

Contract Documents

North Bay Village Baywalk Plaza Area Design (South Side Only)



BID #2016-001

**North Bay Village
1666 Kennedy Causeway
Suite 300
North Bay Village, FL 33141**

Kimley-Horn and Associates, Inc.
April 2016
043138022

**BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY) BID #2016-001
NORTH BAY VILLAGE**

CONTRACT DOCUMENTS

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INVITATION TO BID

BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY) NORTH BAY VILLAGE

BID #2016-001

Public Notice is hereby given that North Bay Village, Florida is requesting proposals from experienced and qualified vendors for the furnishing of all materials, labor, equipment and supplies necessary for construction of the North Bay Village Baywalk Plaza Area Design project, including necessary appurtenances and all in accordance with the project plans and specifications.

Sealed Responses clearly labeled with the RFP title and number must be received by mail or hand delivered on or before June 9th, 2016, no later than 3:00 p.m. local time, at which time they will be publicly opened. Late submittals and facsimile submissions will not be considered. The respondent shall bear all costs associated with the preparation and submission of the submittal documents.

The nature and scope of this project is (South Area only):

Furnish all labor, equipment and materials for construction of the Baywalk Plaza Area Design project. The project will include but not be limited to specialty paving, landscaping, irrigation, retaining walls, decorative gates, site lighting/electrical, site furniture, monument signs, grading, drainage, maintenance of traffic, roadway restoration, site restoration, and all other appurtenances necessary for a complete project. Construction of this project will require close coordination with the Owner and Engineer. Maximum Construction Project Duration is Five (5) Months.

All bids must be submitted as a Total Bid Amount with associated Contract Unit Pricing per the Proposal Form. Bid Security in the amount of five percent (5%) of the Bid must accompany each bid in accordance with the Instructions to Bidders.

Respondents must submit an original bound package, one unbound copy, five (5) bound additional copies, and one (1) CD ROM to:

INVITATION TO BID

**BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
NORTH BAY VILLAGE**

BID #2016-001

**Yvonne P. Hamilton, CMC, Office of the Village Clerk,
1666 Kennedy Causeway, Suite 300, North Bay Village, Florida 33141.**

Digital Copies of this Proposal Document may be obtained at DemandStar by Onvia at www.demandstar.com, or at the Village Administrative Offices, 1666 Kennedy Causeway, Suite 300, North Bay Village, Florida 33141 up to May 16th, 2016 from 9:00 a.m. to 4:00 p.m., Monday through Friday, or by emailing yvonne.hamilton@nbvillage.com.

SCHEDULE OF EVENTS

Below is the current schedule of the events that will take place in the procurement process. The Village reserves the right to make changes or alterations to the schedule as the Village determines is in the best interests of the public. Proposers will be notified sufficiently in advance of any changes or alterations in the schedule. Unless otherwise notified in writing by the Village, the dates indicated below for submission of items or for other actions on the part of a Proposer shall constitute absolute deadlines for those activities and failure to fully comply by the time stated shall cause a Proposer to be disqualified.

Date	Event
May 9 th , 2016	Advertisement
May 16 th , 2016	Documents Available for Public Inspection and digital copies
May 20 th , 2016	Last day opportunity for questions by emailing yvonne.hamilton@nbvillage.com , no later than 3:00 PM local time.
May 16 th , 2016	10:00 AM, pre-bid meeting at: 1666 Kennedy Causeway, Commission Chambers 1st Floor, North Bay Village, Florida 33141.
June 9 th , 2016	Bid Documents Submittal due in to Village Clerk Office, no later than 3:00 PM local time.
June 13 th , 2016	Technical Review Committee Meeting
June 20 th , 2016	Award Recommendation to Village Clerk and Village Manager
July 12 th , 2016	Commission Public Meeting to review and confirm Award Recommendation 7:30 pm local time

INVITATION TO BID

**BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
NORTH BAY VILLAGE**

BID #2016-001

The Village reserves the right at any time to modify, waive or otherwise vary the terms and conditions of the bid including but not limited to deadlines for submission, submission requirements, informalities or irregularities in any submittal, and the Scope of Work. The Village further reserves the right to reject any or all submittals, to cancel or withdraw this RFP at any time or take any other such actions that may be deemed in the best interest of the Village, to award in whole or in part to one or more respondents, or take any other such actions that may be deemed in the best interest of the Village.

Bids requested shall be set forth in the Bid Form attached to and being a part of the Contract Documents.

Pursuant to Section 38.18 of the Village Code, "Ethics Ordinance", a Cone of Silence is hereby imposed whereby any communications between any potential bidder, service provider, lobbyist or consultant and the Village's staff and elected officials pertaining to this RFP are prohibited.

This project is funded through the Florida Inland Navigation District Waterways Assistance Program and subject to the Supplementary Conditions included as Appendix B.

Yvonne P. Hamilton, CMC, Village Clerk

INSTRUCTIONS TO BIDDERS

BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY) NORTH BAY VILLAGE

Each bidder is encouraged to familiarize themselves with the North Bay Village – Code of Ordinances and Consolidated Land Development Regulations. Below is an excerpt of the procurement requirements and general industry practices as they pertain to the Bond and Insurance requirements for North Bay Village. This is **not a full list** of the North Bay Village requirements.

North Bay Village Municode

Article 36.25 - Procurement requirements.

(B) *Responsibilities of the Village Manager.*

... The Village Manager may delegate responsibility for the administration of this Code as he or she deems necessary.

(D) (7) - *Bonds.*

a) *Construction contracts greater than \$50,000.00.* For construction contracts exceeding \$50,000.00, contractors shall submit the following with the bid documents:

- 1) A bid guarantee equal to five percent of the bid price;
- 2) A performance bond for 100 percent of the contract price; and
- 3) A payment bond for 100 percent of the contract price.

b) *All other contracts.* The Village Manager may require any or all of the three bonds or guarantees listed above. The bid specification shall include the amount and type of bond(s) or guarantees that are required.

