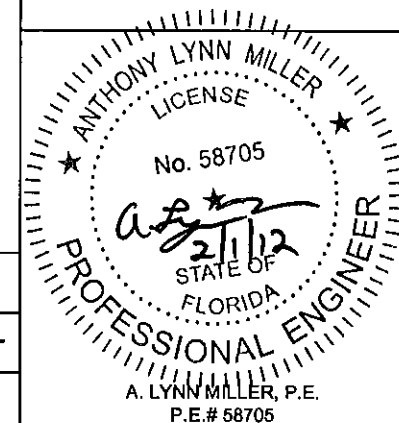


TABLE 1. XOX (1/4,1/2,1/4) FLANGE OR INTEGRAL FIN WINDOWS (FLANGED SHOWN. FIN WINDOWS W/ SAME DLO ARE 1" SMALLER)																	
WINDOW WIDTH	GLASS TYPE	WINDOW HEIGHT															
		26"		36"		38 3/8"		48"		50 5/8"		54"		60"		63"	
84"	A,B,G,H	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0
96"	A,B,G,H	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+58.8	-58.8	+56.2	-56.2
106 3/8"	A,B,G,H	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+55.2	-55.2	+52.3	-52.3
108"	A,B,G,H	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+54.6	-54.6	+51.7	-51.7
111"	A,B,G,H	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+60.0	-60.0	+59.5	-59.5	+53.6	-53.6	+50.9	-50.9
UP TO 111"	C,I															+60.0	-60.0
UP TO 111"	D,E,F, J,K,L															+75.0	-75.0



 FOR INSTALLATION IN
 THE HVHZ ABOVE 30
 FT, GLASS TYPES G -
 L SHALL HAVE A
 TEMPERED I.G. GLASS
 CAP. BOTH THE DP
 AND ANCHOR
 QUANTITY REMAIN
 UNCHANGED.

TABLE 2. XOX (1/3,1/3,1/3) FLANGE OR INTEGRAL FIN WINDOWS (FLANGED SHOWN. FIN WINDOWS W/ SAME DLO ARE 1" SMALLER)																	
WINDOW WIDTH	GLASS TYPE	WINDOW HEIGHT															
		ALL HEIGHTS UP TO														63"	
TO 86 7/16"	A,B,C, G,H,I															+60.0	-60.0
TO 86 7/16"	D,E,F, J,K,L															+75.0	-75.0

TABLE 3. OX AND XO FLANGE OR INTEGRAL FIN WINDOWS (FLANGED SHOWN. FIN WINDOWS W/ SAME DLO ARE 1" SMALLER)																	
WINDOW WIDTH	GLASS TYPE	WINDOW HEIGHT															
		26"		36"		38 3/8"		48"		50 5/8"		54"		60"		63"	
60"	A,B,G,H	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0
66"	A,B,G,H	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+74.2	-74.2	+70.2	-70.2
72"	A,B,G,H	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+69.6	-69.6	+65.2	-65.2
74"	A,B,G,H	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+75.0	-75.0	+68.1	-68.1	+63.8	-63.8
UP TO 74"	C,D,E,F, I,J,K, L															+75.0	-75.0

PRODUCT REVISED
 as complying with the Florida
 Building Code
 Acceptance No. 11-1114-04
 Expiration Date 12/21/2016
 By [Signature]
 Miami Dade Product Control

GLASS TYPES: TEST REPORT FTL-4858 (XOX), FTL-4859 (OX & XO) AND FTL-5330

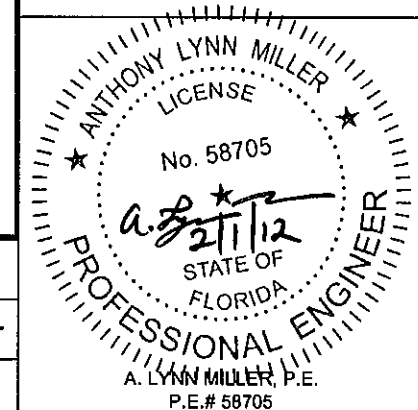
A. 5/16" LAMI - (1/8" A, .090, 1/8" A)	G. 13/16" LAMI IG-1/8" OR 3/16"A (MIN.), 5/16" OR 3/8" AIR SPACE, 5/16" LAMI - (1/8"A, .090, 1/8"A)
B. 5/16" LAMI - (1/8" A, .090, 1/8" HS)	H. 13/16" LAMI IG-1/8" OR 3/16"A (MIN.), 5/16" OR 3/8" AIR SPACE, 5/16" LAMI - (1/8"A, .090, 1/8"HS)
C. 5/16" LAMI - (1/8" HS, .090, 1/8" HS)	I. 13/16" LAMI IG-1/8" OR 3/16"A (MIN.), 5/16" OR 3/8" AIR SPACE, 5/16" LAMI - (1/8"HS, .090, 1/8"HS)
D. 7/16" LAMI - (3/16" A, .090, 3/16" A)	J. 13/16" LAMI IG-1/8" OR 3/16"A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16"A, .090, 3/16"A)
E. 7/16" LAMI - (3/16" A, .090, 3/16" HS)	K. 13/16" LAMI IG-1/8" OR 3/16"A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16"A, .090, 3/16"HS)
F. 7/16" LAMI - (3/16" HS, .090, 3/16" HS)	L. 13/16" LAMI IG-1/8" OR 3/16"A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16"HS, .090, 3/16"HS)

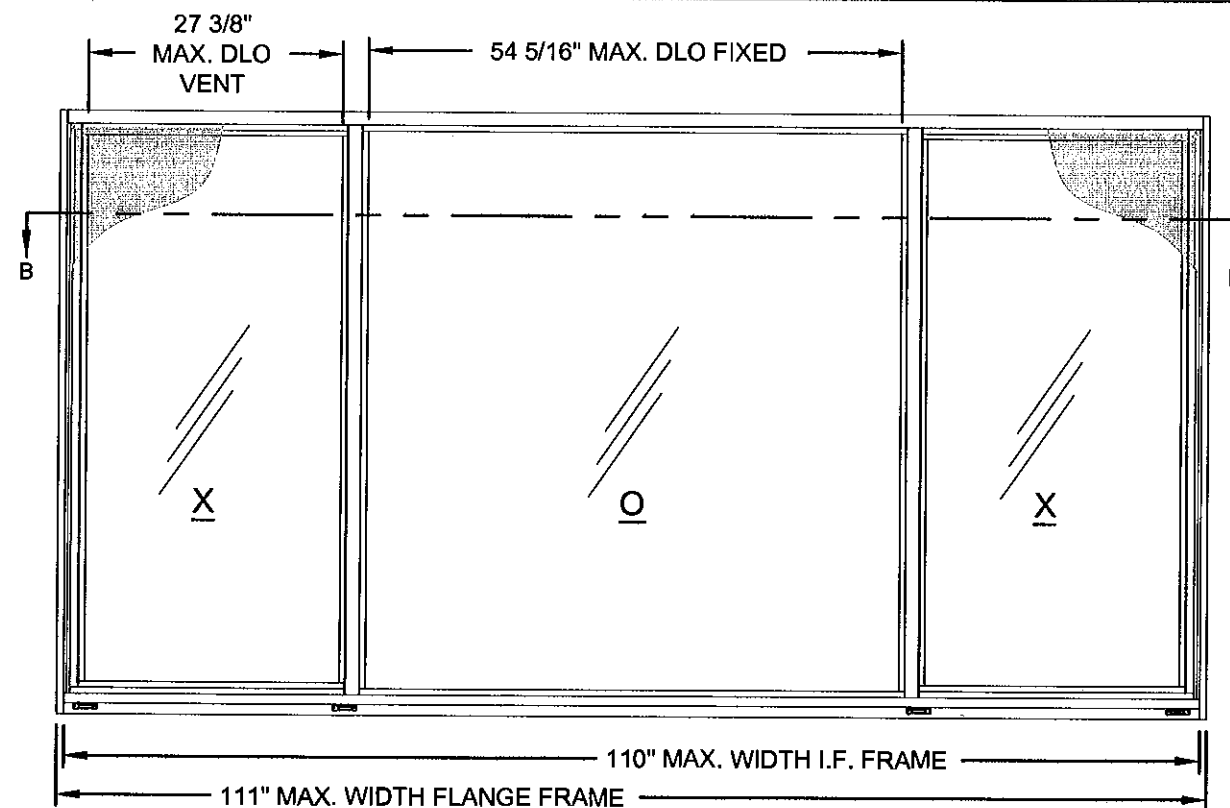
Revised By: J.J.	Date: 10/17/11	Revisions: E	NO CHANGE THIS SHEET
Revised By: J.R.	Date: 8/20/11	Revisions: D	ADDED IG CAP TO BE TEMPERED @ +30FT NOTE.
Revised By: F.K.	Date: 4/15/07	Revisions: C	ADD INTEGRAL FIN OPTION & UPDATE ASTM E 1300-02 DPs
Drawn By: F.K.	Date: 2/28/06	Checked By: J.J.	Date: 3/23/06

1070 TECHNOLOGY DRIVE
 NOKOMIS, FL 34275
 P.O. BOX 1529
 NOKOMIS, FL 34274

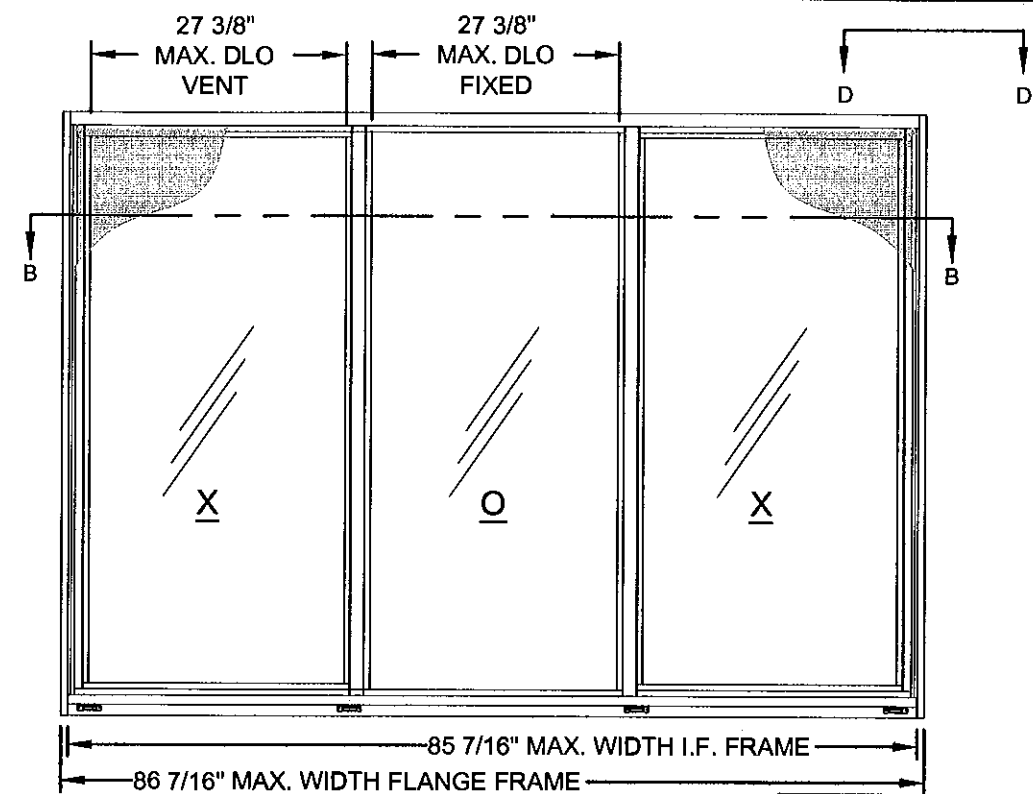


Description: DESIGN PRESSURES							
Title: ALUM. HORIZONTAL ROLLER WINDOW, IMPACT							
Series/Model: HR710	Scale: NTS	Sheet: 3 of 11	Drawing No. 4127-10	Rev: E			

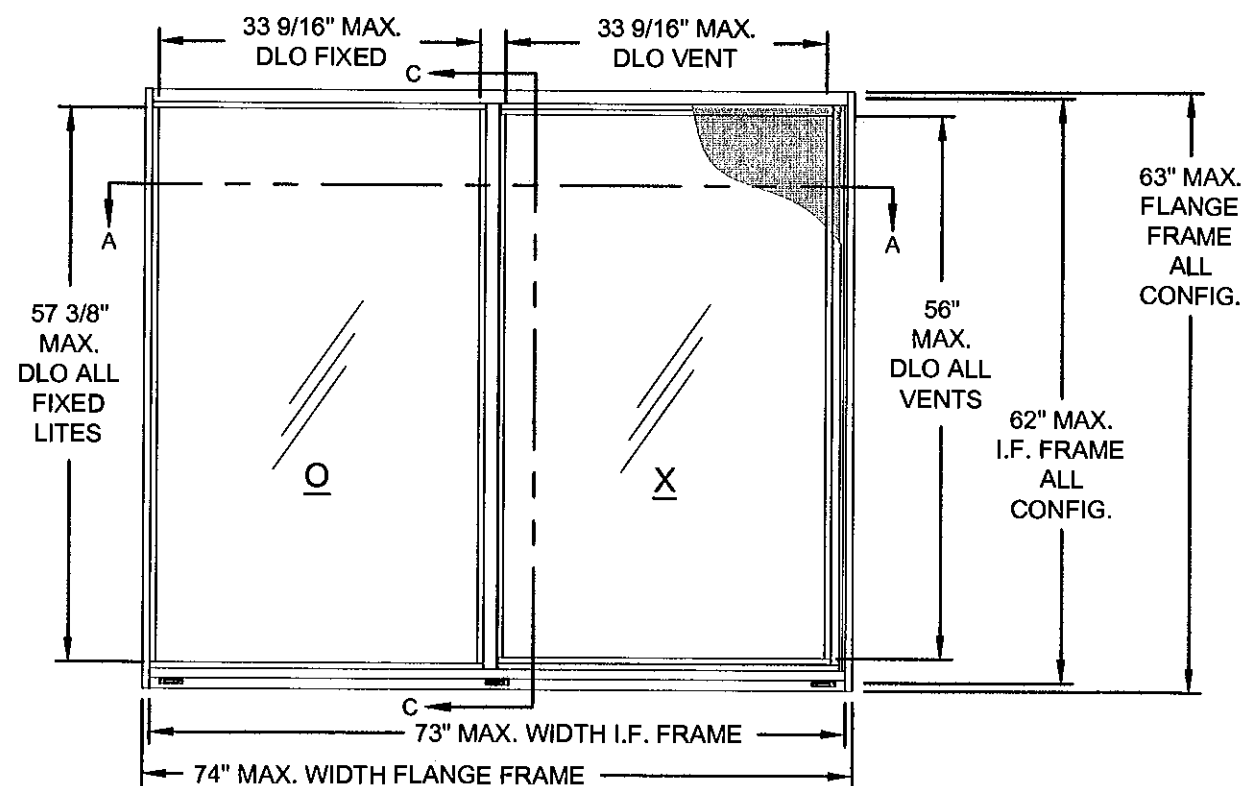




DETAIL B - XOX (1/4-1/2-1/4)



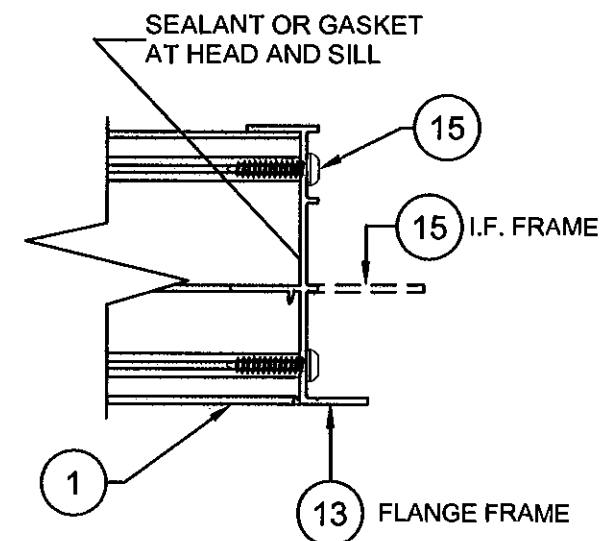
DETAIL C - XOX (1/3-1/3-1/3)



DETAIL A - OX OR XO

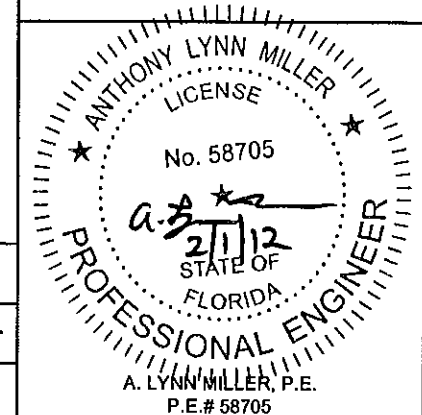
NOTE:

1. SEE SHEET 5 FOR VERTICAL AND HORIZONTAL SECTION DETAILS.



VIEW D-D
(FRAME CORNER CONSTRUCTION)

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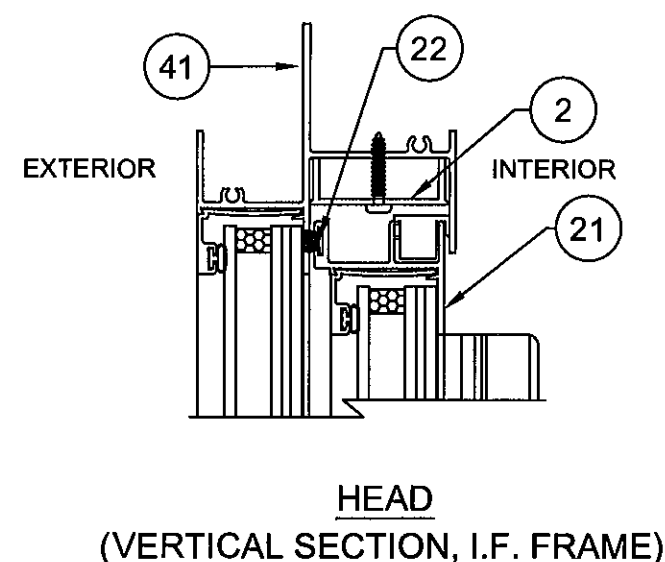
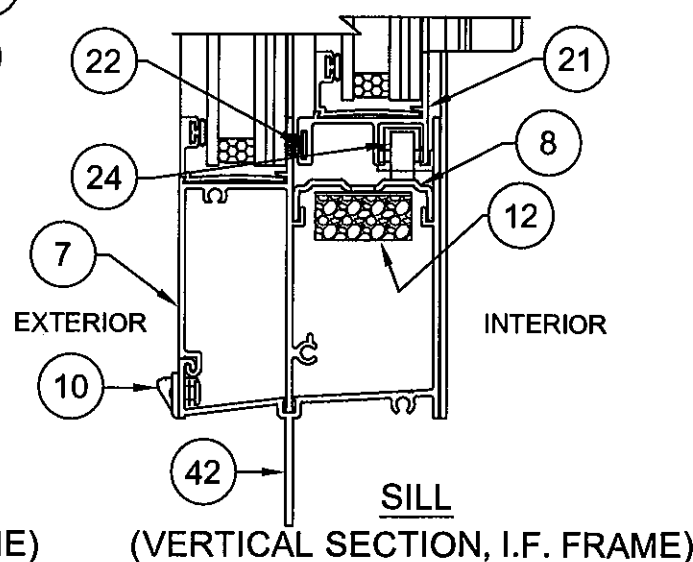
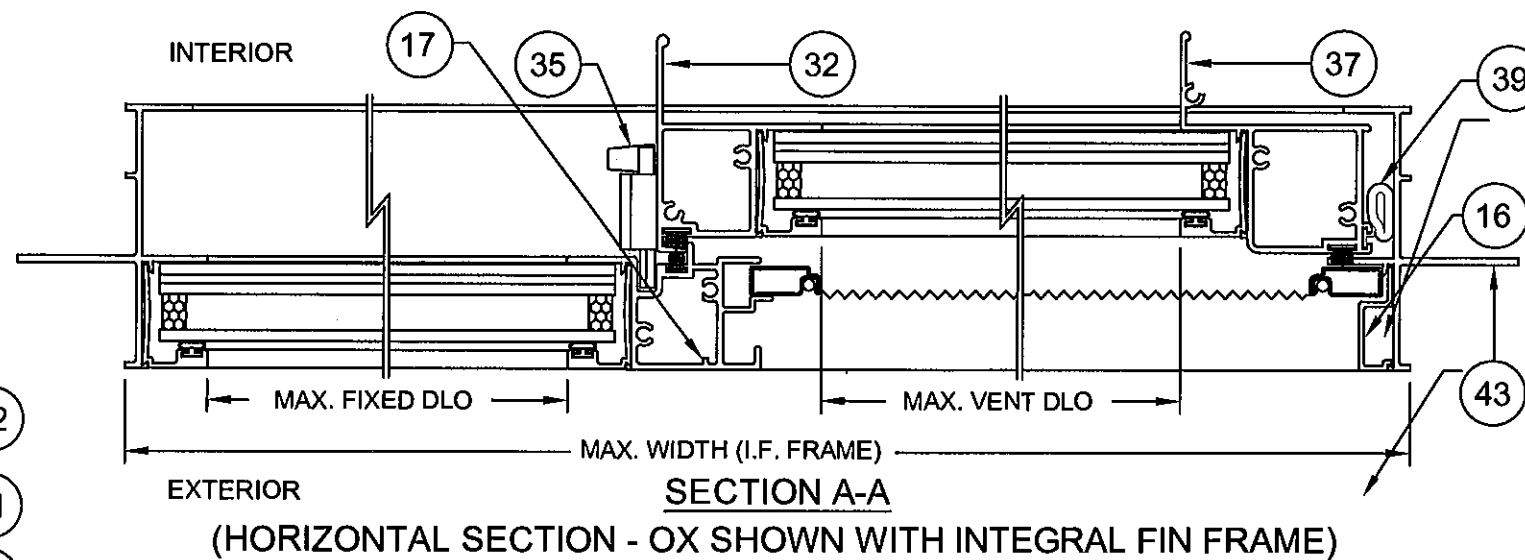
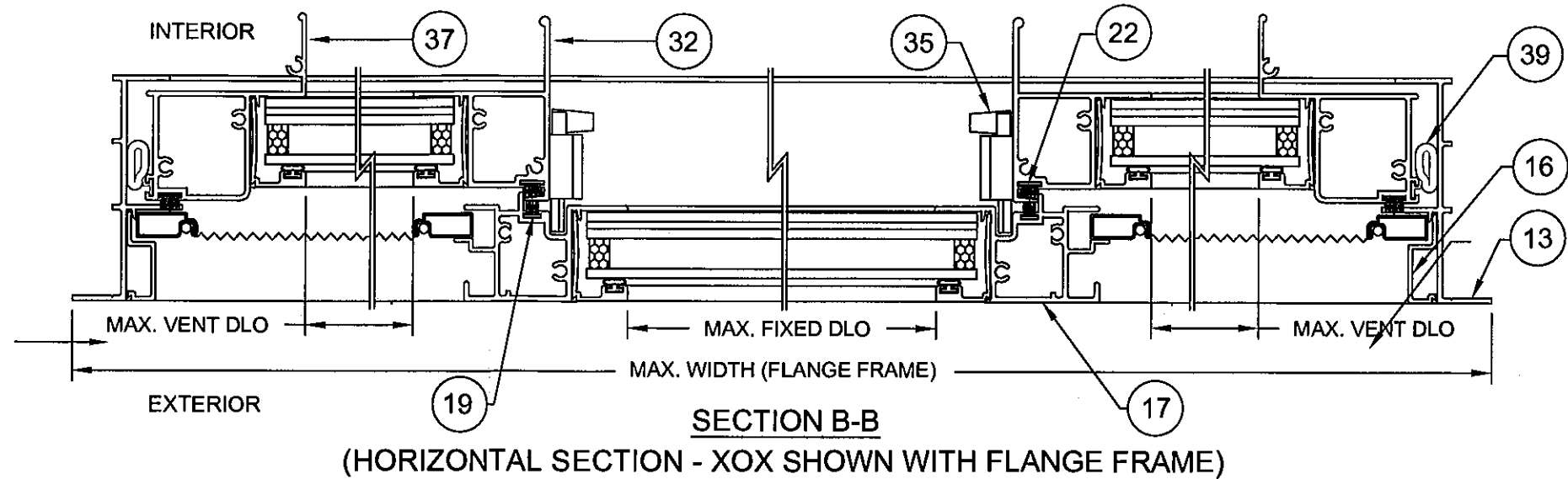
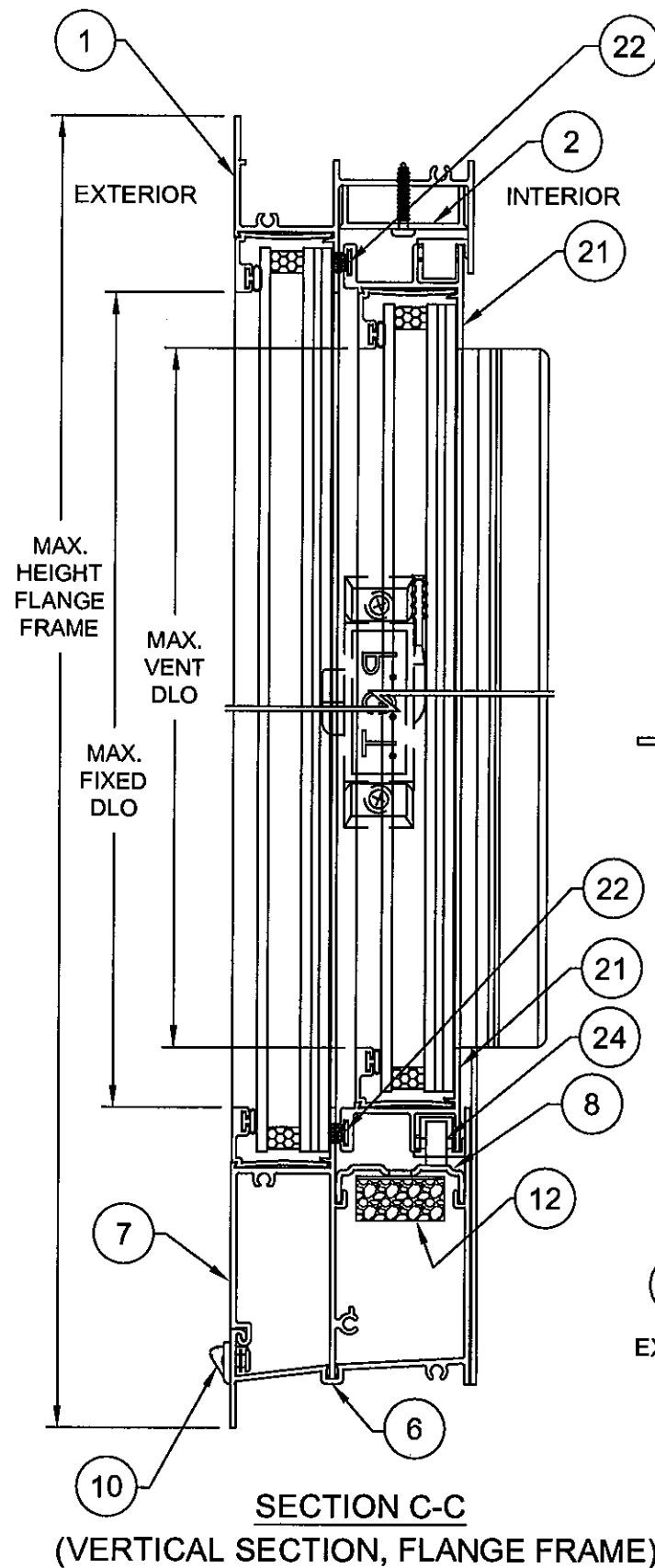


Revised By: J.J.	Date: 10/17/11	Revisions: E	NO CHANGE THIS SHEET
Revised By: J.R.	Date: 6/20/11	Revisions: D	NO CHANGE THIS SHEET
Revised By: F.K.	Date: 4/15/07	Revisions: C	ADD INTEGRAL FIN FRAME MAX. DIMENSIONS AND CORNER CONSTRUCTION DETAIL FROM SHT. 6.
Drawn By: F.K.	Date: 2/28/06	Checked By: J.J.	Date: 3/23/06

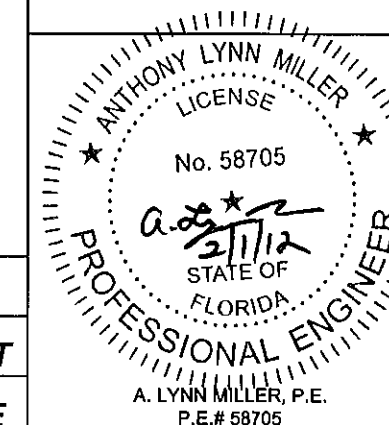
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: ELEVATIONS			
Title: ALUM. HORIZONTAL ROLLER WINDOW, IMPACT			
Series/Model: HR710	Scale: NTS	Sheet: 4 of 11	Drawing No. 4127-10
Rev: E			



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Revised By: J.J.	Date: 10/17/11	Revisions: E	NO CHANGE THIS SHEET
Revised By: J.R.	Date: 6/20/11	Revisions: D	NO CHANGE THIS SHEET
Revised By: F.K.	Date: 4/15/07	Revisions: C	ADD INTEGRAL FIN FRAME, ITEMS 41, 42 AND 43 AND VIEWS.
Drawn By: F.K.	Date: 2/28/06	Checked By: J.J.	Date: 3/23/06

1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: SECTIONS	Series/Model: HR710	Scale: Half	Sheet: 5 of 11	Drawing No. 4127-10	Rev: E
Title: ALUM. HORIZONTAL ROLLER WINDOW, IMPACT					

ITEM	DWG#	REV	DESCRIPTION	MAT'L	PGT#
1	4102	A	FLANGE FRAME HEAD	6063-T6 AL	612237
2	4025		SASH STOP (STD.) (ANTI LIFT CLIP)	6063-T5 AL	612244
3			#8 X 3/4 PH. PAN HEAD		7834AA
4	4053		SASH STOP COVER (SASH STOP)	6063-T5 AL	
6	4136		FLANGE FRAME SILL	6063-T6 AL	64136
7	4137		SILL ADAPTOR	6063-T6 AL	64137
8	4131		ROLLER TRACK	6063-T6 AL	64131
10	71298		WEEP HOLE COVER	POLYPROP.	71298
12	1626		ADHESIVE OPEN CELL FOAM PAD		7PAD1626
13	4002	A	FLANGE FRAME JAMB	6063-T6 AL	612225
14	4134		GASKET FOR MAIN FRAME SILL JOINT		74134W/K
15	1155		#8 X 1.000 QUAD PN. SMS		781PQA
16	4110	G	SCREEN ADAPTOR	6063-T5 AL	64110G
17	4054	B	FIXED MEETING RAIL	6063HD-T6 AL	64054A
19	4066		WSTP.,.187 X .230, FIN SEAL		64066G
21	4105		SASH TOP & BOTTOM RAIL	6063-T5 AL	612240
22	1683		WSTP.,.250 X .270 BACK, FIN SEAL		61683G
23	225-1		ROLLER HOUSING & GUIDE		42112HD
24	226		BRASS ROLLER WHEELS	BRASS	7BRWHL2
29	4128		HORIZONTAL ROLLER SASH TOP GUIDE	POLYPROP.	44128N
32	4006	D	SASH MEETING RAIL	6063HS-T6 AL	64006
33	1235		WSTP.,.170 X .270 BACK, FIN SEAL		67S16G
35	1096		SWEEP LATCH	DIE-CAST	71096
36	1016		#8 X .625 PH. FL. SMS		7858
37	4126		SASH SIDE RAIL	6063-T5 AL	64126
38	1683		WSTP.,.250 X .270 BACK, FIN SEAL		61683G
39	7070		BULB WEA THERSTRIP .187 X .275		67070K
40			LIFT RAIL COVER CAP		74078"C" L OR R
41	4139		I.F. FRAME HEAD	6063-T6 AL	64139
42	4140		I.F. FRAME SILL	6063-T6 AL	64140
43	4141		I.F. FRAME JAMB	6063-T6 AL	64141
50			GLAZING SILICONE, DOW 899, 995 OR EQUIVALENT		
51	1224		VINYL GLAZING BEAD BULB (THICK)		6TP247W,K
52	1225		VINYL GLAZING BEAD BULB (THIN)		6TP248K
53	4039	B	GLAZING BEAD - 5/16"	6063-T5 AL	64039B
54	4044	B	GLAZING BEAD - 5/16" W/GRILL KIT	6063-T5 AL	644703
55	4222	A	GLAZING BEAD - 7/16"	6063-T5 AL	64222
56	985	C	GLAZING BEAD - 7/16" W/GRILL KIT	6063-T5 AL	6985
59	4067		GLAZING BEAD - 13/16"	6063-T5 AL	64067
60	GLASS,		5/16" LAMI (1/8" A, .090 PVB, 1/8" A)		
61	"		5/16" LAMI (1/8" A, .090 PVB, 1/8" HS)		
62	"		5/16" LAMI (1/8" HS, .090 PVB, 1/8" HS)		
63	"		7/16" LAMI (3/16" A, .090 PVB, 3/16" A)		
64	"		7/16" LAMI (3/16" A, .090 PVB, 3/16" HS)		
65	"		7/16" LAMI (3/16" HS, .090 PVB, 3/16" HS)		

Revised By:	Date:	Revisions:	
J.J.	10/17/11	E	NO CHANGE THIS SHEET
Revised By:	Date:	Revisions:	
J.R.	6/20/11	D	ADDED "(MIN.)" TO GLASS TYPES
Revised By:	Date:	Revisions:	
F.K.	4/15/07	C	ADD ITEMS 41, 42 & 43
Drawn By:	Date:	Checked By:	Date:
F.K.	2/28/06	J.J.	3/23/06

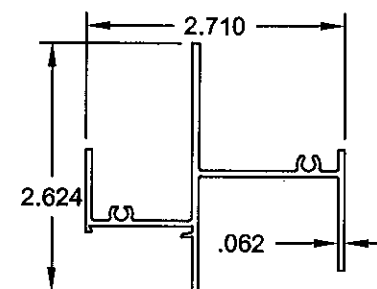
1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275

P.O. BOX 1529
NOKOMIS, FL 34274

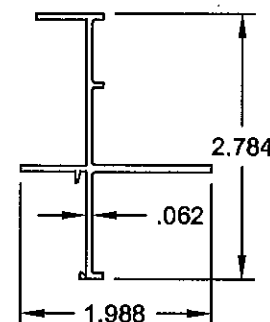
PGI
Visibly Better

Description: PARTS LIST			
Title: ALUM. HORIZONTAL ROLLER WINDOW, IMPACT			
Series/Model:	Scale:	Sheet:	Drawing No.
HR710	NTS	6 of 11	4127-10
Rev:			E

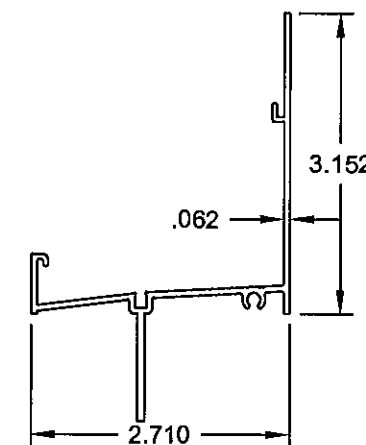
ITEM	DWG#	REV	DESCRIPTION	MAT'L	PGT#
66	GLASS,		13/16" LAMI IG-1/8" A (MIN.), 3/8" AIR SPACE, 5/16" LAMI (1/8" A, .090 PVB, 1/8" A)		
67	"		13/16" LAMI IG-1/8" A (MIN.), 3/8" AIR SPACE, 5/16" LAMI (1/8" A, .090 PVB, 1/8" HS)		
68	"		13/16" LAMI IG-1/8" A (MIN.), 3/8" AIR SPACE, 5/16" LAMI (1/8" HS, .090 PVB, 1/8" HS)		
69	"		13/16" LAMI IG-3/16" A (MIN.), 5/16" AIR SPACE, 5/16" LAMI (1/8" A, .090 PVB, 1/8" A)		
70	"		13/16" LAMI IG-3/16" A (MIN.), 5/16" AIR SPACE, 5/16" LAMI (1/8" A, .090 PVB, 1/8" HS)		
71	"		13/16" LAMI IG-3/16" A (MIN.), 5/16" AIR SPACE, 5/16" LAMI (1/8" HS, .090 PVB, 1/8" HS)		
72	"		13/16" LAMI IG-1/8" A (MIN.), 1/4" AIR SPACE, 7/16" LAMI (3/16" A, .090 PVB, 3/16" A)		
73	"		13/16" LAMI IG-1/8" A (MIN.), 1/4" AIR SPACE, 7/16" LAMI (3/16" A, .090 PVB, 3/16" HS)		
74	"		13/16" LAMI IG-1/8" A (MIN.), 1/4" AIR SPACE, 7/16" LAMI (3/16" HS, .090 PVB, 3/16" HS)		
75	"		13/16" LAMI IG-3/16" A (MIN.), 3/16" AIR SPACE, 7/16" LAMI (3/16" A, .090 PVB, 3/16" A)		
76	"		13/16" LAMI IG-3/16" A (MIN.), 3/16" AIR SPACE, 7/16" LAMI (3/16" A, .090 PVB, 3/16" HS)		
77	"		13/16" LAMI IG-3/16" A (MIN.), 3/16" AIR SPACE, 7/16" LAMI (3/16" HS, .090 PVB, 3/16" HS)		
90	1014		SCREEN FRAME (HOR. & VER.)	3105-H14 AL	
91	1630		SCREEN CORNER KEY W/RINGS	POLYPROP.	
92	1631		SCREEN CORNER KEY W/OUT RINGS	POLYPROP.	
93	1073		SCREEN SPRING	ST.ST.	
94	1624		SCREEN SPLINE - .135 DIA. FOAM	EM PVC	
95	1635		SCREEN SPLINE - .135 DIA. HARD	EM PVC	
96			SCREEN	CLOTH	



41 I.F. FRAME HEAD
#4139, 6063-T6

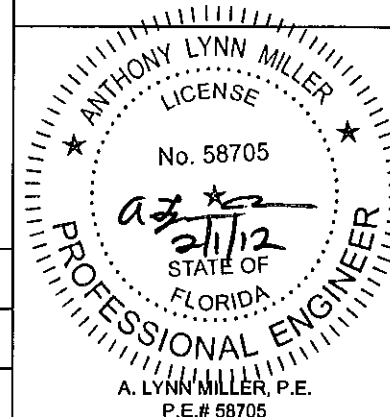


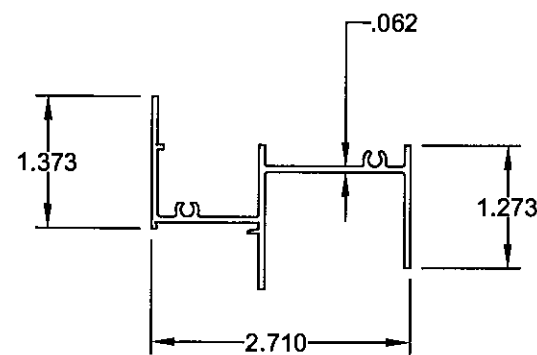
43 I.F. FRAME JAMB
#4141, 6063-T6



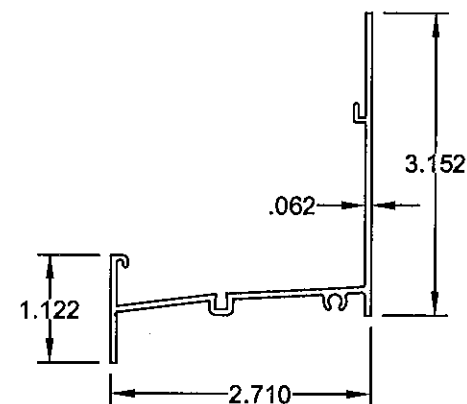
42 I.F. FRAME SILL
#4140, 6063-T6

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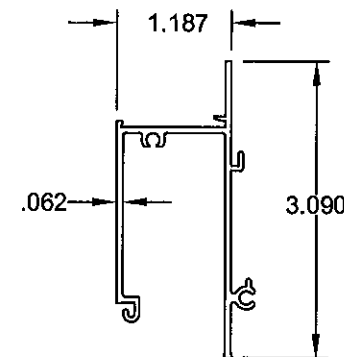




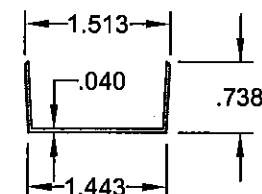
1 FLANGE FRAME HEAD
#4102A, 6063-T6



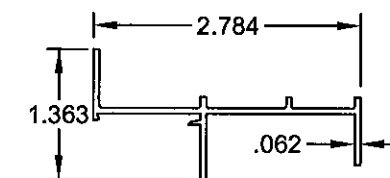
6 FLANGE FRAME SILL
#4136, 6063-T6



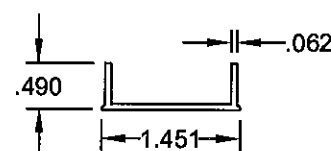
7 FRAME SILL ADAPTER
#4137, 6063-T6



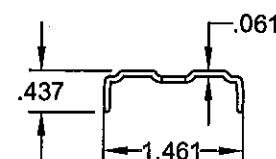
4 SASH STOP COVER
#4053, 6063-T5



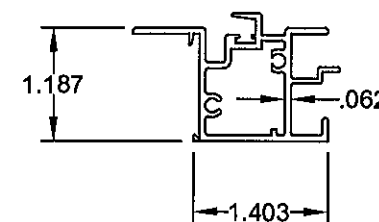
13 FLANGE FRAME JAMB
#4002A, 6063-T6



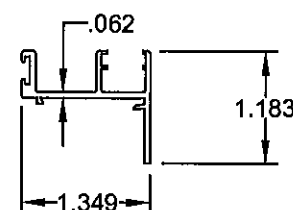
2 SASH STOP
#4025, 6063-T5



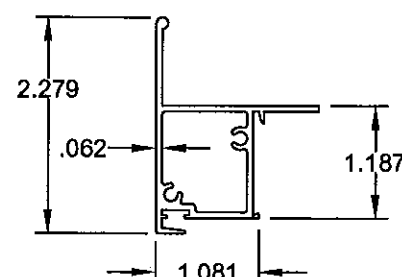
8 HORIZ. ROLLER TRACK
#4131, 6063-T6



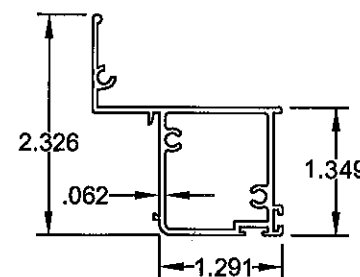
17 FIXED MEETING RAIL
#4054B, 6063HD-T6



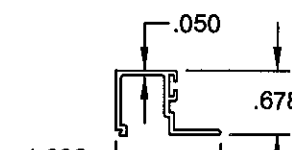
21 SASH TOP & BOTTOM RAIL
#4133, 6063-T5