Chapter 151 - Buildings

Article 151.12 – Bond

The Village will require a 10% bond of the bid price, to meet requirements of Article 151.12.

Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition)

1. DEFINED TERMS

Terms used in these Instructions to Bidders which are defined in the NSPE-ACEC Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition) have the meanings assigned to them in the General Conditions. The term "Successful Bidder" means the lowest, qualified, responsible Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award.

2. COPIES OF BIDDING DOCUMENTS

- 2.1 Complete sets of the Bidding Documents in the number and for the non-refundable sum, if any, stated in the Advertisement or Invitation to Bid may be obtained from Engineer (unless another issuing office is designated in the Advertisement or Invitation to Bid).
- 2.2 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3 Owner and Engineer in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

3. QUALIFICATIONS OF BIDDERS

To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit within five days of Owner's request written evidence of the types set forth in the Supplementary Conditions, such as financial data, previous experience and evidence of authority to conduct business in the jurisdiction where the Project is located. Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- 4.1 Before submitting a Bid, each Bidder must (a) examine the Contract Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress or performance of the Work, (c) familiarize himself with federal, state and local laws, ordinances, rules and regulations that may in any manner affect cost, progress or performance of the Work; and (d) study and carefully correlate Bidder's observations with the Contract Documents.
- 4.2 Reference is made to the Supplementary Conditions for the identification of those reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by Engineer in preparing the Drawings and Specifications. Owner will make copies of such reports available to any Bidder requesting them. These reports are not guaranteed as to accuracy or completeness, nor are they part of the Contract Documents. Before submitting his Bid, each Bidder will, at his own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 4.3 On request, Owner will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid.

- 4.4 The lands upon which the Work is to be performed, rights-of-way for access thereto and other lands designated for use by Contractor in performing the Work, are identified in the Supplementary Conditions, General Requirements or Drawings.
- 4.5 The submission of a Bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this Article 4 and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Work.

5. INTERPRETATIONS

All questions about the meaning or intent of the Contract Documents shall be submitted to Owner in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by Owner as having received the Bidding Documents. Questions received less than ten days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

6. BID SECURITY

- 6.1 Bid Security shall be made payable to Owner in an amount of five percent (5%) of the Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond (on form attached, if a form is prescribed) issued by a Surety as specified in the General Conditions.
- 6.2 The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Contract Security, whereupon it will be returned; if the successful Bidder fails to execute and deliver the Agreement and furnish the required Contract Security within 10 days of the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of any Bidder whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the "effective date of the Agreement" (which term is defined in the General Conditions) by Owner to Contractor and the required Contract Security is furnished or the sixty-first day after the Bid opening. Bid Security of other Bidders will be returned within seven days of the Bid opening.

7. CONTRACT TIME

The number of days within which, or the date by which, the Work is to be completed (the Contract Time) is included in the Agreement.

8. LIQUIDATED DAMAGES

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

9. SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the "effective date of the Agreement". The procedure for submittal of any such application by Contractor and consideration by Engineer is set forth in the General Conditions which may be supplemented in the General Requirements.

10. SUBCONTRACTORS, ETC.

10.1 If the Supplementary Conditions require the identity of certain Subcontractors and other persons and organizations to be submitted to Owner in advance of the Notice of Award, the apparent Successful Bidder, and any other Bidder so requested, will within seven days after the day of the Bid opening submit to Owner a list of all Subcontractors and other persons and organizations (including those who are to furnish the principal items of material and equipment) proposed for those portions of the Work as to which such identification is so required. Such list shall be accompanied by an experience statement with pertinent information as to similar projects and other evidence of qualification for each such Subcontractor, person and organization if requested by Owner. If Owner or Engineer after due investigation has reasonable objection to any proposed Subcontractor, other person or organization, may before giving the Notice of Award request the apparent Successful Bidder to submit an acceptable substitute without an increase in the Bid price. If the apparent Successful Bidder declines to make any such substitution, the contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any Subcontractor, other person or organization so listed and to whom Owner or Engineer does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer.

10.2 In contracts or portions thereof, where the Contract Price is on the basis of Cost-of-the-Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to Owner those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with Owner's written consent.

10.3 No Contractor shall be required to employ any Subcontractor, other person or organization against whom he has reasonable objection.

11. BID FORM

- 11.1 The Bid Form is attached hereto; additional copies may be obtained from Engineer.
- 11.2 Bid Forms must be completed in ink or typed. The Bid price of each item on the form must be stated in numerals. Contractor must bid on all alternates in the bid form.
- 11.3 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign), and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 11.4 Bids by partnerships or joint venture, must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature. Documentation supporting the partnership of joint venture may be requested at the discretion of the Village.
- 11.5 All names must be typed or printed below the signature.
- 11.6 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).
- 11.7 The address to which communications regarding the Bid are to be directed must be shown.
- 11.8 The Bid shall contain an executed "Sworn Statement on Public Entity Crimes" Form provided I the contract documents package.

12. SUBMISSION OF BIDS

Bids shall be submitted at the time and place indicated in the Invitation to Bid.

13. MODIFICATION AND WITHDRAWAL OF BIDS

- 13.1 Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
- 13.2 If, within twenty-four hours after Bids are opened, any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of his Bid, that Bidder may withdraw his Bid and the Bid Security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work.

14. OPENING OF BIDS

Bids will be opened publicly.

- 14.1 Bids are opened publicly, read aloud, and an abstract of the amounts of the base Bids and major alternates (if any) will be made available after the opening of Bids.

15. BIDS TO REMAIN OPEN

All Bids shall remain open for sixty days after the day of the Bid opening, but Owner may, in his sole discretion, release any Bid and return the Bid Security prior to that date.

16. AWARD OF CONTRACT

- 16.1 Owner reserves the right to reject any and all Bids, to waive any and all informalities and to negotiate contract terms with the Successful Bidder, and the right to disregard all nonconforming, nonresponsive or conditional Bids. Discrepancies between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between the indicated value and the correct value as calculated by the product of the unit price and the estimated quantity will be resolved by using the stated unit price.

- 16.2 In evaluating Bids, Owner shall consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, alternates, additive/deductive amounts, and unit prices, if requested in the Bid forms. **THE VILLAGE AT ITS SOLE DISCRETION SHALL AWARD THIS CONTRACT BASED ON THE TOTAL BID AMOUNT.** It is Owner's intent to accept alternates (if any are accepted) in the order in which they are listed in the Bid form, but award will not be based on alternates and the Owner may accept them in any order or combination.

- 16.3 Owner will consider the qualifications and experience of the Contractor, Subcontractors, and other persons or organizations (including those who are to furnish the principal items of material or equipment) proposed for all portions of the Work. The identity of Subcontractors and other persons and organizations must be submitted as provided in the Supplementary Conditions. Operating costs, maintenance considerations, performance data and guarantees of materials and equipment will also be considered by Owner.

- 16.4 Owner will conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors and other persons and organizations to do the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

Issues such as past performance, adherence to schedule, and change order requests will be included in this evaluation. The weighing of these factors is at the discretion of the Village.

- 16.5 At the sole discretion of the Owner, the Owner reserves the right to reject the Bid of any Bidder based upon the evaluation noted in Section 16.4 above. References will NOT be limited to those submitted by the Contractor.
- 16.6 If the contract is to be awarded, it will be awarded to the lowest responsible Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.
- 16.7 If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within 10 days after the day of the Bid opening.

17. PERFORMANCE AND OTHER BONDS

Paragraph 5.01 of the General Conditions and the Supplementary Conditions set forth Owner's requirements as to Performance and Payment Bonds. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by the required Contract Security.

18. SIGNING OF AGREEMENT

When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least six (6) unsigned counterparts of the Agreement and all other Contract Documents. Within ten days thereafter, Contractor shall sign and deliver at least six (6) counter-parts of the Agreement to Owner with all other Contract Documents attached. Within ten days thereafter, Owner will deliver all fully signed counterparts to Contractor. Engineer will identify those portions of the Contract Documents not fully signed by Owner and Contractor and such identification shall be binding on all parties.

19. CONE OF SILENCE

You are hereby advised that this Invitation to Bid is subject to the "Cone of Silence" in accordance with Section 38.18 of North Bay Village Code of Ordinances. From the time of advertising until the Village Manager issues his recommendation, there is a prohibition on communication with the Village's professional staff. This ordinance does not apply to oral communications at pre-submittal conferences, oral presentations before evaluation committees contract discussions made to Village Commission during any duly noticed public meeting, contract negotiations with the staff following the award of a bid by any Village Commission, or communication in writing at any time with any Village employee, official, or member of the Village Commission unless specifically prohibited. A copy of all written communications must be filed with the Village Clerk. A proposer who violates these provisions shall not be considered for this Invitation to Bid.

20. FUND PROGRAM

This project is funded through the Florida Inland Navigation District Waterways Assistance Program and subject to the Supplementary Conditions included as Appendix B.

PROPOSAL
BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
NORTH BAY VILLAGE

North Bay Village
1666 Kennedy Causeway, Suite 300
North Bay Village, FL 33141

Gentlemen:

The undersigned, as Bidder, hereby declares that the only persons, company, or parties interested in the Proposal or the Contract to be entered into, as principals, are named herein; and that this Proposal is made without connection with any other person, company, or parties making a Bid or Proposal; and that it is in all respects fair and in good faith without collusion or fraud.

That the Bidder has carefully and to his full satisfaction examined the attached Instructions to Bidders, General Conditions, Special Conditions, Detailed Specifications, and Form of Contract and Bond, together with the accompanying Plans, and that he has read all addenda issued prior to the opening of Bids; and that he has made a full examination of the location of the propose work and hereby agrees to furnish, unless otherwise provided, all implements, machinery, equipment, transportation, tools, materials, supplies, labor, and other things necessary to the prosecution and completion of the work generally described as follows:

Baywalk Plaza Area Design (South Side Only) BID #2016-001

Furnish all labor, equipment and materials for construction of the Baywalk Plaza Area Design project (South Side Only). The project will include but not be limited to specialty paving, landscaping, irrigation, retaining walls, decorative gates, site lighting/electrical, site furniture, monument signs, grading, drainage, maintenance of traffic, roadway restoration, site restoration, and all other appurtenances necessary for a complete project. Construction of this project will require close coordination with the Owner and Engineer. Maximum Construction Project Duration is Five (5) Months.

It is proposed that the project herein described shall be constructed for the Total Bid Amount based on the Contract Unit Prices in this Proposal, all in accordance with the requirements and provisions of the Contract Documents. The Village at its sole discretion shall award this contract based on the Total Bid Amount and in accordance with Section 16 (Award of Contract) in the Instructions to Bidders.

TOTAL BID AMOUNT (South Side only) \$ _____

TOTAL BID AMOUNT (IN WORDS) _____

BID FORM

The following Bid Form is presented to assist the Village in evaluating the Bid. After award, the Village reserves the right to modify estimated quantities subject to the unit price, and eliminate line items if necessary. In the event of discrepancy or approved quantity change, the Unit Price for each item will govern. Payment shall be made for the items listed on the Bid Form on the basis of the Work actually performed and completed.