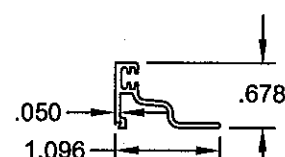
32 SASH MTG. RAIL
#4006D, 6063HS-T6



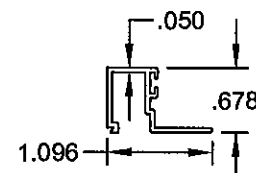
37 SASH SIDE RAIL
#4126, 6063-T5



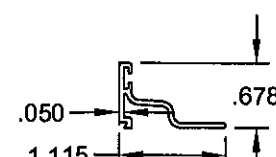
53 GLAZING BEAD, 5/16"
#4039B, 6063-T5



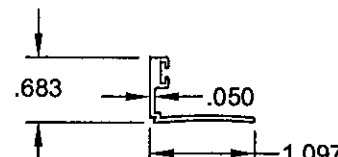
54 GLAZING BEAD, 5/16"
#4044B, 6063-T5
(USED W/ GRILL KIT)



55 GLAZING BEAD 7/16"
#4222A, 6063-T5

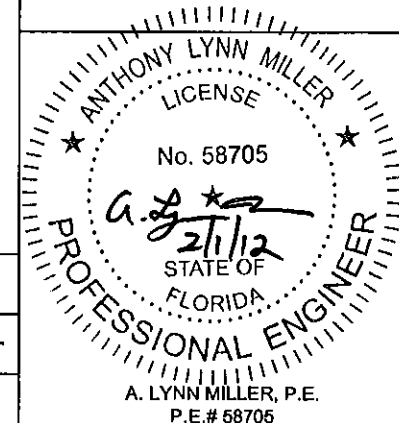


56 GLAZING BEAD, 7/16"
#985C, 6063-T5
(USED W/ GRILL KIT)



59 GLAZING BEAD, 13/16"
#4067, 6063-T5

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Building Code
Acceptance No. 11-1114-04
Expiration Date 12/21/2016
By *[Signature]*
Miami Dade Product Control



Revised By: J.J.	Date: 10/17/11	Revisions: E	NO CHANGE THIS SHEET
Revised By: J.R.	Date: 6/20/11	Revisions: D	NO CHANGE THIS SHEET
Revised By: F.K.	Date: 4/15/07	Revisions: C	NO CHANGE THIS SHEET
Drawn By: F.K.	Date: 2/28/06	Checked By: J.J.	Date: 3/23/06

1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1528
NOKOMIS, FL 34274



Description: EXTRUSIONS	Series/Model: HR710	Scale: Half	Sheet: 7 of 11	Drawing No. 4127-10	Rev: E
Title: ALUM. HORIZONTAL ROLLER WINDOW, IMPACT					

ANCHOR QUANTITIES, XO (1/4-1/2-1/4) WINDOWS

TABLE 4

ANCHOR TYPE & SUBSTRATE	GLASS TYPES A,B,C,G,H,I						GLASS TYPES D,E,F,J,K,L					
	2,3, WOOD		2, CONC		1, CONC		2,3, WOOD		2, CONC		1, CONC	
	ZONES		ZONES		ZONES		ZONES		ZONES		ZONES	
WINDOW SIZE W V H	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS
53.125 x 38.375	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
50.625	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
63.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
60.000 x 38.375	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+2+C2+1	2
48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+2+C2+1	3
50.625	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+2+C2+1	3
54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+2+C2+1	3
60.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+2+C3+1	3
63.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+2+C3+1	3
74.000 x 38.375	1+C2+2+C2+1	2	1+C2+1+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2
48.000	1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
50.625	1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3
54.000	1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C3+2+C3+1	3
60.000	1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C3+2+C3+1	3
63.000	1+C2+2+C2+1	3	1+C2+1+C2+1	3	1+C3+2+C3+1	3	1+C3+2+C3+1	3	1+C2+2+C2+1	3	1+C3+2+C3+1	3
84.000 x 38.375	1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+3+C2+1	2
48.000	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C3+3+C3+1	3
50.625	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C3+3+C3+1	3
54.000	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C4+3+C4+1	3
60.000	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C3+2+C3+1	3	1+C3+2+C3+1	3	1+C2+2+C2+1	3	1+C4+3+C4+1	3
63.000	1+C2+2+C2+1	3	1+C2+2+C2+1	3	1+C3+2+C3+1	3	1+C3+2+C3+1	3	1+C2+2+C2+1	3	1+C4+3+C4+1	3
106.375 x 38.375	1+C2+2+C2+1	2	1+C2+2+C2+1	2	1+C2+3+C2+1	2	1+C2+3+C2+1	2	1+C2+3+C2+1	2	1+C2+4+C2+1	2
48.000	1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C2+3+C2+1	3	1+C3+4+C3+1	3
50.625	1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C3+4+C3+1	3
54.000	1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C4+4+C4+1	3
60.000	1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C4+3+C4+1	3	1+C4+3+C4+1	4	1+C3+3+C3+1	3	1+C4+4+C4+1	3
63.000	1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C4+3+C4+1	3	1+C4+3+C4+1	4	1+C4+3+C4+1	3	1+C5+4+C5+1	3
111.000 x 38.375	1+C2+3+C2+1	2	1+C2+2+C2+1	2	1+C2+3+C2+1	2	1+C2+3+C2+1	3	1+C2+3+C2+1	2	1+C2+4+C2+1	2
48.000	1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C2+3+C2+1	3	1+C3+4+C3+1	3
50.625	1+C2+3+C2+1	3	1+C2+2+C2+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C3+4+C3+1	3
54.000	1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C3+3+C3+1	3	1+C4+4+C4+1	3
60.000	1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C4+3+C4+1	3	1+C4+3+C4+1	4	1+C3+3+C3+1	3	1+C4+4+C4+1	3
63.000	1+C3+3+C3+1	3	1+C2+2+C2+1	3	1+C4+3+C4+1	3	1+C4+3+C4+1	4	1+C4+3+C4+1	3	1+C5+4+C5+1	4

NOTES:

1. ANCHOR TYPES:

1 - 1/4" ELCO TAPCONS 2 - 1/4" ELCO SS4 CRETE-FLEX 3 - #12 STEEL SCREWS (G5)

2. GLASS TYPES:

- A. 5/16" LAMI - (1/8" A,.090, 1/8" A)
B. 5/16" LAMI - (1/8" A,.090, 1/8" HS)
C. 5/16" LAMI - (1/8" HS,.090, 1/8" HS)
D. 7/16" LAMI - (3/16" A,.090, 3/16" A)
E. 7/16" LAMI - (3/16" A,.090, 3/16" HS)
F. 7/16" LAMI - (3/16" HS,.090, 3/16" HS)
G. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" A,.090, 1/8" A)
H. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" HS,.090, 1/8" HS)
I. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" HS,.090, 1/8" HS)
J. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" A,.090, 3/16" A)
K. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" A,.090, 3/16" HS)
L. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" HS,.090, 3/16" HS)

FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

3. WINDOW ANCHOR QUANTITIES ARE PER ADJACENT TABLE AND BASED ON THE FOLLOWING DIMENSIONS. FOR WINDOW SIZES NOT SHOWN, GO TO NEXT LARGER WINDOW IN TABLE.

HEAD & SILL: 10 1/2" MAX. ON EACH SIDE OF MEETING RAIL CENTERLINE.

25 3/4" MAX. FROM CORNERS.

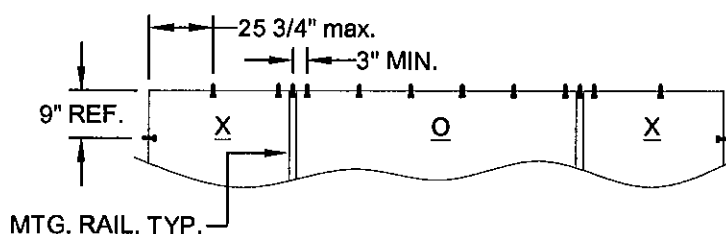
JAMBS: 9" MAX. FROM CORNERS AND 22 1/2" MAX. O.C.

TABLE KEY:

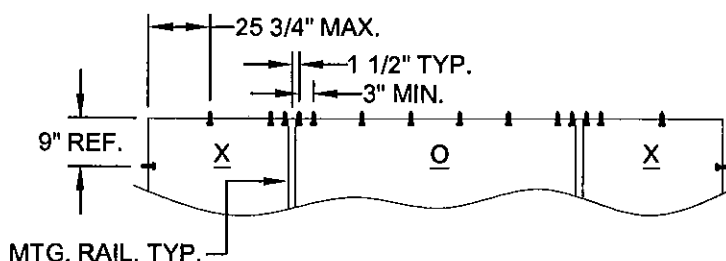
X O X
1+C3+4+C3+1 3 ← ANCHOR QUANTITY PER JAMB

HEAD AND SILL ANCHOR QUANTITY.
A CLUSTER OF (3) ANCHORS CENTERED AT EACH MEETING RAIL PLUS (1) ANCHOR AT EACH OPERABLE VENT PLUS (4) ANCHORS AT FIXED SECTION. (12) ANCHORS TOTAL AT HEAD AND SILL.

(3" MIN. O.C. ANCHOR SPACING)

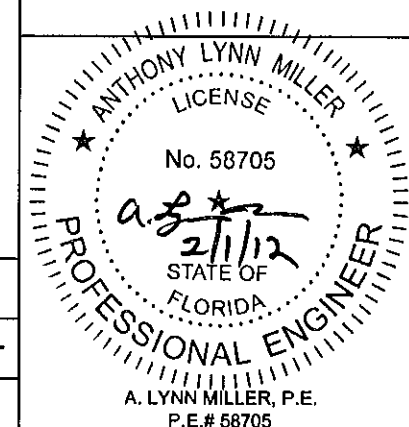


EXAMPLE CLUSTER W/ QTY. OF (3) ANCHORS
(SHOWN IN TABLE KEY ABOVE)



EXAMPLE CLUSTER W/ QTY. OF (4) ANCHORS

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114-04
Expiration Date 12/21/2016
By: [Signature]
Miami Dade Product Control



Revised By: J.J.	Date: 10/17/11	Revisions: E	NO CHANGE THIS SHEET
Revised By: J.R.	Date: 6/20/11	Revisions: D	ADDED IG CAP TO BE TEMPERED @ +30FT NOTE.
Revised By: F.K.	Date: 4/15/07	Revisions: C	UPDATE TABLE 4, SELECT VALUES DUE TO ANCHOR CAP. ADJ.
Drawn By: F.K.	Date: 2/28/06	Checked By: J.J.	Date: 3/23/06

1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274

PGI
Visibly Better

Description:	ANCHORAGE SPACING, XO (1/4-1/2-1/4)					
Title:	ALUM. HORIZONTAL ROLLER WINDOW, IMPACT					
Series/Model:	HR710	Scale:	NTS	Sheet:	8 of 11	Drawing No.
					4127-10	Rev:
						E

ANCHOR QUANTITIES, XO (1/3-1/3-1/3) WINDOWS

TABLE 5

ANCHOR TYPE & SUBSTRATE	GLASS TYPES A,B,G,H						GLASS TYPES C,D,E,F,I,J,K, L					
	2,3, WOOD		2, CONC		1, CONC		2,3, WOOD		2, CONC		1, CONC	
	ZONES		ZONES		ZONES		ZONES		ZONES		ZONES	
WINDOW SIZE W V H	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS
48.000 x 38.375	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
50.625	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
63.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
53.125 x 38.375	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
50.625	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
60.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
63.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
60.000 x 38.375	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
50.625	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
60.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
63.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
66.000 x 38.375	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3
50.625	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
60.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
63.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
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48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
50.625	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
60.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
63.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
84.000 x 38.375	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
50.625	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
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63.000	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C3+1+C3+1	4	1+C3+1+C3+1	3	1+C4+1+C4+1	4
86.437 x 38.375	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2	1+C2+1+C2+1	2
48.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
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54.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3
60.000	1+C2+1+C2+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C3+1+C3+1	4	1+C3+1+C3+1	3	1+C4+1+C4+1	4
63.000	1+C3+1+C3+1	3	1+C2+1+C2+1	3	1+C3+1+C3+1	3	1+C3+1+C3+1	4	1+C3+1+C3+1	3	1+C4+1+C4+1	4

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1. ANCHOR TYPES:

1 - 1/4" ELCO TAPCONS 2 - 1/4" ELCO SS4 CRETE-FLEX 3 - #12 STEEL SCREWS (G5)

2. GLASS TYPES:

- A. 5/16" LAMI - (1/8" A,.090, 1/8" A)
 B. 5/16" LAMI - (1/8" A,.090, 1/8" HS)
 C. 5/16" LAMI - (1/8" HS,.090, 1/8" HS)
 D. 7/16" LAMI - (3/16" A,.090, 3/16" A)
 E. 7/16" LAMI - (3/16" A,.090, 3/16" HS)
 F. 7/16" LAMI - (3/16" HS,.090, 3/16" HS)
 G. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" A,.090, 1/8" A)
 H. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" HS,.090, 1/8" HS)
 I. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 5/16" OR 3/8" SPACE, 5/16" LAMI - (1/8" HS,.090, 1/8" HS)
 J. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" A,.090, 3/16" A)
 K. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" A,.090, 3/16" HS)
 L. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" HS,.090, 3/16" HS)

FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

3. WINDOW ANCHOR QUANTITIES ARE PER ADJACENT TABLE AND BASED ON THE FOLLOWING DIMENSIONS. FOR WINDOW SIZES NOT SHOWN, GO TO NEXT LARGER WINDOW IN TABLE.

HEAD & SILL: 10 1/2" MAX. ON EACH SIDE OF MEETING RAIL CENTERLINE

25 3/4" MAX. FROM CORNERS

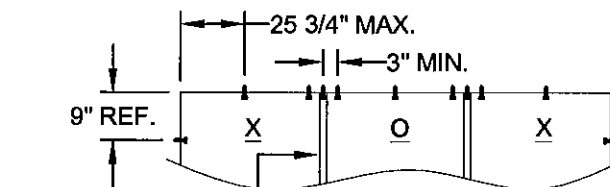
JAMBS: 9" MAX. FROM CORNERS AND 22 1/2" MAX. O.C.

TABLE KEY:

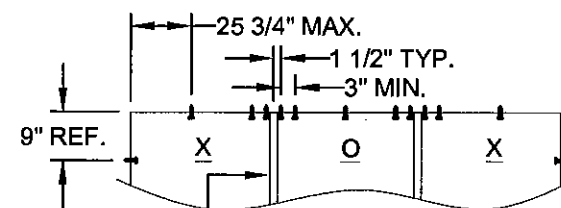
1+C3+1+C3+1 3 ← ANCHOR QUANTITY PER JAMB

HEAD AND SILL ANCHOR QUANTITIES
 A CLUSTER OF (3) ANCHORS CENTERED ON EACH MEETING RAIL PLUS (1) ANCHOR AT EACH OPERABLE VENT PLUS (1) ANCHORS AT FIXED SECTION. (9) ANCHORS TOTAL AT HEAD AND SILL.

(3" MIN. O.C. ANCHOR SPACING)



EXAMPLE CLUSTER W/ QTY. OF (3) ANCHORS (SHOWN IN TABLE KEY ABOVE)



EXAMPLE CLUSTER W/ QTY. OF (4) ANCHORS

Revised By: J.J.	Date: 10/17/11	Revisions: E	NO CHANGE THIS SHEET
Revised By: J.R.	Date: 6/20/11	Revisions: D	ADDED IG CAP TO BE TEMPERED @ +30FT NOTE.
Revised By: F.K.	Date: 4/15/07	Revisions: C	UPDATE TABLE 5, SELECT VALUES DUE TO ANCHOR CAP. ADJ.
Drawn By: F.K.	Date: 2/28/06	Checked By: J.J.	Date: 3/23/06

1070 TECHNOLOGY DRIVE
 NOKOMIS, FL 34275

P.O. BOX 1529
 NOKOMIS, FL 34274



Description:

ANCHORAGE SPACING, XO (1/3-1/3-1/3)

Title:

ALUM. HORIZONTAL ROLLER WINDOW, IMPACT

Series/Model:

HR710

Scale:

NTS

Sheet:

9 of 11

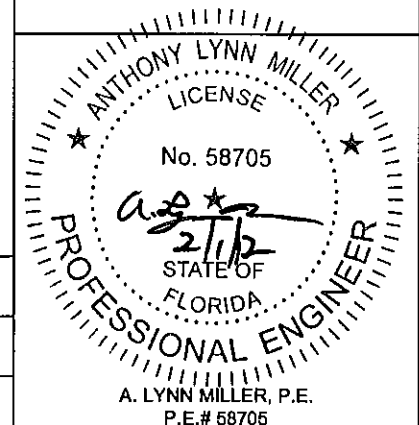
Drawing No.

4127-10

Rev:

E

PRODUCT REVISED
 as complying with the Florida
 Building Code
 Acceptance No. 11-1114-04
 Expiration Date 12/21/2016
 By: [Signature]
 Miami Code Product Control



ANCHOR QUANTITIES, XO & OX WINDOWS												TABLE 6
ANCHOR TYPE & SUBSTRATE	GLASS TYPES A,B,G,H						GLASS TYPES C,D,E,F,I,J,K, L					
	2,3, WOOD		2, CONC		1, CONC		2,3, WOOD		2, CONC		1, CONC	
	ZONES		ZONES		ZONES		ZONES		ZONES		ZONES	
WINDOW SIZE W V H	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS	HEAD & SILL	JAMBS
37.000 x 38.375	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2
48.000	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3
50.625	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3
54.000	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3
60.000	1+C2+1	3	1+C2+1	3	1+C3+1	3	1+C2+1	3	1+C2+1	3	1+C3+1	3
63.000	1+C2+1	3	1+C2+1	3	1+C3+1	3	1+C2+1	3	1+C2+1	3	1+C3+1	3
48.000 x 38.375	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2
48.000	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3	1+C2+1	3
50.625	1+C2+1	3	1+C2+1	3	1+C3+1	3	1+C2+1	3	1+C2+1	3	1+C3+1	3
54.000	1+C2+1	3	1+C2+1	3	1+C3+1	3	1+C2+1	3	1+C2+1	3	1+C3+1	3
60.000	1+C3+1	3	1+C2+1	3	1+C3+1	3	1+C3+1	3	1+C2+1	3	1+C3+1	3
63.000	1+C3+1	3	1+C2+1	3	1+C3+1	3	1+C3+1	3	1+C2+1	3	1+C3+1	3
53.125 x 38.375	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2	1+C2+1	2
48.000	1+C2+1	3	1+C2+1	3	1+C3+1	3	1+C2+1	3	1+C2+1	3	1+C3+1	3
50.625	1+C2+1	3	1+C2+1	3	1+C3+1	3	1+C2+1	3	1+C2+1	3	1+C3+1	3
54.000	1+C3+1	3	1+C2+1	3	1+C3+1	3	1+C3+1	3	1+C2+1	3	1+C3+1	3
60.000	1+C3+1	4	1+C2+1	3	1+C3+1	3	1+C3+1	4	1+C2+1	3	1+C3+1	3
63.000	1+C3+1	4	1+C3+1	3	1+C4+1	3	1+C3+1	4	1+C3+1	3	1+C4+1	3
60.000 x 38.375	1+C2+1	3	1+C2+1	2	2+C2+2	2	1+C2+1	3	1+C2+1	2	2+C2+2	2
48.000	1+C2+1	3	1+C2+1	3	2+C3+2	3	1+C2+1	3	1+C2+1	3	2+C3+2	3
50.625	1+C3+1	3	1+C2+1	3	2+C3+2	3	1+C3+1	3	1+C2+1	3	2+C3+2	3
54.000	1+C3+1	4	1+C2+1	3	2+C3+2	3	1+C3+1	4	1+C2+1	3	2+C3+2	3
60.000	1+C3+1	4	1+C3+1	3	2+C4+2	4	1+C3+1	4	1+C3+1	3	2+C4+2	4
63.000	1+C3+1	4	1+C3+1	3	2+C4+2	4	1+C3+1	4	1+C3+1	3	2+C4+2	4
66.000 x 38.375	2+C2+2	3	1+C2+1	2	2+C2+2	3	2+C2+2	3	1+C2+1	2	2+C2+2	3
48.000	2+C2+2	4	1+C2+1	3	2+C3+2	3	2+C2+2	4	1+C2+1	3	2+C3+2	3
50.625	2+C3+2	4	1+C2+1	3	2+C3+2	3	2+C3+2	4	1+C2+1	3	2+C3+2	3
54.000	2+C3+2	4	1+C2+1	3	2+C3+2	4	2+C3+2	4	1+C2+1	3	2+C3+2	4
60.000	2+C3+2	4	1+C3+1	3	2+C4+2	4	2+C3+2	4	1+C3+1	3	2+C4+2	4
63.000	1+C3+1	4	1+C3+1	3	2+C4+2	4	2+C3+2	4	1+C3+1	3	2+C4+2	4
74.000 x 38.375	2+C2+2	3	2+C2+2	2	2+C2+2	3	2+C2+2	3	2+C2+2	2	2+C2+2	3
48.000	2+C3+2	4	2+C2+2	3	2+C3+2	4	2+C3+2	4	2+C2+2	3	2+C3+2	4
50.625	2+C3+2	4	2+C2+2	3	2+C3+2	4	2+C3+2	4	2+C2+2	3	2+C3+2	4
54.000	2+C3+2	4	2+C3+2	3	2+C4+2	4	2+C3+2	4	2+C3+2	3	2+C4+2	4
60.000	2+C3+2	4	1+C3+1	3	2+C4+2	4	2+C3+2	5	2+C3+2	3	2+C4+2	4
63.000	2+C3+2	4	1+C3+1	3	2+C4+2	4	2+C4+2	5	2+C3+2	4	2+C4+2	5

NOTES:

1. ANCHOR TYPES:

1 - 1/4" ELCO TAPCONS 2 - 1/4" ELCO SS4 CRETE-FLEX 3 - #12 STEEL SCREWS (G5)

2. GLASS TYPES:

- A. 5/16" LAMI - (1/8" A,.090, 1/8" A)
 B. 5/16" LAMI - (1/8" A,.090, 1/8" HS)
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 D. 7/16" LAMI - (3/16" A,.090, 3/16" A)
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 L. 13/16" LAMI IG - 1/8" OR 3/16" A (MIN.), 3/16" OR 1/4" SPACE, 7/16" LAMI - (3/16" HS,.090, 3/16" HS)



FOR INSTALLATION IN THE HVHZ ABOVE 30 FT, GLASS TYPES G - L SHALL HAVE A TEMPERED I.G. GLASS CAP. BOTH THE DP AND ANCHOR QUANTITY REMAIN UNCHANGED.

3. WINDOW ANCHOR QUANTITIES ARE PER ADJACENT TABLE AND BASED ON THE FOLLOWING DIMENSIONS. FOR WINDOW SIZES NOT SHOWN, GO TO NEXT LARGER WINDOW IN TABLE.

HEAD & SILL: 10 1/2" MAX. ON EACH SIDE OF MEETING RAIL CENTERLINE.

18 3/4" MAX. FROM CORNERS.

JAMBS: 9" MAX. FROM CORNERS AND 22 1/2" MAX. O.C.

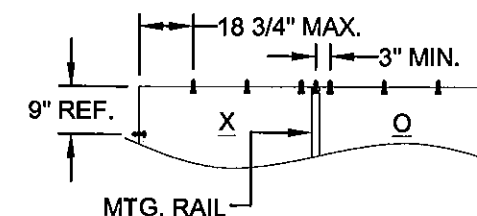
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O	X
2+C3+2	3

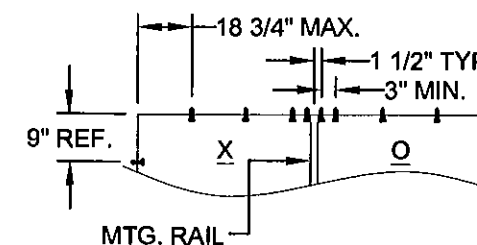
← ANCHOR QUANTITY PER JAMB

HEAD AND SILL ANCHOR QUANTITIES
 A CLUSTER OF (3) ANCHORS
 CENTERED ON THE MEETING RAIL
 PLUS (2) ANCHORS AT OPERABLE
 VENT AND FIXED SECTION. (7)
 ANCHORS TOTAL AT HEAD AND SILL.

(3" MIN. O.C. ANCHOR SPACING)

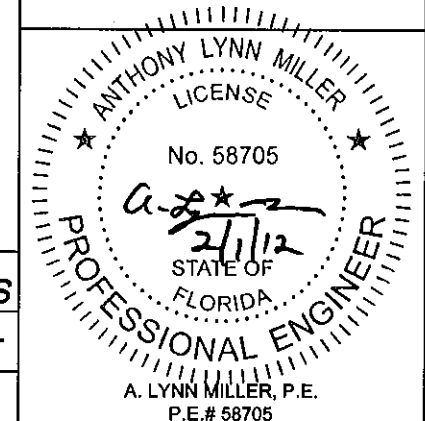


EXAMPLE CLUSTER W/ QTY. OF (3) ANCHORS
 (SHOWN IN TABLE KEY ABOVE)



EXAMPLE CLUSTER W/ QTY. OF (4) ANCHORS

PRODUCT REVISED
 as complying with the Florida
 Building Code
 Acceptance No. 11-1114.04
 Expiration Date 12/24/2018
 By *[Signature]*
 Miami Dade Product Control

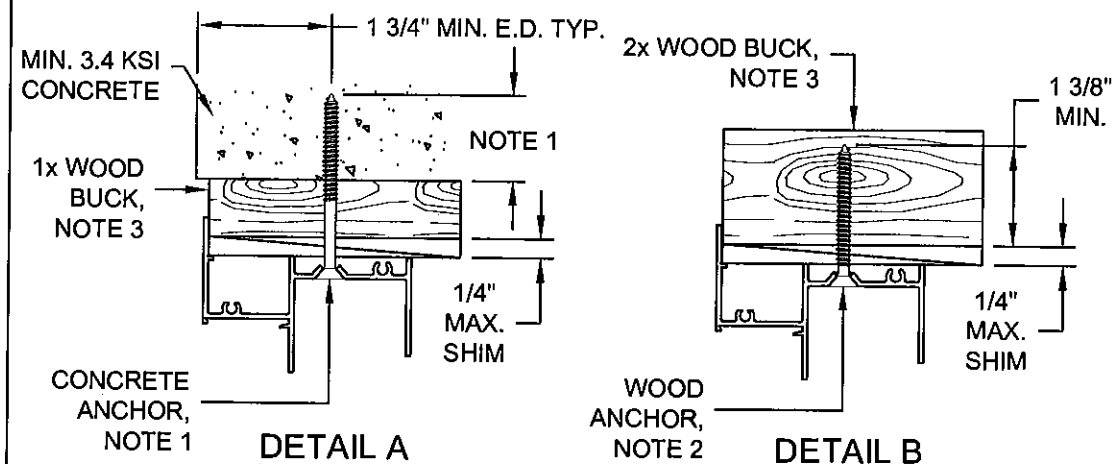


Revised By:	Date:	Revisions:	
J.J.	10/17/11	E	NO CHANGE THIS SHEET
Revised By:	Date:	Revisions:	
J.R.	6/20/11	D	ADDED IG CAP TO BE TEMPERED @ +30FT NOTE.
Revised By:	Date:	Revisions:	
F.K.	4/15/07	C	CHG. TABLE # TO 6, & SELECT VALUES DUE TO ANCHOR CAP. ADJ.
Drawn By:	Date:	Checked By:	Date:
F.K.	2/28/06	J.J.	3/23/06

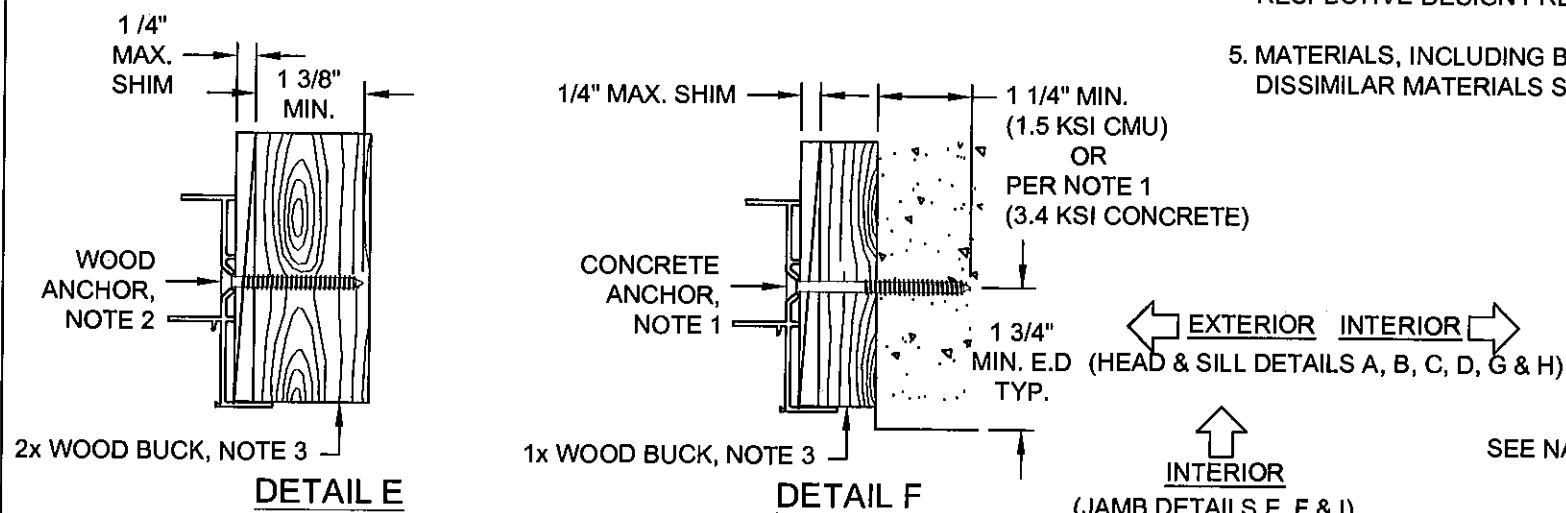
1070 TECHNOLOGY DRIVE
 NOKOMIS, FL 34275
 P.O. BOX 1529
 NOKOMIS, FL 34274



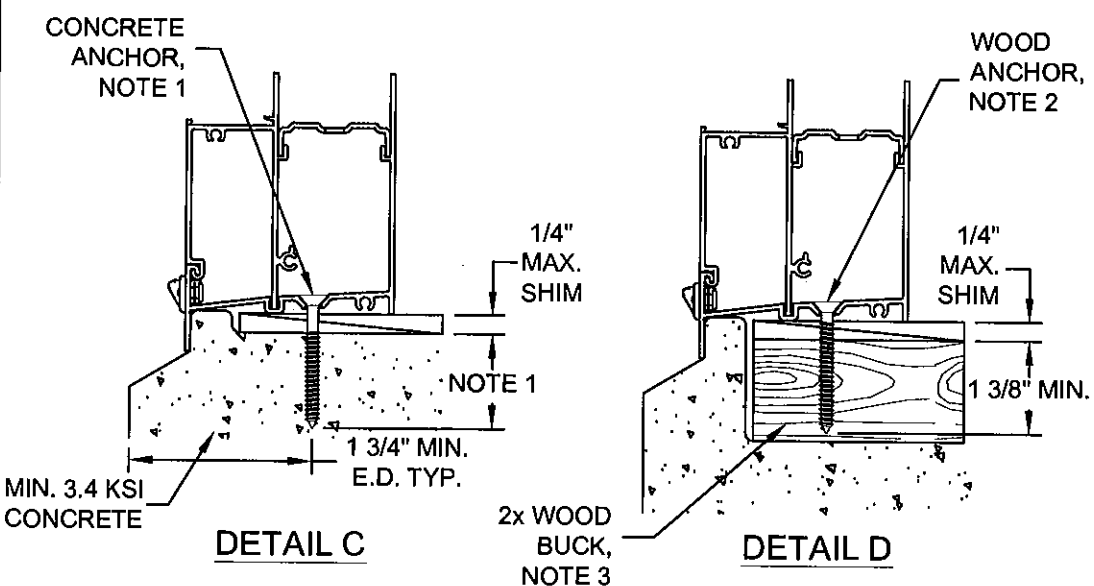
Description:	ANCHORAGE SPACING, OX AND XO WINDOWS					
Title:	ALUM. HORIZONTAL ROLLER WINDOW, IMPACT					
Series/Model:	HR710	Scale:	NTS	Sheet:	10 of 11	Drawing No.
					4127-10	Rev:
						E



TYPICAL FLANGE FRAME HEAD SECTIONS



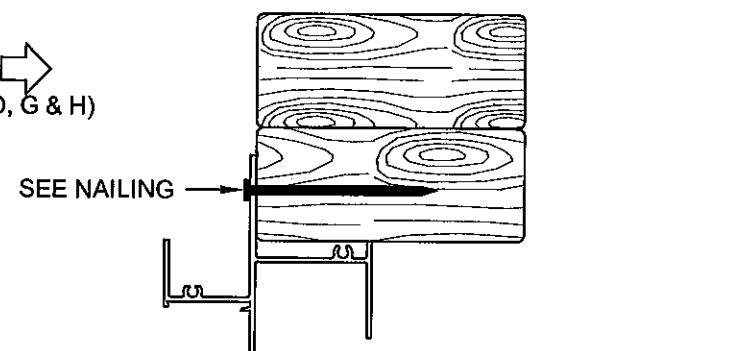
TYPICAL FLANGE FRAME JAMB SECTIONS



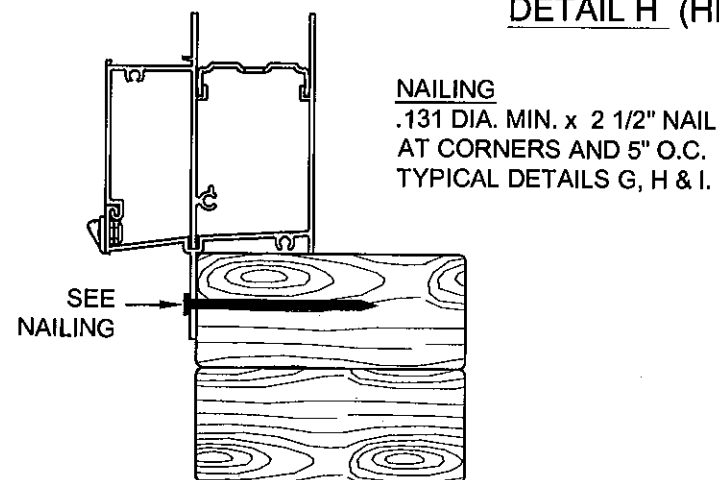
TYPICAL FLANGE FRAME SILL SECTIONS

NOTES:

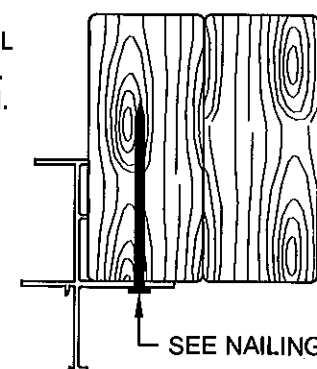
1. FOR CONCRETE APPLICATIONS IN MIAMI-DADE COUNTY, USE ONLY MIAMI-DADE COUNTY APPROVED 1/4" ELCO TAPCONS EMBEDDED 1 3/8" MIN. OR 1/4" SS4 CRETE-FLEX EMBEDDED 1 3/4" MIN.. MINIMUM DISTANCE FROM ANCHOR TO CONCRETE EDGE IS 1 3/4". FLATHEAD ANCHORS MUST BE #12 TRIMFIT HEAD.
2. FOR WOOD APPLICATIONS IN MIAMI-DADE COUNTY, USE #12 STEEL SCREWS (G5) OR 1/4" SS4 CRETE-FLEX WITH #12 TRIMFIT HEAD.
3. WOOD BUCKS DEPICTED IN THE SECTIONS ON THIS PAGE AS 1x ARE BUCKS WHOSE TOTAL THICKNESS IS LESS THAN 1 1/2". 1x WOOD BUCKS ARE OPTIONAL IF UNIT CAN BE INSTALLED DIRECTLY TO SOLID CONCRETE. WOOD BUCKS DEPICTED AS 2x ARE 1 1/2" THICK OR GREATER. INSTALLATION TO THE SUBSTRATE OF WOOD BUCKS TO BE ENGINEERED BY OTHERS OR AS APPROVED BY AUTHORITY HAVING JURISDICTION.
4. FOR ATTACHMENT TO ALUMINUM: THE MATERIAL SHALL BE A MINIMUM STRENGTH OF 6063-T5 AND A MINIMUM OF 1/8" THICK. THE ALUMINUM STRUCTURAL MEMBER SHALL BE OF A SIZE TO PROVIDE FULL SUPPORT TO THE WINDOW FRAME SIMILAR TO THAT SHOWN IN THESE DETAILS FOR 2x WOOD BUCKS. THE ANCHOR SHALL BE A #12 SHEET METAL SCREW WITH FULL ENGAGEMENT INTO THE ALUMINUM. IF THESE CRITERIA ARE MET, THE RESPECTIVE DESIGN PRESSURES AND ANCHORAGE SPACING FOR ANCHOR TYPE 2 MAY BE USED.
5. MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF FLORIDA BUILDING CODE.



DETAIL H (HEAD)



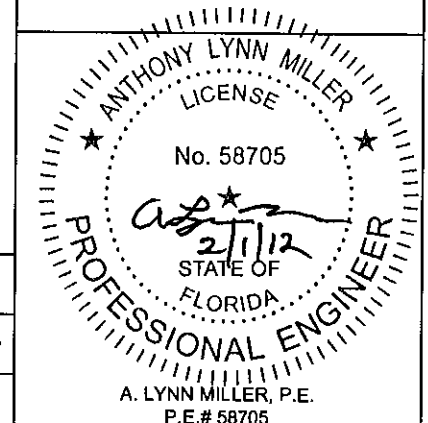
DETAIL G (SILL)



DETAIL I (JAMB)

TYPICAL INTEGRAL FIN FRAME SECTIONS

PRODUCT REVISED
as complying with the Florida
Building Code
Acceptance No. 11-1114.04
Expiration Date 12/21/2016
By *[Signature]*
Miami Dade Product Control



Revised By: J.J.	Date: 10/17/11	Revisions: E	NO CHANGE THIS SHEET
Revised By: J.R.	Date: 6/20/11	Revisions: D	NO CHANGE THIS SHEET
Revised By: F.K.	Date: 4/15/07	Revisions: C	REVISE NOTES 1 & 2 REGARDING TRIMFIT HD. & EMBEDMENT. ADD I.F. FRAME. CHG. NOTE 5 TO FBC, "CURRENT EDITION"
Drawn By: F.K.	Date: 2/28/06	Checked By: J.J.	Date: 3/23/06

1070 TECHNOLOGY DRIVE
NOKOMIS, FL 34275
P.O. BOX 1529
NOKOMIS, FL 34274



Description: ANCHORAGE DETAILS	Series/Model: HR710	Scale: Half	Sheet: 11 of 11	Drawing No. 4127-10	Rev: E
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HEALTH AND SAFETY PLAN

For the

**BLACKSTONE PARK EXPANSION PROJECT
PALMETTO, MANATEE COUNTY, FLORIDA**

Prepared for

**MANATEE COUNTY GOVERNMENT
PROPERTY MANAGEMENT DEPARTMENT
1112 MANATEE AVENUE WEST, SUITE 803
BRADENTON, FLORIDA 34205**

Prepared by

**PROFESSIONAL SERVICE INDUSTRIES, INC.
5801 BENJAMIN CENTER DRIVE, SUITE 112
TAMPA, FLORIDA 33634
TELEPHONE (813) 886-1075**

PSI PROJECT NO: 0552863

MARCH 20, 2013

March 20, 2013

Manatee County Property Management Department

1112 Manatee Avenue West, Suite 803
Bradenton, Florida 34205

Re: Health and Safety Plan
Blackstone Park Expansion
Palmetto, Manatee County
PSI Project No. 0552863

Professional Service Industries, Inc. (PSI) is pleased to provide this Health and Safety Plan (HASP) related to an upcoming construction project at the subject site. Site tasks include source removal activities, earth work, and other general construction activities. This document should be used as general guidelines for site workers. PSI recommends that each trade review this document as a starting point in developing their own HASP tailored to their scope of work. PSI assumes no liability for subcontractors hired by others.

Thank you for choosing PSI as your consultant for this important project. If you have any questions or comments, or if we can be of additional service, please contact the undersigned at (813) 886-1075.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.



Christopher Forestt
Project Scientist



Michael Bair, ASP
Principal Consultant

P:\552-Env\0552863 - vacant parcel Palmetto Manatee Co\Blackstone HASP.docx

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APPENDIX B - TABLE(S)

APPENDIX C - MSDS(S)

APPENDIX D - HOSPITAL ROUTE & MAP

APPENDIX E - DAILY SIGN IN SHEET(S)

APPENDIX F - JSA(S)

1 EMERGENCY RESPONSE INFORMATION

Follow procedures implemented as required by 29 CFR (1)(1)(ii).

First Aid Kit(s), Fire Extinguisher(s), and Eye-Wash Bottle(s) are available at the PSI vehicle or other designated area: _____.

Emergency Muster Point: _____.

1.1 EMERGENCY CONTACTS

Project Manager: Mike Bair	(813) 927-0068 (mobile)
Health & Safety Officer: Chris Forestt	(813) 299-3130 (mobile)
Fire Department	911
Police Department	911
State Police	911
Ambulance	911
Poison Control Center	911
USEPA Environmental Response Team	(201) 321-6460
US Coast Guard Environmental Response Team	(800) 424-8802
Association of American Railroads Response Team	(202) 293-4048

1.2 EMERGENCY HOSPITAL INFORMATION

Hospital Name: Manatee Memorial Hospital

Hospital Phone Number: (941) 746-5111

Hospital Address: 206 Second Street East, Bradenton, Florida 34208

Approximate Distance and Time to Hospital: ~4 Miles; 9 Minutes

A hospital map and directions are included as an attachment and the copy is usually placed in the front cover of this Health and Safety Plan for quick reference.

1.3 ADDITIONAL PROJECT CONTACT INFORMATION

Client: Manatee County Government

Site Owner: Manatee County Government

Contact: Mr. Tom Yarger or Mr. Charlie Bishop

Other: _____.

2 SITE INFORMATION

A site map (**Appendix A**) and recent summary of contaminant concentrations are included as attachments.

2.1 SITE DESCRIPTION

2.1.1 SITE TYPE

<input checked="" type="checkbox"/> Active	<input type="checkbox"/> Landfill	<input type="checkbox"/> Residential	<input checked="" type="checkbox"/> Recreational
<input type="checkbox"/> Inactive	<input type="checkbox"/> Industrial	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Nature Area
<input type="checkbox"/> Secure	<input type="checkbox"/> Commercial	<input type="checkbox"/> Military	<input type="checkbox"/> Unknown
<input checked="" type="checkbox"/> Unsecured	<input checked="" type="checkbox"/> Other (Specify): vacant land		

The subject property is located at the southeast corner of the intersection of 23rd Street West and 14th Avenue in Palmetto, Manatee County, Florida. Blackstone Park consists of approximately 12.13 acres. The vacant parcel, which is the location of the Park Expansion project, is located to the north and east of Blackstone Park and consists of approximately 19.55 acres.

Properties adjacent to the subject site consist of 23rd Street West and former agricultural property to the north; former agricultural property and pasture land to the east; Palmetto High School to the south; and 14th Avenue West and residential property to the west. Baseball fields, a parking lot, and a stormwater pond are under consideration for development on the vacant property to the north and east of Blackstone Park. A conceptual site layout is provided in **Appendix A**.

2.1.2 SURROUNDING POPULATION

<input checked="" type="checkbox"/> Residential	<input type="checkbox"/> Industrial	<input type="checkbox"/> Urban
<input type="checkbox"/> Rural	<input checked="" type="checkbox"/> Other (Specify): Golf Course & School	

2.2 SITE HISTORY

The subject site was historically utilized for agricultural purposes. PSI conducted environmental sampling at the subject site to evaluate current conditions of the soil and groundwater. The intent of this effort was to develop information with respect to future expansion of the site with additional recreational facilities in terms of impact to human health and the environment.

2.3 SITE CONTAMINATION

VACANT PARCEL

In particular, Dieldrin and Arsenic were detected most often at the Vacant Parcel. Detections of Dieldrin appear to be more consistent within the top 6 inches and decrease in total number of detections and concentration with depth. This trend is suggestive of a surface application which is consistent with historical uses of Dieldrin. Dieldrin is a common pesticide used generally from 1948 through 1974 in agricultural settings.

The detections of Arsenic appear to be the “opposite” to that of the Dieldrin at the Vacant Parcel. Higher concentrations of Arsenic were detected in the 2 to 4 foot range and decreased

in total number of detections and concentration toward the surface. This trend is suggestive of a natural occurrence of the Arsenic. In fact, scientific evidence has documented that Arsenic concentrations are elevated in the soil type found on-site and in this area of the State.

Five groundwater samples were collected throughout the Vacant Parcel. As noted, concentrations of Arsenic were not detected in any of the groundwater samples. It does not appear that Arsenic is leaching out of the soil to any degree that would result in groundwater contamination. Dieldrin was noted in two groundwater samples collected to the north of the Park.

Summary tables of site contaminant concentrations are provided in **Appendix B**.

3 HAZARD ANALYSIS

All personnel at the site removing the top 6 inches shall have completed OSHA HAZWOPER 40-Hour training and annual 8-Hour refresher courses. After the top 6 inches has been removed, all on-site workers shall be informed of the contents of this HASP. Documentation of their understanding and commitment to abide by the HASP shall be provided by signing this plan on the attached sign-in sheets.

Material Safety Data Sheets (MSDSs) are attached (from internet) within **Appendix C**.

Please also reference **PSI's SHM-11: Excavation, Shoring, and Trenching Program** for additional information (included in **Appendix F**).

3.1 SITE ACTIVITIES

<input type="checkbox"/>	Preliminary Assessment (PA)	<input type="checkbox"/>	Pre-Design
<input type="checkbox"/>	Site Investigation (SI)	<input type="checkbox"/>	Remedial Design
<input type="checkbox"/>	Remedial Investigation	<input checked="" type="checkbox"/>	Remedial Action
<input type="checkbox"/>	Feasibility Study (FS)	<input type="checkbox"/>	Other

Remediation activities by PSI to include source removal using heavy equipment to remove contaminated soils. The depth of the excavation will be 6 inches.

3.2 HAZARD EVALUATION

<input checked="" type="checkbox"/>	Heat Stress	<input type="checkbox"/>	Cold Stress	<input checked="" type="checkbox"/>	Noise
<input type="checkbox"/>	Oxygen Deficiency	<input type="checkbox"/>	Radiological	<input checked="" type="checkbox"/>	Biological
<input checked="" type="checkbox"/>	Organic Chemicals	<input type="checkbox"/>	Inorganic Chemicals	<input checked="" type="checkbox"/>	Excavation
<input checked="" type="checkbox"/>	Explosion/Flammable	<input checked="" type="checkbox"/>	Dangerous Wildlife	<input checked="" type="checkbox"/>	Falling Objects
<input type="checkbox"/>	Confined Spaces	<input checked="" type="checkbox"/>	Electrical	<input type="checkbox"/>	Other

Physical hazards associated with this site include potential injury from heavy machinery operations including crushing or other bodily damage. In addition, overhead drops, subsurface utilities, sharps, loud noise, flying debris, and thermal dangers are associated with large equipment usage and activities proximal to these machines.

Other environmental hazards associated with onsite activities include: uneven ground surfaces (trips, falls), weather (heat stresses, inclement conditions), biological threats (insects, biting animals, others), and sampling activity exposures (chemical contaminants, laboratory preservative acids, sharps, etc.).

3.3 OVERALL HAZARD EVALUATION

☐ High ☒ **Medium** ☐ Low

Justification: Medium overall hazard classification due to the on-site traffic and use of heavy equipment/machinery performing excavations and land development.

3.4 ACTIVITIES OF GREATEST CONCERN

- Heavy equipment operations and movement.

3.5 SITE CONTROL MEASURES

- High visibility vests will be worn at all times.
- Hard hats will be worn while on-site for head protection.
- No smoking except in designated areas (if allowed).
- All personnel to review HASP and attend “Tailgate” Meeting as initial training.

3.6 ACCIDENT PREVENTION PLANNING

- Keep non-involved personnel at least 5’ from work spaces where possible. Lines of communication should be predetermined in case of an emergency.
- Hard hats, long pants, steel-toe boots, gloves (leather or protective), ear plugs (or similar), and eye protection (safety glasses) will be worn on-site.
- High visibility clothing (vest, shirt, or similar) will be worn at all times.
- Hand signals, eye contact, and/or other communications between equipment operators and ground crew members will be addressed during task-planning.
- Prior to task initiation, equipment operators will discuss (with proximal ground crew members) potential hazards associated with each machine (swing radius, pinch points, emergency stop buttons, etc.) prior to operation.
- Equipment and foot traffic patterns regarding scopes of work will be discussed with all personnel to avoid pedestrians and heavy equipment working near one another.
- Surgical PVC-type, Latex, or Nitrile gloves will be worn by any personnel in contact with soil or groundwater for chemical exposure protection.
- Sunscreen will be used for skin protection. PSI intends to provide shaded areas for rest through the use of temporary canopies.
- All staff members are responsible to call for STOP-WORK (activities to be ceased) when a safety issue is identified until it is addressed.

4 PERSONAL PROTECTIVE EQUIPMENT BY TASK

4.1 TASK #1: SOURCE REMOVAL ACTIVITIES/EARTHWORK WITH HEAVY EQUIPMENT

SCHEDULE: To Be Determined

TYPE: ☒ **Intrusive** ☐ Non-intrusive

LEVEL OF PROTECTION:

PRIMARY:	<input type="checkbox"/>	A	<input type="checkbox"/>	B	<input type="checkbox"/>	C	<input checked="" type="checkbox"/>	D	<input checked="" type="checkbox"/>	MODIFIED
CONTINGENCY:	<input type="checkbox"/>	A	<input type="checkbox"/>	B	<input type="checkbox"/>	C	<input checked="" type="checkbox"/>	D	<input checked="" type="checkbox"/>	MODIFIED

NOTES: High visibility vest/clothing, hard hats, long pants, steel-toe boots, gloves (leather), under-gloves (nitrile), ear plugs (or similar), and eye protection (safety glasses)

HEAD AND EYE PROTECTION: ☐ Not Needed
☒ **Safety Glasses** ☐ Face Shield ☐ Goggles
☒ ***Hard Hat** ☐ Other:
* If overhead activities apply or working under equipment

FOOT PROTECTION: ☐ Not Needed
☒ **Safety Shoes/Steel-Toed Boots**
☐ Chemical-Resistant Boots: _____

HAND PROTECTION: ☐ Not Needed
☒ **Under-gloves: Surgical type PVC or Latex or Nitrile**
☒ **Gloves:** Leather or Protective ☐ Over-gloves:

RESPIRATORY PROTECTION: ☒ **Not Needed**
☐ SCBA, Airline _____
☐ APR _____
☐ Escape Mask
☐ Cartridge _____

PROTECTIVE CLOTHING: ☒ **Not Needed**
☐ Encapsulating Suite _____
☐ Splash Suite If repairing or removing connections to system
☐ Apron _____
☐ Tyvek-type coveralls
☐ Saranex-type coveralls
☐ Other: _____

OTHER (Specify):

Any soil/dust on skin should be avoided along with breathing dust into lungs. If soil/dust comes into contact with skin, wash immediately with store-bought soap and rinse with clean tap water. Dust should be avoided by staying upwind of machinery or equipment causing dust.

5 ADDITIONAL MONITORING

5.1 HEAT STRESS MONITORING

METHOD: ☒ **Pulse Rate** ☐ Body Temp ☐ WBGT

ACTION GUIDELINES: Specify initial work/rest schedules based upon ambient temperatures (beginning at 70 F), humidity and % sunshine. Then specify physiological monitoring methods and results to modify initial work/rest schedules.

☒ **Pulse Rate:** Determine normal resting pulse rate. Monitor pulse rate as soon as possible at beginning of rest period. If rate is > 40 beats per minute above normal, shorten the next work period by one-third (1/3) without changing the rest period. If pulse rate is > 40 BPM above normal at the beginning of the next rest period, shorten following work cycle again by 1/3. Repeat.

☒ **Body Temp:** Determine body temperature at the end of the work cycle and before drinking. If the temp >99.6 F (37.6 C), shorten the next work cycle by 1/3 without changing the rest cycle. Repeat. Do NOT permit a worker to wear semipermeable or impermeable clothing when his/her body temperature exceeds 100.6 C (38.1 C).

☐ WBGT: Use ACGIH TLVs.

☐ Cold Stress: Use ACGIH TLVs.

5.2 DUST MONITORING:

SCHEDULE: To Be Determined

TYPE OF DUST: ☐ Not Required ☒ **Respirable** ☐ Total

ACTION GUIDELINES:

0 - _____ =	Level _____ Ensemble
_____ - _____ =	Upgrade to Level _____
_____ - _____ =	Upgrade to Level _____
_____ - _____ =	Upgrade to Level _____

COMMENTS: Dust levels should be kept to a minimum by misting working surface and drive areas with potable water. Dust shall not be allowed to leave the job site. Excess water should not be used such that puddles are formed within the job site.

APPENDIX A - FIGURE(S)

APPENDIX B - TABLE(S)

Groundwater Analytical Results

Blackstone Park

Sample ID	Date Collected	Arsenic (ug/L)	Dieldrin (ug/L)
_GCTL		10	0.002
_NADSC		100	0.2
GW-1	10/28/2010	4.8 U	0.0014 U
GW-2	10/28/2010	4.8 U	0.0014 U
TMW-1	9/20/2012	3.3 U	0.0091
TMW-2	9/20/2012	3.3 U	0.023
TMW-3	9/20/2012	3.3 U	0.0010 U

TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'-	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-1 (0'-2')	28-Oct-2010	0.0019 U	0.0018 U	0.00067 U	0.0023 U	0.0019 U	0.021	0.0017 U	0.0014 U	0.0018 U	0.0067 U	0.97	-	-
SB-2 (0'-2')	28-Oct-2010	0.0019 U	0.0018 U	0.00068 U	0.0023 U	0.0019 U	0.056	0.0017 U	0.0014 U	0.0018 U	0.0068 U	2.1	-	-
SB-3 (0'-2')	28-Oct-2010	0.0019 U	0.0018 U	0.00066 U	0.0023 U	0.0019 U	0.17	0.0016 U	0.0013 U	0.0018 U	0.0066 U	0.95	-	-
SB-4(0'-6")	26-Nov-2010	0.00042 U	0.029	0.0084	0.00062 I	0.00012 U	0.190	0.00018 U	-	0.00012 U	-	-	-	-
SB-4(6"-2')	26-Nov-2010	0.0004 U	0.0012	0.0003 U	0.00012 U	0.00012 U	0.0085	0.00017 U	-	0.00012 U	-	-	-	-
SB-4(2'-4')	26-Nov-2010	0.00047 U	0.0019	0.00035 U	0.00014 U	0.00014 U	0.00015 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-5(0'-6")	26-Nov-2010	0.00042 U	0.0074	0.0013	0.00012 U	0.00012 U	0.130	0.00018 U	-	0.00012 U	-	-	-	-
SB-5(6"-2')	26-Nov-2010	0.00042 U	0.00022 U	0.00032 U	0.00012 U	0.00012 U	0.018	0.00018 U	-	0.00012 U	-	-	-	-
SB-5(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-6(0'-6")	26-Nov-2010	0.00041 U	0.015	0.0076	0.00082 I	0.00012 U	0.180	0.00018 U	-	0.00012 U	-	-	-	-
SB-6(6"-2')	26-Nov-2010	0.00042 U	0.00061 I	0.00031 U	0.00012 U	0.00012 U	0.0056	0.00018 U	-	0.00012 U	-	-	-	-
SB-6(2'-4')	26-Nov-2010	0.00046 U	0.00058 I	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-7(0'-6")	26-Nov-2010	0.00042 U	0.00062 I	0.00031 U	0.00012 U	0.00012 U	0.017	0.00018 U	-	0.0019	-	-	-	-
SB-7(6"-2')	26-Nov-2010	0.00042 U	0.00022 U	0.00031 U	0.00012 U	0.00029 I	0.0016	0.00018 U	-	0.00012 U	-	-	-	-
SB-7(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00013 U	0.00013 U	0.00014 U	0.0002 U	-	0.00013 U	-	-	-	-
SB-8(0'-6")	26-Nov-2010	0.00042 U	0.0022	0.0027	0.0015	0.00012 U	0.120	0.00018 U	-	0.00012 U	-	-	-	-
SB-8(6"-2')	26-Nov-2010	0.00042 U	0.0006 I	0.00031 U	0.00012 U	0.00012 U	0.0027	0.00018 U	-	0.00087 I	-	-	-	-
SB-8(2'-4')	26-Nov-2010	0.00048 U	0.00037 I	0.00035 U	0.00014 U	0.00014 U	0.00015 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-9(0'-6")	26-Nov-2010	0.00041 U	0.0024	0.001 I	0.00012 U	0.00012 U	0.0066	0.00018 U	-	0.00012 U	-	-	-	-
SB-9(6"-2')	26-Nov-2010	0.00045 U	0.0014	0.00034 U	0.00013 U	0.00013 U	0.00014 U	0.00019 U	-	0.00013 U	-	-	-	-
SB-9(2'-4')	26-Nov-2010	0.00036 U	0.00075 I	0.00027 U	0.00011 U	0.00011 U	0.00011 U	0.00016 U	-	0.00011 U	-	-	-	-
SB-10(0'-6")	26-Nov-2010	0.00042 U	0.00022 U	0.00031 U	0.00012 U	0.00012 U	0.088	0.00018 U	-	0.00012 U	-	-	-	-
SB-10(6"-2')	26-Nov-2010	0.00041 U	0.00022 U	0.00031 U	0.00018 I	0.00012 U	0.014	0.00018 U	-	0.00012 U	-	-	-	-
SB-10(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-

TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-11(0'-6")	26-Nov-2010	0.00043 U	0.0021	0.0054	0.00019 I	0.00013 U	0.090	0.00018 U	-	0.00013 U	-	-	-	-
SB-11(6"-2')	26-Nov-2010	0.00043 U	0.0004 I	0.00032 U	0.00013 U	0.00081 I	0.025	0.00019 U	-	0.00013 U	-	-	-	-
SB-11(2'-4')	26-Nov-2010	0.00045 U	0.00024 U	0.00033 U	0.00013 U	0.00013 U	0.00014 U	0.00019 U	-	0.00013 U	-	-	-	-
SB-12(0'-6")	26-Nov-2010	0.00041 U	0.0047	0.0017	0.00082 I	0.0012	0.021	0.00018 U	-	0.00012 U	-	-	-	-
SB-12(6"-2')	26-Nov-2010	0.00044 U	0.00061 I	0.00033 U	0.00013 U	0.00013 U	0.0026	0.00019 U	-	0.00013 U	-	-	-	-
SB-12(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00014 U	0.00076 I	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-13(0'-6")	26-Nov-2010	0.00041 U	0.0012	0.0027	0.00012 U	0.00012 U	0.015	0.00018 U	-	0.00012 U	-	-	-	-
SB-13(6"-2')	26-Nov-2010	0.00043 U	0.00062 I	0.00032 U	0.00013 U	0.00096 I	0.012	0.00018 U	-	0.00013 U	-	-	-	-
SB-13(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00013 U	0.00013 U	0.00024 I	0.0002 U	-	0.00013 U	-	-	-	-
SB-14(0'-6")	26-Nov-2010	0.00043 U	0.003	0.0039	0.00013 U	0.00023 I	0.034	0.00019 U	-	0.00076 I	-	-	-	-
SB-14(6"-2')	26-Nov-2010	0.00042 U	0.00032 I	0.00031 U	0.00012 U	0.00012 U	0.0039	0.00018 U	-	0.0006 I	-	-	-	-
SB-14(2'-4')	26-Nov-2010	0.00046 U	0.00024 U	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-15(0'-6")	26-Nov-2010	0.00042 U	0.0023	0.00031 U	0.0014	0.0044	0.037	0.00018 U	-	0.00012 U	-	-	-	-
SB-15(6"-2')	26-Nov-2010	0.00042 U	0.00022 U	0.00031 U	0.00012 U	0.0006 I	0.035	0.00018 U	-	0.00012 U	-	-	-	-
SB-15(2'-4')	26-Nov-2010	0.00045 U	0.00024 U	0.00034 U	0.00013 U	0.00013 U	0.00014 U	0.0002 U	-	0.00013 U	-	-	-	-
SB-16(0'-6")	26-Nov-2010	0.00041 U	0.0031	0.004	0.0019	0.00012 U	0.038	0.00018 U	-	0.00012 U	-	-	-	-
SB-16(6"-2')	26-Nov-2010	0.00042 U	0.00058 I	0.00032 U	0.00012 U	0.0012	0.0017	0.00018 U	-	0.00012 U	-	-	-	-
SB-16(2'-4')	26-Nov-2010	0.00048 U	0.00079 I	0.00036 U	0.00014 U	0.00014 U	0.0003 I	0.00021 U	-	0.00014 U	-	-	-	-
SB-17(0'-6")	26-Nov-2010	0.00041 U	0.018	0.00031 U	0.0015	0.00012 U	0.190	0.00018 U	-	0.00045 I	-	-	-	-
SB-17(6"-2')	26-Nov-2010	0.00042 U	0.00083 I	0.00031 U	0.00023 I	0.00012 U	0.053	0.00018 U	-	0.00012 U	-	-	-	-
SB-17(2'-4')	26-Nov-2010	0.00046 U	0.00039 I	0.00034 U	0.00014 U	0.00014 U	0.00014 U	0.0002 U	-	0.00014 U	-	-	-	-
SB-18(0'-6")	26-Nov-2010	0.00042 U	0.0027	0.0021	0.00012 U	0.00012 U	0.034	0.00018 U	-	0.00019 I	-	-	-	-
SB-18(6"-2')	26-Nov-2010	0.00043 U	0.0033	0.0013	0.00013 U	0.00013 U	0.062	0.00019 U	-	0.00013 U	-	-	-	-
SB-18(2'-4')	26-Nov-2010	0.00046 U	0.00076 I	0.00035 U	0.00014 U	0.00014 U	0.0003 I	0.0002 U	-	0.00014 U	-	-	-	-

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BLACKSTONE PARK AND ADJACENT VACANT PARCEL

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SB-19(0-6")	26-Nov-2010	0.00042 U	0.002	0.00082 I	0.00012 U	0.00012 U	0.010	0.00018 U	-	0.00012 U	-	-	-	-
SB-19(6"-2')	26-Nov-2010	0.00043 U	0.00023 U	0.00032 U	0.00012 U	0.00012 U	0.018	0.00018 U	-	0.00012 U	-	-	-	-
SB-19(2'-4')	26-Nov-2010	0.00045 U	0.00024 U	0.00033 U	0.00013 U	0.00013 U	0.00014 U	0.00019 U	-	0.00013 U	-	-	-	-
SB-20(0-6")	27-Feb-2012	0.00026 U	0.019	0.00032 U	0.0019	0.00038 U	0.59	0.00096 U	0.00075 U	0.00034 U	0.0063	0.88 I	-	-
SB-20(6"-2')	27-Feb-2012	0.00026 U	0.00047 U	0.00032 U	0.000052 U	0.00038 U	0.027	0.00096 U	0.00075 U	0.00034 U	0.00051 U	2.6	-	-
SB-20(2'-4')	27-Feb-2012	0.00032 U	0.00058 U	0.00040 U	0.000065 U	0.00047 U	0.0012 U	0.0012 U	0.00094 U	0.00043 U	0.00064 U	4.6	-	-
SB-21(0-6")	27-Feb-2012	0.00026 U	0.0094	0.00032 U	0.000052 U	0.00038 U	0.085	0.00096 U	0.00075 U	0.00034 U	0.00051 U	0.49 I	-	-
SB-21(6"-2')	27-Feb-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.00096 U	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.97 I	-	-
SB-21(2'-4')	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0011 U	0.0011 U	0.00087 U	0.00040 U	0.00059 U	5.6	-	-
SB-22(0-6")	27-Feb-2012	0.00028 U	0.0079	0.00034 U	0.000056 U	0.00040 U	0.1	0.0010 U	0.00080 U	0.00037 U	0.00054 U	0.35 U	-	-
SB-22(6"-2')	27-Feb-2012	0.00032 U	0.00057 U	0.00039 U	0.000063 U	0.00046 U	0.0012 U	0.0012 U	0.00091 U	0.00042 U	0.00062 U	1.1 I	-	-
SB-22(2'-4')	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000057 U	0.00041 U	0.0010 U	0.0011 U	0.00083 U	0.00038 U	0.00056 U	3.4	-	-
SB-23(0-6")	27-Feb-2012	0.00030 U	0.0063	0.00038 U	0.000061 U	0.00044 U	0.066	0.0011 U	0.00088 U	0.00040 U	0.00060 U	0.39 U	7.8	0.017 I
SB-23(6"-2')	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000058 U	0.00042 U	0.0011 U	0.0011 U	0.00084 U	0.00038 U	0.00057 U	0.37 U	-	-
SB-23(2'-4')	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000057 U	0.00041 U	0.0010 U	0.0010 U	0.00082 U	0.00038 U	0.00056 U	9.9	-	-
SB-24(0-6")	27-Feb-2012	0.00026 U	0.0066	0.00032 U	0.000047 I	0.00038 U	0.2	0.00096 U	0.0011 I	0.00034 U	0.00086 I	0.32 U	-	-
SB-24(6"-2')	27-Feb-2012	0.00027 U	0.00049 U	0.00034 U	0.000054 U	0.00039 U	0.017	0.0010 U	0.00078 U	0.00036 U	0.00053 U	0.34 U	-	-
SB-24(2'-4')	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0011 U	0.0011 U	0.00086 U	0.00039 U	0.00058 U	3.6	-	-
SB-25(0-6")	27-Feb-2012	0.00026 U	0.0018 I	0.00032 U	0.000049 I	0.00038 U	0.031	0.00096 U	0.00075 U	0.00034 U	0.0032	0.31 U	-	-
SB-25(6"-2')	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0069	0.0011 U	0.00087 U	0.00040 U	0.00059 U	4.3	-	-
SB-25(2'-4')	27-Feb-2012	0.00029 U	0.00053 U	0.00036 U	0.000059 U	0.00042 U	0.0011 U	0.0011 U	0.00085 U	0.00039 U	0.00058 U	1.6	-	-
SB-26(0-6")	27-Feb-2012	0.00027 U	0.0069	0.00033 U	0.000068 I	0.00038 U	0.033	0.00098 U	0.00077 U	0.00035 U	0.00052 U	3	-	-
SB-26(6"-2')	27-Feb-2012	0.00028 U	0.0017 I	0.00035 U	0.000056 U	0.00040 U	0.0010 U	0.0010 U	0.00081 U	0.00037 U	0.00055 U	4.3	-	-
SB-26(2'-4')	27-Feb-2012	0.000058 U	0.00010 U	0.000072 U	0.000012 U	0.000084 U	0.00022 U	0.00022 U	0.00017 U	0.000076 U	0.00011 U	0.38 U	-	-

TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'-	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-27(0'-6")	27-Feb-2012	0.000052 U	0.00081	0.000064 U	0.000059 I	0.000076 U	0.00027	0.00019 U	0.00015 U	0.000068 U	0.00010 U	0.32 U	14	0.063
SB-27(6"-2')	27-Feb-2012	0.000056 U	0.00010 U	0.000070 U	0.000011 U	0.000080 U	0.00020 U	0.00020 U	0.00016 U	0.000074 U	0.00011 U	3.8	-	-
SB-27(2'-4')	27-Feb-2012	0.000054 U	0.000098 U	0.000068 U	0.000011 U	0.000078 U	0.00020 U	0.00020 U	0.00016 U	0.000072 U	0.00011 U	0.33 U	-	-
SB-28(0'-6")	27-Feb-2012	0.000052 U	0.0005	0.000066 U	0.000011 U	0.000076 U	0.00053	0.00019 U	0.00015 U	0.000070 U	0.00010 U	0.34 U	-	-
SB-28(6"-2')	27-Feb-2012	0.000052 U	0.000092 U	0.000064 U	0.000010 U	0.000074 U	0.0012	0.00019 U	0.00015 U	0.000068 U	0.00010 U	5	-	-
SB-28(2'-4')	27-Feb-2012	0.000056 U	0.00010 U	0.000070 U	0.000011 U	0.000080 U	0.00020 U	0.00020 U	0.00016 U	0.000074 U	0.00011 U	0.35 U	-	-
SB-29(0'-6")	27-Feb-2012	0.000052 U	0.00045	0.000064 U	0.000010 U	0.000074 U	0.0016	0.00020 U	0.00015 U	0.000068 U	0.00010 U	2.7	-	-
SB-29(6"-2')	27-Feb-2012	0.000054 U	0.00005	0.000066 U	0.000011 U	0.000076 U	0.001	0.00020 U	0.00015 U	0.000070 U	0.00010 U	5.2	-	-
SB-29(2'-4')	27-Feb-2012	0.000058 U	0.00011 U	0.000072 U	0.000012 U	0.000084 U	0.00022 U	0.00022 U	0.00017 U	0.000078 U	0.00012 U	0.87 I	-	-
SB-30(0'-6")	27-Feb-2012	0.000054 U	0.00013	0.000068 U	0.000011 U	0.000078 U	0.00043 I	0.00020 U	0.00016 U	0.000072 U	0.00011 U	0.73 I	-	-
SB-30(6"-2')	27-Feb-2012	0.000053 U	0.00026	0.000065 U	0.000011 U	0.000076 U	0.021	0.00019 U	0.00015 U	0.000069 U	0.00010 U	2.7	-	-
SB-30(2'-4')	27-Feb-2012	0.000058 U	0.00010 U	0.000072 U	0.000011 U	0.000082 U	0.00020 U	0.00022 U	0.00017 U	0.000076 U	0.00011 U	0.91 I	-	-
SB-31(0'-6")	27-Feb-2012	0.000054 U	0.00055	0.000066 U	0.000011 U	0.000076 U	0.0024	0.00020 U	0.00015 U	0.000070 U	0.00077	0.34 U	-	-
SB-31(6"-2')	27-Feb-2012	0.000052 U	0.000094 U	0.000064 U	0.000010 U	0.000076 U	0.0014	0.00019 U	0.00015 U	0.000068 U	0.00010 U	1.5	-	-
SB-31(2'-4')	27-Feb-2012	0.000060 U	0.00011 U	0.000074 U	0.000012 U	0.000086 U	0.00022 U	0.00022 U	0.00017 U	0.000080 U	0.00012 U	2.1	-	-
SB-32(0'-6")	27-Feb-2012	0.000054 U	0.0015	0.000066 U	0.000011 U	0.000078 U	0.005	0.00020 U	0.00015 U	0.000070 U	0.00011 U	0.89 I	-	-
SB-32(6"-2')	27-Feb-2012	0.000056 U	0.00010 U	0.000068 U	0.000011 U	0.000080 U	0.00020 U	0.00020 U	0.00016 U	0.000074 U	0.00011 U	0.86 I	-	-
SB-32(2'-4')	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000057 U	0.00041 U	0.0010 U	0.0010 U	0.00082 U	0.00038 U	0.00056 U	3.3	-	-
SB-33(0'-6")	27-Feb-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.019	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.34 U	5.3	0.0062 U
SB-33(6"-2')	27-Feb-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.018	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.86 I	-	-
SB-33(2'-4')	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000058 U	0.00042 U	0.0011 U	0.0011 U	0.00084 U	0.00038 U	0.00057 U	11	-	-
SB-34(0'-6")	27-Feb-2012	0.00026 U	0.00047 U	0.00032 U	0.000052 U	0.00038 U	0.0066	0.00096 U	0.00075 U	0.00034 U	0.00051 U	0.74 I	-	-
SB-34(6"-2')	27-Feb-2012	0.00025 U	0.00045 U	0.00031 U	0.000051 U	0.00036 U	0.0048	0.00093 U	0.00073 U	0.00033 U	0.00049 U	0.98 I	-	-
SB-34(2'-4')	27-Feb-2012	0.00031 U	0.00056 U	0.00039 U	0.000062 U	0.00045 U	0.0011 U	0.0012 U	0.00090 U	0.00041 U	0.00061 U	12	-	-

TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'-	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-35(0'-6")	27-Feb-2012	0.00027 U	0.01	0.0054	0.00067 I	0.00038 U	0.042	0.00098 U	0.00077 U	0.00035 U	0.00052 U	0.61 I	-	-
SB-35(6"-2')	27-Feb-2012	0.00026 U	0.00046 U	0.00032 U	0.000052 U	0.00037 U	0.00094 U	0.00095 U	0.00074 U	0.00034 U	0.00051 U	1.3	-	-
SB-35(2'-4')	27-Feb-2012	0.00028 U	0.00050 U	0.00034 U	0.000056 U	0.00040 U	0.0010 U	0.0010 U	0.00080 U	0.00037 U	0.00054 U	9.6	-	-
SB-36(0'-6")	27-Feb-2012	0.00027 U	0.00049 U	0.00034 U	0.00049 I	0.00040 U	0.0072	0.0010 U	0.00079 U	0.00036 U	0.005	3.8	-	-
SB-36(6"-2')	27-Feb-2012	0.00030 U	0.00055 U	0.00038 U	0.000061 U	0.00044 U	0.0011 U	0.0011 U	0.00088 U	0.00040 U	0.00060 U	9.4	-	-
SB-36(2'-4')	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000057 U	0.00041 U	0.0010 U	0.0011 U	0.00083 U	0.00035 U	0.00056 U	1.5	-	-
SB-37(0'-6")	27-Feb-2012	0.00027 U	0.00048 U	0.00033 U	0.000054 U	0.00039 U	0.0017 I	0.00099 U	0.00077 U	0.00035 U	0.00053 U	5.6	-	-
SB-37(6"-2')	27-Feb-2012	0.00029 U	0.00052 U	0.00036 U	0.000058 U	0.00042 U	0.0011 U	0.0011 U	0.00084 U	0.00038 U	0.00057 U	4.9	-	-
SB-37(2'-4')	27-Feb-2012	0.00034 U	0.00061 U	0.00042 U	0.000068 U	0.00049 U	0.0012 U	0.0012 U	0.00097 U	0.00045 U	0.00066 U	1.3 I	-	-
SB-38(0'-6")	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000056 U	0.00040 U	0.0010 U	0.0010 U	0.00081 U	0.00037 U	0.00055 U	8.9	-	-
SB-38(6"-2')	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0011 U	0.0011 U	0.00086 U	0.00039 U	0.00058 U	8.4	-	-
SB-38(2'-4')	27-Feb-2012	0.00030 U	0.00055 U	0.00038 U	0.000061 U	0.00044 U	0.0011 U	0.0011 U	0.00088 U	0.00040 U	0.00060 U	2.6	-	-
SB-39(0'-6")	27-Feb-2012	0.00027 U	0.0025	0.00034 U	0.000054 U	0.00039 U	0.00099 U	0.0010 U	0.00078 U	0.00036 U	0.00053 U	6.8	-	-
SB-39(6"-2')	27-Feb-2012	0.00029 U	0.00053 U	0.00036 U	0.000059 U	0.00042 U	0.0011 U	0.0011 U	0.00085 U	0.00039 U	0.00058 U	7.7	-	-
SB-39(2'-4')	27-Feb-2012	0.00035 U	0.00063 U	0.00044 U	0.000070 U	0.00051 U	0.0013 U	0.0013 U	0.0010 U	0.00046 U	0.00069 U	4.7	-	-
SB-40(0'-6")	27-Feb-2012	0.00026 U	0.013	0.0019	0.000053 U	0.00038 U	0.00096 U	0.068	0.00076 U	0.00035 U	0.00052 U	0.62 I	-	-
SB-40(6"-2')	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000057 U	0.00041 U	0.0021 I	0.0010 U	0.00082 U	0.00038 U	0.00056 U	2.8	-	-
SB-40(2'-4')	27-Feb-2012	0.00028 U	0.00051 U	0.00035 U	0.000057 U	0.00041 U	0.0010 U	0.0010 U	0.00082 U	0.00038 U	0.00056 U	5.5	-	-
SB-41(0'-6")	27-Feb-2012	0.00026 U	0.0044	0.0014	0.000052 U	0.00038 U	0.00095 U	0.018	0.00075 U	0.00034 U	0.00051 U	0.63 I	-	-
SB-41(6"-2')	27-Feb-2012	0.00027 U	0.00049 U	0.00034 U	0.000055 U	0.00040 U	0.0042	0.0010 U	0.00079 U	0.00036 U	0.00054 U	1.2 I	-	-
SB-41(2'-4')	27-Feb-2012	0.00030 U	0.00054 U	0.00037 U	0.000060 U	0.00043 U	0.0011 U	0.0011 U	0.00086 U	0.00039 U	0.00058 U	29	-	-
SB-42(0'-6")	27-Feb-2012	0.00026 U	0.00046 U	0.00032 U	0.000051 U	0.00037 U	0.0059	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.30 U	-	-
SB-42(6"-2')	27-Feb-2012	0.00027 U	0.00049 U	0.00034 U	0.000055 U	0.00040 U	0.0010 U	0.0010 U	0.00079 U	0.00036 U	0.00054 U	2.1	-	-
SB-42(2'-4')	27-Feb-2012	0.00029 U	0.00053 U	0.00036 U	0.000059 U	0.00042 U	0.0011 U	0.0011 U	0.00085 U	0.00039 U	0.00058 U	5.4	-	-

TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b'-	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-43(0-6")	27-Feb-2012	0.00026 U	0.00046 U	0.00032 U	0.000052 U	0.00037 U	0.0085	0.00095 U	0.00074 U	0.00034 U	0.00051 U	1.3	-	-
SB-43(6"-2)	27-Feb-2012	0.00026 U	0.00087 I	0.00032 U	0.000051 U	0.00037 U	0.0030 I	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.51 I	-	-
SB-43(2'-4')	27-Feb-2012	0.00029 U	0.00053 U	0.00036 U	0.000059 U	0.00042 U	0.0011 U	0.0011 U	0.00085 U	0.00039 U	0.00053 U	1.8	-	-
SB-44 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000054 U	0.00039 U	0.00098 U	0.00099 U	0.00077 U	0.00035 U	0.00053 U	1.5	-	-
SB-45 (0-6")	20-Mar-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.00096 U	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.64 I	-	-
SB-46 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000053 U	0.00038 U	0.00097 U	0.00098 U	0.00077 U	0.00035 U	0.00052 U	0.52 I	-	-
SB-47 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000053 U	0.00038 U	0.00097 U	0.00098 U	0.00077 U	0.00035 U	0.00052 U	0.33 U	-	-
SB-48 (0-6")	20-Mar-2012	0.00026 U	0.00073 I	0.00033 U	0.000053 U	0.00038 U	0.00096 U	0.00097 U	0.00076 U	0.00035 U	0.00052 U	0.59 I	-	-
SB-49 (0-6")	20-Mar-2012	0.00026 U	0.00047 U	0.00033 U	0.000053 U	0.00038 U	0.00096 U	0.00097 U	0.00076 U	0.00035 U	0.0021	0.75 I	-	-
SB-50 (0-6")	20-Mar-2012	0.00025 U	0.00045 U	0.00031 U	0.000051 U	0.00036 U	0.00092 U	0.00093 U	0.00073 U	0.00033 U	0.00049 U	0.43 I	-	-
SB-51 (0-6")	20-Mar-2012	0.00026 U	0.00046 U	0.00032 U	0.000051 U	0.00037 U	0.00093 U	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.55 I	-	-
SB-52 (0-6")	20-Mar-2012	0.00025 U	0.00045 U	0.00031 U	0.000050 U	0.00036 U	0.00091 U	0.00092 U	0.00072 U	0.00033 U	0.00049 U	0.29 U	-	-
SB-53 (0-6")	20-Mar-2012	0.00026 U	0.0029	0.0012	0.000052 U	0.00037 U	0.00094 U	0.00095 U	0.00074 U	0.00034 U	0.00051 U	1.5	-	-
SB-54 (0-6")	20-Mar-2012	0.00026 U	0.00047 U	0.00032 U	0.000052 U	0.00038 U	0.00095 U	0.00096 U	0.00075 U	0.00034 U	0.00051 U	7.4	-	-
SB-55 (0-6")	20-Mar-2012	0.00027 U	0.00049 U	0.00034 U	0.000054 U	0.00039 U	0.00099 U	0.0010 U	0.00078 U	0.00036 U	0.00053 U	1.1 I	-	-
SB-56 (0-6")	20-Mar-2012	0.00032 I	0.0054	0.0014	0.000052 U	0.00037 U	0.00094 U	0.00095 U	0.00074 U	0.00034 U	0.00051 U	2.6	-	-
SB-57 (0-6")	20-Mar-2012	0.00028 U	0.00072 I	0.00035 U	0.000057 U	0.00041 U	0.0010 U	0.0010 U	0.00082 U	0.00038 U	0.0028	1.2 I	-	-
SB-58 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000054 U	0.00039 U	0.00098 U	0.00099 U	0.00077 U	0.00035 U	0.00053 U	1.3	-	-
SB-59 (0-6")	20-Mar-2012	0.00027 U	0.00048 U	0.00033 U	0.000053 U	0.00038 U	0.00097 U	0.00098 U	0.00077 U	0.00035 U	0.00052 U	2.7	-	-
SB-60 (0-6")	20-Mar-2012	0.00027 U	0.00049 U	0.00034 U	0.000055 U	0.00040 U	0.0010 U	0.0010 U	0.00079 U	0.00036 U	0.00054 U	1.1 I	-	-
SB-61 (0-6")	20-Mar-2012	0.00029 U	0.00052 U	0.00036 U	0.000058 U	0.00042 U	0.0011 U	0.0011 U	0.00084 U	0.00038 U	0.00057 U	3.3	-	-
SB-62 (1-2)	20-Mar-2012	0.00026 U	0.0036	0.0047	0.000051 U	0.00037 U	0.031	0.00094 U	0.00073 U	0.00034 U	0.00065 I	0.31 U	-	-
SB-62 (5-6')	20-Mar-2012	0.00026 U	0.00046 U	0.0012	0.000052 U	0.00037 U	0.0034 I	0.00095 U	0.00074 U	0.00034 U	0.00051 U	0.99 I	-	-
SB-62 (9-10')	20-Mar-2012	0.00027 U	0.00092 I	0.004	0.000054 U	0.00039 U	0.0017 I	0.00099 U	0.00077 U	0.00035 U	0.00053 U	1.1 I	-	-

TABLE 1: SOIL ANALYTICAL SUMMARY

(detected analytes only)

BLACKSTONE PARK AND ADJACENT VACANT PARCEL

23rd STREET WEST AND 14th AVENUE

PALMETTO, MANATEE COUNTY

PSI PROJECT NO. 0552863

Sample ID	Date Collected	DDD, 4,4'-	DDE, 4,4'-	DDT, 4,4'-	Aldrin	BHC, b-	Dieldrin	Endosulfan I	Endrin ketone	Heptachlor epoxide	Mirex	Arsenic	Lead	Mercury
SB-63 (1-2')	20-Mar-2012	0.00026 U	0.00046 U	0.00032 U	0.000051 U	0.00037 U	0.00093 U	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.45 I	-	-
SB-63 (5-6')	20-Mar-2012	0.00026 U	0.00046 U	0.0024	0.000051 U	0.00037 U	0.02	0.00094 U	0.00073 U	0.00034 U	0.00050 U	0.88 I	-	-
SB-63 (9-10')	20-Mar-2012	0.00026 U	0.015	0.0063	0.000053 U	0.00038 U	0.11	0.00097 U	0.00076 U	0.0011 I	0.0017 I	0.63 I	-	-
SB-64 (1-2')	20-Mar-2012	0.00026 U	0.00046 U	0.00032 U	0.000052 U	0.00037 U	0.00094 U	0.00095 U	0.00074 U	0.00034 U	0.00051 U	1.4	-	-
SB-64 (5-6')	20-Mar-2012	0.00027 U	0.00049 U	0.00034 U	0.000055 U	0.00040 U	0.0010 U	0.0010 U	0.00079 U	0.00036 U	0.00054 U	1.1 I	-	-
SB-64 (9-10')	20-Mar-2012	0.00027 U	0.00049 U	0.00034 U	0.000054 U	0.00039 U	0.00099 U	0.0010 U	0.00078 U	0.00036 U	0.00053 U	1.3 I	-	-

NOTES

all concentrations reported in mg/kg

U = analyte not detected above noted concentration

I = analyte detected between MDL and PQL; see lab report for additional details

APPENDIX C - MSDS(S)



Right to Know Hazardous Substance Fact Sheet

Common Name: **DIELDRIN**

Synonyms: HEOD; Octalox®; Quintox®

Chemical Name: 2,7:3,6-Dimethanonaphth[2,3-b]Oxirene, 3,4,5,6,9,9-Hexachloro-1a,2,2a,3,6,6a,7,7a-Octahydro-, (1aR,2R,2aS,3S,6R,6aR,7S,7aS)-rel-

Date: November 1998 Revision: January 2009

CAS Number: 60-57-1

RTK Substance Number: 0683

DOT Number: UN 2761

Description and Use

Dieldrin is a white (when pure) to light-tan, crystalline (sand-like) or flaked powder with a chemical-like odor. It was used as an insecticide. Manufacturing and use of **Dieldrin** has been discontinued in the United States.