South Side Only

<u>Item</u>	<u>Description</u>	<u>Estimated Quantity</u>	<u>Unit</u>	<u>Price</u>	<u>Value</u>
1.	Mobilization, Bonds & Insurance	1	LS	_____	_____
2.	Maintenance of Traffic	1	LS	_____	_____
3.	Remove Guardrail	23	LF	_____	_____
4.	Remove Concrete	36	SY	_____	_____
5.	Clearing and Grubbing	0.1	AC	_____	_____
6.	Excavate, Load and Haul	1	LS	_____	_____
7.	Site Grading	1	LS	_____	_____
8.	Concrete Sidewalk (4"/6" includes subgrade)	285	SY	_____	_____
9.	Adjust Existing Rim Elevations	1	LS	_____	_____
10.	Pavement/Trench Restoration	165	SF	_____	_____
11.	Retaining Wall	432	CY	_____	_____
12.	Zum 882 Perma Trench Drain	118	LF	_____	_____
13.	15" Nyloplast Inline Drain with Dome Grate	9	EA	_____	_____
14.	2" Corporation Stop for Irrigation Service	1	EA	_____	_____
15.	Connection to Existing Water Service	1	EA	_____	_____
16.	2" Single Water Service (incl. Meter and Vault)	1	EA	_____	_____

17.	2" Pressure Vacuum Breaker for Irrigation System	1	EA	_____	_____
18.	2" HDPE Pipe	37	LF	_____	_____
19.	Paving – H-101 Colored concrete w/Quarried Stone Finish	164	SY	_____	_____
20.	Paving – H-102 Colored concrete w/Quarried Stone Finish	76	SY	_____	_____
21.	Paving – H-103 Colored concrete w/Lithocrete Finish	33	SY	_____	_____
22.	Custom Metal Access Gate and Fence	1	EA	_____	_____
23.	Trash Receptacle	2	EA	_____	_____
24.	City Elements Pedestrian Light Pole	7	EA	_____	_____
25.	Recessed LED Wall Light	250	LF	_____	_____
26.	Electrical Conduit, Conductors & Miscellaneous Lighting Components	1	LS	_____	_____
27.	Tree Removal/Relocation	1	LS	_____	_____
28.	Coconut Palm	5	EA	_____	_____
29.	Pitch Apple	1	EA	_____	_____
30.	Cabbage Palmetto	6	EA	_____	_____
31.	Florida Thatch Palm	5	EA	_____	_____
32.	Seabreeze Bamboo	34	EA	_____	_____
33.	Small Leaf Clusia	6	EA	_____	_____
34.	Pink Muhly Grass	14	EA	_____	_____
35.	Dwarf Fakahatchee Grass	10	EA	_____	_____
36.	Sea Oxeye Daisy	14	EA	_____	_____
37.	Natal Plum	23	EA	_____	_____
38.	Beach Sunflower	34	EA	_____	_____

39.	Sea Lavender	51	EA	_____	_____
40.	Planting Soil (4137 SF @ 6")	34	CY	_____	_____
41.	Mulch (4137 SF @ 3")	17	CY	_____	_____
42.	Irrigation Dripline	1439	SF	_____	_____
43.	Drip Ring emitter (2 per tree)	18	EA	_____	_____
44.	Valve Irrigation	1	EA	_____	_____
45.	Irrigation Controller	1	EA	_____	_____
46.	Rain Sensor	1	EA	_____	_____
47.	Landscape Maintenance	1	YEAR	_____	_____
48.	Irrigation Lateral Line PVC Class 200 SDR 21 Irrigation Pipe	172.2	LF	_____	_____
49.	Irrigation Mainline PVC Class 200 SDR 21 Irrigation Pipe	5.0	LF	_____	_____
50.	PVC Schedule 40 Irrigation Sleeve	14.7	LF	_____	_____
51.	Monument Sign	1	LS	_____	_____
52.	Directional Bore	1	LS	_____	_____
53.	Permitting (FDOT)	1	LS	_____	_____
54.	Site Restoration	1	LS	_____	_____
55.	Owner's Allowance	1	LS	<u>\$150,000.00</u>	<u>\$150,000.00</u>

TOTAL BID AMOUNT (SOUTH SIDE ONLY) \$ _____

TOTAL BID AMOUNT (IN WORDS) _____

TRENCH SAFETY

Bidder acknowledges that included in the various items of the proposal and in the Total Bid Price are costs for complying with the Florida Trench Safety Act (90-96, Laws of Fla.) effective October 1, 1990. The bidder further identifies the costs to be summarized below.

TRENCH SAFETY MEASURE (DESCRIPTION)	UNITS OF MEASURE (LF, SY)	UNIT (QUANTITY)	UNIT COST	EXTENDED COST
A. _____	_____	_____	_____	_____
B. _____	_____	_____	_____	_____
C. _____	_____	_____	_____	_____

Failure to complete the above may result in the bid being declared non-responsive.

QUALIFICATION REQUIREMENTS

Only those Bidders and Subcontractor(s) who are qualified will be considered as bona fide bidders. As Bidder, we certify to have constructed at least three (3) similar projects in the last five (5) year period as indicated by the following:

1) NAME OF PROJECT _____
 YEAR OF PROJECT _____
 OWNER OF PROJECT _____
 OWNER TELEPHONE NO. _____
 LOCATION OF PROJECT _____
 DESIGNING ENGINEER _____
 ADDRESS _____
 SCOPE OF WORK _____
 APPROXIMATE VALUE \$ _____

2) NAME OF PROJECT _____
 YEAR OF PROJECT _____
 OWNER OF PROJECT _____
 OWNER TELEPHONE NO. _____
 LOCATION OF PROJECT _____
 DESIGNING ENGINEER _____
 ADDRESS _____
 SCOPE OF WORK _____
 APPROXIMATE VALUE \$ _____

- 3) NAME OF PROJECT _____
- YEAR OF PROJECT _____
- OWNER OF PROJECT _____
- OWNER TELEPHONE NO. _____
- LOCATION OF PROJECT _____
- DESIGNING ENGINEER _____
- ADDRESS _____
- SCOPE OF WORK _____
- APPROXIMATE VALUE \$ _____

List Subcontractors and other persons and organizations proposed by the Bidder to perform portions of the work:

- 1) NAME OF SUBCONTRACTOR _____
- 2) NAME OF SUBCONTRACTOR _____
- 3) NAME OF SUBCONTRACTOR _____

NOTE: For additional Subcontractors: Copy this form and attach additional pages as needed.