- ▶ **ODOR THRESHOLD = 0.041 ppm**
- ▶ Odor thresholds vary greatly. Do not rely on odor alone to determine potentially hazardous exposures.

Reasons for Citation

- ▶ **Dieldrin** is on the Right to Know Hazardous Substance List because it is cited by OSHA, ACGIH, DOT, NIOSH, DEP, IARC, IRIS and EPA.
- ▶ This chemical is on the Special Health Hazard Substance List.

SEE GLOSSARY ON PAGE 5.

FIRST AID

Eye Contact

- ▶ Immediately flush with large amounts of water for at least 30 minutes, lifting upper and lower lids. Remove contact lenses, if worn, while flushing. Seek medical attention.

Skin Contact

- ▶ Quickly remove contaminated clothing. Immediately wash contaminated skin with large amounts of soap and water.

Inhalation

- ▶ Remove the person from exposure.
- ▶ Begin rescue breathing (using universal precautions) if breathing has stopped and CPR if heart action has stopped.
- ▶ Transfer promptly to a medical facility.

EMERGENCY NUMBERS

Poison Control: 1-800-222-1222

CHEMTREC: 1-800-424-9300

NJDEP Hotline: 1-877-927-6337

National Response Center: 1-800-424-8802

EMERGENCY RESPONDERS >>>> SEE LAST PAGE

Hazard Summary

Hazard Rating	NJDHSS	NFPA
HEALTH	2	-
FLAMMABILITY	0	-
REACTIVITY	0	-
CARCINOGEN POISONOUS GASES ARE PRODUCED IN FIRE DOES NOT BURN		

Hazard Rating Key: 0=minimal; 1=slight; 2=moderate; 3=serious; 4=severe

- ▶ **Dieldrin** can affect you when inhaled and by passing through the skin.
- ▶ **Dieldrin** should be handled as a CARCINOGEN--WITH EXTREME CAUTION.
- ▶ Contact can irritate and burn the eyes with possible eye damage.
- ▶ **Dieldrin** can cause nausea, vomiting, loss of appetite and weight, and weakness.
- ▶ Exposure can cause headache, dizziness, lightheadedness, and passing out.
- ▶ High or repeated exposure can cause tremors, muscle twitching and seizures (convulsions), and may lead to coma and death.
- ▶ Repeated exposure may cause personality changes.
- ▶ **Dieldrin** may damage the liver.
- ▶ **Dieldrin** does not burn, however, it is often dissolved in a liquid carrier which may be flammable or combustible.

Workplace Exposure Limits

OSHA: The legal airborne permissible exposure limit (PEL) is **0.25 mg/m³** averaged over an 8-hour workshift.

NIOSH: The recommended airborne exposure limit (REL) is **0.25 mg/m³** averaged over a 10-hour workshift.

ACGIH: The threshold limit value (TLV) is **0.25 mg/m³** averaged over an 8-hour workshift.

- ▶ **Dieldrin** may be a CARCINOGEN in humans. There may be no safe level of exposure to a carcinogen, so all contact should be reduced to the lowest possible level.
- ▶ The above exposure limits are for air levels only. When skin contact also occurs, you may be overexposed, even though air levels are less than the limits listed above.

Determining Your Exposure

- ▶ Read the product manufacturer's Material Safety Data Sheet (MSDS) and the label to determine product ingredients and important safety and health information about the product mixture.
- ▶ For each individual hazardous ingredient, read the New Jersey Department of Health and Senior Services Hazardous Substance Fact Sheet, available on the RTK Program website (www.nj.gov/health/eoh/rtkweb) or in your facility's RTK Central File or Hazard Communication Standard file.
- ▶ You have a right to this information under the New Jersey Worker and Community Right to Know Act, the Public Employees Occupational Safety and Health (PEOSH) Act if you are a public worker in New Jersey, and under the federal Occupational Safety and Health Act (OSHA) if you are a private worker.
- ▶ The New Jersey Right to Know Act requires most employers to label chemicals in the workplace and requires public employers to provide their employees with information concerning chemical hazards and controls. The federal OSHA Hazard Communication Standard (29 CFR 1910.1200) and the PEOSH Hazard Communication Standard (N.J.A.C. 12:100-7) require employers to provide similar information and training to their employees.

This Fact Sheet is a summary of available information regarding the health hazards that may result from exposure. Duration of exposure, concentration of the substance and other factors will affect your susceptibility to any of the potential effects described below.

Health Hazard Information

Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to **Dieldrin**:

- ▶ Contact can irritate and burn the eyes with possible eye damage.
- ▶ **Dieldrin** can cause nausea, vomiting, loss of appetite and weight, and weakness.
- ▶ Exposure can cause headache, dizziness, lightheadedness, and passing out.

Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to **Dieldrin** and can last for months or years:

Cancer Hazard

- ▶ **Dieldrin** may be a CARCINOGEN in humans since it has been shown to cause liver cancer in animals.
- ▶ Many scientists believe there is no safe level of exposure to a carcinogen.

Reproductive Hazard

- ▶ **Dieldrin** may damage the developing fetus and may decrease fertility in males and females.
- ▶ **Dieldrin** concentrates in breast milk and, therefore, may be transferred to breastfeeding infants.

Other Effects

- ▶ High or repeated exposure can cause tremors, muscle twitching and seizures (convulsions), and may lead to coma and death.
- ▶ Repeated exposure may cause personality changes such as depression, anxiety or irritability.
- ▶ **Dieldrin** may damage the liver.

Medical

Medical Testing

Before beginning employment and at regular times thereafter, (at least annually), the following are recommended:

- ▶ Blood **Dieldrin** level (Norm = less than 1 mg/100 ml; level should not exceed 15 mg/100 ml).
- ▶ Exam of the nervous system

If symptoms develop or overexposure is suspected, the following are recommended:

- ▶ Liver function tests

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under the OSHA Access to Employee Exposure and Medical Records Standard (29 CFR 1910.1020).

Mixed Exposures

- ▶ More than light alcohol consumption can cause liver damage. Drinking alcohol can increase the liver damage caused by **Dieldrin**.

Workplace Controls and Practices

Very toxic chemicals, or those that are reproductive hazards or sensitizers, require expert advice on control measures if a less toxic chemical cannot be substituted. Control measures include: (1) enclosing chemical processes for severely irritating and corrosive chemicals, (2) using local exhaust ventilation for chemicals that may be harmful with a single exposure, and (3) using general ventilation to control exposures to skin and eye irritants. For further information on workplace controls, consult the NIOSH document on Control Banding at www.cdc.gov/niosh/topics/ctrlbanding/.

The following work practices are also recommended:

- ▶ Label process containers.
- ▶ Provide employees with hazard information and training.
- ▶ Monitor airborne chemical concentrations.
- ▶ Use engineering controls if concentrations exceed recommended exposure levels.
- ▶ Provide eye wash fountains and emergency showers.
- ▶ Wash or shower if skin comes in contact with a hazardous material.
- ▶ Always wash at the end of the workshift.
- ▶ Change into clean clothing if clothing becomes contaminated.
- ▶ Do not take contaminated clothing home.
- ▶ Get special training to wash contaminated clothing.
- ▶ Do not eat, smoke, or drink in areas where chemicals are being handled, processed or stored.
- ▶ Wash hands carefully before eating, smoking, drinking, applying cosmetics or using the toilet.

In addition, the following may be useful or required:

- ▶ Use a vacuum or a wet method to reduce dust during clean-up. DO NOT DRY SWEEP.
- ▶ Use a high efficiency particulate air (HEPA) filter when vacuuming. Do not use a standard shop vacuum.

Personal Protective Equipment

The OSHA Personal Protective Equipment Standard (29 CFR 1910.132) requires employers to determine the appropriate personal protective equipment for each hazard and to train employees on how and when to use protective equipment.

The following recommendations are only guidelines and may not apply to every situation.

Gloves and Clothing

- ▶ Avoid skin contact with **Dieldrin**. Wear personal protective equipment made from material which can not be permeated or degraded by this substance. Safety equipment suppliers and manufacturers can provide recommendations on the most protective glove and clothing material for your operation.
- ▶ Safety equipment manufacturers recommend Nitrile and Natural Rubber for gloves, and Tyvek® as a protective clothing material.
- ▶ All protective clothing (suits, gloves, footwear, headgear) should be clean, available each day, and put on before work.

Eye Protection

- ▶ Wear eye protection with side shields or goggles.
- ▶ If additional protection is needed for the entire face, use in combination with a face shield. A face shield should not be used without another type of eye protection.

Respiratory Protection

Improper use of respirators is dangerous. Respirators should only be used if the employer has implemented a written program that takes into account workplace conditions, requirements for worker training, respirator fit testing, and medical exams, as described in the OSHA Respiratory Protection Standard (29 CFR 1910.134).

- ▶ Where the potential exists for exposure over **0.25 mg/m³**, use a NIOSH approved supplied-air respirator with a full facepiece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive-pressure mode.
- ▶ Exposure to **50 mg/m³** is immediately dangerous to life and health. If the possibility of exposure above **50 mg/m³** exists, use a NIOSH approved self-contained breathing apparatus with a full facepiece operated in a pressure-demand or other positive-pressure mode equipped with an emergency escape air cylinder.

Fire Hazards

If employees are expected to fight fires, they must be trained and equipped as stated in the OSHA Fire Brigades Standard (29 CFR 1910.156).

- ▶ **Dieldrin** does not burn, however, it is often dissolved in a liquid carrier which may be flammable or combustible.
- ▶ **POISONOUS GASES ARE PRODUCED IN FIRE**, including *Hydrogen Chloride* and *Chlorine*.
- ▶ Use water spray to keep fire-exposed containers cool.

Spills and Emergencies

If employees are required to clean-up spills, they must be properly trained and equipped. The OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) may apply.

If **Dieldrin** is spilled, take the following steps:

- ▶ Evacuate personnel and secure and control entrance to the area.
- ▶ Eliminate all ignition sources.
- ▶ Moisten spilled material first or use a HEPA-filter vacuum for clean-up and place into sealed containers for disposal.
- ▶ Ventilate and wash area after clean-up is complete.
- ▶ DO NOT wash into sewer.
- ▶ It may be necessary to contain and dispose of **Dieldrin** as a HAZARDOUS WASTE. Contact your state Department of Environmental Protection (DEP) or your regional office of the federal Environmental Protection Agency (EPA) for specific recommendations.

Handling and Storage

Prior to working with **Dieldrin** you should be trained on its proper handling and storage.

- ▶ **Dieldrin** may react violently with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE) and STRONG ACIDS (such as HYDROCHLORIC, SULFURIC and NITRIC).
- ▶ **Dieldrin** is not compatible with MINERAL ACIDS; ACID CATALYSTS; PHENOLS; METALS (such as COPPER, ZINC, and IRON and their SALTS); and ALKALI METALS (such as MAGNESIUM, SODIUM and POTASSIUM).
- ▶ Store in tightly closed containers in a cool, well-ventilated area away from HIGH TEMPERATURES.
- ▶ **Dieldrin** is slightly corrosive to METALS.

Occupational Health Information Resources

The New Jersey Department of Health and Senior Services, Occupational Health Service, offers multiple services in occupational health. These services include providing informational resources, educational materials, public presentations, and industrial hygiene and medical investigations and evaluations.

For more information, please contact:

New Jersey Department of Health & Senior Services
Right to Know Program
PO Box 368
Trenton, NJ 08625-0368
Phone: 609-984-2202
Fax: 609-984-7407
E-mail: rtk@doh.state.nj.us
Web address: <http://www.nj.gov/health/eoh/rtkweb>

***The Right to Know Hazardous Substance Fact Sheets
are not intended to be copied and sold
for commercial purposes.***

GLOSSARY

ACGIH is the American Conference of Governmental Industrial Hygienists. They publish guidelines called Threshold Limit Values (TLVs) for exposure to workplace chemicals.

Acute Exposure Guideline Levels (AEGLs) are established by the EPA. They describe the risk to humans resulting from once-in-a-lifetime, or rare, exposure to airborne chemicals.

Boiling point is the temperature at which a substance can change its physical state from a liquid to a gas.

A **carcinogen** is a substance that causes cancer.

The **CAS number** is unique, identifying number, assigned by the Chemical Abstracts Service, to a specific chemical.

CFR is the Code of Federal Regulations, which are the regulations of the United States government.

A **combustible** substance is a solid, liquid or gas that will burn.

A **corrosive** substance is a gas, liquid or solid that causes destruction of human skin or severe corrosion of containers.

DEP is the New Jersey Department of Environmental Protection.

DOT is the Department of Transportation, the federal agency that regulates the transportation of chemicals.

EPA is the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

ERG is the Emergency Response Guidebook. It is a guide for emergency responders for transportation emergencies involving hazardous substances.

Emergency Response Planning Guideline (ERPG) values provide estimates of concentration ranges where one reasonably might anticipate observing adverse effects.

A **fetus** is an unborn human or animal.

A **flammable** substance is a solid, liquid, vapor or gas that will ignite easily and burn rapidly.

The **flash point** is the temperature at which a liquid or solid gives off vapor that can form a flammable mixture with air.

IARC is the International Agency for Research on Cancer, a scientific group.

Ionization Potential is the amount of energy needed to remove an electron from an atom or molecule. It is measured in electron volts.

IRIS is the Integrated Risk Information System database on human health effects that may result from exposure to various chemicals, maintained by federal EPA.

LEL or Lower Explosive Limit, is the lowest concentration of a combustible substance (gas or vapor) in the air capable of continuing an explosion.

mg/m³ means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

A **mutagen** is a substance that causes mutations. A **mutation** is a change in the genetic material in a body cell. Mutations can lead to birth defects, miscarriages, or cancer.

NFPA is the National Fire Protection Association. It classifies substances according to their fire and explosion hazard.

NIOSH is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

NTP is the National Toxicology Program which tests chemicals and reviews evidence for cancer.

OSHA is the federal Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

PEOSHA is the New Jersey Public Employees Occupational Safety and Health Act, which adopts and enforces health and safety standards in public workplaces.

Permeated is the movement of chemicals through protective materials.

ppm means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

Protective Action Criteria (PAC) are values established by the Department of Energy and are based on AEGLs and ERPGs. They are used for emergency planning of chemical release events.

A **reactive** substance is a solid, liquid or gas that releases energy under certain conditions.

STEL is a Short Term Exposure Limit which is usually a 15-minute exposure that should not be exceeded at any time during a work day.

A **teratogen** is a substance that causes birth defects by damaging the fetus.

UEL or Upper Explosive Limit is the highest concentration in air above which there is too much fuel (gas or vapor) to begin a reaction or explosion.

Vapor Density is the ratio of the weight of a given volume of one gas to the weight of another (usually *Hydrogen*), at the same temperature and pressure.

The **vapor pressure** is a force exerted by the vapor in equilibrium with the solid or liquid phase of the same substance. The higher the vapor pressure the higher concentration of the substance in air.



Right to Know Hazardous Substance Fact Sheet

**Emergency
Responders
Quick Reference**

Common Name: **DIELDRIN**

Synonyms: HEOD; Octalox®; Quintox®

CAS No: 60-57-1

Molecular Formula: $C_{12}H_8Cl_6O$

RTK Substance No: 0683

Description: White (when pure) to light-tan, crystalline or flaked powder with a chemical-like odor

HAZARD DATA

Hazard Rating	Firefighting	Reactivity
2 - Health 0 - Fire 0 - Reactivity DOT#: UN 2761 ERG Guide #: 151 Hazard Class: 6.1 (Poison)	Dieldrin does not burn, however, it is often dissolved in a liquid carrier which may be flammable or combustible. POISONOUS GASES ARE PRODUCED IN FIRE , including <i>Hydrogen Chloride</i> and <i>Chlorine</i> . Use water spray to keep fire-exposed containers cool.	Dieldrin may react violently with OXIDIZING AGENTS (such as PERCHLORATES , PEROXIDES , PERMANGANATES , CHLORATES , NITRATES , CHLORINE , BROMINE and FLUORINE) and STRONG ACIDS (such as HYDROCHLORIC , SULFURIC and NITRIC). Dieldrin is not compatible with MINERAL ACIDS ; ACID CATALYSTS ; PHENOLS ; METALS (such as COPPER , ZINC , and IRON and their SALTS); and ALKALI METALS (such as MAGNESIUM , SODIUM and POTASSIUM).

SPILL/LEAKS

Isolation Distance:

Spill: 25 meters (75 feet)

Fire: 800 meters (1/2 mile)

Moisten spilled material first or use a HEPA-filter vacuum for clean-up and place into sealed containers for disposal.

Ventilate and wash area after clean-up is complete.

DO NOT wash into sewer.

Dieldrin is very toxic to aquatic life and bees. It is also persistent in the environment.

PHYSICAL PROPERTIES

Odor Threshold:	0.041 ppm
Flash Point:	Noncombustible
Vapor Density:	13.2 (air = 1)
Vapor Pressure:	8×10^{-7} mm Hg at 68°F (20°C)
Specific Gravity:	1.75 (water = 1)
Water Solubility:	Insoluble
Boiling Point:	Decomposes
Melting Point:	347° to 349°F (175° to 176°C)
Molecular Weight:	380.9

EXPOSURE LIMITS

OSHA: 0.25 mg/m³, 8-hr TWA

NIOSH: 0.25 mg/m³, 10-hr TWA

ACGIH: 0.25 mg/m³, 8-hr TWA

IDLH: 50 mg/m³

The Protective Action Criteria values are:

PAC-1 = 0.75 mg/m³

PAC-2 = 2.5 mg/m³

PAC-3 = 50 mg/m³

PROTECTIVE EQUIPMENT

Gloves:	Nitrile and Natural Rubber
Coveralls:	Tyvek®
Respirator:	>0.25 mg/m ³ - Supplied air >0.75 mg/m ³ - SCBA

HEALTH EFFECTS

Eyes:	Irritation and burns
Skin:	No information available
Inhalation:	Headache, nausea, vomiting, dizziness, lightheadedness, and passing out
Chronic:	Cancer (liver) in animals

FIRST AID AND DECONTAMINATION

Remove the person from exposure.
Flush eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention.
Quickly remove contaminated clothing and immediately wash contaminated skin with large amounts of soap and water.
Begin artificial respiration if breathing has stopped and CPR if necessary.
Transfer promptly to a medical facility.



Health	3
Fire	1
Reactivity	2
Personal Protection	E

Material Safety Data Sheet

Arsenic MSDS

Section 1: Chemical Product and Company Identification

Product Name: Arsenic

Catalog Codes: SLA1006

CAS#: 7440-38-2

RTECS: CG0525000

TSCA: TSCA 8(b) inventory: Arsenic

CI#: Not applicable.

Synonym:

Chemical Name: Arsenic

Chemical Formula: As

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Arsenic	7440-38-2	100

Toxicological Data on Ingredients: Arsenic: ORAL (LD50): Acute: 763 mg/kg [Rat]. 145 mg/kg [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant), of eye contact (irritant).

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, the nervous system, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks, of heat, of oxidizing materials.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:

Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits highly toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids, moisture.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 0.01 from ACGIH (TLV) [United States] [1995] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 74.92 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: Not available.

Melting Point: Sublimation temperature: 615°C (1139°F)

Critical Temperature: Not available.

Specific Gravity: 5.72 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents, acids, moisture.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 145 mg/kg [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A1 (Confirmed for human.) by ACGIH. Causes damage to the following organs: kidneys, lungs, the nervous system, mucous membranes.

Other Toxic Effects on Humans:

Very hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Arsenic UNNA: UN1558 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Arsenic California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Arsenic Pennsylvania RTK: Arsenic Massachusetts RTK: Arsenic TSCA 8(b) inventory: Arsenic

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:**WHMIS (Canada):**

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R22- Harmful if swallowed. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 2

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 1

Reactivity: 2

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information**References:**

-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérigènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangereuses au Canada. Centre de conformité international Ltée. 1986.

Other Special Considerations: Not available.

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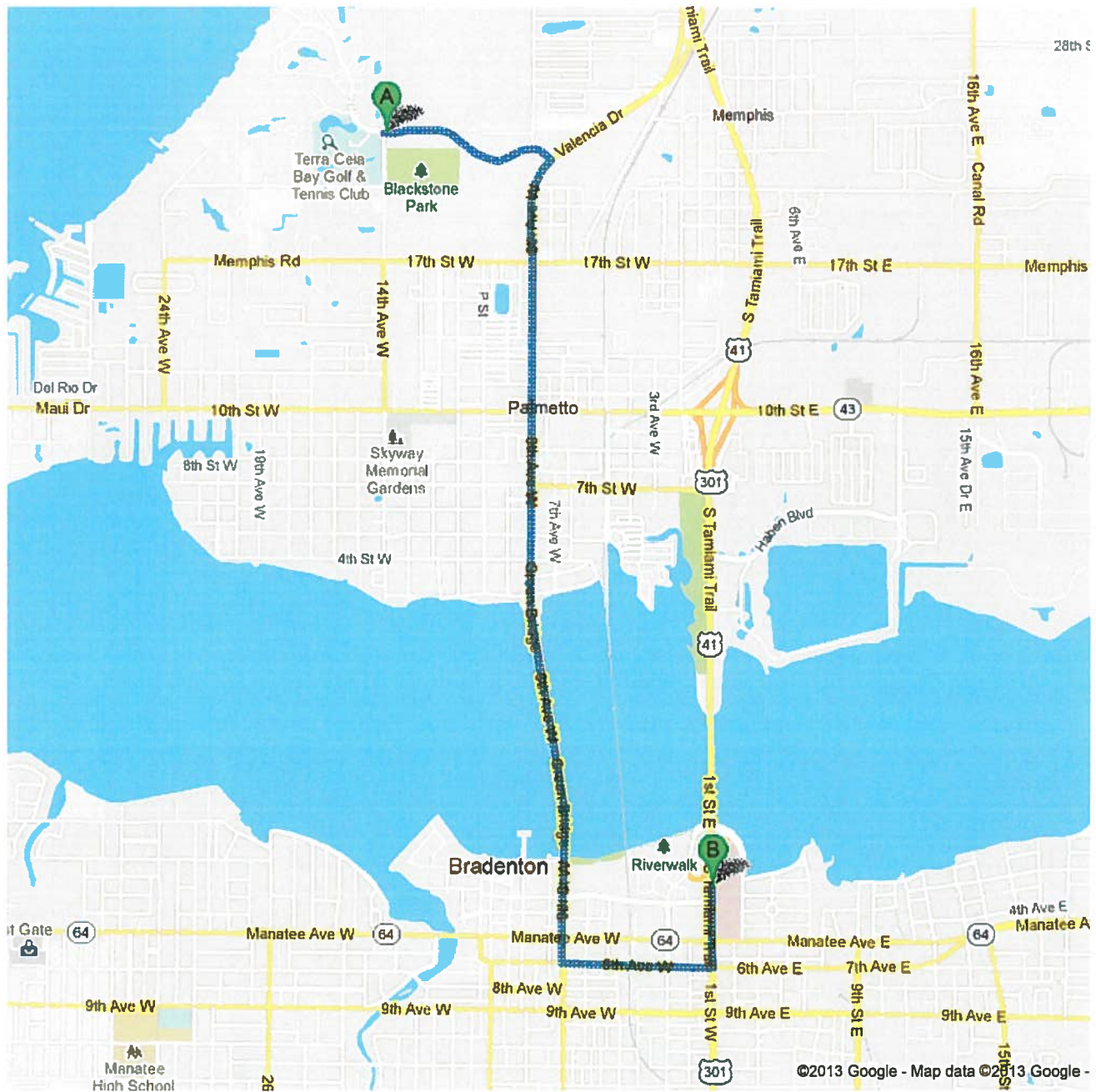
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APPENDIX D - HOSPITAL ROUTE & MAP



Directions to Manatee Memorial Hospital
206 Second Street East, Bradenton, FL 34208
4.2 mi – about 9 mins



A 14th Ave W & 23rd St W, Palmetto, FL 34221

1. Head **east** on **23rd St W** toward **8th Ave W**
About 1 min go 0.6 mi
total 0.6 mi
-  2. Turn right onto **Valencia Dr** go 0.1 mi
total 0.7 mi
-  3. Continue onto **US-41 BUS S/8th Ave W**
Continue to follow US-41 BUS S
About 5 mins go 2.7 mi
total 3.4 mi
-  4. Turn left onto **6th Ave W**
About 1 min go 0.5 mi
total 3.9 mi
-  5. Turn left onto **S Tamiami Trail**
Destination will be on the right
About 2 mins go 0.3 mi
total 4.2 mi

B Manatee Memorial Hospital 206 Second Street East, Bradenton, FL 34208

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2013 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

APPENDIX E - DAILY SIGN IN SHEET(S)

SITE HEALTH & SAFETY MEETING SIGN-IN SHEET

SITE & PSI PROJECT #: _____ DATE: _____

TASKS/SCOPE: _____

HAZARDS & TOPICS: _____

[illegible]

SITE HEALTH & SAFETY MEETING SIGN-IN SHEET

SITE & PSI PROJECT #: _____ DATE: _____

TASKS/SCOPE: _____

HAZARDS & TOPICS: _____

[illegible]

SITE HEALTH & SAFETY MEETING SIGN-IN SHEET

SITE & PSI PROJECT #: _____ DATE: _____

TASKS/SCOPE: _____

HAZARDS & TOPICS: _____

[illegible]

JSA(S)

EXCAVATION, SHORING AND TRENCHING PROGRAM

“While PSI normally does not create excavations employees should never enter an excavation that does not meet the requirements set out in this program.”

1.0 PURPOSE

The purpose of this policy is to provide guidelines that are necessary to meet the requirements of the OSHA excavation standard 29 CFR1926 Subpart P. Excavations have a very high potential of becoming hazardous if safety requirements are not strictly followed. Professional Service Industries, Inc. (PSI) employees involved in the process of performing excavation or working near or in an excavation are to use the guidelines in this procedure to determine if it is safe to work in these areas.

2.0 POLICY

While PSI does not typically perform excavation or trenching, PSI employees are occasionally exposed to these types of hazards. This program provides guidelines for PSI managers to ensure safe work practices apply to all operations where PSI employees may be exposed to excavation, shoring and trenching hazards under normal working conditions and non-routine tasks, whether PSI controls the site or not.

As a minimum, PSI work sites will comply with federal, state, and local regulations pertaining to the protection of workers who may be exposed to these hazards.

3.0 RESPONSIBILITIES

- 3.1 Employees** – Are responsible for adhering to the guidelines of this procedure. Employees shall read and understand this procedure, use good work practices, and follow applicable safety rules and regulations.
- 3.2 Supervisors** – Are responsible for ensuring that employees adhere to the guidelines of this procedure. The supervisor or designee, prior to working at an excavation, shall conduct a site survey to ensure proper shoring techniques.
- 3.3 Branch/Department Managers (Site Safety Officer)** – Are responsible for program implementation training and compliance with federal, state and local regulations. The local Branch/Department Manager or designee will be the Excavation, Shoring and Trenching Administrator of this program.
- 3.4 Corporate Safety Department** – Will maintain the Excavation, Shoring and Trenching Program and revise the program as needed. The Corporate Safety Department will provide assistance when requested by local PSI offices.

4.0 KEY POINTS

- 4.1** It shall be the responsibility of the job site supervisor (competent person), typically not a PSI employee, to verify through daily inspections, that the job is complying with this procedure, for work being performed in the excavation.
- 4.2** Conditions in and around an excavation may vary daily due to changes in weather conditions, the type of work being performed and the equipment being used in the area. An audit form will be filled out daily by the PSI job site designee. (See Attachment III.)
- 4.3** OSHA 1926 Subpart P -Excavation, Trenching and Shoring covers the entire excavation standard. This standard should be followed in any situation not covered in this procedure.

4.4 COMPETENT PERSON

There shall be a competent person on each job site where excavation is being performed. The competent person, who is typically not a PSI employee, will be responsible for the following:

- Perform inspections as dictated by the work being performed in the trench.
- Perform inspections after every rainstorm or other events such as snowstorm, windstorm, thaw, earthquake or any dramatic changes in the weather.
- Perform inspections whenever fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom or other similar conditions exist.
- Perform inspections whenever there is a change in size, location or placement of the soil pile.
- Perform inspections whenever there is an indication of a change or movement in adjacent structures.
- Perform soil analysis using visual test, a pocket penetrometer, thumb penetration tests, sheervane or torvane tests, dry strength test, plasticity or wet thread test or any combination of these tests.

5.0 DEFINITIONS:

- 5.1 ACCEPTED ENGINEERING PRACTICES** - are procedures compatible with the standards of practice required of a registered professional engineer.
- 5.2 ADJACENT STRUCTURE STABILITY** - refers to the stability of the foundation(s) of adjacent structures whose location may create surcharges, changes in soil conditions, or other disruptions that have the potential to extend into the failure zone of the excavation or trench.
- 5.3 BRACE (TRENCH)** – is a horizontal member of the shoring system whose ends bear against the uprights or stringers.
- 5.4 COMPETENT PERSON** - means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them
- 5.5 CONFINED SPACE** - is a space that, by design and/or configuration, has limited openings for entry and exit, unfavorable natural ventilation, may contain or produce hazardous substances, and/or is not intended for continuous employee occupancy.
- 5.6 EXCAVATION** - An **Excavation** is any man-made cut, cavity, trench, or depression in an earth surface that is formed by earth removal. A **Trench** is narrow excavation (in relation to its length) made below the surface of the ground. In general, the width of a trench is not greater than 15 ft. (4.6 m). If a form or other structure installed or constructed in an excavation reduces the distance between the form and the side of the excavation to 15 ft. (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.
- 5.7 HAZARDOUS ATMOSPHERE** - is an atmosphere that by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen-deficient, toxic, or otherwise harmful may cause death, illness, or injury to persons exposed to it.
- 5.8 INGRESS AND EGRESS** - mean "entry" and "exit," respectively. In trenching and excavation operations, they refer to the provision of safe means for employees to enter or exit an excavation or trench.
- 5.9 KICKOUTS** – are accidental releases or failures of a shore or brace.

- 5.10 PROTECTIVE SYSTEMS** - refers to a method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, and from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.
- 5.11 REGISTERED PROFESSIONAL ENGINEER** - is a person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer who is registered in any state is deemed to be a "registered professional engineer" within the meaning of Subpart P when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.
- 5.12 SIDES, WALLS, OR FACES** - are the vertical or inclined earth surfaces formed as a result of excavation work.
- 5.13 SLOPE** – is the angle with the horizontal at which a particular earth material will stand indefinitely without movement.
- 5.14 STRINGERS** – are the horizontal members of a shoring system whose sides bear against the uprights or earth.
- 5.15 SUPPORT SYSTEM** - refers to structures such as underpinning, bracing, and shoring that provide support to an adjacent structure or underground installation or to the sides of an excavation or trench.
- 5.16 SUBSURFACE ENCUMBRANCES** - include underground utilities, foundations, streams, water tables, transformer vaults, and geological anomalies.
- 5.17 SURCHARGE** - means an excessive vertical load or weight caused by spoil, overburden, vehicles, equipment, or activities that may affect trench stability.
- 5.18 TABULATED DATA** - are tables and charts approved by a registered professional engineer and used to design and construct a protective system.
- 5.19 TRENCH** – is a narrow excavation made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 ft.
- 5.20 TRENCH JACK** – is a screw or hydraulic type jack used as cross bracing in a trench shoring system.
- 5.21 TRENCH SHIELD** – is a shoring system composed of steel plates and bracing

welded or bolted together, which support the walls of a trench from the ground level to the trench bottom and which can be moved along as work progresses.

5.22 UNDERGROUND INSTALLATIONS - include, but are not limited to, utilities (sewer, telephone, fuel, electric, water, and other product lines), tunnels, shafts, vaults, foundations, and other underground fixtures or equipment that may be encountered during excavation or trenching work.

5.23 UNCONFINED COMPRESSIVE STRENGTH - is the load per unit area at which soil will fail in compression. This measure can be determined by laboratory testing or it can be estimated in the field using a pocket penetrometer, by thumb penetration tests, or by other methods.

5.24 UNSTABLE SOIL – are earth materials that, because of their nature or the influence of related conditions, cannot be depended upon to remain in place without extra support, such as would be furnished by a system of shoring.

5.25 UPRIGHTS – are the vertical members of a shoring system.

5.26 DEFINITIONS THAT ARE NO LONGER APPLICABLE. For a variety of reasons, several terms commonly used in the past are no longer used in revised Subpart P. These include the following:

- **Angle of Repose** - Conflicting and inconsistent definitions have led to confusion as to the meaning of this phrase. This term has been replaced by **Maximum Allowable Slope**.
- **Bank, Sheet Pile, and Walls** - Previous definitions were unclear or were used inconsistently in the former standard.
- **Hard Compact Soil** and **Unstable Soil** - The new soil classification system in revised Subpart P uses different terms for these soil types.

6.0 SPECIAL HEALTH AND SAFETY CONSIDERATIONS

6.1 COMPETENT PERSON - The designated competent person should have and be able to demonstrate the following:

- Training, experience, and knowledge of:
 - soil analysis
 - use of protective systems; and
 - requirements of 29 CFR Part 1926 Subpart P.

- Ability to detect
 - conditions that could result in cave-ins;
 - failures in protective systems;
 - hazardous atmospheres; and
 - other hazards including those associated with confined spaces.
- Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

6.2 SURFACE CROSSING OF TRENCHES - Surface crossing of trenches should be discouraged; however, if trenches must be crossed, such crossings are permitted only under the following conditions:

- Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.
- Walkways or bridges must be provided for foot traffic. These structures shall:
 - have a minimum safety factor of 4; the **safety factor**, is a multiplier applied to the calculated maximum load (force, torque, bending moment or a combination) to which a component or assembly will be subjected.
 - have minimum clear width of 20 in. (0.51m);
 - be fitted with standard side rails; and
 - extend a minimum of 24 in. (.61 m) past the surface edge of the trench.

6.3 INGRESS AND EGRESS - Access to and exit from the trench require the following conditions:

- Trenches 4 ft. or more in depth should be provided with a fixed means of egress.
- Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 ft. laterally to the nearest means of egress.
- Ladders must be secured and extended a minimum of 36 in. (0.9 m) above the landing.
- Metal ladders should be used with caution, particularly when electric utilities are present.

6.4 EXPOSURE TO VEHICLES - Precautions to protect employees from being injured or killed by vehicle traffic include:

- Providing employees with and requiring them to wear warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials.
- Requiring a designated, trained flag person along with signs, signals, and barricades when necessary.

6.5 EXPOSURE TO FALLING LOADS - Employees must be protected from loads or objects falling from lifting or digging equipment. Precautions designed to ensure their protection include:

- Employees are not permitted to work under raised loads.
- Employees are required to stand away from equipment that is being loaded or unloaded.
- Equipment operators or truck drivers may stay in their equipment during loading and unloading only if the equipment is properly equipped with a cab shield or adequate canopy.

6.6 WARNING SYSTEMS FOR MOBILE EQUIPMENT - The following steps should be taken to prevent vehicles from accidentally falling into the trench:

- Barricades must be installed where necessary.
- Hand or mechanical signals must be used as required.
- Stop logs must be installed if there is a danger of vehicles falling into the trench.
- Soil should be graded away from the excavation; this will assist in vehicle control and channeling of run-off water away from the trench.

6.7 HAZARDOUS ATMOSPHERES AND CONFINED SPACES - Employees shall not be permitted to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:

- Less than 19.5% or more than 23.5% oxygen,
- A combustible gas concentration greater than 10% of the lower flammable limit, or
- Concentrations of hazardous substances that exceed those specified in the Threshold Limit Values for Airborne Contaminants established by the ACGIH (American Conference of Governmental Industrial Hygienists).

All operations involving such atmosphere must be conducted in accordance with OSHA requirements for occupational health and environmental controls (see Subpart D of 29 CFR 1926) for personal protective equipment and for lifesaving equipment (see Subpart E, 29 CFR 1926). Engineering controls (e.g., ventilation) and respiratory protection may be required. (See SHM 8, Respiratory Protection Program and SHM 12, Confined Space Entry Program for further information)

When testing for atmospheric contaminants, the following should be considered:

- Testing should be conducted before employees enter the trench and should be done regularly to ensure that the trench remains safe.
- The frequency of testing should be increased if equipment is operating in the trench.
- Testing frequency should also be increased if welding, cutting, or burning is done in the trench.

Employees required to wear respiratory protection must be trained, fit-tested, and enrolled in a respiratory protection program. Some trenches qualify as confined spaces. When this occurs, compliance with the Confined Space Standard is also required.

Trenches or excavations 4 feet or deeper will be considered a confined space. For trenches and excavations with no other hazards, a confined space permit will not be required. For any trench or excavation with any known hazard (oxygen deficient/enriched, seeping water, contaminated soil, under ground utility concerns, etc.) will be classified as a permit-required confined space and subject to the OSHA standard 1910.146 Permit-Required Confined Space, and PSI policy SOP SF-12 Confined Space Entry Program.

6.8 EMERGENCY RESCUE EQUIPMENT - Emergency rescue equipment is required when a hazardous atmosphere exists or can reasonably be expected to exist. Requirements are as follows:

- Respirators must be of the type suitable for the exposure. Employees must be trained in their use and a respirator program must be instituted.
- Attended (at all times) lifelines must be provided when employees enter bell-bottom pier holes, deep confined spaces, or other similar hazards.

7.0 EXCAVATION OPERATIONS

These steps must be followed for all excavations that PSI is the controlling contractor.

- 7.1** A survey shall be made of the site to be excavated prior to digging to locate all underground pipelines, electrical conduits, sewer lines, and any other underground utilities. When excavation approaches the estimated location of these installations, the exact location shall be determined and secured. Utility companies shall be contacted at least 48 hours prior to beginning excavation operations and the utility excavations must be protected when opened.
- 7.2** Any other recognizable hazard to the excavation work should be identified at this time and precautionary measures taken.
- 7.3** The approximate size (length, depth and width) of the excavation shall be established before the excavation begins.
- 7.4** Excavations that are 4 ft. or deeper will require a confined space entry permit. Any excavation can be classified as a confined space, and if so classified, all confined space requirements are in effect.
- 7.5** When possible, before machine excavation begins, pipelines should be depressurized and hand digging should be completed around pipelines, utilities, and cathodic protection system components. (Use caution when excavating around lines that may be severely corroded).

8.0 SEQUENCE OF EXCAVATION PROCEDURE

- 8.1** The soil type shall be identified as the excavation is being opened.
- 8.2** Evaluate the possible influence by:
 - Changes in materials from exposure to air, sun, water or temperatures.
 - Loading imposed by structures, equipment, or stored material.
 - Vibration from equipment, traffic, or other sources.
- 8.3** Determine the method of protection from cave-ins to be used: sloping or shoring.
- 8.4** Develop an action plan to prevent movement of the side, walls or faces of the excavation, and communicate the plan to all affected personnel.

- 8.5** The field supervisor for the job shall have the responsibility for carrying out the action plan.

9.0 REQUIREMENTS

- 9.1** The walls and faces of all excavations in which employees are exposed to danger from moving soil shall be guarded by a shoring system, sloping of the ground, or some other accepted equivalent means.
- 9.2** All materials, whether excavated or otherwise, shall be effectively stored and retained at least 2 ft. from the edge of all excavations that personnel may enter.
- 9.3** Excavations exceeding 5 ft. in depth shall be shored or laid back to a stable slope. Refer to Attachment I as a guide in sloping of banks. These diagrams are for soil types A and B. Soil type A means cohesive soils with an unconfined compressive strength of 1.5 tons per square foot or greater. Examples of cohesive soils are: clay, silty clay, sandy clay and clay loam. Cemented soils such as caliche and hard pan are also considered Type A soil. Type B soil means cohesive soils with an unconfined compressive strength greater than 0.5 tons per square foot. Examples of Type B soil are: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.

In most cases Type B soil should be used as a guideline for shoring or sloping, unless testing shows it to be a Type A soil. Attachment I identifies the minimum requirements for trench timbering and shoring.

- 9.4** All slopes shall be excavated to no more than the maximum allowable slope, except for areas where solid rock allows for line drilling or presplitting.
- 9.5** When employees are required to be in excavations 4 ft. or more in depth, an adequate means of access and egress, such as a ladder, stairs and etc. shall be provided, so that no more than 25 ft. of lateral travel for employees is required.
- 9.6** Personal protective equipment shall be listed on the excavation permit. This equipment could include items such as goggles, chemical suit, rubber boots, chemical gloves, SCBA, and/or other respiratory protection systems.
- 9.7** When employees are exposed to public vehicular traffic, they will be furnished warning vests or other suitable garments marked with or made of reflectorized or high-visibility materials. The PSI supervisor or his/her designee is responsible for issuing these. The PSI supervisor or his/her designee is also responsible for ensuring that all affected employees wear the required safety equipment.
- 9.8** No employee shall be permitted underneath loads handled by lifting or digging

equipment. Employees will stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped in accordance with OSHA 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

- 9.9** Employees shall not work in excavations in which there is accumulated water or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and life line.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations will be monitored by the job site supervisor. The job site supervisor will inspect the job site prior to any work. This inspection will cover all equipment and any other conditions that could affect the safety of the employees.

- 9.10** A competent person shall be stationed at the top of the excavation to serve as "hole watch" for employees working down in the excavation. The hole watch should have a means of contacting help if an emergency occurs. A hole watch will be required if the excavation is 5 ft. or greater in depth.
- 9.11** All excavations shall be barricaded in a manner that provides adequate physical protection.
- 9.12** Excavations that have a potential for the presence of hydrocarbon vapor or any oxygen deficiency shall be tested before employees are permitted to enter.
- 9.13** When it is necessary to have employees cross the excavation, a crossing and walkway must be in place, and there must be barricades (railings) to prevent anyone from falling into the excavation.
- 9.14** Employees are prohibited in the excavation when heavy equipment is digging.
- 9.15** Excavations or trenches 20 ft. or deeper shall have a protective system designed by a registered professional engineer.
- 9.16** Excavations under the base of a footing or other foundation will require a support system designed by a registered professional engineer.
- 9.17** Sidewalks and pavement shall not be undermined unless a support system is in

place.

10.0 TRAINING

- 10.1** The Department Manager will train all employees who might be exposed to excavation and trenching hazards on the requirements of this procedure. This training will enable the employee to recognize the hazards of excavation and trenching and will familiarize the employee with the procedures to follow to minimize these hazards.
- 10.2** Training will be documented with the employee's name, employee number, job title, signature, signature of the trainer, and test score. The Department Manager will determine when the employee has received and understood the training. This will be based on the written test given at the training session and observation by the supervisor or manager.
- 10.3** Training will include the following:
- Instruction, experience, and knowledge of:
 - soil analysis
 - use of protective systems; and
 - requirements of 29 CFR Part 1926 Subpart P.
 - Ability to detect
 - conditions that could result in cave-ins;
 - failures in protective systems;
 - hazardous atmospheres; and
 - other hazards including those associated with confined spaces
- 10.4** The Department Manager will re-train any time the following changes occur:
- Deficiencies in training (employee has not retained knowledge of excavation, shoring and trenching safety protection).
 - Work place changes

APPENDIX I

OVERVIEW: SOIL MECHANICS

A number of stresses and deformations can occur in an open excavation or trench. For example, increases or decreases in moisture content can adversely affect the stability of a trench or excavation. The following show some of the more frequently identified causes of trench failure.

A. TENSION CRACKS - Tension cracks usually form parallel to the top edge of the trench at a horizontal distance of 0.5 to 0.75 times the depth of the trench, measured from the top of the vertical face of the trench.

B. SLIDING or sloughing of the trench walls may occur as a result of tension cracks.

C. TOPPLING - In addition to sliding, tension cracks can cause toppling. Toppling occurs when the trench's vertical face shears along the tension crack line and topples into the excavation.

D. SUBSIDENCE AND BULGING – an unsupported excavation can create an unbalanced stress in the soil, which in turn, causes subsidence at the surface and bulging of the vertical face of the trench. If uncorrected, this condition can cause face failure and entrapment of workers in the trench.

E. HEAVING OR SQUEEZING - Bottom heaving or squeezing is caused by the downward pressure created by the weight of adjoining soil. This pressure causes a bulge in the bottom of the cut. Heaving and squeezing can occur even when shoring or shielding has been properly installed.

F. BOILING – Boiling is evidenced by an upward water flow into the bottom of the cut. A high water table is one of the causes of boiling. Boiling produces a "quick" condition in the bottom of the cut, and can occur even when shoring or trench boxes are used.

G. UNIT WEIGHT OF SOILS - Refers to the weight of one unit of a particular soil. The weight of soil varies with the type and moisture content. One cubic foot of soil can weigh from 110 pounds to 140 pounds or more, and one cubic meter (35.3 cubic feet) of soil can weigh more than 3,000 pounds.

DETERMINATION OF SOIL TYPE

OSHA categorizes soil and rock deposits into four types, A through D, as follows:

A. STABLE ROCK is natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed. It is usually identified by a rock name such as granite or

sandstone. Determining whether a deposit is of this type may be difficult unless it is known whether cracks exist and whether or not the cracks run into or away from the excavation.

B. TYPE A SOILS are cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) (144 kpa) or greater. Examples of Type A cohesive soils are often: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. (No soil is Type A if it is fissured, is subject to vibration of any type, has previously been disturbed, is part of a sloped, layered system where the layers dip into the excavation on a slope of 4 horizontal to 1 vertical [4H: 1V] or greater, or has seeping water.

C. TYPE B SOILS are cohesive soils with an unconfined compressive strength greater than 0.5 tsf (48 kpa) but less than 1.5 tsf (144 kpa). Examples of Type B soils are: angular gravel; silt; silt loam; previously disturbed soils, unless otherwise classified as Type C; soils that meet the unconfined compressive strength or cementation requirement of Type A soils, but are fissured or subject to vibration; dry unstable rock; and layered systems sloping into the trench at a slope less than 4H:1V (only if the material would be classified as a Type B soil).

D. TYPE C SOILS are cohesive soils with an unconfined compressive strength of 0.5 tsf (48 kpa) or less. Other Type C soils include granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable. Also included in this classification is material in a sloped, layered system where the layers dip into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.

E. LAYERED GEOLOGICAL STRATA Where soils are configured in layers, (i.e., where a layered geologic structure exists), the soil must be classified on the basis of the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer, i.e., where a Type C soil rests on top of stable rock.

TEST EQUIPMENT AND METHODS FOR EVALUATING SOIL TYPE

Many kinds of equipment and methods are used to determine the type of soil prevailing in an area, as described below:

A. POCKET PENETROMETER - Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The instrument is calibrated in either tons per square foot (tsf) or kilograms per square centimeter (ksc). However, penetrometers can have error rates in the range of ± 20 to 40%.

B. SHEARVANE (TORVANE) - To determine the unconfined compressive strength of soil with a sheervane, the blades of the vane are pressed into a level section of undisturbed soil, and the torsional knob is slowly turned until soil failure occurs. The direct instrument

reading must be multiplied by 2 to provide results in tons per square foot (tsf) or kilograms per square centimeter (kpa).

C. THUMB PENETRATION TEST - The thumb penetration procedure involves an attempt to press the thumb firmly into the soil in question. If the thumb makes an indentation in the soil only with great difficulty, the soil is probably Type A. If the thumb penetrates no further than the length of the thumb nail, it is probably Type B soil, and if the thumb penetrates the full length of the thumb, it is Type C soil. The thumb test is subjective and is therefore the least accurate of the three methods.

D. DRY STRENGTH TEST - Dry soil that crumbles freely or with moderate pressure into individual grains are granular. Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can be broken only with difficulty) is probably clay in combination with gravel, sand, or silt. If the soil breaks into clumps that do not break into small clumps (and the soil can be broken only with difficulty), the soil is considered unfissured unless there is visual indication of fissuring.

E. PLASTICITY OR WET THREAD TEST - This test is conducted by molding a moist sample of the soil into a ball and attempting to roll it into a thin thread approximately 1/8 inch (3mm) in diameter (thick) by 2 inches (50mm) in length. The soil sample is held by one end. If the sample does not break or tear, the soil is considered cohesive.

F. VISUAL TEST - A visual test is a qualitative evaluation of conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil to be excavated. If the soil remains in clumps, it is cohesive, if it appears to be coarse-grained sand or gravel, it is considered granular. The evaluator also checks for signs of vibration.

During the visual test, the evaluator should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has previously been disturbed, and observe the open side of the excavation for indications of layered geologic structuring.

The evaluator should also look for signs of bulging, boiling, or sloughing, as well as signs of surface water seeping from the sides of the excavation or from the water table. If there is standing water in the cut, the evaluator should check for "quick" conditions. In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

SHORING TYPES

Shoring is the provision of a support system for trench faces used to prevent the movement of soil, underground utilities, roadways, and foundations. Shoring or shielding is used when the location or

depth of the cut makes sloping back the sides of the excavation to the maximum allowable slope impractical. Shoring systems consist of posts, walls, struts, and sheeting. There are two basic types of shoring:

1. Timber
2. Aluminum Hydraulic.

A. HYDRAULIC SHORING - A hydraulic shoring system is a prefabricated strut and/or wall system manufactured of aluminum or steel. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install or remove hydraulic shoring. Other advantages of most hydraulic systems are that they:

- * Are light enough to be installed by one worker;
- * Are gauge-regulated to ensure even distribution of pressure along the trench line;
- * Can have their trench faces "preloaded" to use the soil's natural cohesion to prevent movement; and
- * Can be adapted easily to various trench depths and widths.

All shoring should be installed from the top down and removed from the bottom up. Hydraulic shoring should be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.

B. PNEUMATIC SHORING - works in a manner similar to hydraulic shoring. The primary difference is that pneumatic shoring uses air pressure in place of hydraulic pressure. A disadvantage to the use of pneumatic shoring is that an air compressor must be on site.

1. **Screw Jacks** - Screw jack systems differ from hydraulic and pneumatic systems in that the struts of a screw jack system must be adjusted manually. This creates a hazard because the worker is required to be in the trench in order to adjust the strut. In addition, uniform "preloading" cannot be achieved with screw jacks and their weight creates handling difficulties.
2. **Single-Cylinder Hydraulic Shores** are generally used in water system, as an assist to timber shoring systems, and in shallow trenches where face stability is required.
3. **Underpinning** - This process involves stabilizing adjacent structures, foundations, and other intrusions that may have an impact on the excavation. As the term indicates, underpinning is a procedure in which the foundation is physically reinforced. Underpinning should be conducted only under the direction and with the approval of a registered professional engineer.

Stable Rock	Vertical	90 deg
Type A	3/4:1	53 deg
Type B	1:1	45 deg

Type C	1 1/2:1	34 deg
Type A (short-term)	1/2:1	63 deg

(For a maximum excavation depth of 12 ft.)

B. BENCHING There are two basic types of benching: simple and multiple. The type of soil determines the horizontal to vertical ratio of the benched side.

As a general rule, the bottom vertical height of the trench must not exceed 4 ft. (1.2 m) for the first bench. Subsequent benches may be up to a maximum of 5 ft. (1.5m) vertical in Type A soil and 4 ft. (1.2m) in Type B soil to a total trench depth of 20 ft. (6.0m). All subsequent benches must be below the maximum allowable slope for that soil type. For Type B soil, the trench excavation is permitted in cohesive soil only.

SPOIL

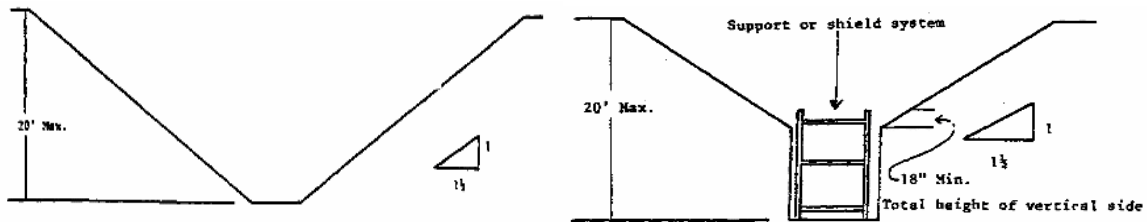
A. TEMPORARY SPOIL - Temporary spoil must be placed no closer than 2 ft. (0.61m) from the surface edge of the excavation, as measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.

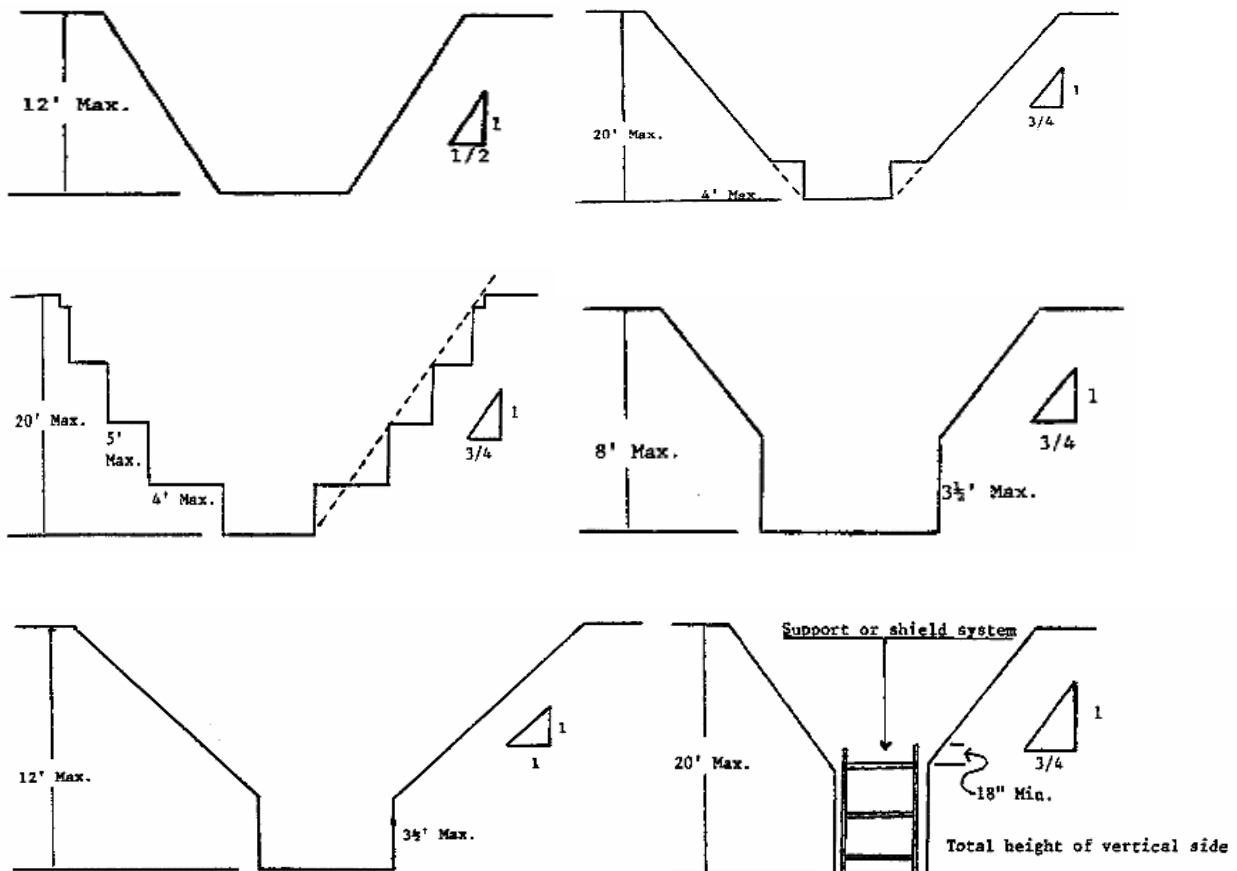
B. PERMANENT SPOIL - Permanent spoil should be placed as far as practical from the excavation. Permanent spoil is often created where underpasses are built or utilities are buried. The improper placement of permanent spoil, i.e. insufficient distance from the working excavation, can cause an excavation to be out of compliance with the horizontal-to-vertical ratio requirement for a particular excavation. This can usually be determined through visual observation. Permanent spoil can change undisturbed soil to disturbed soil and dramatically alter slope requirements.

Attachment I

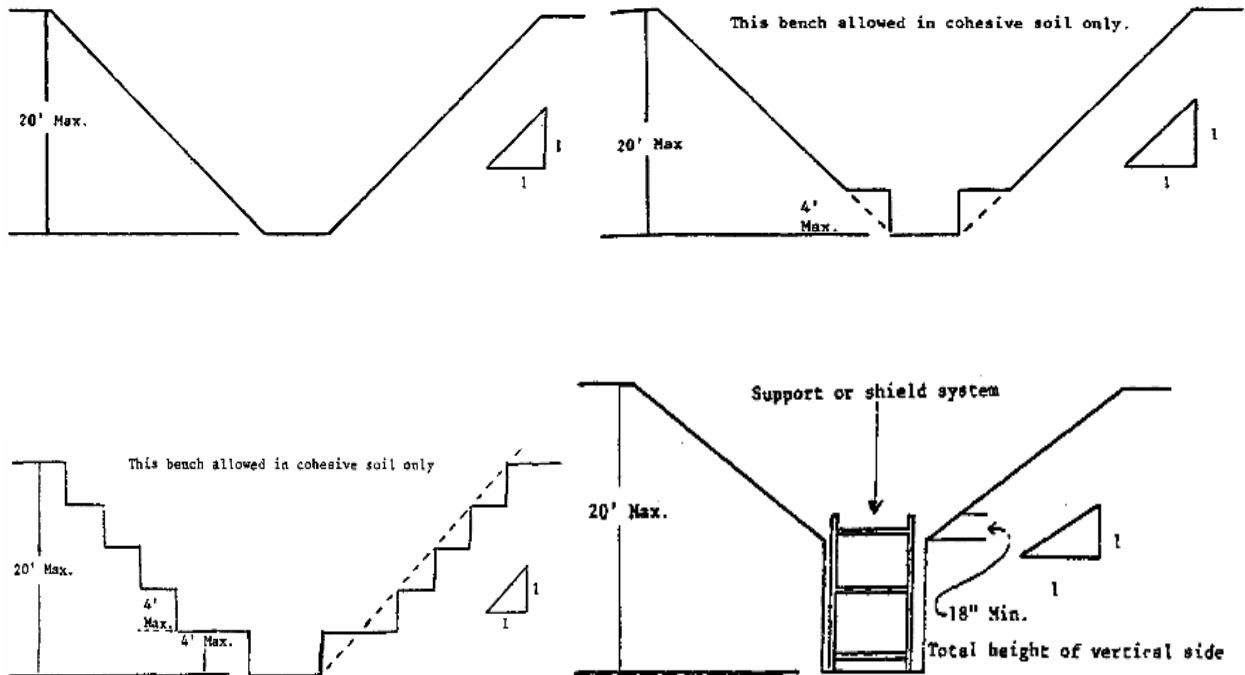
Approved Protection for "Type C" Soils (Preferred)



Approved Protection for "Type A" Soils (if encountered)



Approved Protection for "Type B" Soils (if encountered)



Attachment II

SITE ASSESSMENT QUESTIONS

1. Is the cut, cavity or depression a trench or an excavation?..... ☐ Yes ☐ No
2. Is the cut, cavity or depression more than 4 ft (1.2m) in depth?..... ☐ Yes ☐ No
3. Is there water in the cut, cavity, or depression?.....☐ Yes ☐ No
4. Are there adequate means of ingress and egress? ☐ Yes ☐ No
5. Are there surface encumbrances? ☐ Yes ☐ No
6. Is there exposure to vehicular traffic? ☐ Yes ☐ No
7. Are adjacent structures stabilized? ☐ Yes ☐ No
8. Does mobile equipment have a warning system?☐ Yes ☐ No
9. Is a Competent Person in charge of the operation? ☐ Yes ☐ No
10. Is equipment operating in or around the cut, cavity, or depression? ☐ Yes ☐ No
11. Are procedures required to monitor, test, and control hazardous atmosphere? ☐ Yes ☐ No
12. Did a Competent Person determine soil type? ☐ Yes ☐ No
13. Was a soil testing device used to determine soil type? ☐ Yes ☐ No
14. Is the spoil placed 2 ft (0.6 m) or more from the edge of the cut, cavity, or depression? ☐ Yes ☐ No
15. Is the cut, cavity, or depression depth 20 ft (6.1 m) or more? ☐ Yes ☐ No
16. Has a registered professional engineer approved the procedure if the depth is more than 20 ft (6.1 m)? ☐ Yes ☐ No
17. Does the procedure require benching or multiple benching? Shoring? Shielding?☐ Yes ☐ No
18. If provided, do shields extend at least 18 in (0.5 m) above the surrounding area if it is sloped toward the excavation? ☐ Yes ☐ No
19. If shields are used, is the depth of the cut more than 2 ft (0.6 m) below the bottom of the shield? ☐ Yes ☐ No

20. Are any required surface crossings of the cut, cavity, or depression the proper width and fitted with hand rails? ☐ Yes ☐ No
21. Are means of egress from the cut, cavity, or depression no more than 25 ft (7.6 m) from the work? ☐ Yes ☐ No
22. Is emergency rescue equipment required? ☐ Yes ☐ No
23. Is there documentation of the minimum daily excavation inspection? ☐ Yes ☐ No

Attachment III

PRE-SITE ASSESSMENT CHECKLIST - (DAILY CHECKLIST)

Initial if the condition is true:

- _____ 1. Is the cut, cavity or depression a trench or an excavation?
- _____ 2. Is the cut, cavity or depression more than 4 ft. (1.2m) in depth?
- _____ 3. Is there water in the cut, cavity, or depression?
- _____ 4. Are there adequate means of ingress and egress?
- _____ 5. Are there surface encumbrances?
- _____ 6. Is there exposure to vehicular traffic?
- _____ 7. Are adjacent structures stabilized?
- _____ 8. Does mobile equipment have a warning system?
- _____ 9. Is a Competent Person in charge of the operation?
- _____ 10. Is equipment operating in or around the cut, cavity, or depression?
- _____ 11. Are procedures required to monitor, test, and control hazardous atmosphere?
- _____ 12. Did a Competent Person determine soil type?
- _____ 13. Was a soil testing device used to determine soil type?
- _____ 14. Is the spoil placed 2 ft (0.6 m) or more from the edge of the cut, cavity, or depression?
- _____ 15. Is the cut, cavity, or depression depth 20 ft (6.1 m) or more?
- _____ 16. Has a registered professional engineer approved the procedure if the depth is?
more than 20 ft (6.1 m)?
- _____ 17. Does the procedure require benching or multiple benching? Shoring? Shielding?
- _____ 18. If provided, do shields extend at least 18 in (0.5 m) above the surrounding area if it is s
toward the excavation?
- _____ 19. If shields are used, is the depth of the cut more than 2 ft (0.6 m) below the bottom of th
shield?
- _____ 20. Are any required surface crossings of the cut, cavity, or depression the proper width an
fitted with hand rails?
- _____ 21. Are means of egress from the cut, cavity, or depression no more than 25 ft (7.6 m) from
work?
- _____ 22. Is emergency rescue equipment required?
- _____ 23. Is there documentation of the minimum daily excavation inspection?

The Pre-Check (DAILY CHECKLIST) list will be completed prior to start and will be completed daily by a Competent Person and filed with the Excavation Permit.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard, Jr.
Secretary

March 19, 2013

Charlie Bishop
Manatee County Property Management Department
1112 Manatee Avenue West, Suite 803
Bradenton, FL 34205

RE: **Facility ID: FLR10MO58**
Blackstone Park Expansion
County: Manatee

Dear Permittee:

The Florida Department of Environmental Protection has received and processed your *Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities* (NOI) and the accompanying processing fee. This letter acknowledges that:

- your NOI is complete;
- your processing fee is paid-in-full; and
- you are covered under the *Generic Permit for Stormwater Discharge from Large and Small Construction Activities* (CGP), DEP Document No. 62-621.300(4)(a).

Your project identification number is **FLR10MO58**. Please include this number on all future correspondence to the Department regarding this permit.

This letter is **not** your permit; however, this letter does serve as **verification of permit coverage**. A copy of the permit language is available online at www.dep.state.fl.us/water/stormwater/npdes/docs/cgp.pdf or by contacting the NPDES Stormwater Notices Center.

Your permit coverage became effective **March 16, 2013** and will expire **March 15, 2018**. To terminate your coverage prior to this expiration date, you must file a *National Pollutant Discharge Elimination System (NPDES) Stormwater Notice of Termination*, DEP Form 62-621.300(6) (NOT). An NOT must be filed within 14 days of either (a) your final stabilization of the site or (b) your relinquishment of control of the construction

March 19, 2013

activities to a new operator. To renew your coverage beyond the expiration date, you must submit a new NOI and processing fee to the Department no later than two days before coverage expires.

Until your permit coverage is terminated, modified, or revoked, you are authorized to discharge stormwater from the construction site referenced in your NOI to surface waters in accordance with the terms and conditions of the CGP. Some key conditions of the CGP are:

- implementation of your stormwater pollution prevention plan (SWPPP);
- conducting and documenting routine inspections; and
- retaining the records required by the permit (including your SWPPP) at the construction site or the alternate location specified in your NOI.

If you have any questions concerning this acknowledgment letter, please contact the NPDES Stormwater Notices Center at (866) 336-6312.

Sincerely,

A handwritten signature in black ink, appearing to read "Theodore Williams", with a stylized flourish at the end.

Theodore Williams
Data Entry Operator
NPDES Stormwater Program

State of Florida
Department of Environmental Protection
Generic Permit
For
Stormwater Discharge from Large and Small Construction Activities

February 2009

This permit is issued under the provisions of Section 403.0885, Florida Statutes, and applicable rules of the Florida Administrative Code pursuant to the Department's federally-approved National Pollutant Discharge Elimination System (NPDES) stormwater regulatory program. Stormwater discharge associated with large construction activity, as defined at 40 CFR Part 122.26(b)(14)(x) and herein, is regulated pursuant to Section 402(p)(2) of the federal Clean Water Act (CWA). Stormwater discharge associated with small construction activity, as defined at 40 CFR 122.26(b)(15) and herein, is regulated pursuant to Section 402(p)(6) of the CWA. This permit constitutes authorization to discharge stormwater associated with large and small construction activities to surface waters of the State, including through a Municipal Separate Storm Sewer System (MS4). Until this permit is terminated, modified, or revoked, permittees that have properly obtained coverage under this permit are authorized to discharge to surface waters of the State, including through an MS4, in accordance with the terms and conditions of this permit.

Part I. General Provisions

A. Applicability and Coverage

1. Federal law prohibits the point source discharge of pollutants, including the discharge of stormwater associated with large or small construction activities pursuant to 40 CFR Part 122 and as defined in Part II of this permit, to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. The State of Florida has authority to administer the NPDES stormwater program pursuant to Section 403.0885, F.S. Operators that have stormwater discharge associated with large or small construction activities to surface waters of the State, including through a Municipal Separate Storm Sewer System (MS4), must obtain coverage either under a generic permit issued pursuant to Chapter 62-621, F.A.C., or an individual permit issued pursuant to Chapter 62-620, F.A.C.

2. Coverage under this generic permit is available for stormwater discharges from large and small construction activities to surface waters of the State as defined in Section 403.031, F.S., including stormwater discharges associated with construction activity to surface waters of the State through an MS4.

3. This generic permit does not constitute authorization under Part IV of Chapter 373, F.S., for the construction, alteration, operation, maintenance, abandonment, or removal of any stormwater management system, dam, impoundment, reservoir, or appurtenant work or works, including dredging or filling in, on or over wetlands and other surface waters, as determined by the methodology authorized in Subsection 373.421(1), F.S.

4. This generic permit authorizes the discharge of stormwater associated with construction activity under the State's federally-approved NPDES stormwater program only and does not supersede the requirement to obtain a stormwater discharge authorization pursuant to an environmental resource permit (ERP) under Part IV, Chapter 373, F.S.; an environmental resource permit from a Department-approved delegated local government; or any other required federal, state, or local government permit.

B. Eligibility

1. This permit authorizes the discharge of stormwater associated with large and small construction activity, as defined in Part II of this permit, occurring after the effective date of this permit.

2. This permit authorizes stormwater discharge associated with construction activity that is mixed with stormwater discharges associated with industrial activity other than construction, where:

- a. the industrial source other than construction is located on the same site as the construction activity;
- b. stormwater discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and
- c. stormwater discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring are in compliance with the terms of a different generic permit (e.g., Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity) or individual permit authorizing such discharges.

3. Limitations on Coverage. The following stormwater discharges from construction sites are not authorized by this permit:

- a. stormwater discharges that originate from the site after construction activities have been completed and the site has undergone final stabilization;

b. discharges that are mixed with sources of non-stormwater, other than discharges identified in Part IV.A.3. of this permit;

c. stormwater discharge associated with construction activity that is covered under an existing generic or individual permit. Such discharges may be authorized under this permit after the existing individual permit or generic permit term of coverage expires, provided the existing permit did not establish numeric limitations for such discharges; or

d. stormwater discharge associated with construction activity that the Department has determined to be or may reasonably be expected to be causing or contributing to a violation of a surface water quality standard.

C. Obtaining Authorization

1. In order for stormwater discharge associated with construction activity to be authorized under this generic permit, an operator must:

a. Meet the eligibility requirements in Part I.B. of this permit;

b. Develop and implement a stormwater pollution prevention plan (SWPPP) in accordance with the requirements of Part V of this permit; and

c. Submit a completed Notice of Intent (NOI) in accordance with the requirements of Part III of this permit, including submittal of the appropriate processing fee as established in paragraph 62-4.050(4)(d), F.A.C.

2. The Department may deny coverage under this permit or require submittal of a revised NOI based on the Department's determination that the NOI is incomplete, the permit fee has not been paid, or the submittal otherwise is not in accordance with the requirements of this generic permit.

Part II. Definitions

For the purposes of this generic permit, the following definitions shall apply, unless otherwise indicated:

1. "Best Management Practices" or "BMPs" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of surface waters. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

2. "Construction Activity" means the act or process of developing or improving land which involves the disturbance of soils and includes clearing, grading, and excavation.

3. "Commencement of Construction" means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

4. "Department" or "DEP" means the Florida Department of Environmental Protection.

5. "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of at least 70% for all unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (e.g., geotextiles) have been employed.

6. "Large Construction Activity" means construction activity that results in the disturbance of five (5) or more acres of total land area. Large construction activity also includes the disturbance of less than five acres of total land area that is part of a larger common plan of development or sale that will ultimately disturb five acres or more.

7. "Municipal Separate Storm Sewer System" or "MS4" means a large, medium, or small MS4 as defined in Chapter 62-624, F.A.C.

8. "NOI" means notice of intent to be covered by this permit (see Part III of this permit).

9. "NOT" means notice of termination (see Part VIII of this permit).

10. "NPDES" means the Department's federally-approved National Pollutant Discharge Elimination System program.

11. "Operator" means the person, firm, contractor, public organization or other legal entity that owns or operates the construction activity and that has authority to control those activities at the project necessary to ensure compliance with the terms and conditions of this permit.

12. "Qualified Inspector" means a person that:

a. has successfully completed and met all requirements necessary to be fully certified through the DEP Stormwater Erosion and Sedimentation Control Inspector Training Program;

b. has successfully completed an equivalent formal training program; or

c. is qualified by other training or practical experience in the field of stormwater pollution prevention and erosion and sedimentation control.

13. "Small Construction Activity" means construction activity that results in the disturbance of equal to or greater than one (1) acre and less than five (5) acres of total land area. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one acre and less than five acres.

14. "Stormwater" means the flow of water which results from, and which occurs immediately following, a rainfall event.

15. "Stormwater discharge associated with construction activity" means the discharge of stormwater from large or small construction activities, including areas where soil disturbing activities, construction materials handling or storage, equipment storage or maintenance are located.

16. "Surface Waters of the State" means those surface waters that are defined in section 403.031, F.S.

17. "Water Management District" or "WMD" means the Northwest Florida Water Management District, the Suwannee River Water Management District, the St. Johns River Water Management District, the Southwest Florida Water Management District or the South Florida Water Management District.

Part III. Notice of Intent Requirements

A. Deadlines for Notification.

1. Operators seeking coverage under this generic permit to authorize stormwater discharge associated with construction activity for new large or small construction activities, for which commencement of construction begins after the effective date of this permit, shall file an NOI for coverage under this permit at least two (2) days before commencement of construction.

2. For construction activities where the operator changes, the new operator shall file an NOI for coverage under this permit at least two (2) days before assuming control of the project and the previous operator shall file an NOT to terminate permit coverage in accordance with Part VIII of this permit.

B. Contents of Notice of Intent.

1. In order to obtain coverage under this permit, the operator of the construction activity having an associated stormwater discharge shall submit a completed Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities, DEP Form 62-621.300(4)(b), including the applicable permit processing fee as specified in paragraph 62-4.050(4)(d), F.A.C. By completing, signing, and submitting an NOI, the operator is certifying that they meet all eligibility requirements of this permit and are informing the Department of their intent to be covered by, and comply with, the terms and conditions of this generic permit. The Notice of Intent shall be signed in accordance with Part VII.C. of this permit by the operator.

C. Where to Submit.

1. NOIs shall be submitted either electronically or by paper copy.
 - a. The Department encourages the electronic submission of NOIs through the NPDES Stormwater Program's electronic permitting application available at <http://www.dep.state.fl.us/water/stormwater/npdes/>.
 - b. If the operator chooses to submit the NOI by paper copy, the NOI shall be submitted to the following address:

NPDES Stormwater Notices Center, MS# 2510
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

2. A copy of the NOI or letter from DEP confirming coverage under this generic permit shall be posted at the construction site in a prominent place for public viewing (such as alongside a building permit).

D. Additional Notification.

1. Projects that discharge stormwater associated with construction activity to a municipal separate stormwater system (MS4) shall submit a copy of the NOI to the operator of the MS4.

E. Period of Coverage.

1. Coverage under this generic permit is effective two (2) days after the date of submittal of a complete NOI to the Department.
2. Coverage under this generic permit is limited to a term not to exceed five years from the effective date of coverage.

F. Permit Coverage Renewal.

1. If the project will continue to have stormwater discharge associated with construction activity beyond the initial five year term of coverage, the operator shall submit a new NOI at least two (2) days before expiration of the current term of coverage under this permit.

Part IV. Special Conditions, Management Practices and Other Non-numeric Limitations

A. Prohibition of Non-Stormwater Discharges.

1. Except as provided in paragraphs I.B.2. and IV.A.3., all discharges covered by this permit shall be composed entirely of stormwater associated with construction activity.

2. Except as specified in IV.A.3. below, discharges of material other than stormwater associated with construction activity must be in compliance with a Department permit (other than this permit) issued for the discharge, or be exempt therefrom.

3. The following non-stormwater discharges are authorized by this permit provided the non-stormwater component of the discharge is in compliance with paragraph V.D.5.: discharges from fire fighting activities; fire hydrant flushings; waters used to spray off loose solids from vehicles (wastewaters from a more thorough cleaning, including the use of detergents or other cleaners is not authorized by this part) or control dust in accordance with Part V.D.2.c.(2); potable water sources including waterline flushings; irrigation drainage; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

4. Discharges resulting from ground water dewatering activities at construction sites are not covered by this permit. Applicants for these discharges must obtain coverage under the Department's Generic Permit for the Discharge of Produced Ground Water from any Non-contaminated Site Activity pursuant to subsection 62-621.300(2), F.A.C.

B. Releases in Excess of Reportable Quantities.

1. The discharge of hazardous substances or oil in the stormwater discharge(s) from a facility or activity shall be prevented or minimized in accordance with the applicable stormwater pollution prevention plan for the facility or activity. This permit does not relieve the operator of the reporting requirements of 40 CFR part 117 and 40 CFR part 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302, occurs during a 24 hour period:

a. The operator is required to notify the State Warning Point (800-320-0519 or 850-413-9911) as soon as he or she has knowledge of the discharge;

b. The operator shall submit, within 14 calendar days of knowledge of the release, a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and remedial steps to be taken, to the Florida Department of Environmental Protection, NPDES Stormwater Section, Mail Station 2500, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400; and

c. The stormwater pollution prevention plan required under Part V of this permit must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the recurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

2. This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

Part V. Stormwater Pollution Prevention Plan

A. A stormwater pollution prevention plan shall be developed and implemented for each construction site covered by this permit. Stormwater pollution prevention plans shall be prepared in accordance with good engineering practices. Equivalent erosion and sediment control plans prepared as an

environmental resource permit requirement under Part IV, Chapter 373, F.S., may serve as the pollution prevention plan provided all of the elements of this section are included in such an alternative plan. The plan shall identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharge associated with construction activity. In addition, the plan shall describe and ensure the implementation of best management practices which will be used to reduce the pollutants in stormwater discharge associated with construction activity and to assure compliance with the terms and conditions of this permit. Facilities must implement the provisions of the stormwater pollution prevention plan required under this part as a condition of this permit. Failure to develop and implement a stormwater pollution prevention plan in accordance with the requirements of this part shall be deemed a violation of this permit and the permittee shall be subject to enforcement action.

B. Deadlines for Plan Preparation and Compliance.

1. The pollution prevention plan shall:

- a. Be completed (including certification by the operator in accordance with Part VII.C.) prior to the submittal of an NOI to be covered under this permit and updated as appropriate;
- b. The plan shall provide for compliance with the terms and schedule of the plan beginning with the initiation of construction activities.

C. Keeping Plans Current.

1. The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to surface waters of the State or an MS4, including the addition of or change in location of stormwater discharge points, and which has not otherwise been addressed in the plan. The permittee also shall amend the plan if it proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part V.D.1. of this permit, or in otherwise achieving the general objectives of controlling pollutants in stormwater discharge associated with construction activity. In addition, the plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the stormwater pollution prevention plan (see Part V.D.6.). Amendments to the plan shall be prepared, signed, dated and kept as attachments to the original plan.

D. Contents of Plan.

1. Site Description. Each plan shall provide a description of pollutant sources and other information as indicated:

- a. A description of the nature of the construction activity;
- b. A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g., grubbing, excavation, grading);
- c. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other construction activities;
- d. Existing data describing the soil or the quality of any discharge from the site and an estimate of the size of the drainage area for each discharge point;
- e. A site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, an outline of areas which may not be disturbed, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters, wetlands and locations where stormwater is discharged to a surface water or MS4; and

f. The latitude and longitude of each discharge point and the name of the receiving water(s) for each discharge point.

2. Controls. Each plan shall include a description of appropriate controls, BMPs and measures that will be implemented at the construction site. The plan shall clearly describe for each major activity identified in Part V.D.1.b. appropriate control measures and the timing during the construction process that the measures will be implemented. For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls shall be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls shall be removed after final stabilization. All controls shall be consistent with the performance standards for erosion and sediment control and stormwater treatment as set forth in Rule 62-40.432, F.A.C., the applicable environmental resource permitting requirements of the DEP or appropriate WMD relating to performance standards for erosion and sediment control and stormwater treatment and the guidelines contained in the State of Florida Erosion and Sediment Control Designer and Reviewer Manual, FDOT, FDEP (2007), incorporated by reference in Rule 62-621.300(4)(a), F.A.C., and available on the Department's website at <http://www.dep.state.fl.us/water/stormwater/npdes>.

a. Erosion and Sediment Controls.

(1) Stabilization Practices. Each plan shall provide a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation and other appropriate measures. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site and when stabilization measures are initiated shall be included in the plan. Stabilization measures shall be initiated as soon as practicable, but in no case more than 7 days, in portions of the site where construction activities have temporarily or permanently ceased.

(2) Structural Practices. Each plan shall include a description of structural practices to divert flows from exposed soils, store flows, retain sediment on-site or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, diversions, swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, coagulating agents and temporary or permanent sediment basins. Structural BMPs shall be placed on upland soils unless a State of Florida wetland resource management permit or environmental resource permit issued pursuant to Chapter 373, F.S., and applicable regulations of the DEP or WMD authorize otherwise.

(3) Sediment Basins.

(a) For drainage basins with 10 or more disturbed acres at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage basins with 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, a combination of smaller sediment basins and/or sediment traps and other BMPs should be used. At a minimum, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.

(b) For drainage basins of less than 10 acres, sediment basins and/or sediment traps are recommended but not required. At a minimum, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.

(c) Areas that will be used for permanent stormwater infiltration treatment (e.g., stormwater retention ponds) should not be used for temporary sediment basins unless appropriate measures are taken to assure removal of accumulated fine sediments, which may cause premature clogging and loss of infiltration capacity, and to avoid excessive compaction of soils by construction machinery or equipment.

b. Permanent Stormwater Management Controls.

Each plan shall include a description of stormwater management controls or BMPs (e.g., stormwater detention or retention systems, vegetated swales, velocity dissipation devices at discharge points) that will be installed during the construction process to control pollutants in stormwater discharges that will occur during construction and after construction operations have been completed. This generic permit only addresses the installation of stormwater management controls and not the ultimate operation and maintenance of such controls after the construction activities have been completed and the site has undergone final stabilization. Under this generic permit, permittees are only responsible for the installation and maintenance of stormwater management BMPs prior to final stabilization of the site, and are not responsible for maintenance after stormwater discharges associated with construction activity have been eliminated from the site. However, all stormwater management systems and BMPs shall be operated and maintained in perpetuity after final stabilization in accordance with requirements set forth in the State of Florida environmental resource permit issued under Part IV, Chapter 373, F.S.

c. Controls for Other Potential Pollutants.

(1) Waste Disposal. The plan shall assure that waste, such as discarded building materials, chemicals, litter and sanitary waste are properly controlled in accordance with all applicable state, local and federal regulations. This permit does not authorize the discharge of solid materials, including building materials, to surface waters of the State or an MS4.

(2) The plan shall assure that off-site vehicle tracking of sediments and the generation of dust is minimized.