If awarded the Contract, the undersigned agrees to execute the attached Contract within ten (10) calendar days after the date on which Notice of Award is received and to be substantially complete within 180 calendar days and all work within not more than 210 calendar days after date of receipt of written Notice to Proceed with such extensions of time as are provided for in the General Conditions.

The undersigned understands the contract time starts on date of Notice to Proceed.

There is enclosed a Bid Guarantee consisting of five percent (5%) of Total Bid Amount.

The undersigned furthermore agrees that, in case of failure on his part to execute said contract and bond within ten (10) days after being awarded the contract, the check, bond or other security accompanying his bid and the money payable thereon, shall become the property of the Village, by forfeit as agreed and liquidated damages; otherwise the check or bond accompanying his proposal shall be returned to the undersigned.

The undersigned, if awarded the contract, agrees to furnish at time of signing of contract, Performance and Payment Bonds each in the amount of 100% of the contract as set forth in "Instructions to Bidders".

The undersigned states that this proposal is the only proposal for this project in which he is interested.

The undersigned further agrees to bear the full cost of maintaining all work until final acceptance.

SUBMITTED _____
FIRM NAME _____
BUSINESS ADDRESS _____
BUSINESS TELEPHONE _____
SIGNATURE OF RESPONSIBLE OFFICIAL _____
TITLE _____
STATE OF INCORPORATION _____

FULL NAMES & ADDRESSES OF
PERSONS OR PARTIES INTERESTED
IN THE FOREGOING BID, AS PRINCIPALS:

Addenda No(s) _____ received and attached hereto.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, (hereinafter called the Principal), and _____ (hereinafter called the Surety), a Corporation chartered and existing under the laws of the State of _____ with its principal offices in the City of _____ and authorized to do business in the State of Florida, and North Bay Village, and having an Agent resident therein, such Agent and Company acceptable to North Bay Village, are held and firmly bound unto North Bay Village (hereinafter called Owner), in the sum of Dollars (\$ _____), good and lawful money of the United States of America, to be paid upon demand of the said Owner, to which payment well and truly to be made we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally and firmly by these presents.

WHEREAS; the above bounded Principal contemplates submitting or has submitted a proposal to the said Owner for furnishing all necessary labor, materials, equipment, machinery, tools, apparatus, services, all State Workmen's Compensation and Unemployment Compensation Taxes incurred in the performance of the contract, and means of transportation for construction of:

**NORTH BAY VILLAGE
BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
BID #2016-001**

for said Owner, and;

WHEREAS; the Principal desires to file this Bond in accordance with law, in lieu of a certified Bidder's check otherwise required to accompany this Proposal in the amount of five percent (5%) of the base bid.

NOW THEREFORE, the conditions of this obligation are such that, if the Proposal be accepted, the Principal shall within ten (10) days after receipt of notification of the acceptance thereof, execute a contract in accordance with the Proposal and upon the terms, conditions and price set forth therein, in the form and manner required by the Owner and execute sufficient and satisfactory Performance and Payment Bonds payable to North Bay Village, Florida, each in an amount of one hundred percent (100%) of the total contract price, as indicated in the Proposal, in form and with security satisfactory to the said Owner, then this obligation to be void, otherwise to be and remain in full force and virtue in law; and the Surety shall upon failure of the Principal to comply with any or all of the foregoing requirements within the time specified above immediately pay to the aforesaid Owner upon demand the amount hereof in good and lawful money of the United States of America, not as a penalty but as liquidated damages.

IN WITNESS WHEREOF, THE said _____, as "Principal" herein has caused these presents to be signed in its name, by its _____ under its corporation seal, and the said _____ as "Surety" herein, has caused these presents to be signed in its name by its _____, and attested by its _____, under its corporate seal, this ____ day of _____, A.D., 2016.

ATTEST:

BY: _____(Title)
(Principal)

ATTEST:

BY:
(Surety) Attorney-in-Fact

(Attorneys-in-Fact who sign this bond must file with it a certified copy of their power-of-attorney to sign said Bond).

NOTICE OF INTENT TO AWARD

TO: _____
Contractor

Address

ATT: _____
Name and Title

PROJECT: NORTH BAY VILLAGE
BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
BID #2016-001

Gentlemen:

This is to advise that you have been awarded the contract for the above referenced project as a

result of your bid of: _____

_____ (\$ _____) submitted to North Bay Village (Owner) on _____

_____ (Date).

Six (6) sets of the Project Manual for this project are attached. Each set contains an unexecuted Agreement and the requirement for attaching the Performance and Payment Bonds. Please execute all copies of the Agreement and attach a copy of the Performance and Payment Bonds to each Agreement and return the Project Manuals to our office for final execution by the Owner.

Your attention is invited to the provision whereby your proposal guarantee may be forfeited in the event the Agreement with satisfactory Performance and Payment Bonds attached is not executed and delivered to the Owner within ten (10) consecutive calendar days from _____ (Date).

Sincerely yours,

By: _____
Rodney Carrero-Santana, P.E., LEED AP

AGREEMENT (CONTRACT)

BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2015 by and between North Bay Village (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

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

Article 1. WORK. CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Furnish all labor, equipment and materials for construction of the Baywalk Plaza Area Design project (South Side Only). The project will include but not be limited to specialty paving, landscaping, irrigation, retaining walls, decorative gates, site lighting/electrical, site furniture, monument signs, grading, drainage, maintenance of traffic, roadway restoration, site restoration, and all other appurtenances necessary for a complete project. Construction of this project will require close coordination with the Owner and Engineer. Maximum Construction Project Duration is Five (5) Months.