(3) The plan shall be consistent with applicable State and local waste disposal, sanitary sewer or septic system regulations.

(4) The plan shall address the proper application rates and methods for the use of fertilizers, herbicides and pesticides at the construction site and set forth how these procedures will be implemented and enforced. Nutrients shall be applied only at rates necessary to establish and maintain vegetation.

(5) The plan shall ensure that the application, generation and migration of toxic substances are limited and that toxic materials are properly stored and disposed.

3. Maintenance. The plan shall include a description of procedures that will be followed to ensure the timely maintenance of vegetation, erosion and sediment controls, stormwater management practices and other protective measures and BMPs so they will remain in good and effective operating condition.

4. Inspections. At least once every seven calendar days and within 24 hours of the end of a storm that is 0.50 inches or greater, a qualified inspector (provided by the operator) shall inspect all points of discharge into surface waters of the State or an MS4; disturbed areas of the construction site that have not been finally stabilized; areas used for storage of materials that are exposed to precipitation; structural controls; and locations where vehicles enter or exit the site as follows:

a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the stormwater system. The stormwater management system and erosion and sediment control measures identified in the plan

shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion and sediment control and stormwater treatment measures are effective in preventing or minimizing the discharge of pollutants, including retaining sediment onsite pursuant to Rule 62-40.432, F.A.C. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

b. Based on the results of the inspection, all maintenance operations needed to assure proper operation of all controls, BMPs, practices or measures identified in the stormwater pollution prevention plan shall be done in a timely manner, but in no case later than 7 calendar days following the inspection. If needed, pollution prevention controls, BMPs and measures identified in the plan shall be revised as appropriate, but in no case later than 7 calendar days following the inspection. Such modifications shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.

c. A report summarizing the scope of the inspection; name(s) and qualifications of personnel making the inspection; the date(s) of the inspection; rainfall data; major observations relating to the implementation of the stormwater pollution prevention plan; and actions taken in accordance with paragraph V.D.4.b. of this permit, shall be made and retained, in accordance with Part VI of this permit, as part of the stormwater pollution prevention plan. Such reports shall identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report shall contain a certification that the facility is in compliance with the stormwater pollution prevention plan and this permit. The report shall be signed in accordance with Part VII.C. of this permit.

5. Non-Stormwater Discharges. Except for flows from fire fighting activities, sources of non-stormwater listed in Part IV.A.3. of this permit that are combined with stormwater discharges associated with construction activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention and treatment measures for the non-stormwater component(s) of the discharge.

6. Contractor/Subcontractor Certification.

a. The stormwater pollution prevention plan must clearly identify, for each measure identified in the plan, the contractor(s) and/or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement in Part V.D.6.b. of this permit. All certifications must be included in the stormwater pollution prevention plan.

b. Certification Statement for Contractors/Subcontractors. All contractors and subcontractors identified in a stormwater pollution prevention plan in accordance with Part V.D.6.a. of this permit shall sign a copy of the following certification statement before conducting any activities at the site:

"I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

The certification must include the name and title of the person providing the signature in accordance with Part VII.C. of this permit; the name, address and telephone number of the contracting firm; and the date the certification is made.

Part VI. Retention of Records

A. The permittee shall retain copies of stormwater pollution prevention plans and all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized.

B. The permittee shall retain a copy of the stormwater pollution prevention plan and all reports, records and documentation required by this permit at the construction site, or an appropriate alternative location as specified in the NOI, from the date of project initiation to the date of final stabilization.

Part VII. Standard Permit Conditions

A. Any permit noncompliance constitutes a violation of Section 403.161, F. S. and is grounds for enforcement action; for permit coverage termination, or revocation; or for denial of permit coverage renewal.

B. All of the general conditions listed in Rule 62-621.250, F.A.C., are adopted herein by reference.

C. Signatory Requirements.

1. All Notices of Intent, Notices of Termination, stormwater pollution prevention plans, reports, certifications or information either submitted to the Department or the operator of a municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed as set forth in Rule 62-620.305, F.A.C.

2. Inspection reports prepared pursuant to Part V.D.4.c. of this permit shall be signed by the qualified inspector that prepared them as well as by a responsible authority for the operator as specified in Part VII.C.1. above.

3. Any person signing documents under this permit, except contractor/subcontractor certifications under Part V.D.6., shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Part VIII. Termination of Coverage

A. Notice of Termination.

1. Where a site has been finally stabilized (see Part II for the definition of final stabilization) and all stormwater discharges authorized by this permit are eliminated, the permittee shall submit a completed Notice of Termination (DEP Form 62-621.300(6)), signed in accordance with Part VII.C. of this permit, within 14 days of final stabilization of the site to terminate coverage under this permit.

2. Elimination of stormwater discharges associated with construction activity means that all disturbed soils at the site have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all stormwater discharges associated with construction activity from the site that are authorized by this generic permit have otherwise been eliminated.

3. For construction activities where the operator changes, the existing operator shall file an NOT in accordance with this Part within 14 days of relinquishing control of the project to a new operator.

B. Where to Submit.

1. A permittee shall submit a Notice of Termination either electronically or by paper copy.

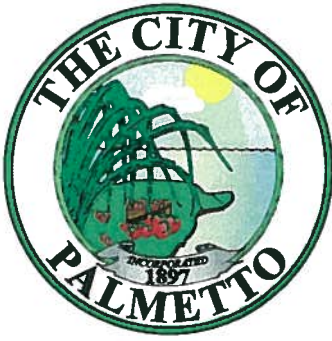
a. The Department encourages the electronic submission of NOTs through the NPDES Stormwater Program's electronic permitting application available at

<http://www.dep.state.fl.us/water/stormwater/npdes/>.

b. If the operator chooses to submit the NOT by paper copy, the NOT shall be submitted to the following address:

NPDES Stormwater Notices Center, MS# 2510
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

2. Projects that discharged stormwater associated with construction activity to a municipal separate storm sewer system (MS4) shall submit a copy of the NOT to the operator of the MS4.



Department of Public Works

600 17th Street West

Palmetto, Florida 34221

Phone (941) 723-4580 • FAX: (941) 723-4539

Suncom 599-4580

March 5, 2013

Dan Bond
Wilson Miller Stantec
6900 Professional Pkwy East Suite 100
Sarasota, FL 34240-8414

Re: **Blackstone Park Expansion**
Project# 09-600
Palmetto, Florida 34221

Dear Mr. Bond,

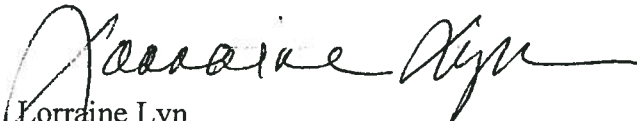
This letter will confirm that the City of Palmetto approved the construction plans for the above referenced project. Approval is contingent upon the following stipulations:

None

This approval is valid for one (1) year. A building permit application must be submitted within the one year timeframe.

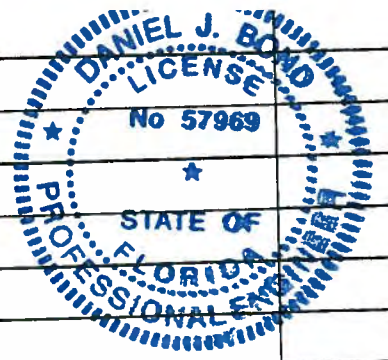
Feel free to contact me if you have any questions.

Sincerely,


Lorraine Lyn
City Planner

cc: Alan Tusing, Director of Public Works
Neal Mazzei, Building Official

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△		
△		
△		
△		
△		
△		
△		
NO.	DATE	DESCRIPTION



STATUS : REVISIONS

BY *2-19-13*

PROJECT MANAGER
J. MICHAEL BELL, P.E.
FLORIDA LICENSE NO. 40874

ENGINEER TECHNICIAN
CARLOS L. LUGO

PROJECT ENGINEER
DANIEL J. BOND, P.E.
FLORIDA LICENSE NO. 579

DRC Member	OK	Signature	Date
Deputy Director of Operations	✓	<i>[Signature]</i>	2/28/13
City Planner	✓	<i>[Signature]</i>	2/28/13
Fire Marshall	✓	<i>[Signature]</i>	3-5-13
City Engineer	✓	<i>[Signature]</i>	3/4/2013
DRC Coordinator			

Stipulations	Yes	
	No	

PROJECT FILE # 09-600

Director of Public Works	Signature <i>[Signature]</i>	Date 2-28-13
PROJECT NUMBER 215611237 210		PRINTED FEB 19 2013
DATE DECEMBER 2012	INDEX NUMBER D-215611237-001	



Southwest Florida Water Management District

2379 Broad Street, Brooksville, Florida 34604-6899

(352) 796-7211 or 1-800-423-1476 (FL only)

SUNCOM 628-4150 TDD only 1-800-231-6103 (FL only)

On the Internet at: WaterMatters.org

An Equal
Opportunity
Employer

Bartow Service Office
170 Century Boulevard
Bartow, Florida 33830-7700
(863) 534-1448 or
1-800-492-7862 (FL only)

Sarasota Service Office
6750 Fruitville Road
Sarasota, Florida 34240-9711
(941) 377-3722 or
1-800-320-3503 (FL only)

Tampa Service Office
7601 Highway 301 North
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

February 13, 2013

Manatee County Property Management
Attn: Charlie Bishop
1112 Manatee Avenue West, Suite 803
Bradenton, FL 34205

Subject: **Notice of Intended Agency Action**
ERP General Construction

Project Name: Blackstone Park Expansion
App ID/Permit No: 676759 / 44041165.000
County: MANATEE
Sec/Twp/Rge: S11/T34S/R17E

Dear Permittee(s):

Your Environmental Resource Permit has been approved contingent upon no objection to the District's action being received by the District within the time frames described in the enclosed Notice of Rights.

Approved construction plans are part of the permit, and construction must be in accordance with these plans. These drawings are available for viewing or downloading through the District's Application and Permit Search Tools located at www.WaterMatters.org/permits.

The District's action in this matter only becomes closed to future legal challenges from members of the public if such persons have been properly notified of the District's action and no person objects to the District's action within the prescribed period of time following the notification. The District does not publish notices of intended agency action. If you wish to limit the time within which a person who does not receive actual written notice from the District may request an administrative hearing regarding this action, you are strongly encouraged to publish, at your own expense, a notice of intended agency action in the legal advertisement section of a newspaper of general circulation in the county or counties where the activity will occur. Publishing notice of intended agency action will close the window for filing a petition for hearing. Legal requirements and instructions for publishing notice of intended agency action, as well as a noticing form that can be used is available from the District's website at www.WaterMatters.org/permits/noticing. If you publish notice of intended agency action, a copy of the affidavit of publishing provided by the newspaper should be sent to the District's Tampa Service Office, for retention in the File of Record for this agency action.

If you have questions, please contact Robin McGill, at the Tampa Service Office, extension 2072. For assistance with environmental concerns, please contact Blake Meinecke, extension 2141.

Sincerely,

Michelle K. Hopkins, P.E.
Bureau Chief
Environmental Resource Permit Bureau
Regulation Division

Enclosures: Approved Permit w/Conditions Attached
 [Statement of Completion](#)
 Notice of Authorization to Commence Construction
 Notice of Rights
cc: Daniel J. Bond, P.E., Stantec Consulting Services, Inc.

**SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE
GENERAL CONSTRUCTION
PERMIT NO. 44041165.000**

EXPIRATION DATE: February 13, 2018

PERMIT ISSUE DATE: February 13, 2013

This permit is issued under the provisions of Chapter 373, Florida Statutes, (F.S.), and the Rules contained in Chapters 40D-4 and 40D-40, Florida Administrative Code, (F.A.C.). The permit authorizes the Permittee to proceed with the construction of a surface water management system in accordance with the information outlined herein and shown by the application, approved drawings, plans, specifications, and other documents, attached hereto and kept on file at the Southwest Florida Water Management District (District). Unless otherwise stated by permit specific condition, permit issuance constitutes certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341. All construction, operation and maintenance of the surface water management system authorized by this permit shall occur in compliance with Florida Statutes and Administrative Code and the conditions of this permit.

PROJECT NAME: Blackstone Park Expansion
GRANTED TO: Manatee County Property Management
Attn: Charlie Bishop
1112 Manatee Avenue West, Suite 803
Bradenton, FL 34205

OTHER PERMITTEES: N/A

ABSTRACT: This permit authorization is for the construction of a new surface water management system serving three new regulation Little League fields, a parking lot, a concession building, bleachers, sidewalks and associated drainage and utility infrastructure on the north and east sides of the park. The proposed pond will provide water quality treatment and attenuation of the 25-year, 24-hour storm event. The project discharges to a water body that is verified as impaired for nutrients (Terra Ceia Bay - WBID 1797A); therefore, water quality certification is waived as a condition of this permit. The post-development curve number calculations include 1.10 acres of future impervious area. A formal permit modification will be required for this construction.

OP. & MAIN. ENTITY: Manatee County Property Management
OTHER OP. & MAIN. ENTITY: N/A
COUNTY: MANATEE
SEC/TWP/RGE: S11/T34S/R17E
**TOTAL ACRES OWNED
OR UNDER CONTROL:** 31.00
PROJECT SIZE: 9.92 Acres
LAND USE: Government
DATE APPLICATION FILED: January 30, 2013
AMENDED DATE: N/A

I. Water Quantity/Quality

POND No.	Area Acres @ Top of Ban	Treatment Type
Pond	1.37	EFFLUENT FILTRATION
	Total: 1.37	

Water Quantity/ Quality Comments:

The project discharges to an impaired water body. Nutrient loading calculations were provided that demonstrate that the retention depth required to meet net improvement is less than a half an inch. Therefore, presumptive criteria was used. The water quality treatment method will be effluent filtration. The existing park facilities will be routed around the perimeter of the proposed project to avoid commingling with the new surface water management system. The peak discharge rate for the post-development conditions is less than the pre-development peak discharge rate for the 25-year, 24-hour storm event. The post-development weighted curve number calculation includes 2.72 acres of proposed impervious area plus 1.10 acres of future impervious area (i.e. 3.82 acres total).
A mixing zone is not required.
A variance is not required.

II. 100-Year Floodplain

Encroachment (Acre-Feet of fill)	Compensation (Acre-Feet of excavation)	Compensation Type	Encroachment Result* (feet)
0.00	0.00	No Encroachment	N/A

*Depth of change in flood stage (level) over existing receiving water stage resulting from floodplain encroachment caused by a project that claims Minimal Impact type of compensation.

III. Environmental Considerations

No wetlands or other surface waters exist within the project area.

Specific Conditions

1. If the ownership of the project area covered by the subject permit is divided, with someone other than the Permittee becoming the owner of part of the project area, this permit shall terminate, pursuant to Rule 40D-1.6105, F.A.C. In such situations, each land owner shall obtain a permit (which may be a modification of this permit) for the land owned by that person. This condition shall not apply to the division and sale of lots or units in residential subdivisions or condominiums.
2. Unless specified otherwise herein, two copies of all information and reports required by this permit shall be submitted to the Regulation Department at the District Service Office that services this permit. The permit number, title of report or information and event (for recurring report or information submittal) shall be identified on all information and reports submitted.
3. The Permittee shall retain the design engineer, or other professional engineer registered in Florida, to conduct on-site observations of construction and assist with the as-built certification requirements of this project. The Permittee shall inform the District in writing of the name, address and phone number of the professional engineer so employed. This information shall be submitted prior to construction.
4. Within 30 days after completion of construction of the permitted activity, the Permittee shall submit to the Regulation Department at the District Service Office that services this permit a written statement of completion and certification by a registered professional engineer or other appropriate individual as authorized by law, utilizing the required Statement of Completion and Request for Transfer to Operation Entity form identified in Chapter 40D-1, F.A.C., and signed, dated, and sealed as-built drawings. The as-built drawings shall identify any deviations from the approved construction drawings.
5. The District reserves the right, upon prior notice to the Permittee, to conduct on-site research to assess the pollutant removal efficiency of the surface water management system. The Permittee may be required to cooperate in this regard by allowing on-site access by District representatives, by allowing the installation and operation of testing and monitoring equipment, and by allowing other assistance measures as needed on site.
6. The operation and maintenance entity shall submit inspection reports in the form required by the District, in accordance with the following schedule.

For systems utilizing effluent filtration or exfiltration **or** systems utilizing effluent filtration or exfiltration **and** retention or wet detention, the inspections shall be performed 18 months after operation is authorized and every 18 months thereafter.

7. Prior to installation of the filter media, the Permittee's contractor shall submit a certified test of the media to the Permittee's Professional Engineer and the District. The test shall address the following parameters: uniformity coefficient, effective grain size, sieve analysis, percent silts, clays and organic matter, and permeability testing (constant head). If testing indicates the actual permeability rate is less than the value specified in the permitted design, a permit modification will be required to lengthen the effluent filtration system. The Permittee shall also notify the District Service Office that services this permit, at least 48 hours prior to commencement of construction of the effluent filtration system, so that District staff may observe this construction activity.
8. For dry bottom detention systems, the detention area(s) shall become dry within 36 hours after a rainfall event. If a detention area is regularly wet, this situation shall be deemed to be a violation

of this permit.

9. Certification of compliance with state water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341 is waived.
10. If limestone bedrock is encountered during construction of the surface water management system, the District must be notified and construction in the affected area shall cease.
11. The Permittee shall notify the District of any sinkhole development in the surface water management system within 48 hours of discovery and must submit a detailed sinkhole evaluation and repair plan for approval by the District within 30 days of discovery.
12. The District, upon prior notice to the Permittee, may conduct on-site inspections to assess the effectiveness of the erosion control barriers and other measures employed to prevent violations of state water quality standards and avoid downstream impacts. Such barriers or other measures should control discharges, erosion, and sediment transport during construction and thereafter. The District will also determine any potential environmental problems that may develop as a result of leaving or removing the barriers and other measures during construction or after construction of the project has been completed. The Permittee must provide any remedial measures that are needed.
13. This permit is issued based upon the design prepared by the Permittee's consultant. If at any time it is determined by the District that the Conditions for Issuance of Permits in Rules 40D-4.301 and 40D-4.302, F.A.C., have not been met, upon written notice by the District, the Permittee shall obtain a permit modification and perform any construction necessary thereunder to correct any deficiencies in the system design or construction to meet District rule criteria. The Permittee is advised that the correction of deficiencies may require re-construction of the surface water management system.

GENERAL CONDITIONS

1. The general conditions attached hereto as Exhibit "A" are hereby incorporated into this permit by reference and the Permittee shall comply with them.

Michelle K. Hopkins, P.E.

Authorized Signature

EXHIBIT A

GENERAL CONDITIONS:

1. All activities shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit.
2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications, shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.
3. For general permits authorizing incidental site activities, the following limiting general conditions shall also apply:
 - a. If the decision to issue the associated individual permit is not final within 90 days of issuance of the incidental site activities permit, the site must be restored by the permittee within 90 days after notification by the District. Restoration must be completed by re-contouring the disturbed site to previous grades and slopes re-establishing and maintaining suitable vegetation and erosion control to provide stabilized hydraulic conditions. The period for completing restoration may be extended if requested by the permittee and determined by the District to be warranted due to adverse weather conditions or other good cause. In addition, the permittee shall institute stabilization measures for erosion and sediment control as soon as practicable, but in no case more than 7 days after notification by the District.
 - b. The incidental site activities are commenced at the permittee's own risk. The Governing Board will not consider the monetary costs associated with the incidental site activities or any potential restoration costs in making its decision to approve or deny the individual environmental resource permit application. Issuance of this permit shall not in any way be construed as commitment to issue the associated individual environmental resource permit.
4. Activities approved by this permit shall be conducted in a manner which does not cause violations of state water quality standards. The permittee shall implement best management practices for erosion and a pollution control to prevent violation of state water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.
5. Water quality data for the water discharged from the permittee's property or into the surface waters of the state shall be submitted to the District as required by the permit. Analyses shall be performed according to procedures outlined in the current edition of Standard Methods for the Examination of Water and Wastewater by the American Public Health Association or Methods for Chemical Analyses of Water and Wastes by the U.S. Environmental Protection Agency. If water quality data are required, the permittee shall provide data as required on volumes of water discharged, including total volume discharged during the days of sampling and total monthly volume discharged from the property or into surface waters of the state.
6. District staff must be notified in advance of any proposed construction dewatering. If the dewatering activity is likely to result in offsite discharge or sediment transport into wetlands or surface waters, a written dewatering plan must either have been submitted and approved with the permit application or submitted to the District as a permit prior to the dewatering event as a permit modification. A water use permit may be required prior to any use exceeding the thresholds in Chapter 40D-2, F.A.C.

7. Stabilization measures shall be initiated for erosion and sediment control on disturbed areas as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased.
8. Off-site discharges during construction and development shall be made only through the facilities authorized by this permit. Water discharged from the project shall be through structures having a mechanism suitable for regulating upstream stages. Stages may be subject to operating schedules satisfactory to the District.
9. The permittee shall complete construction of all aspects of the surface water management system, including wetland compensation (grading, mulching, planting), water quality treatment features, and discharge control facilities prior to beneficial occupancy or use of the development being served by this system.
10. The following shall be properly abandoned and/or removed in accordance with the applicable regulations:
 - a. Any existing wells in the path of construction shall be properly plugged and abandoned by a licensed well contractor.
 - b. Any existing septic tanks on site shall be abandoned at the beginning of construction.
 - c. Any existing fuel storage tanks and fuel pumps shall be removed at the beginning of construction.
11. All surface water management systems shall be operated to conserve water in order to maintain environmental quality and resource protection; to increase the efficiency of transport, application and use; to decrease waste; to minimize unnatural runoff from the property and to minimize dewatering of offsite property.
12. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District a written notification of commencement indicating the actual start date and the expected completion date.
13. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the occupation of the site or operation of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of that phase or portion of the system to a local government or other responsible entity.
14. Within 30 days after completion of construction of the permitted activity, the permittee shall submit a written statement of completion and certification by a registered professional engineer or other appropriate individual as authorized by law, utilizing the required Statement of Completion and Request for Transfer to Operation Entity form identified in Chapter 40D-1, F.A.C. Additionally, if deviation from the approved drawings are discovered during the certification process the certification must be accompanied by a copy of the approved permit drawings with deviations noted.
15. This permit is valid only for the specific processes, operations and designs indicated on the approved drawings or exhibits submitted in support of the permit application. Any substantial deviation from the approved drawings, exhibits, specifications or permit conditions, including construction within the total land area but outside the approved project area(s), may constitute grounds for revocation or enforcement action by the District, unless a modification has been applied for and approved. Examples of substantial deviations include excavation of ponds, ditches or sump areas deeper than shown on the approved plans.
16. The operation phase of this permit shall not become effective until the permittee has complied with the requirements of the conditions herein, the District determines the system to be in compliance with the permitted plans, and the entity approved by the District accepts responsibility for operation and maintenance of the system. The permit may not be transferred to the operation and maintenance entity approved by the District until the

operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall request transfer of the permit to the responsible operation and maintenance entity approved by the District, if different from the permittee. Until a transfer is approved by the District, the permittee shall be liable for compliance with the terms of the permit.

17. Should any other regulatory agency require changes to the permitted system, the District shall be notified of the changes prior to implementation so that a determination can be made whether a permit modification is required.
18. This permit does not eliminate the necessity to obtain any required federal, state, local and special District authorizations including a determination of the proposed activities' compliance with the applicable comprehensive plan prior to the start of any activity approved by this permit.
19. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40D-4 or Chapter 40D-40, F.A.C.
20. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the activities authorized by the permit or any use of the permitted system.
21. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under section 373.421(2), F.S., provides otherwise.
22. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of the permitted system or the real property at which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rule 40D-4.351, F.A.C. The permittee transferring the permit shall remain liable for any corrective actions that may be required as a result of any permit violations prior to such sale, conveyance or other transfer.
23. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with District rules, regulations and conditions of the permits.
24. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the District and the Florida Department of State, Division of Historical Resources.
25. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SOUTHWEST FLORIDA
WATER MANAGEMENT DISTRICT

NOTICE OF
AUTHORIZATION
TO COMMENCE CONSTRUCTION

Blackstone Park Expansion

PROJECT NAME

Government

PROJECT TYPE

MANATEE

COUNTY

S11/T34S/R17E

SEC(S)/TWP(S)/RGE(S)

Manatee County Property Management

PERMITTEE

APPLICATION ID/PERMIT NO: 676759 / 44041165.000

DATE ISSUED: February 13, 2013



Michelle K. Hopkins, P.E.

Issuing Authority

THIS NOTICE SHOULD BE CONSPICUOUSLY
DISPLAYED AT THE SITE OF THE WORK

Notice of Rights

ADMINISTRATIVE HEARING

1. You or any person whose substantial interests are or may be affected by the District's intended or proposed action may request an administrative hearing on that action by filing a written petition in accordance with Sections 120.569 and 120.57, Florida Statutes (F.S.), Uniform Rules of Procedure Chapter 28-106, Florida Administrative Code (F.A.C.) and District Rule 40D-1.1010, F.A.C. Unless otherwise provided by law, a petition for administrative hearing must be filed with (received by) the District within 21 days of receipt of written notice of agency action. "Written notice" means either actual written notice, or newspaper publication of notice, that the District has taken or intends to take agency action. "Receipt of written notice" is deemed to be the fifth day after the date on which actual notice is deposited in the United States mail, if notice is mailed to you, or the date that actual notice is issued, if sent to you by electronic mail or delivered to you, or the date that notice is published in a newspaper, for those persons to whom the District does not provide actual notice.
2. Pursuant to Subsection 373.427(2)(c), F.S., for notices of intended or proposed agency action on a consolidated application for an environmental resource permit and use of sovereignty submerged lands concurrently reviewed by the District, a petition for administrative hearing must be filed with (received by) the District within 14 days of receipt of written notice.
3. Pursuant to Rule 62-532.430, F.A.C., for notices of intent to deny a well construction permit, a petition for administrative hearing must be filed with (received by) the District within 30 days of receipt of written notice of intent to deny.
4. Any person who receives written notice of an agency decision and who fails to file a written request for a hearing within 21 days of receipt or other period as required by law waives the right to request a hearing on such matters.
5. Mediation pursuant to Section 120.573, F.S., to settle an administrative dispute regarding District intended or proposed action is not available prior to the filing of a petition for hearing.
6. A request or petition for administrative hearing must comply with the requirements set forth in Chapter 28.106, F.A.C. A request or petition for a hearing must: (1) explain how the substantial interests of each person requesting the hearing will be affected by the District's intended action or proposed action, (2) state all material facts disputed by the person requesting the hearing or state that there are no material facts in dispute, and (3) otherwise comply with Rules 28-106.201 and 28-106.301, F.A.C. Chapter 28-106, F.A.C. can be viewed at www.flrules.org or at the District's website at www.WaterMatters.org/permits/rules.
7. A petition for administrative hearing is deemed filed upon receipt of the complete petition by the District Agency Clerk at the District's Tampa Service Office during normal business hours, which are 8:00 a.m. to 5:00 p.m., Monday through Friday, excluding District holidays. Filings with the District Agency Clerk may be made by mail, hand-delivery or facsimile transfer (fax). The District does not accept petitions for administrative hearing by electronic mail. Mailed filings must be addressed to, and hand-delivered filings must be delivered to, the Agency Clerk, Southwest Florida Water Management District, 7601 Highway 301 North, Tampa, FL 33637-6759. Faxed filings must be transmitted to the District Agency Clerk at (813) 987-6746. Any petition not received during normal business hours shall be filed as of 8:00 a.m. on the next business day. The District's acceptance of faxed petitions for filing is subject to certain conditions set forth in the District's Statement of Agency Organization and Operation, available for viewing at www.WaterMatters.org/about.

JUDICIAL REVIEW

1. Pursuant to Sections 120.60(3) and 120.68, F.S., a party who is adversely affected by District action may seek judicial review of the District's action. Judicial review shall be sought in the Fifth District Court of Appeal or in the appellate district where a party resides or as otherwise provided by law.
2. All proceedings shall be instituted by filing an original notice of appeal with the District Agency Clerk within 30 days after the rendition of the order being appealed, and a copy of the notice of appeal, accompanied by any filing fees prescribed by law, with the clerk of the court, in accordance with Rules 9.110 and 9.190 of the Florida Rules of Appellate Procedure (Fla. R. App. P.). Pursuant to Fla. R. App. P. 9.020(h), an order is rendered when a signed written order is filed with the clerk of the lower tribunal.

DESCRIPTION:

COMMENCE AT THE SOUTHWEST CORNER OF SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST; THENCE N 00°23'58" E ALONG THE WEST LINE OF SECTION 11, A DISTANCE OF 2004.19 FEET; THENCE S 89°33'55" E, A DISTANCE OF 42.00 FEET TO THE POINT OF BEGINNING; THENCE S 89°33'55" E, A DISTANCE OF 1285.02 FEET; THENCE S 00°26'50" W, A DISTANCE OF 669.90 FEET; THENCE N 89°28'31" W, A DISTANCE OF 165.90 FEET; THENCE N 00°26'20" E, A DISTANCE OF 30.00 FEET; THENCE N 89°28'31" W, A DISTANCE OF 1118.58 FEET TO THE EASTERLY MAINTAINED RIGHT-OF-WAY OF 14TH AVENUE WEST; THENCE N 00°23'58" E ALONG SAID MAINTAINED RIGHT-OF-WAY, A DISTANCE OF 637.89 FEET TO THE POINT OF BEGINNING.

LYING AND BEING IN SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST, MANATEE COUNTY, FLORIDA.

SUBJECT TO PERTINENT EASEMENTS, RESTRICTIONS AND RIGHT OF WAYS OF RECORD.

CONTAINING 18.96 ACRES.

TOGETHER WITH THE FOLLOWING DESCRIBED PARCEL:

A PARCEL OF LAND LOCATED IN SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST, MANATEE COUNTY, FLORIDA, DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHWEST CORNER OF SAID SECTION 11, RUN NORTH 00°23'58" EAST ALONG THE WEST LINE OF AFORESAID SECTION 11, A DISTANCE OF 2004.19 FEET TO THE NORTH LINE OF THE SOUTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF AFORESAID SECTION 11; THENCE SOUTH 89°33'55" EAST, ALONG SAID SOUTH LINE OF THE NORTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11, A DISTANCE OF 42.00 FEET TO THE APPARENT MAINTAINED WESTERLY RIGHT-OF-WAY LINE OF 14TH AVENUE, ALSO BEING THE POINT OF BEGINNING; THENCE NORTH 00°23'58" EAST, ALONG SAID APPARENT MAINTAINED WESTERLY RIGHT-OF-WAY LINE OF 14TH AVENUE, A DISTANCE OF 219.36 FEET TO THE INTERSECTION OF AFORESAID APPARENT MAINTAINED WESTERLY RIGHT-OF-WAY LINE AND THE PROPOSED SOUTHERLY RIGHT-OF-WAY LINE OF TERRA CEIA BOULEVARD, A 100 FOOT WIDE RIGHT-OF-WAY; THENCE NORTHEASTERLY, EASTERLY AND SOUTHEASTERLY, ALONG SAID PROPOSED SOUTHERLY RIGHT-OF-WAY LINE OF TERRA CEIA BOULEVARD, THE FOLLOWING FIVE COURSES: NORTH 45°25'02" EAST, A DISTANCE OF 70.69 FEET; THENCE SOUTH 89°33'55" EAST, A DISTANCE OF 807.97 FEET TO THE POINT OF CURVATURE OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 525.00 FEET; THENCE SOUTHEASTERLY, ALONG THE ARC OF SAID CURVE TO THE RIGHT, THROUGH A CENTRAL ANGLE OF 40°00'00", A DISTANCE OF 366.52 FEET TO THE POINT OF TANGENCY; THENCE SOUTH 49°33'55" EAST, A DISTANCE OF 343.14 FEET TO THE POINT OF CURVATURE OF A CURVE TO THE LEFT, HAVING A RADIUS OF 625.00 FEET; THENCE SOUTHEASTERLY, ALONG THE ARC OF SAID CURVE TO THE LEFT, THROUGH A CENTRAL ANGLE OF 18°54'38", A DISTANCE OF 206.28 FEET; THENCE LEAVING AFORESAID PROPOSED SOUTHERLY RIGHT-OF-WAY LINE OF TERRA CEIA BOULEVARD, RUN SOUTH 00°26'50" WEST, A DISTANCE OF 491.72 FEET TO THE SOUTH LINE OF THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF AFORESAID SECTION 11; THENCE NORTH 89°31'46" WEST, ALONG SAID SOUTH LINE OF THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11, A DISTANCE OF 350.00 FEET TO THE EAST LINE OF THE SOUTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF AFORESAID SECTION 11; THENCE NORTH 00°26'50" EAST, ALONG SAID WEST LINE OF THE SOUTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11, A DISTANCE OF 669.90 FEET TO AFORESAID SOUTH LINE OF THE NORTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11; THENCE NORTH 89°33'55" WEST, ALONG AFORESAID SOUTH LINE OF THE NORTH 1/2 OF THE NORTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 11, A DISTANCE OF 1285.02 FEET TO THE POINT OF BEGINNING. LYING AND BEING IN SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST, MANATEE COUNTY, FLORIDA.

SUBJECT TO PERTINENT EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD.

CONTAINING 12.13 ACRES, MORE OR LESS.

LEGEND:

- 4"x4" CONCRETE MONUMENT FOUND (AS NOTED)
- 5/8" IRON ROD FOUND OR SET (AS NOTED)
- PK NAIL & DISK FOUND (UNLESS OTHERWISE NOTED)
- BENCH MARK
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT
- P.C. POINT OF CURVATURE
- P.T. POINT OF TANGENCY
- IPF IRON PIPE FOUND
- IRS IRON ROD SET
- NDF NAIL & DISK FOUND
- CM CONCRETE MONUMENT
- R/W RIGHT-OF-WAY
- ID IDENTIFICATION
- (F) FIELD DATA
- (D) DEED DATA
- LB LICENSED BUSINESS
- BLDG. BUILDING
- Δ DELTA (CENTRAL ANGLE)
- R RADIUS
- L ARC LENGTH
- FT. FEET
- FDOT FLORIDA DEPARTMENT OF TRANSPORTATION
- CONC. CONCRETE
- BM BENCH MARK
- NAD NORTH AMERICAN DATUM
- PVC POLYVINYL CHLORIDE PIPE
- RCP REINFORCED CONCRETE PIPE
- EL ELEVATION
- INV INVERT
- LIGHT POLE
- ◇ POWER POLE
- ⚡ FIRE HYDRANT
- 4 SIGN
- VERIZON BOX
- GTE UTILITY BOX
- SANITARY MANHOLE
- GRATE INLET
- OVERHEAD UTILITY LINE
- ORNAMENTAL TREE SIZE AND CONDITION
- PINE TREE SIZE AND CONDITION
- PALM TREE
- OAK TREE SIZE AND CONDITION
- CEDAR TREE SIZE AND CONDITION
- EXISTING ELEVATION

BOUNDARY & TOPOGRAPHIC SURVEY
OF
BLACKSTONE PARK
LOCATED IN
SECTION 11, TOWNSHIP 34 SOUTH, RANGE 17 EAST
MANATEE COUNTY, FLORIDA

NOTE: THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

CERTIFICATE OF SURVEYOR

I, THE UNDERSIGNED PROFESSIONAL SURVEYOR & MAPPER, HEREBY CERTIFY THAT THIS RECORD OF LAND SURVEY WAS PREPARED UNDER MY DIRECT SUPERVISION THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF IS A TRUE AND CORRECT REPRESENTATION OF THE LAND AS SHOWN AND DESCRIBED HEREON, AND THAT IT MEETS THE MINIMUM TECHNICAL STANDARDS FOR SURVEYING IN THE STATE OF FLORIDA, CHAPTER 5J-17.050, OF THE FLORIDA ADMINISTRATIVE CODE.

FLORIDA CERTIFICATE No. 154292
DATE OF CERTIFICATION 10/16/12
DATE OF FIELD SURVEY 10/05/12

BY: *[Signature]*
R.E.M. EDITION, P.S.M.

ADD ADDITIONAL TOPO	DB	11/15/12
REVISION	BY	DATE

K:\Plot Files\Projects\Blackstone Park\BOUNDARY.plt



ZNS ENGINEERING

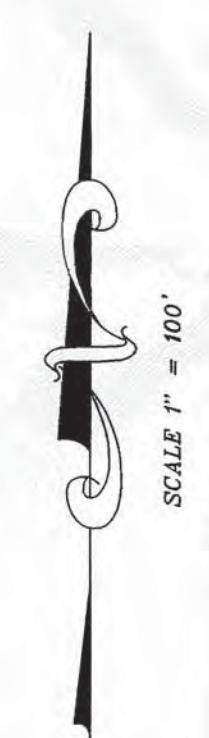
ENGINEERS | PLANNERS | SURVEYORS
LANDSCAPE ARCHITECTS | ENVIRONMENTAL CONSULTANTS
10000
POST OFFICE BOX 9448 BRADENTON, FL 34206 | 201 56 AVENUE DRIVE EAST BRADENTON, FL 34208
E-MAIL: ZNS@ZNS-ENG.COM | TELEPHONE (941) 748-8000 | FAX (941) 748-3316


DRAWING: T:\Blackstone\BkSton-1st.dwg DATE 10/16/12 SCALE 1" = 100'
DRAWN: bernie JOB NO. 00-43245 FIELD BOOK 658 PAGE 19-21 & 32-34 SHEET 1 OF 2

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NOTES:

- BEARINGS ARE COORDINATES ARE RELATED TO THE FLORIDA STATE PLANE COORDINATE SYSTEM (WEST ZONE) NAD 83/2007 AND ARE DERIVED FROM FDOT PERMANENT REFERENCE NETWORK CORRS STATION "MANATEE-CSPS" (PID DL7682). BASED ON THIS CONTROL, THE BEARING OF THE EAST RIGHT OF WAY LINE OF 14th AVENUE IS N 00°22'58" E.
- IMPROVEMENTS SUCH AS, BUT NOT LIMITED TO, FOUNDATIONS, SUBSURFACE IMPROVEMENTS AND LANDSCAPE FEATURES, ETC., HAVE NOT BEEN LOCATED EXCEPT AS SHOWN.
- THERE MAY BE SOME AREAS NOT PHYSICALLY LOCATED OR SHOWN THAT LIE WITHIN THE BOUNDS OF THIS SURVEY THAT MAY BE TERMED JURISDICTIONAL BY VARIOUS GOVERNMENT AGENCIES.
- THE PROPERTY LIES WITHIN FLOOD ZONES "B", AS SHOWN ON FLOOD INSURANCE RATE MAP PANEL No. 120153 0187 B REVISED MARCH 15, 1984.
- THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT OR ABSTRACT AND THEREFORE DOES NOT NECESSARILY INDICATE ALL THE ENCUMBRANCES ON THE PROPERTY.
- ELEVATIONS ARE BASED ON N.G.V.D. 1929 MSL DATUM, NGS BENCHMARK "PORT ST. JOHN" ELEVATION 4.91 AND "PALM SHORES" ELEVATION 6.43, AS PUBLISHED.



- 
- SCALE 1" = 100'

NOTE: THIS SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.



ENGINEERS | PLANNERS | SURVEYORS
EB 0027476 LS 0006982
LANDSCAPE ARCHITECTS | ENVIRONMENTAL CONSULTANTS
LC 0003985
POST OFFICE BOX 9448 BRADENTON, FL 34206 | 201 5th AVENUE DRIVE EAST BRADENTON, FL 34208
E-MAIL: ZNS@ZNSENG.COM | TELEPHONE (941) 748-8080 | FAX (941) 748-3316

DRAWING: T:\Blackstone\BlkSton-ts1.dwg DATE 10/16/12 SCALE 1" = 100'

DRAWN bernie JOB NO. 00-43245 FIELD BOOK 658 PAGE 19-21 & 32-34 SHEET 2 OF 2

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ADD ADDITIONAL TOPO	DB	11/15/12
REVISION	BY	DATE



BLACKSTONE PARK EXPANSION

STORMWATER POLLUTION PREVENTION PLAN

PREPARED FOR

**MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT
1112 MANATEE AVENUE WEST, SUITE 803
BRADENTON, FL 34205**

MARCH 2013



Stantec

Stantec Consulting Services, Inc.
6900 Professional Parkway East
Sarasota, FL 34240

STORMWATER POLLUTION PREVENTION PLAN

for

BLACKSTONE PARK EXPANSION

PREPARED BY

STANTEC CONSULTING SERVICES, INC.
6900 PROFESSIONAL PARKWAY EAST
SARASOTA, FLORIDA 34240

BLACKSTONE PARK EXPANSION

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- III. CONTRACTOR'S LIST/CERTIFICATION
- IV. STORMWATER POLLUTION PLAN INSPECTION REPORT FORM
- V. BMP SITE MAP AND BMP DETAILS
- VI. SOILS MAP AND INFORMATION

**I. NOTICE OF INTENT TO USE GENERIC PERMIT FOR
STORMWATER DISCHARGE FROM LARGE AND
SMALL CONSTRUCTION ACTIVITIES
[DEP FORM 62-621.300(4)(b)]**



**NOTICE OF INTENT
TO USE
GENERIC PERMIT FOR STORMWATER
DISCHARGE FROM LARGE AND SMALL
CONSTRUCTION ACTIVITIES
(RULE 62-621.300(4), F.A.C.)**

This Notice of Intent (NOI) form is to be completed and submitted to the Department before use of the Generic Permit for Stormwater Discharge From Large and Small Construction Activities provided in subsection 62-621.300(4), F.A.C. The type of project or activity that qualifies for use of the generic permit, the conditions of the permit and additional requirements to request coverage are specified in the generic permit document [DEP Document 62-621.300(4)(a)]. **The appropriate generic permit fee, as specified in paragraph 62-4.050(4)(d), F.A.C., shall be submitted with this NOI in order to obtain permit coverage. Permit coverage will not be granted without submittal of the appropriate generic permit fee.** You should familiarize yourself with the generic permit document and the attached instructions before completing this NOI form. **Please print or type information in the appropriate areas below.**

I. IDENTIFICATION NUMBER: Project ID: _____

II. APPLICANT INFORMATION:

A. Operator Name: Manatee County Property Management Department		B. Operator Status: M
C. Address: 1112 Manatee Avenue West, Suite 803		
D. City: Bradenton	E. State: FL	F. Zip Code: 34205
G. Responsible Authority: Charlie Bishop, Director		
H. Responsible Authority's Phone No.: (941) 748-4501		
I. Responsible Authority's Fax No.: (941) 749-3018		
J. Responsible Authority's E-mail Address: charlie.bishop@mymanatee.org		

III. PROJECT/SITE LOCATION INFORMATION:

A. Project Name: Blackstone Park Expansion		
B. Project Address/Location: 2112 14th Avenue West		
C. City: Palmetto	D. State: FL	E. Zip Code: 34221
F. County: Manatee	G. Latitude: 27° 32' 05"	Longitude: 82° 34' 42"
H. Is the site located on Indian Country Lands? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		I. Water Management District: SWFWMD
J. Project Contact: Charlie Bishop, Director		
K. Project Contact's Phone No.: (941) 748-4501		
L. Project Contact's Fax No.: (941) 749-3018		
M. Project Contact's E-mail Address: charlie.bishop@mymanatee.org		

IV. PROJECT/SITE ACTIVITY INFORMATION:

A. Indicate whether the project is Large or Small Construction (check only one):	<input checked="" type="checkbox"/> Large Construction (Project will disturb five or more acres of land.) <input type="checkbox"/> Small Construction (Project will disturb one or more acres but less than five acres of land.)		
B. Approximate total area of land disturbance from commencement through completion of construction: 9.92± acres			
C. SWPPP Location:	<input type="checkbox"/> Address in Part II above <input checked="" type="checkbox"/> Address in Part III above <input type="checkbox"/> Other address (specify below)		
D. SWPPP Address:			
E. City:	F. State:	G. Zip Code:	
H. Construction Period:	Start Date: March 2013		Completion Date: September 2014

V. DISCHARGE INFORMATION:

A. MS4 Operator Name (if applicable): N/A
B. Receiving Water Name: Headwaters of Terra Ceia Bay

VI. CERTIFICATION¹:

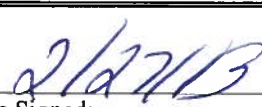
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

¹ Signatory requirements are contained in Rule 62-620.305, F.A.C.