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

**NORTH BAY VILLAGE
BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
BID #2016-001**

Article 2. ENGINEER. The Project has been designed by the following:

ENGINEER

Kimley-Horn and Associates, Inc.
1221 Brickell Avenue, Suite 400
Miami, FL 33131

who is hereinafter called ENGINEER and who will assume all duties and responsibilities and will have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIME.

- 3.1 The Work will be substantially completed within 150 calendar days after the date when the Contract Time commences to run as provided in paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within 180 calendar days after the date when the Contract Time commences to run.
- 3.2. Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree, that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER Five Hundred and 00/100 dollars (\$500) for each day that expires after the time specified in Paragraph 3.1 for substantial completion until the Work is substantially complete. Liquidated damages shall be deducted from the final CONTRACTOR pay request.

Article 4. PERFORMANCE.

- 4.1 OWNER shall pay CONTRACTOR for performance of the Work in accordance with the Contract Document in current funds as follows:

According to the TOTAL BID AMOUNT contained in the proposal and the Schedule of Values provided for payment request purposes.

Article 5. PAYMENT PROCEDURES.

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for payment will be processed by ENGINEER as provided in the General Conditions.

- 5.1. Progress Payments. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR'S Applications for Payment as recommended by ENGINEER, on or before the 28th day of each month during construction as provided below. The Applications for Payment shall be in AIA format. All progress payments will be on the basis of the progress of the Work measured by the schedule of values provided for in paragraph 14.01 of the General Conditions.
- 5.1.1 Prior to Substantial Completion, progress payments will be in an amount equal to: 90% of the Work completed and 90% of materials and equipment not incorporated in the Work but delivered and suitably stored, less in each case the aggregate of payments previously made.

5.1.2 Upon Substantial Completion, OWNER shall pay an amount sufficient to increase total payments to CONTRACTOR to 95% of the Contract Price, less such amounts as ENGINEER shall determine in accordance with paragraph 14.02.B.5 of the General Conditions.

5.2. Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.07.B.1 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said paragraph 14.07.B.1.

Article 6. INTEREST. Not Applicable

Article 7. CONTRACTOR'S REPRESENTATIONS.

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

- 7.1. CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.
- 7.2. CONTRACTOR has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by ENGINEER in the preparation of the Drawings and Specifications and which have been identified in the Supplementary Conditions.
- 7.3. CONTRACTOR has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in paragraph 7.2 as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required by CONTRACTOR for such purposes.
- 7.4. CONTRACTOR has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.
- 7.5. CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

Article 8. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR are attached to this Agreement, made a part hereof and consists of the following:

- 8.1. This Agreement (all pages)
- 8.2. Exhibits and Appendices to this Contract Document/Agreement
- 8.3. Performance and Payment Bonds
- 8.4. Notice of Award
- 8.5. General Conditions (pages 1 to 62, inclusive)
- 8.6. Supplementary Conditions
- 8.7. Specifications bearing the following general title:
North Bay Village
Baywalk Plaza Area Design (South Side Only)
Bid #2016-001
- 8.8. Drawings bearing the following general title:
North Bay Village
Baywalk Plaza Area Design (South Side Only)
Bid #2016-001
- 8.9. Addenda
- 8.10. CONTRACTOR'S BID
- 8.11. Documentation submitted by CONTRACTOR prior to Notice of Award
- 8.12. Any Modifications, including Change Orders, duly delivered after execution of Agreement.

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be altered, amended or repealed by a Modification (as defined in Section 1 of the General Conditions).

Article 9. MISCELLANEOUS

- 9.1. Terms used in this Agreement which are defined in Article 1 of the General Conditions shall have the meanings indicated in the General Conditions.

- 9.2. No assignment by a party hereto of any rights under or interests 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, moneys that may become due and moneys that are due may be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
- 9.3. OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives to the other party hereto, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

IN WITNESS WHEREOF, the parties hereto have signed six (6) sets of this Agreement. At least one counterpart each has been delivered to OWNER, CONTRACTOR, and ENGINEER. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on their behalf.

OWNER

CONTRACTOR

North Bay Village

ADDRESS

ADDRESS

1666 Kennedy Causeway, Suite 300

North Bay Village, FL 33141

BY _____
(CORPORATE SEAL)

BY _____
(CORPORATE SEAL)

ATTEST _____
Yvonne Hamilton, North Bay Village, Clerk

ATTEST _____

APPROVED AS TO FORM

ROBERT L. SWITKES & ASSOCIATES, P.A.

BY _____

Robert L. Switkes, Esq.

NORTH BAY VILLAGE
PERFORMANCE BOND

PROJECT TITLE: BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
BID #2016-001

CONTRACTOR:
CONTRACT NO:

CONTRACT DATED:

STATE OF § _____
 § _____
COUNTY OF § _____

KNOW ALL MEN BY THESE PRESENTS: That by this Bond, we,

_____, County of _____, and State of _____,
_____, as Principal, and _____, authorized, licensed and admitted to do business under the laws of the State of Florida to act as Surety on bonds, as Surety, are held and firmly bound unto North Bay Village, as Oblige, in the penal sum of _____ Dollars (\$) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents:

WHEREAS, the Principal has entered into a certain written Contract with Oblige, dated the _____ day of _____, 20____, for the construction of the Public Works Improvements (the "Contract"), which Contract is by reference made a part of this Bond.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION, IS SUCH THAT, if the said Principal shall faithfully perform said Contract and shall in all respects fully and faithfully observe and perform all and singular the covenants, conditions, warranties and agreements in and by said Contract agreed and covenanted by the Principal to be observed and performed, and according to the true intent and meaning of said Contract, then this obligation shall be void; otherwise it shall remain in full force and effect.

Whenever Principal shall be declared by Oblige to be in default under the Contract, Oblige having performed Oblige's obligations thereunder, the Surety shall promptly remedy the default, or shall promptly:

- (1) Complete the Contract in accordance with its terms and conditions; or
- (2) Obtain a Bid or Bids for completion of the Contract in accordance with its terms and conditions and upon determination by Surety of the lowest responsive, responsible Bidder, or, if Oblige elects, upon determination by Oblige and the Surety jointly of the lowest responsive, responsible Bidder, arrange for a Contract between such Bidder and Surety for completion of the Contract in accordance with its terms and conditions, and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less

the balance of the Contract price; but not exceeding the amounts set forth in the first paragraph hereof.

The term "balance of the Contract price" as used in this Bond, shall mean the total amount payable by Oblige to Principal under the Contract and amendments thereto, less the amount paid by Oblige to Principal and less amounts withheld by Oblige pursuant to its rights under the Contract.

Surety, for value received, stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work performed thereunder, or the plans, specifications, or drawings accompanying the same, shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder and further agrees to all of the terms contained in the Contract.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Oblige named herein or the heirs, successors, executors or administrators of the Oblige.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this ____ day of _____, 20__.

Witness: _____

Witness: _____

Principal

Surety

By: _____

By: _____

Name: _____

Name: _____

(Print)

(Print)

Title: _____

Title: _____

Address: _____

Address: _____

The name and address of the Resident Agent for service of process on Surety is:

Name: _____

Address: _____

Phone: _____

**NORTH BAY VILLAGE
LABOR AND MATERIAL PAYMENT BOND**

**PROJECT TITLE: BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
 BID #2016-001**

**CONTRACTOR:
CONTRACT NO:**

CONTRACT DATED:

STATE OF § _____
 § _____
COUNTY OF § _____

KNOW ALL MEN BY THESE PRESENTS: That, by this Bond, we _____
_____, of the City of _____, County of _____,
_____, State of _____, as Principal, and _____, a
corporation, authorized, licensed and admitted to do business under the laws of the State of
Florida, as Surety, are held and firmly bound to North Bay Village, as Oblige, in the sum of
\$_____ for the payment of which Principal and Surety bind ourselves our heirs,
personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THE BOND is that if Principal:

1. Promptly makes payments to all lienors or other claimants supplying labor, material, or supplies used directly or indirectly by Principal in the prosecution of the work provided in Contract No. () between Principal and obligee (the "Contract") for construction of the BAYWALK PLAZA AREA DESIGN, the Contract being made a part of this Bond by reference; and
2. Pays Oblige all loss, damage, expenses, costs, and attorneys' fees, including appellate proceedings that Oblige sustains because of default by Principal under this Bond; then this Bond is void; otherwise, it remains in full force.

Any changes, extensions of time, alterations or additions in or under the Contract, Contract Documents, plans, specifications and/or drawings, or the work to be performed thereunder, and compliance or noncompliance with formalities connected with the Contract or with the changes do not affect Surety's obligations under this Bond, and Surety does hereby waive notice of any such changes, extensions of time, alterations or additions in or under the Contract, Contract Documents, plans, specifications and/or drawings, or the work to be performed thereunder.

This Bond is filed in accordance with Section 713.23, Florida Statutes, and/or Section 255.05, Florida Statutes, whichever or both as may be applicable.

DATED on _____, 20_____.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this ____ day of _____, 20____.

Witness: _____

Witness: _____

Principal

Surety

By: _____

By: _____

Name: _____
(Print)

Name: _____
(Print)

Title: _____

Title: _____

Date: _____

Date: _____

Address: _____

Address: _____

The name and address of the Resident Agent for service of process Surety is:

Name: _____

Address: _____

Phone: _____

NOTICE TO PROCEED

TO: _____
Contractor

Street Address

City

ATTN: _____
Name and Title

PROJECT: NORTH BAY VILLAGE
BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
BID #2016-001

Gentlemen:

One executed copy of your contract for the above project has been forwarded to you through the Engineer. The Commencement date is _____, 20__. Completion date shall be _____, 20__.

Your attention is invited to the provision whereby you shall start to perform your obligations under the Contract Documents on the Commencement date. Said date shall begin the Contract Time.

The Engineer in charge of the Work for North Bay Village will be:

Rodney Carrero-Santana, P.E., LEED AP

North Bay Village
1666 Kennedy Causeway, Suite 300
North Bay Village, FL 33141
(305) 756-7171

Sincerely yours,

Rodney Carrero-Santana, P.E., LEED AP

BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)

NORTH BAY VILLAGE

SUPPLEMENTARY CONDITIONS

1.01 GENERAL:

These Supplementary Conditions amend or supplement the NSPE-ACEC Standard General Conditions of the Construction Contract, EJCDC C-700 (2007 Edition) and other provisions of the Contract Documents as indicated below. All provisions that are not so amended or supplemented remain in full force and effect. If there is a conflict between the Contract, General Conditions (EJCDC C-700 (2007 Edition)) and these Supplementary Conditions, the terms of the Supplementary Conditions shall control.

The Contractor shall note physically by cross out or cross reference notations all changes in the General Conditions called for in the Supplementary Conditions before submitting his Bid.

ARTICLE 1 - DEFINITIONS - Page 1

SC-1.01.A

The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract (EJCDC C-700 (2007) Edition) have the meanings assigned to them in the General Conditions, unless otherwise indicated.

Amend paragraph SC-1.01.A.28 by replacing the terminology Notice of Award with Notice of Intent to Award.

Amend paragraph SC-1.01.A.43 by replacing it with the following paragraph:

Subcontractor – An individual or entity having a direct contract with Contractor. Sub-Subcontractor is an individual or entity having a direct contract with any Subcontractor for the performance of a part of Work at the Project.