Responsible Authority Name and Official Title (Type or Print):

Charlie Bishop, Director, Manatee County Property Management Department

Responsible Authority Signature: 

Date Signed: 

II. CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

**BLACKSTONE PARK EXPANSION
STORMWATER POLLUTION PREVENTION PLAN**

CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature (Operator and/or Responsible Authority)

Date

Charlie Bishop, Director, Manatee County Property Management Department
Printed Name, Title, and Company

I. SITE DESCRIPTION

A. PROJECT NAME AND LOCATION:

The Blackstone Park Expansion project is located at 2112 14th Avenue West, Palmetto, FL 34221. The park is located south of 23rd Street West, east of 14th Avenue West.

B. OWNER NAME AND ADDRESS:

Manatee County Property Management Department
1112 Manatee Avenue West, Suite 803
Bradenton, FL 34205

C. NATURE OF CONSTRUCTION ACTIVITY:

This project will consist of three new regulation Little League fields, a parking lot, a concession building, bleachers, sidewalks, and associated utility and drainage infrastructure located on the north and east sides of the existing Blackstone Park facilities.

Soil disturbing activities will include: clearing and grubbing; installing a stabilized construction entrance, and other erosion and sediment controls; grading; storm sewer, utilities, and building foundations; construction of driveway and parking areas; and preparation for final planting and seeding.

D. SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES:

1. Install stabilized construction entrance and utilities
2. Clearing, grubbing, and grading
3. Stockpile borrow material
4. Construct building pad, foundation, and building
5. Install storm sewer, curb and gutter, fencing, concrete
6. Apply base material to parking areas and roads
7. Complete grading and install permanent seeding and plantings
8. Complete final paving

E. SITE AREA:

The property is approximately 31± acres of which approximately 10± acres will be disturbed by construction activities.

F. RUNOFF DATA:

The Pre-Development Weighted Curve Number is approximately 80, and the Post-Development Weighted Curve Number is approximately 90. During construction the Weighted Curve Number will vary from 80 to 90.

G. EXISTING SOIL DATA:

The soils within the project boundaries consist of: Bradenton (#5). Please see Section VI for additional soils information.

H. DISCHARGE POINT INFORMATION:

The project will be discharged from the dry retention area located at Latitude 27° 32' 05" and Longitude 82° 34' 42" into the headwaters of Terra Ceia Bay.

I. SITE MAP:

The Construction Plans are being used as the site map.

II. CONTROL DESCRIPTION

For each construction phase, install perimeter controls such as silt fences and berms, install stabilized construction entrances, and install possible sediment basins necessary for installation of controls but prior to clearing or grading of any other portions of the site. Perimeter controls shall be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls shall be removed after final stabilization. After the entire site is stabilized, the accumulated sediment will be removed from the basin.

A. TEMPORARY STABILIZATION:

Stock piles and disturbed portions of the site where construction activity temporarily ceases for at least 21 days will be stabilized with temporary seed and mulch as soon as practicable but in no case more than 14 days from the last construction activity in that area. The temporary seed and mulch shall be installed in accordance with Stantec Specification Section 02813.

Areas of the site that are to be paved will be temporarily stabilized by applying base material until bituminous pavement can be applied.

B. PERMANENT STABILIZATION:

Disturbed portions of the site where construction activities permanently cease shall be stabilized with sod in accordance with Stantec Specification Section 02813, or with permanent seed and mulch as soon as practical but in no case more than 14 days after the last construction activity in accordance with Stantec Specification Section 02813.

C. STRUCTURAL CONTROLS:

Silt fences, staked turbidity barriers, swales, storm drain inlet protection, rock outlet protection, and temporary or permanent sediment basins.

See the construction plans for locations and details of structural controls.

D. SEDIMENT BASINS:

For drainage basins with ten or more disturbed acres at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from off-site areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage basins with ten or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, a combination of smaller sediment basins and/or sediment traps and other BMPs should be used. At a minimum, silt fences or equivalent sediment controls are required for all side-slope and down-slope boundaries of the construction area.

For drainage basins of less than ten acres, sediment basins and/or sediment traps are recommended but not required. At a minimum, silt fences or equivalent sediment controls are required for all side-slope and down-slope boundaries of the construction area.

Areas that are designed by a qualified professional engineer for permanent stormwater detention purposes (e.g. dry retention area) should be used for sediment basins.

Areas that are designated for permanent stormwater infiltration treatment (e.g. dry retention area) should not be used for temporary sediment basins unless appropriate measures are taken to assure removal of accumulated fine sediments, which may cause premature clogging and loss of infiltration capacity and to avoid excessive compaction of soils by construction machinery or equipment.

All construction de-watering will be contained onsite, at specified locations, and either directed to a temporary sedimentation basin or allowed to infiltrate the soil. The Southwest Florida Water Management District and Florida Department of

Environmental Protection oversees the requirements of temporary de-watering methods.

E. PERMANENT STORMWATER MANAGEMENT CONTROLS:

Stormwater management will be provided through the use of swales, catch basins, pipes, curb and gutter, and other conveyance mechanisms for the developed area. When construction is complete, excess run-off generated within the project site will be conveyed to the constructed dry retention area. The stormwater management system has been designed by a professional engineer to keep peak flow rates from the 24-hour/25-year storm event, from having adverse off-site impacts. When construction is complete, the site will drain to the onsite retention basin area and discharge at a rate as permitted by Southwest Florida Water Management District.

III. POTENTIAL POLLUTANT CONTROLS

A. WASTE MATERIALS:

All waste materials will be collected and stored in a securely lidded metal dumpster rented from a County licensed solid waste management company. The dumpster will meet all local, county, and any state solid waste management regulations. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied once per week or more often, if necessary. No construction waste materials will be buried onsite. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the office trailer and the individual who manages the day-to-day site operations will be responsible for seeing that these procedures are followed. All sanitary waste will be collected from the portable units a minimum of three times per week by a licensed sanitary waste management contractor, as required by local regulation.

B. OFF-SITE VEHICLE TRACKING:

A stabilized construction entrance will be provided to help reduce vehicle tracking of sediments. The paved street adjacent to the site entrance will be swept as required to remove any excess mud, dirt or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

C. APPLICATION RATES:

Application rates for all fertilizers, herbicides, and pesticides used at the construction site shall be in accordance with the manufacturer's recommendations. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealed plastic bin to avoid spills.

D. TOXIC SUBSTANCES:

All hazardous waste materials will be disposed of in the manner specified by local or state regulation or by the manufacturer. Site personnel will be instructed in these practices, and the individual who manages day-to-day site operations will be responsible for seeing that these practices are followed.

IV. MAINTENANCE/INSPECTION PROCEDURES

EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

These are the inspection and maintenance practices that will be used to maintain erosion and sediment controls:

- All control measures will be inspected at least once each week and following any storm event of 0.50-inches or greater.
- All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24-hours of report.
- Built-up sediment will be removed from silt fence or hay bales when it has reached one-half the height of the fence or hay bale.
- Sediment shall be removed from the storm drain inlet or curb inlet sediment protection device and restored to its original dimensions when the sediment has accumulated to one-half of the design depth.
- Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- The sediment basin will be inspected for depth of sediment, and built up sediment will be removed when it reaches ten percent (10%) of the design capacity, or at the end of the job.
- Diversion dike, if required, will be inspected and any breaches promptly repaired.
- Temporary and permanent seeding and planting will be inspected for bare spots, washouts, and healthy growth.
- A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector is attached.
- The Site Superintendent will be responsible for inspections, maintenance and repair activities, filling out the inspection and maintenance report, and, if necessary, revising the Stormwater Pollution Prevention Plan consistent with modifications made due to unforeseen causes.
- Personnel selected for inspection and maintenance responsibilities will receive training from the Site Superintendent for inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

V. NON-STORM WATER DISCHARGES

It is expected that the following non-storm water discharges will occur during construction:

- Water from water line flushing
- Pavement wash waters (where no spills or leaks of toxic or hazardous materials have occurred)
- Groundwater (from temporary dewatering excavation)
- Water used to control dust

All non-storm water discharges will be directed to the sediment basin prior to discharge.

III. CONTRACTOR'S LIST/CERTIFICATION

CONTRACTOR'S LIST

Name/Title	Company Name	Address	Telephone Number	Fax Number	Control Measure Responsibility

SUBCONTRACTOR'S LIST

Name/Title	Company Name	Address	Telephone Number	Fax Number	Control Measure Responsibility

CONTRACTOR / SUBCONTRACTOR CERTIFICATION:

"I certify under penalty of law that I understand, and shall comply with the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared thereunder."

Signature

Date

Printed Name and Title

Company Name

Address

Phone Number

City, State, Zip

IV. STORMWATER POLLUTION PLAN INSPECTION REPORT FORM

Stormwater Pollution Prevention Plan Inspection Report Form

Inspections must occur at least once a week and within 24 hours of the end of a storm event that is 0.50 inches or greater.

Project Name: Blackstone Park Expansion FDEP NPDES Stormwater Identification Number: FLR

Location	Rain data	Type of control (see below)	Date installed / modified	Current Condition (see below)	Correction Action / Other Remarks

Condition Code:

G = Good

M = Marginal, needs maintenance or replacement soon

P = Poor, needs immediate maintenance or replacement

C = Needs to be cleaned

O = Other

Control Type Codes

1. Silt Fence	10. Storm drain inlet protection	19. Reinforced soil retaining system	28. Tree protection
2. Earth dikes	11. Vegetative buffer strip	20. Gabion	29. Detention pond
3. Structural diversion	12. Vegetative preservation area	21. Sediment Basin	30. Retention pond
4. Swale	13. Retention Pond	22. Temporary seed / sod	31. Waste disposal / housekeeping
5. Sediment Trap	14. Construction entrance stabilization	23. Permanent seed / sod	32. Dam
6. Check dam	15. Perimeter ditch	24. Mulch	33. Sand Bag
7. Subsurface drain	16. Curb and gutter	25. Hay Bales	34. Other
8. Pipe slope drain	17. Paved road surface	26. Geotextile	
9. Level spreaders	18. Rock outlet protection	27. Rip-rap	

Inspection Information:

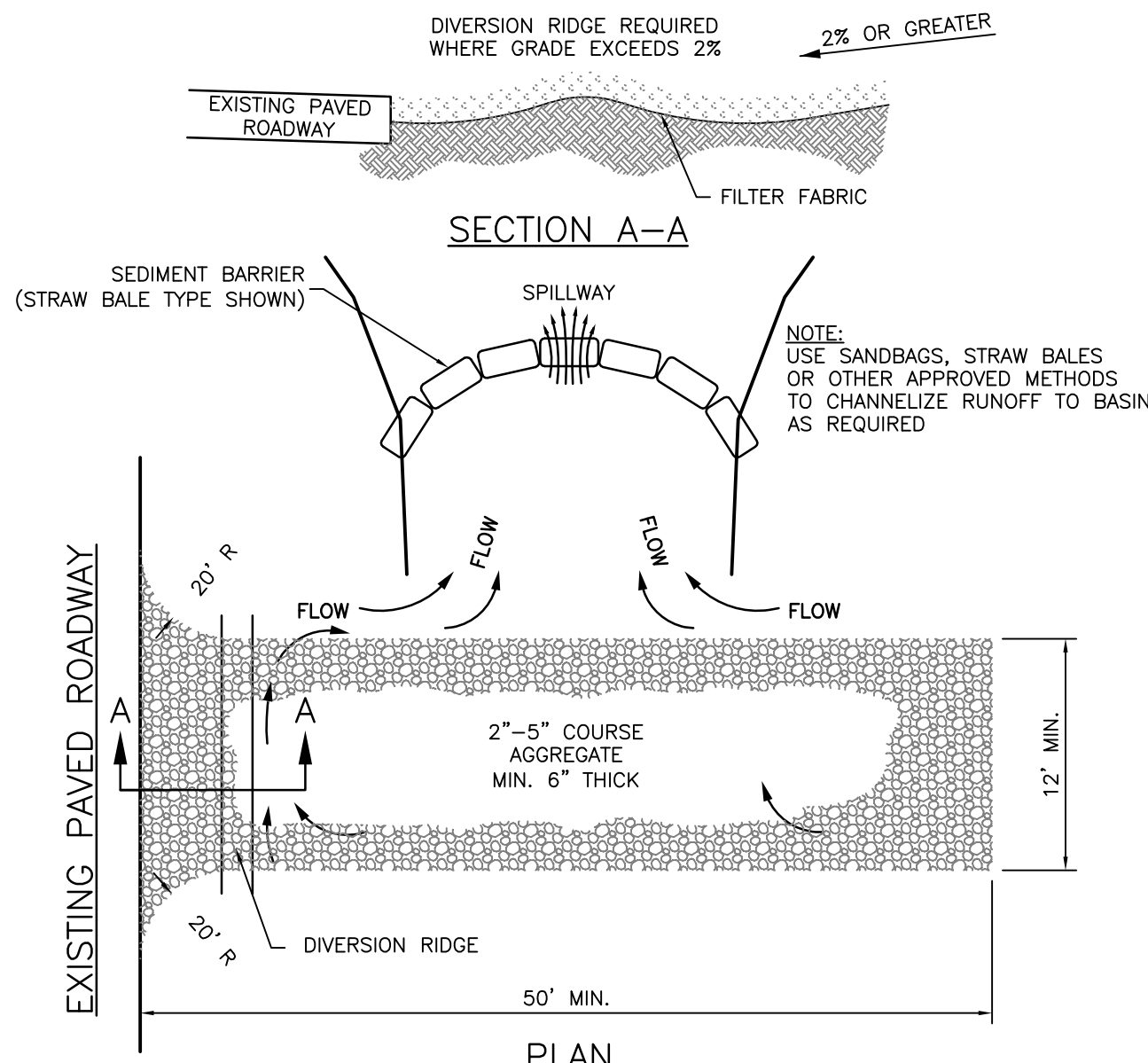
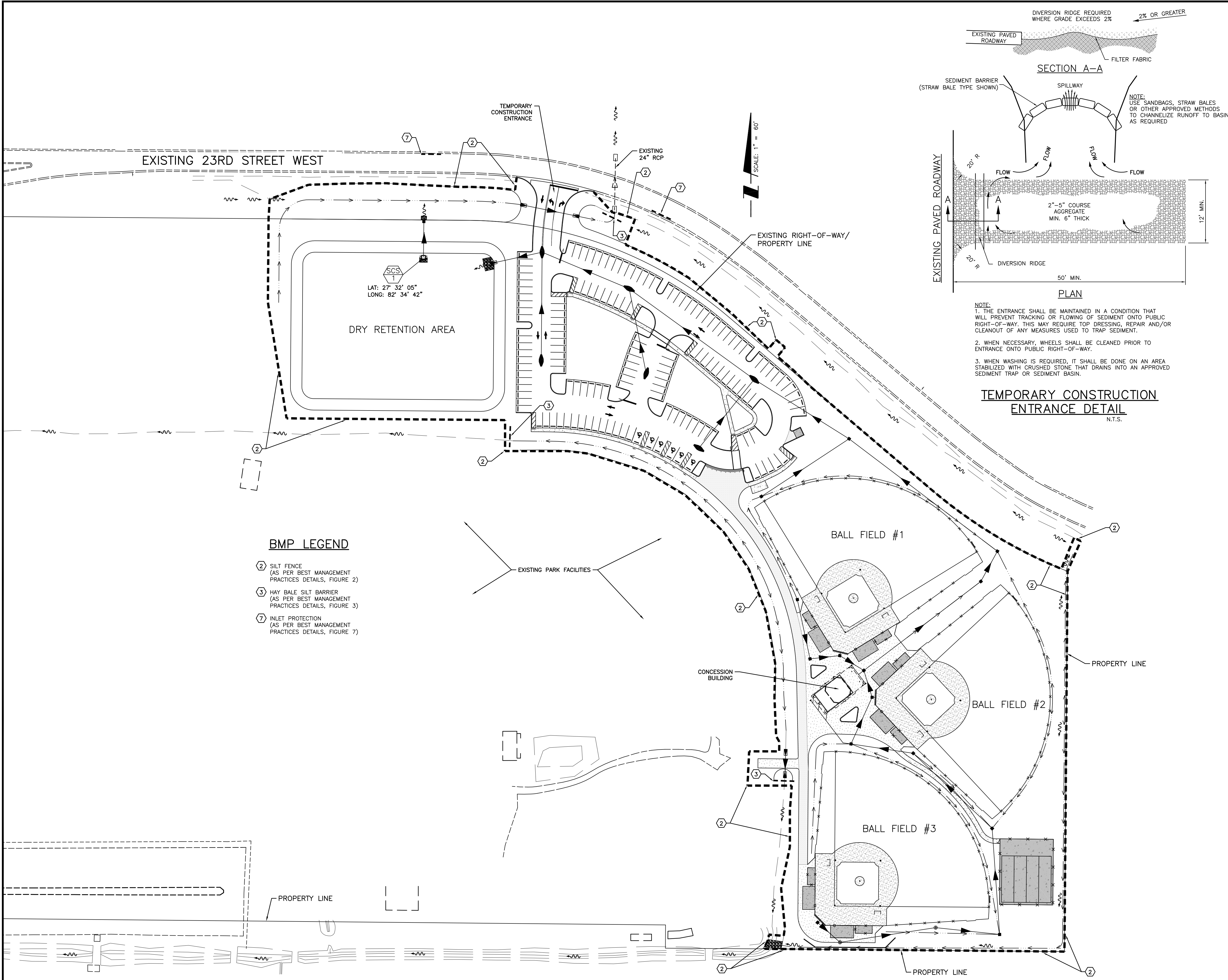
Name _____ Qualification _____ Date _____

The above signature also shall certify that this facility is in compliance with the Stormwater Pollution Prevention Plan and the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities if there are not any incidents of non-compliance identified above.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name (Responsible Authority) _____ Date _____

V. BMP SITE MAP AND BMP DETAILS



**TEMPORARY CONSTRUCTION
ENTRANCE DETAIL**
N.T.S.

BMP LEGEND

- ② SILT FENCE
(AS PER BEST MANAGEMENT
PRACTICES DETAILS, FIGURE 2)
- ③ HAY BALE SILT BARRIER
(AS PER BEST MANAGEMENT
PRACTICES DETAILS, FIGURE 3)
- ⑦ INLET PROTECTION
(AS PER BEST MANAGEMENT
PRACTICES DETAILS, FIGURE 7)

BEST MANAGEMENT NOTES

1. A COPY OF THIS BEST MANAGEMENT PRACTICES PLAN AND THE STORMWATER POLLUTION PREVENTION PLAN, SHALL BE KEPT AT THE PROJECT SITE AT ALL TIMES.
2. THE CONTRACTOR SHALL ABIDE BY ALL APPLICABLE REQUIREMENTS AND CONDITIONS OF THE SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFMD) PERMIT(S) AND HAVE A COPY OF THE PERMIT(S) ON SITE. IF IT IS NECESSARY FOR GROUNDWATER DEWATERING TO DISCHARGE OFFSITE, THEN THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITTING FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP). THE CONTRACTOR SHALL BEAR ALL RESPONSIBILITY AND COSTS FOR OBTAINING AND/OR MODIFYING ALL APPLICABLE PERMITTING FOR THE DISCHARGE OF GROUNDWATER DEWATERING AND FOR COMPLYING WITH ALL SWFMD AND FDEP PERMITTING CONDITIONS.
3. THE CONTRACTOR SHALL IMPLEMENT OTHER BEST MANAGEMENT PRACTICES AS DIRECTED BY THE ENGINEER OF RECORD OR OTHER REGULATORY AGENCIES.
4. THE CONTRACTOR SHALL STAGE CONSTRUCTION IN PHASES WHENEVER POSSIBLE TO MINIMIZE SOIL LOSS AND CONTROL EROSION.
5. THE CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION ENTRANCE TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. THE PAVED STREET ADJACENT TO THE SITE ENTRANCE WILL BE SWEEP AS REQUIRED TO REMOVE ANY EXCESS MUD, DIRT OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE SHALL BE COVERED WITH A TARPAULIN.
6. THE CONTRACTOR SHALL DIRECT ONSITE RUNOFF TO THE STORMWATER MANAGEMENT SYSTEM DURING CONSTRUCTION.
7. CONTRACTOR SHALL SPRINKLE OR OTHERWISE APPLY WATER TO AFFECTED CONSTRUCTION AREAS TO CONTROL BOTH SIGNIFICANT WIND EROSION AND FUGITIVE DUST.
8. ALL INLET GRATES SHALL BE WRAPPED IN FILTER FABRIC AND ALL INLETS SHALL BE PROTECTED WITH SILT SCREENS OR HAY BALES IN ACCORDANCE WITH THE BMP PLAN. SILT BARRIERS SHALL REMAIN IN PLACE UNTIL SODDING AROUND INLETS IS COMPLETE. INLET GRATES SHOULD REMAIN WRAPPED UNTIL PROJECT IS COMPLETE.
9. FOR DRAINAGE BASINS WITH 10 OR MORE DISTURBED ACRES AT ONE TIME, A TEMPORARY (OR PERMANENT) SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE PER ACRE DRAINED, OR EQUIVALENT CONTROL MEASURES, SHALL BE PROVIDED WHERE ATTAINABLE UNTIL FINAL STABILIZATION. THE 3,600 CUBIC FEET OF STORAGE AREA PER ACRE DRAINED DOES NOT APPLY TO FLOWS FROM OFFSITE AREAS AND FLOWS FROM ONSITE AREAS THAT ARE EITHER UNDISTURBED OR HAVE UNDERGONE FINAL STABILIZATION WHERE SUCH FLOWS ARE DIVERTED AROUND BOTH THE DISTURBED AREA AND THE SEDIMENT BASIN. FOR DRAINAGE BASINS WITH 10 OR MORE DISTURBED ACRES AT ONE TIME AND WHERE A TEMPORARY SEDIMENT BASIN PROVIDING 3,600 CUBIC FEET OF STORAGE PER ACRE DRAINED, OR EQUIVALENT CONTROLS IS NOT ATTAINABLE, A COMBINATION OF SMALLER SEDIMENT BASINS AND/OR SEDIMENT TRAPS AND OTHER BMPs SHOULD BE USED. AT A MINIMUM, SILT FENCES, OR EQUIVALENT SEDIMENT CONTROLS ARE REQUIRED FOR ALL SIDESLOPE AND DOWNSLOPE BOUNDARIES OF THE CONSTRUCTION AREA.
10. AREAS THAT ARE DESIGNATED FOR PERMANENT STORMWATER INFILTRATION TREATMENT SYSTEMS (E.G., STORMWATER RETENTION POND(S)) SHOULD NOT BE USED FOR TEMPORARY SEDIMENT BASINS UNLESS APPROPRIATE MEASURES ARE TAKEN TO ASSURE REMOVAL OF ACCUMULATED FINE SEDIMENTS, WHICH MAY CAUSE PREMATURE CLOGGING AND LOSS OF INFILTRATION CAPACITY, AND TO AVOID EXCESSIVE COMPACTION OF SOILS BY CONSTRUCTION MACHINERY OR EQUIPMENT.
11. DEWATERING WILL OCCUR, AS REQUIRED, FOR ALL EXCAVATION ACTIVITY INCLUDING, BUT NOT LIMITED TO, STORM SEWERS, SANITARY SEWERS, WATER LINES AND OTHER UTILITIES.
12. ALL CONSTRUCTION DEWATERING SHALL BE CONTAINED ONSITE, AT SPECIFIED LOCATIONS, AND ALLOWED TO INFILTRATE THE SOIL. UNLESS FDEP PERMITTING IS OBTAINED FOR OFFSITE DISCHARGE, ALL DEWATERING GROUNDWATER DISCHARGE SHALL BE ROUTED THROUGH A TEMPORARY SEDIMENT SUMP PRIOR TO DISCHARGE TO WETLANDS, OTHER SURFACE WATER, OR OFFSITE. THE GENERAL PROCESS OF THE DEWATERING SYSTEM IF DEPICED HEREIN SHALL BE ADHERED TO DURING CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL APPLICABLE APPROVALS FOR ANY MODIFICATIONS HE PROPOSES.
13. THE DEWATERING SYSTEM SHALL USE A PUMP AND PIPING THAT IS LESS THAN 6 INCHES IN DIAMETER AND OPERATE LESS THAN A TOTAL OF SIX MONTHS. ANY DEVIATION FROM THIS REQUIREMENT SHALL REQUIRE A WATER USE PERMIT. THE COST OF A WATER USE PERMIT AND ASSOCIATED MATERIALS SHALL BE BORNE BY THE CONTRACTOR.
14. LAY SOD AROUND ALL INLETS, MITERED ENDWALLS, HEADWALLS, SWALES, POND SLOPES, AND A THREE FOOT (3') WIDE STRIP ADJACENT TO EDGE OF PAVEMENT OR AS DIRECTED BY THE ENGINEER AS SOON AS PRACTICAL TO PREVENT EROSION. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES PERMANENTLY CEASE SHALL BE STABILIZED WITH SOD OR WITH PERMANENT SEED AND MULCH IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. PERMANENT STABILIZATION SHALL OCCUR AS SOON AS PRACTICAL BUT IN NO CASE MORE THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY.
15. SODDING INCLUDES MAINTAINING SLOPES AND SOD UNTIL COMPLETION AND ACCEPTANCE OF TOTAL PROJECT OR GROWTH IS ESTABLISHED, WHICHEVER COMES LAST. UNTIL THEN, ALL EROSION, SILTATION, AND MAINTENANCE OF GRADES AND GRASS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
16. TOP SOIL STOCK PILES AND DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY WILL TEMPORARILY CEASE FOR AT LEAST 21 DAYS SHALL BE STABILIZED WITH TEMPORARY SEED AND MULCH AS SOON AS PRACTICABLE BUT IN NO CASE MORE THAN 14 DAYS FROM THE LAST CONSTRUCTION ACTIVITY IN THAT AREA. THE TEMPORARY SEED AND MULCH SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
17. ALL SILTATION AND EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED AT A MINIMUM OF ONCE PER WEEK OR AFTER ANY 1/2" OR GREATER RAINFALL EVENT. THE CONTRACTOR SHALL MAINTAIN RECORDS OF ALL MAINTENANCE AND INSPECTIONS, ON SITE, UNTIL CONSTRUCTION IS COMPLETE. COPIES SHALL BE FURNISHED TO THE ENGINEER OR OWNER, UPON REQUEST.
18. THE SITE SUPERINTENDENT, WILL BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, FILLING OUT THE INSPECTION AND MAINTENANCE REPORT AND IF NECESSARY, REVISING THE STORMWATER POLLUTION PREVENTION PLAN CONSISTENT WITH MODIFICATIONS MADE DUE TO UNFORESEEN CAUSES, AS DICTATED BY FIELD CONDITIONS.
19. PERSONNEL SELECTED FOR INSPECTION AND MAINTENANCE RESPONSIBILITIES SHALL RECEIVE TRAINING FROM THE SITE SUPERINTENDENT FOR INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS USED ONSITE IN GOOD WORKING ORDER.
20. A MAINTENANCE INSPECTION REPORT SHALL BE MADE AFTER EACH INSPECTION. A COPY OF THE REPORT FORM TO BE COMPLETED BY THE INSPECTOR IS INCLUDED IN THE STORMWATER POLLUTION PREVENTION PLAN.
21. SILT FENCE SHALL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, TO INSURE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS, AND TO INSURE THAT THE FENCE POSTS ARE INSTALLED FIRMLY IN THE GROUND.
22. SILTATION ACCUMULATIONS GREATER THAN THE LESSER OF 12 INCHES OR ONE-HALF OF THE DEPTH OF THE SILTATION CONTROL BARRIER OR CONTROL DEVICES SHALL BE IMMEDIATELY REMOVED AND PLACED IN UPLAND AREAS. ALL SILTATION BARRIERS SHALL THEN BE RESTORED TO THEIR ORIGINAL CONDITIONS.
23. THE SEDIMENT BASIN SHALL BE INSPECTED FOR DEPTH OF SEDIMENT, AND BUILT UP SEDIMENT WILL BE REMOVED WHEN IT REACHES 10 PERCENT OF THE DESIGN CAPACITY OR AT THE END OF THE JOB, WHICHEVER COMES FIRST.
24. DIVERSION DIKE, IF REQUIRED, SHALL BE INSPECTED AND ANY BREACHES PROMPTLY REPAIRED.
25. TEMPORARY AND PERMANENT SEEDING AND PLANTING SHALL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
26. ALL MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER; IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.
27. THE LOCATION OF SILT FENCE AND OTHER BMP FACILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THESE FACILITIES ARE PLACED IN A LOCATION AND MANNER THAT DOES NOT CONFLICT WITH THE LIMITS OF CONSTRUCTION OR AREAS TO BE PROTECTED AS SET FORTH IN THESE PLANS.

CONSTRUCTION SURFACE WATER MANAGEMENT PLAN (CSWMP) CERTIFICATION

OWNER/APPLICANT SIGNATURE		DATE
OWNER:	CHARLIE BISHOP	
TITLE:	DIRECTOR	
COMPANY:	MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT	

REV. NO.	REVISION	DATE	DRAWN BY / EMP. NO.	CHECKED BY / EMP. NO.	WM APPROVED BY:

WilsonMiller **Stantec**

6900 Professional Parkway East, Sarasota, FL 34240
Phone: 941-907-6900 • Fax: 941-907-6910

CLIENT: MANATEE BOARD OF COUNTY COMMISSIONERS

PROJECT: BLACKSTONE PARK EXPANSION

DATE: DECEMBER 2012

HORIZONTAL SCALE: 1" = 60'

VERTICAL SCALE: NA

SEC: 11 TRK: 34S RGE: 17E

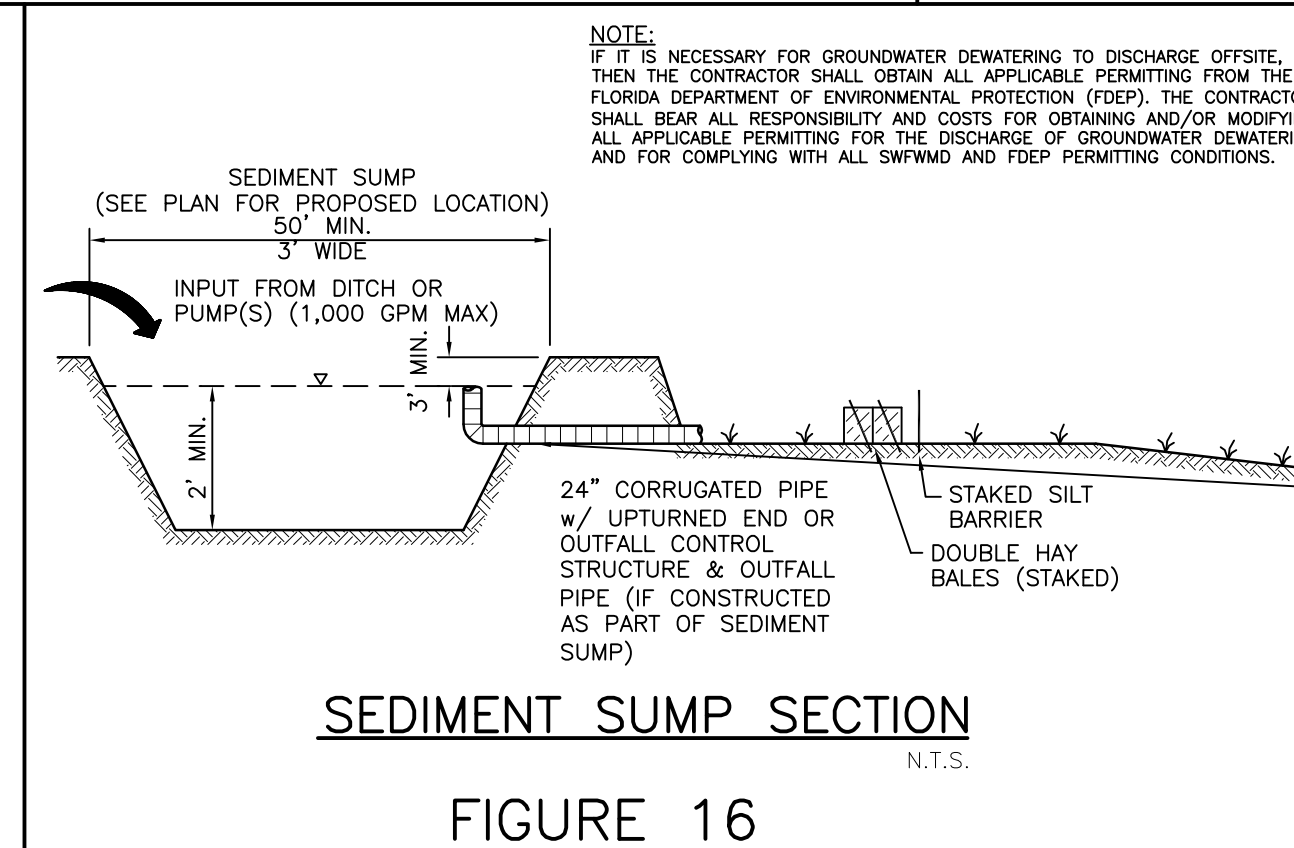
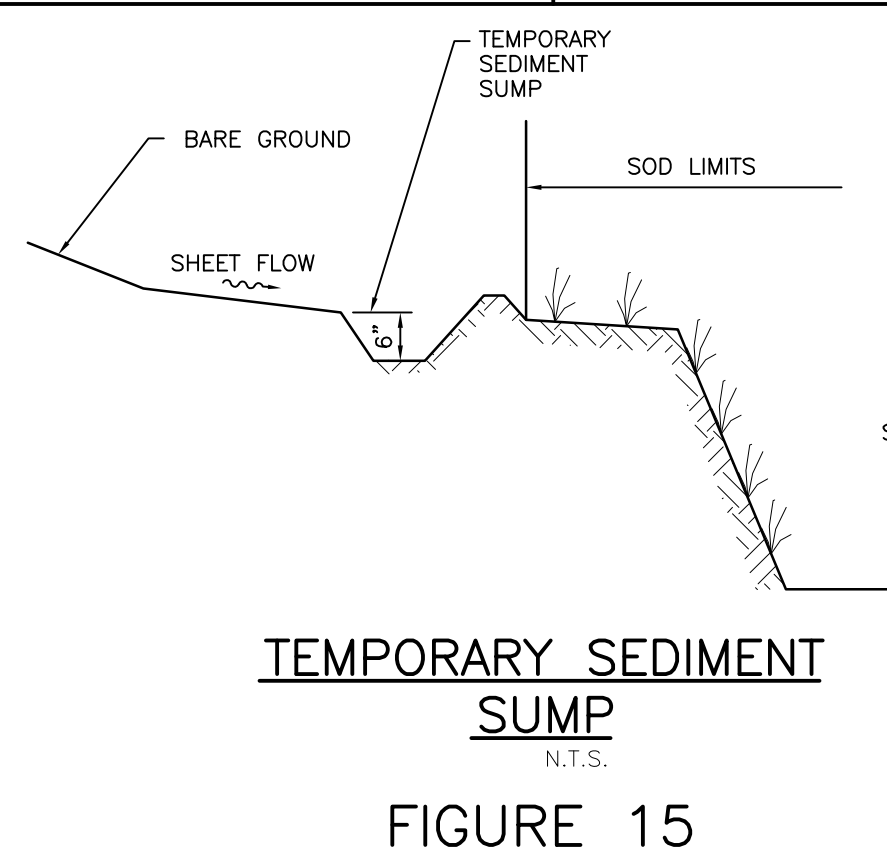
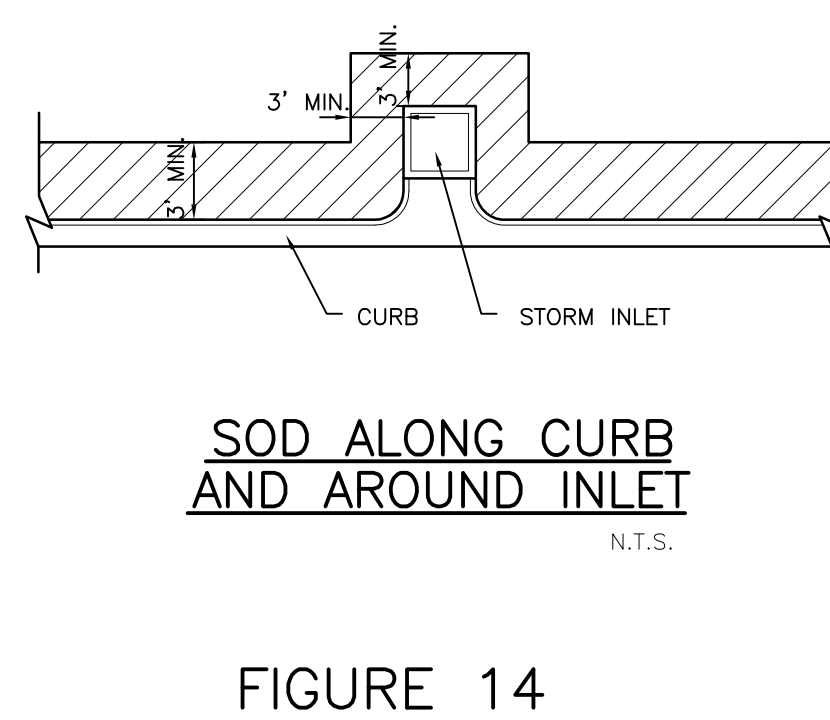
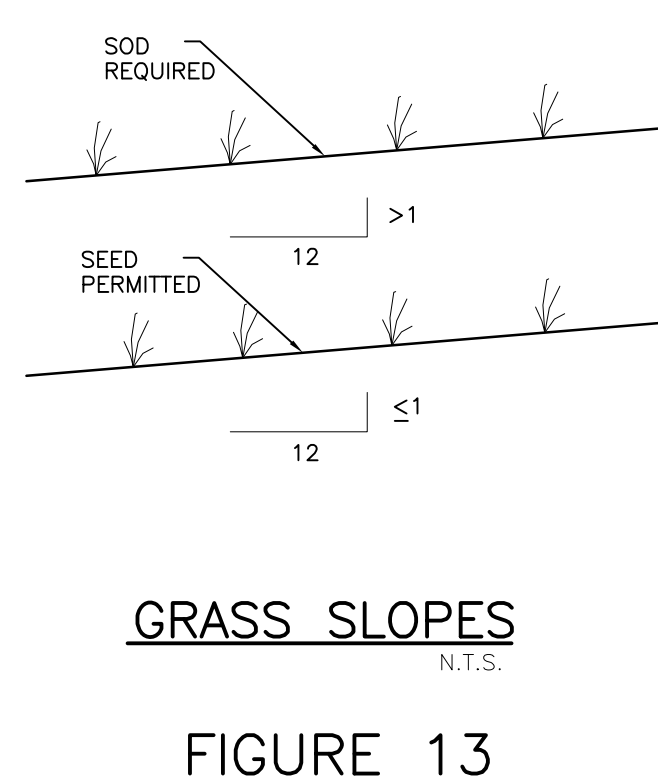
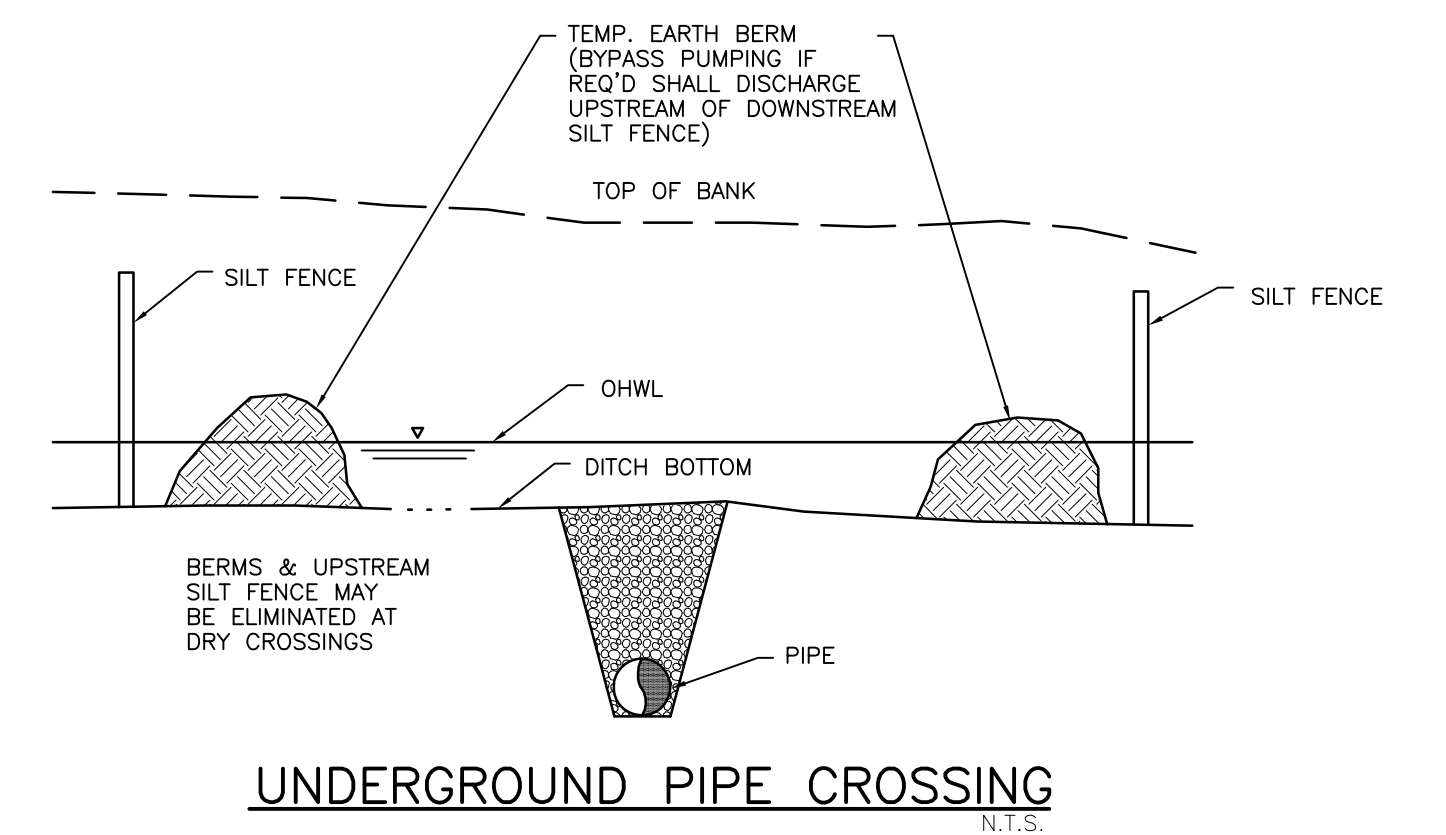
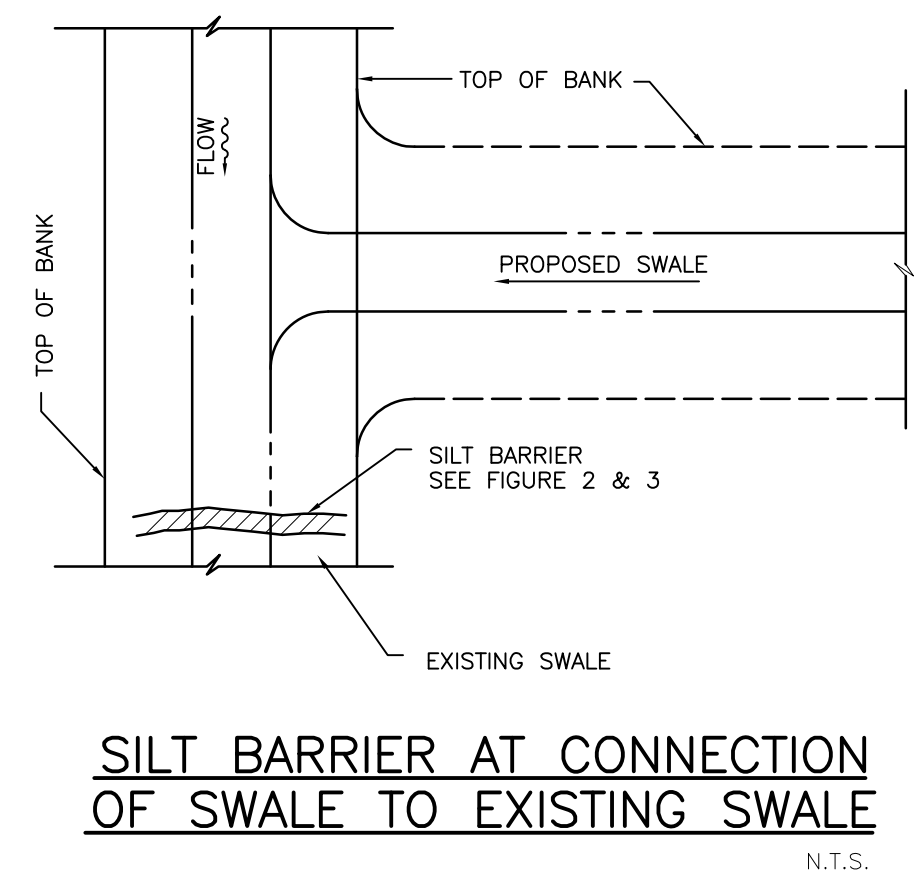
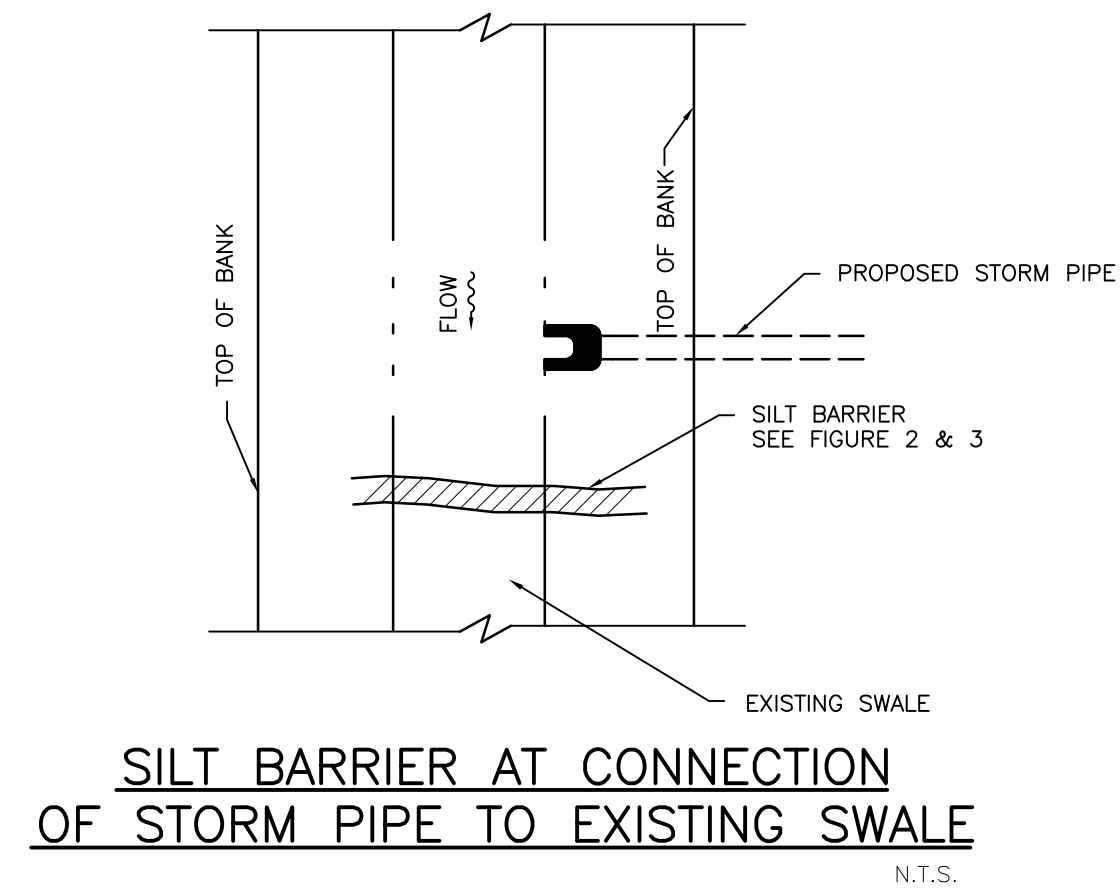
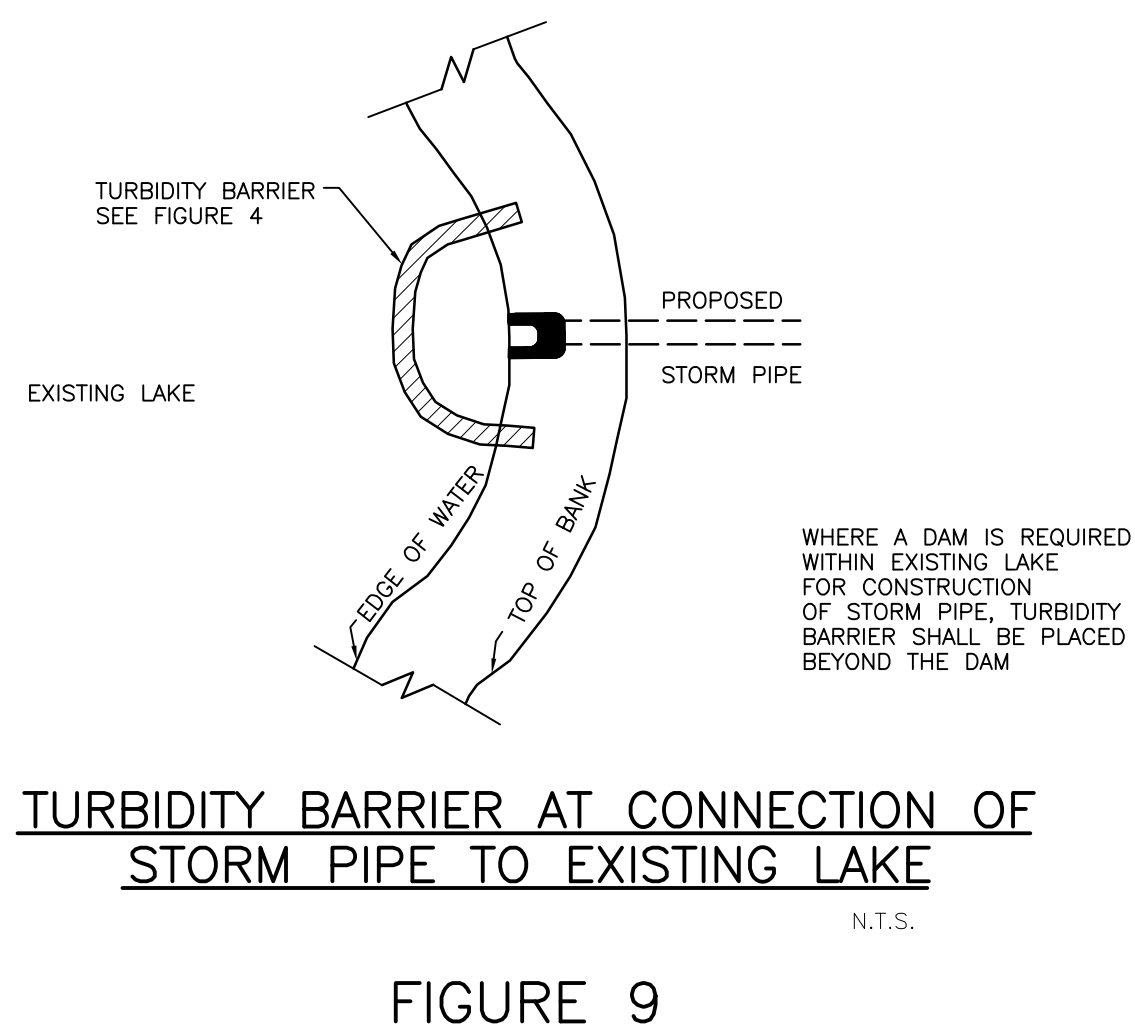
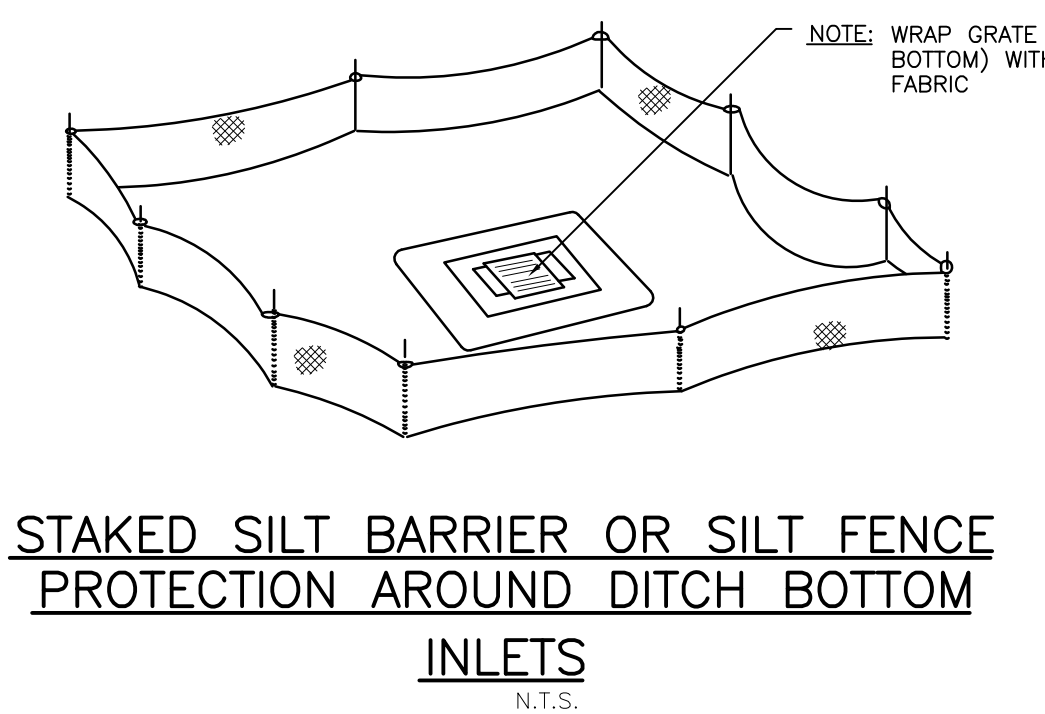
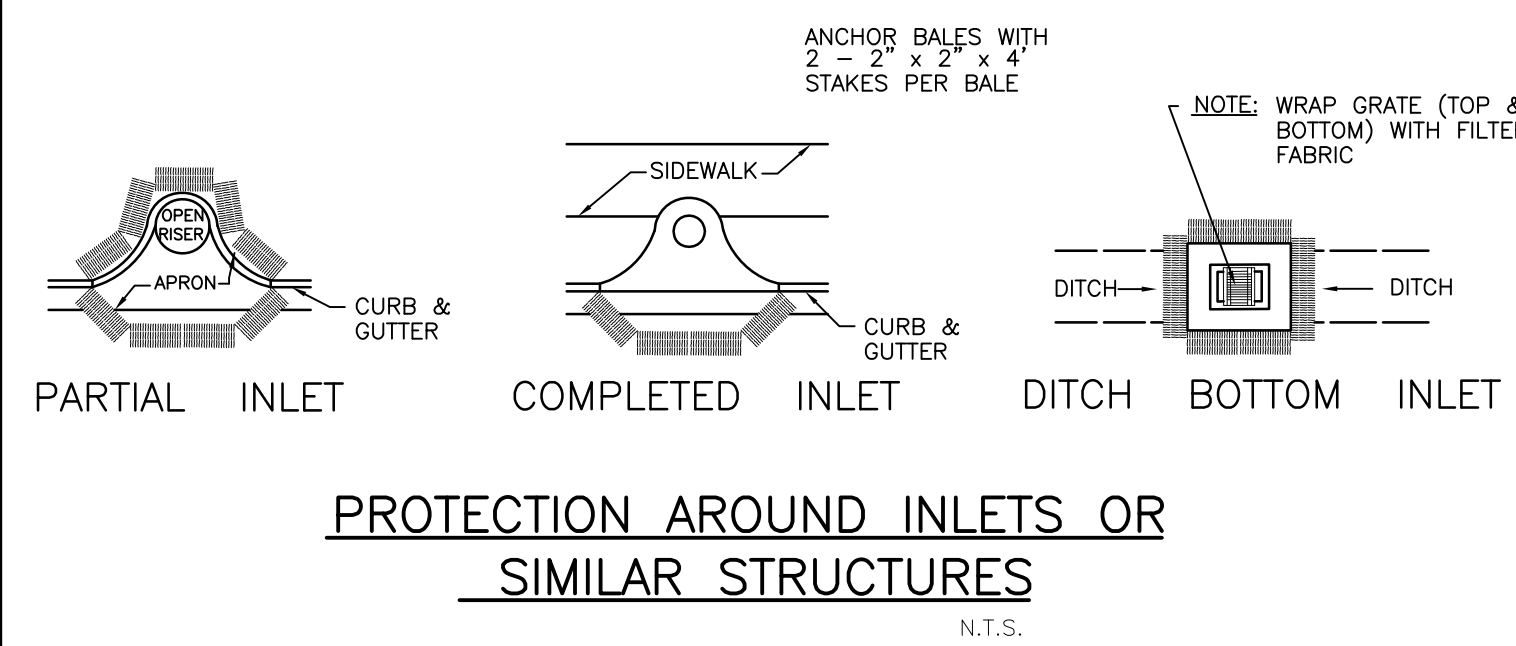
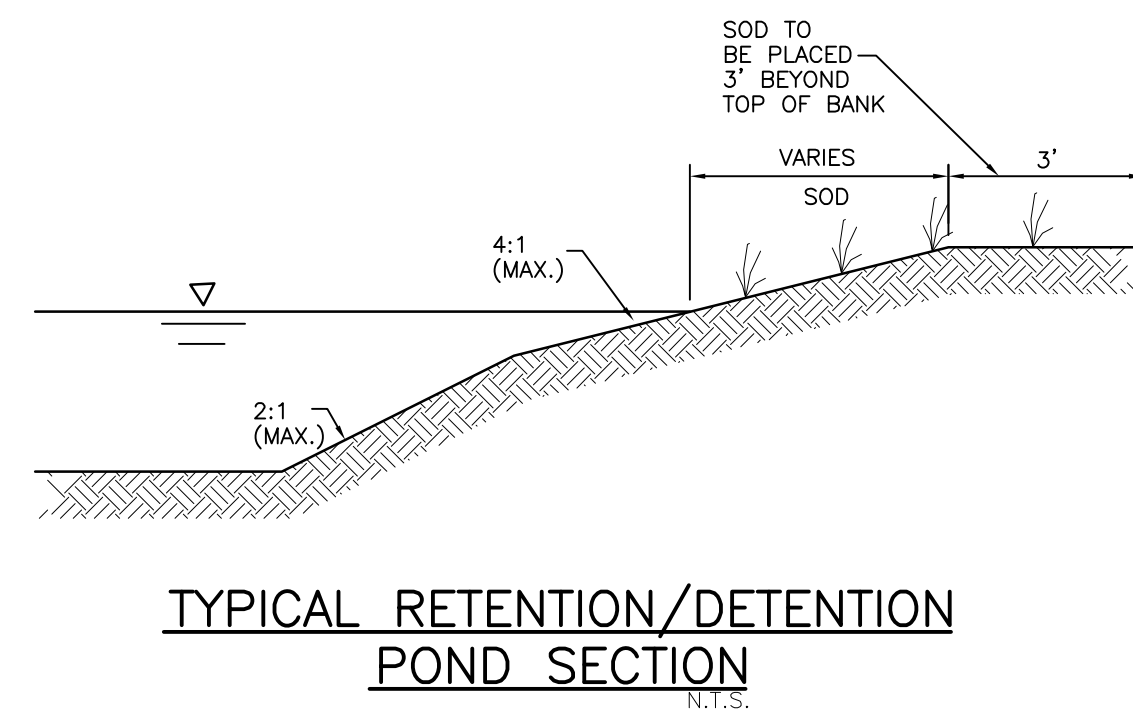
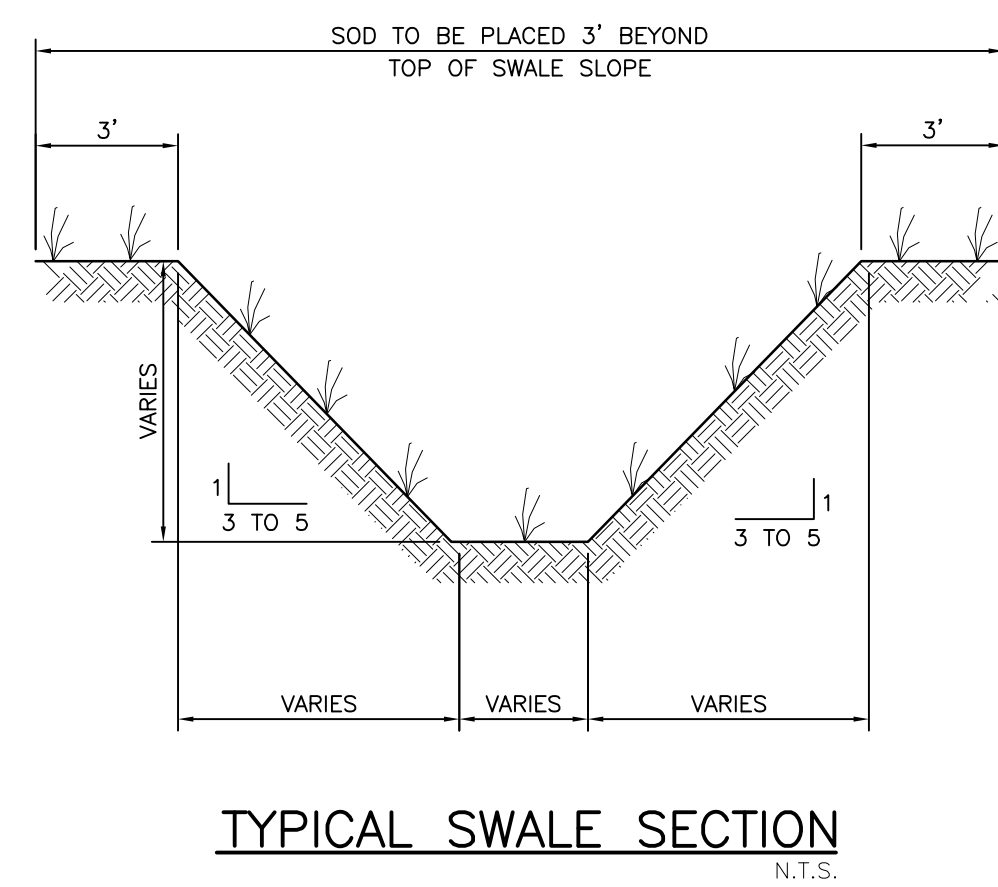
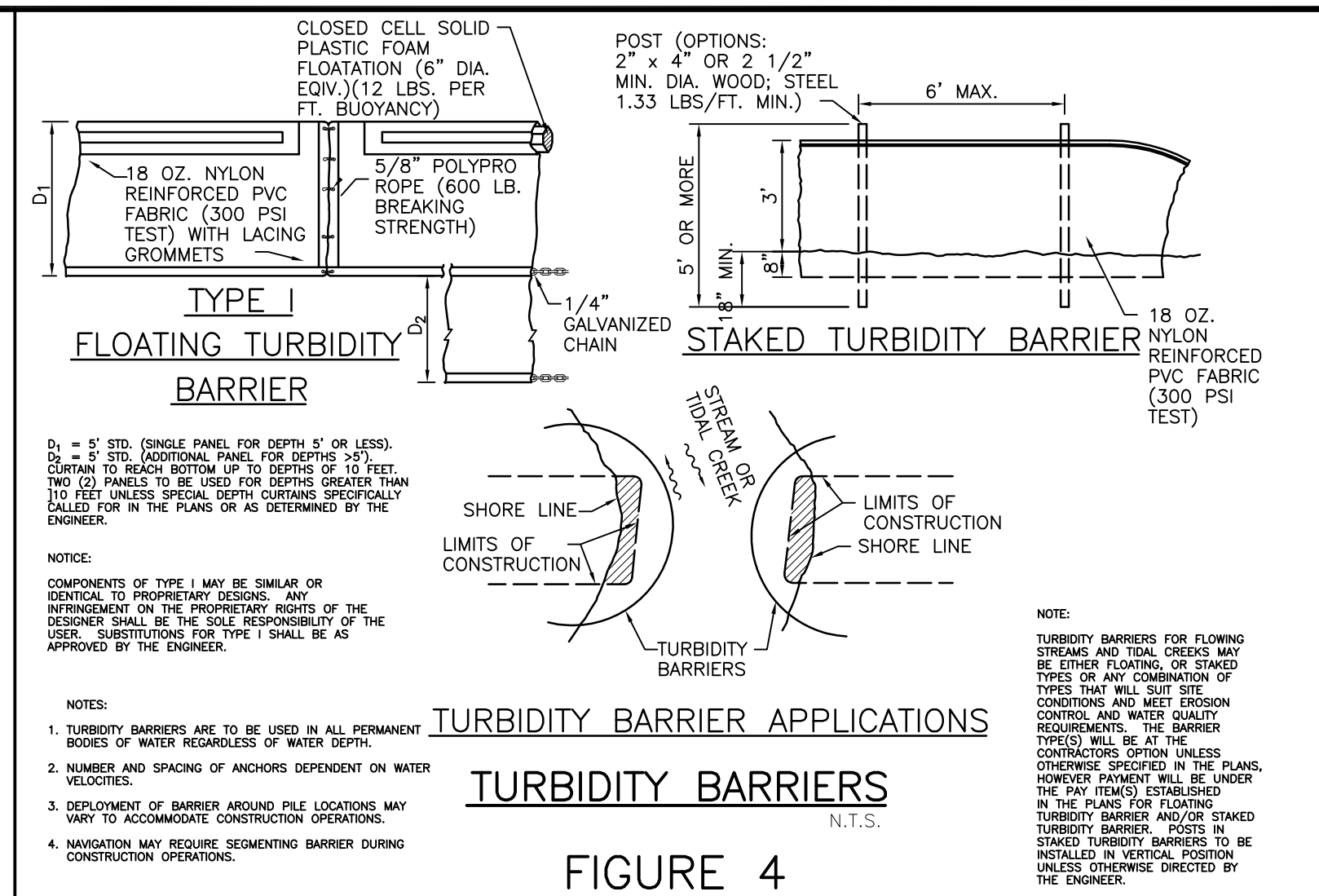
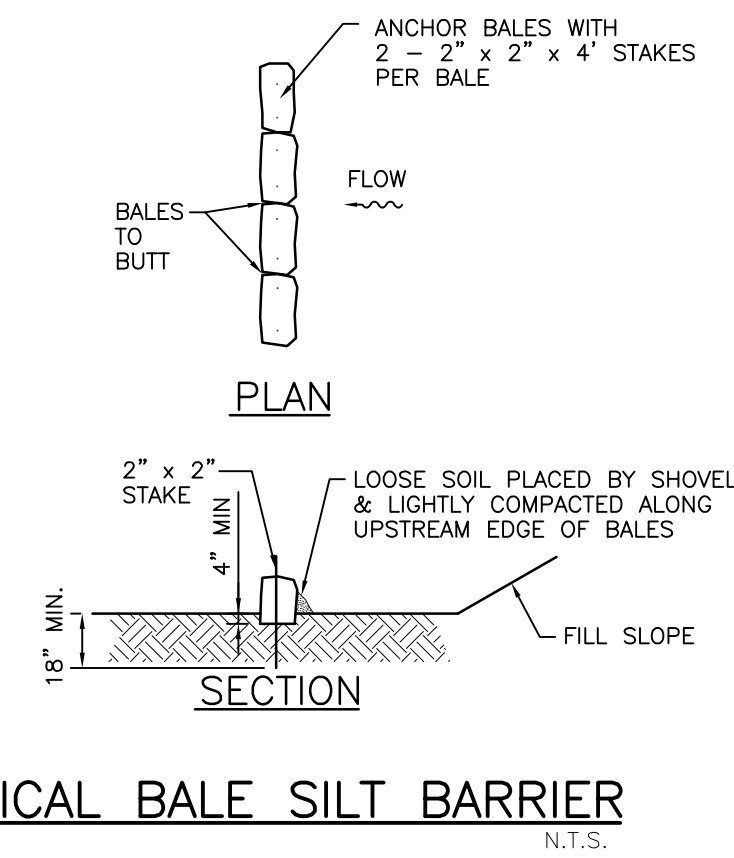
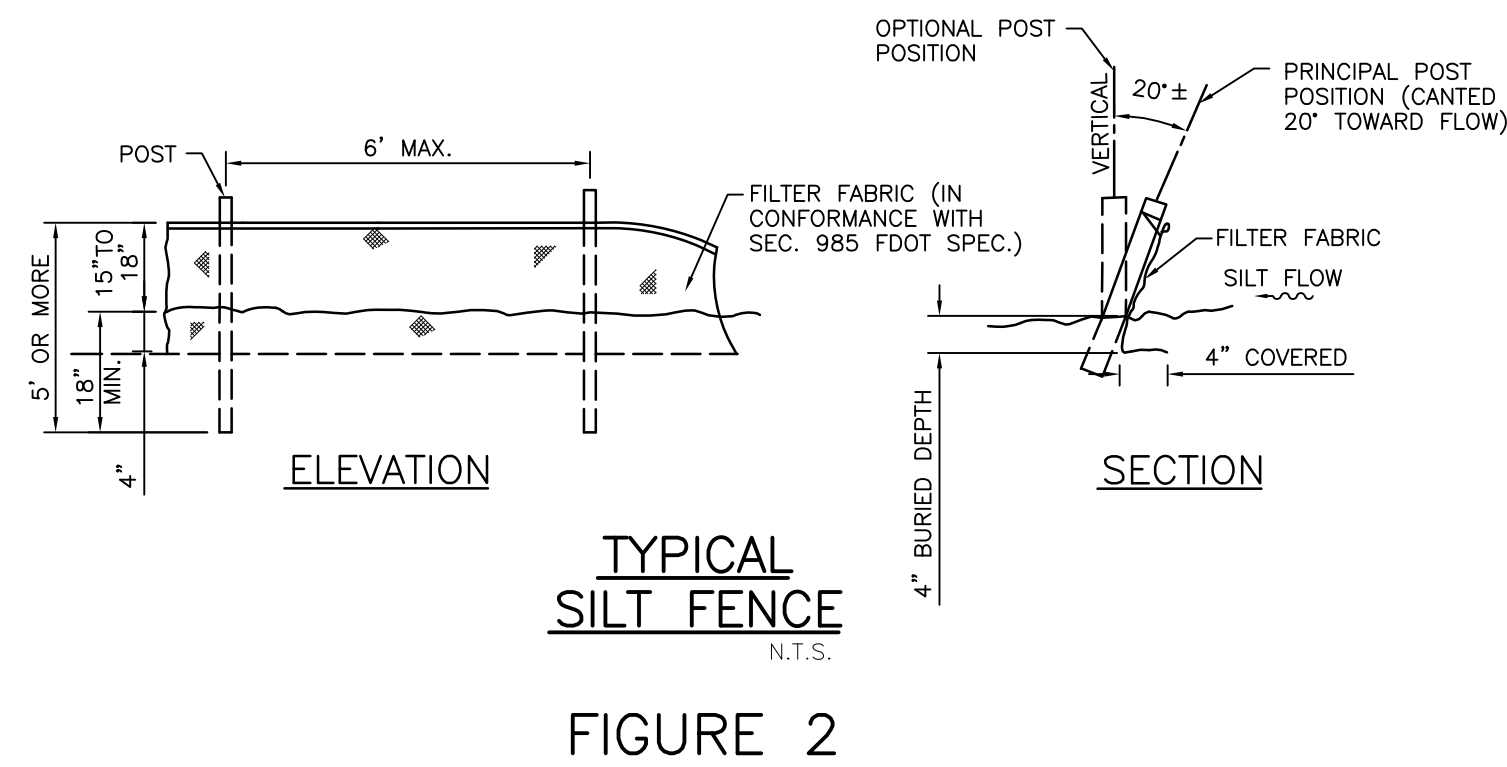
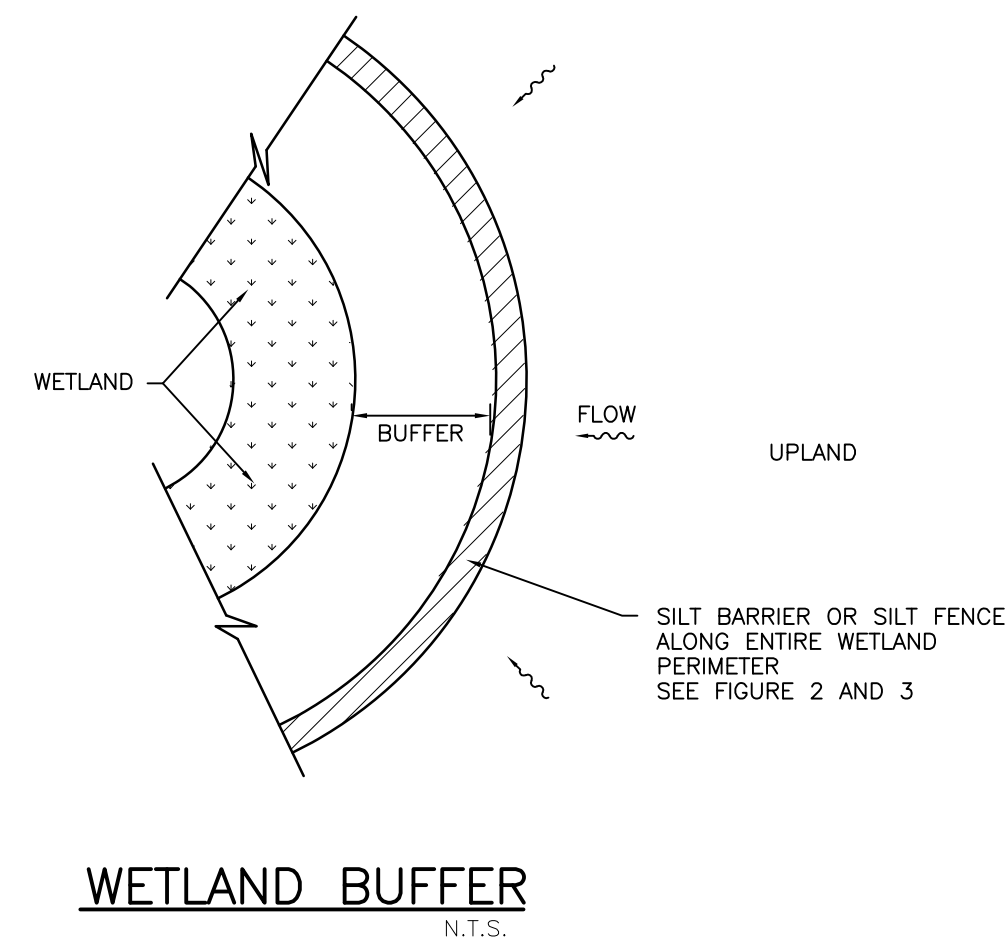
TITLE: BEST MANAGEMENT PRACTICES PLAN

CROSS REFERENCE FILE NO.: 215611237

PROJECT NUMBER: 215611237

SHEET NUMBER: 18 OF 19

DANIEL J. BOND, P.E.
FLORIDA LICENSE NO. 57869
D-215611237-018



CONSTRUCTION SURFACE WATER MANAGEMENT PLAN (CSWMP) CERTIFICATION

OWNER/APPLICANT SIGNATURE

DATE

OWNER: CHARLIE BISHOP
TITLE: DIRECTOR
COMPANY: MANATEE COUNTY PROPERTY MANAGEMENT DEPARTMENT

				ACTIVITY		INITIALS/EMP. NO.	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VI. SOILS MAP AND INFORMATION

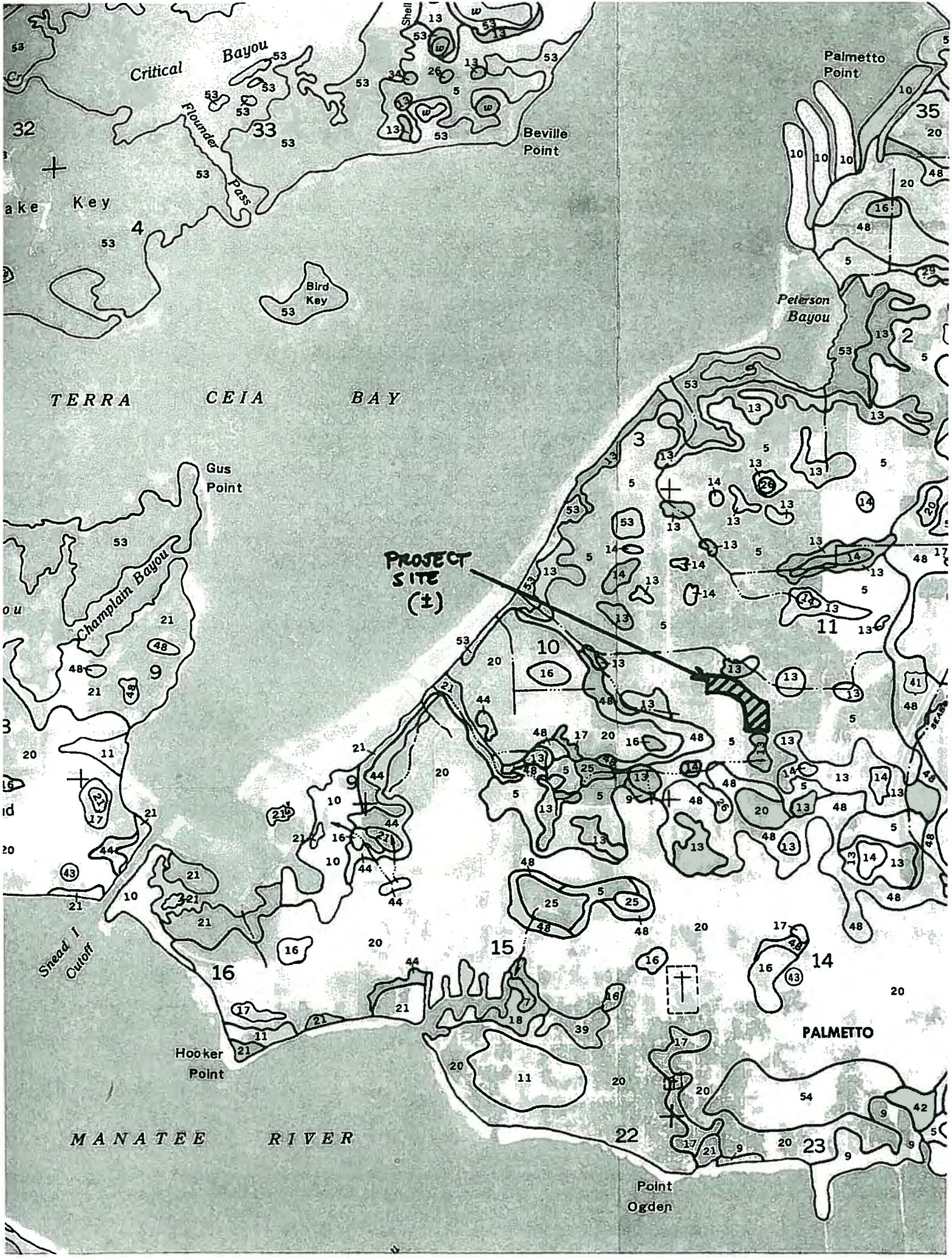


TABLE 15.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Cemented pan		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Depth	Hardness	Uncoated steel	Concrete
1----- Adamsville Variant	C	None-----	---	---	0.5-1.5	Apparent	Jun-Nov	>60	---	In	---	Low-----	High.
2.----- Beaches													
3----- Bradén	B	Rare-----	---	---	2.5-3.5	Apparent	Jun-Oct	>60	---	---	---	Moderate	Moderate.
4----- Bradenton	D	None-----	---	---	0-1.0	Apparent	Jun-Dec	>60	---	---	---	High-----	Low.
5----- Bradenton	B/D	None-----	---	---	0-1.0	Apparent	Jun-Dec	40-80	Soft	---	---	High-----	Low.
6----- Broward Variant	B/D	None-----	---	---	0-1.0	Apparent	Jun-Oct	20-40	Soft	---	---	Moderate	High.
7:----- Canova*	B/D	None-----	---	---	+2.-0	Apparent	Jan-Dec	>60	---	---	---	High-----	Low.
----- Ancote-----	D	None-----	---	---	0-1.0	Apparent	Jun-Dec	>60	---	---	---	Moderate	Moderate.
----- Okeelanta*	A/D	None-----	---	---	+1-0	Apparent	Jun-Jan	>60	---	---	---	High-----	Moderate.
8, 9----- Canaveral	C	None-----	---	---	1.0-3.0	Apparent	Jun-Nov	>60	---	---	---	Moderate	Low.
10----- Canaveral	C	None-----	---	---	2.5-5.0	Apparent	Jan-Dec	>60	---	---	---	Moderate	Low.
11----- Cassia	C	None-----	---	---	1.5-3.5	Apparent	Jul-Jan	>60	---	---	---	Moderate	High.
12----- Cassia	B	None-----	---	---	3.5-5.0	Apparent	Jul-Jan	>60	---	---	---	Moderate	High.
13----- Chobee	B/D	None-----	---	---	0-1.0	Apparent	Jun-Feb	>60	---	---	---	Moderate	Low.
14*----- Chobee Variant	D	None-----	---	---	+2-1.0	Apparent	Jul-Dec	>60	---	---	---	High-----	Low.
15, 16----- Delray	B/D	None-----	---	---	0-1.0	Apparent	Jun-Mar	>60	---	---	---	Moderate	Low.
17:----- Delray	B/D	None-----	---	---	0-1.0	Apparent	Jun-Mar	>60	---	---	---	Moderate	Low.

See footnote at end of table.