Amend paragraph SC-1.01.A.29 by replacing it with the following paragraph:

Village – The individual, entity, public body, Village Manager, or authority with whom Contractor has entered into the Contract and for whom the Work is to be performed.

Add SC-1.01.A.52 as the following paragraph:

Promptly – The period of time not exceeding five business days.

ARTICLE 2 - PRELIMINARY MATTERS - Page 6

SC-2.03

Amend paragraph 2.03.A by replacing the number of days from “30” to “90”.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS - Page 14

SC-4.04

Amend paragraph 4.04.B.2 by replacing the last sentence with the following:

If Village or Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, a Claim may be made as provided in paragraph 10.05.

ARTICLE 5 - BONDS AND INSURANCE - Page 16

5.01

Amend paragraph 5.01.A by adding the following language at the end of the paragraph:

Any additional costs shall be borne by the Contractor.

5.04

Add the new paragraphs immediately after paragraph 5.04 of the General Conditions.

The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by law:

5.04.A.1 and 5.04.A.2 Workers' Compensation, etc. under paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:

1. Comprehensive General Liability:
 - (a) Coverage to include Premise/Operations, Broad Form Property Damage, Contractual and Personal Injury, and XCU (where applicable).
2. Limits:

(a) General Aggregate	\$1,000,000
(b) Each Occurrence	\$1,000,000
(c) Personal Injury	\$1,000,000
3. Coverage is to be written on an "occurrence" basis.

4. Village's and Contractors Protection:
 - (a) Bodily Injury:

Annual Aggregate	\$1,000,000
Each Occurrence	\$1,000,000
 - (b) Property Damage:

Annual Aggregate	\$1,000,000
Each Occurrence	\$1,000,000

5. Worker's Compensation shall be in accordance with the provisions of the laws of the State of Florida.

- 5.04.A.7 Comprehensive Automobile Liability:
 - (a) Coverage to include all owned, hired, non-owned vehicles, and/or trailers and other equipment required to be licensed.
 - (b) Limits:

Combined Single Limit	\$1,000,000
-----------------------	-------------

- 5.04.B.8 Umbrella:
 - (a) Limits:

Aggregate	\$1,000,000
-----------	-------------
 - (b) Cover all claims arising out of the Contractor's operations or premises, anyone directly or indirectly employed by the Contractor or Subcontractor, and the Contractor's obligations under indemnification under this Contract.

- 5.04.B.9 North Bay Village, shall be included as a named insured party under the Contractors Liability Insurance. The following paragraph is required to appear unaltered on the Certificate of Insurance.

"North Bay Village, Florida is hereby named Additional Insured under the terms of this policy."

- 5.04.B.10 A thirty (30) day Notice of Cancellation is required and must be stated on the Certificate of Insurance.

- 5.04.B.11 The Certificate of Insurance shall be issued to North Bay Village, Florida at the following address:

North Bay Village
1666 Kennedy Causeway, Suite 300
North Bay Village, FL 33141

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES - INDEMNIFICATION - Page 22

SC-6.01

Add the new paragraphs immediately after paragraph 6.01.B of the General Conditions.

The Contractor shall perform all work in compliance with all applicable safety codes. A competent English speaking superintendent will be on the job at all times during working hours, and will be subject to call during off-duty hours for emergency situations. The superintendent shall have overall charge of the work with complete authority regarding the Contractor's workmen, equipment and material purchases. The superintendent shall have complete authority to act on behalf of the Contractor. This person must be sufficiently qualified and have read and understood the Drawings, Specifications and all Contract Documents.

SC-6.02

Modify paragraph 6.02.B to allow work on Saturday per the following new paragraph added immediately after paragraph 6.02.B of the General Conditions.

The Project sites being located in a single-family residential area, there shall be no undue noise created, whether by workers arriving at the sites or by actual construction work, before 9:00 a.m. or after 6:00 p.m. Monday through Saturday. No work shall be performed on Sunday or legal holidays as defined by the Village. There are no public sanitary facilities nearby the work sites, and the Contractor must therefore make arrangements for portable sanitary facilities as authorized by the Village.

SC-6.06

Amend paragraph 6.06.A by replacing the last sentence of the paragraph with the following sentence:

Contractor shall not be required to employ any Subcontractor, supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection, except as required by 6.06.B and the Instruction to Bidders.

Amend paragraph 6.06.B by adding the words "Instructions to Bidders" before Supplementary Conditions where ever it appears.

Amend paragraph 6.06.B by deleting the following sentence from the paragraph:

Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed.

Amend paragraph 6.06.B by adding the following language at the end of the last sentence of the paragraph:

nor does such acceptance create a contractual relationship between the Village and any subcontractor, supplier, individual or entity.

SC-6.09

Amend paragraph 6.09.C by replacing the first sentence of the paragraph with the following sentence:

Changes in Laws or Regulations which become effective after the time of opening of Bids (or, on the Effective Date of the Contract if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times.

Add the new paragraphs immediately after paragraph 6.09.C. of the General Conditions:

All vehicles used in connection with the Contractor's operations will be required to have identification signs.

SC-6.11

Amend paragraph 6.11.A.2 by adding the following language at the end of the last sentence:

, as set forth on the Resident Complaint Resolution Protocol attached hereto and made a part of the Contract Documents.

Add the new paragraphs immediately after paragraph 6.11.B. of the General Conditions:

Adjacent residents must have access to their driveways at all times. All barricades and warning signs for any traffic lane closures will be provided and maintained by the Contractor. Cost of all barricades and signs shall be the responsibility of the Contractor. Any off-duty officers as may be required in the maintenance of traffic shall be provided by the Contractor at the Contractor's expense.

SC-6.12

Amend paragraph 6.12.A by replacing the first sentence of the paragraph with the following sentence:

Contractor shall maintain in a safe place at the Project one record copy of all Drawings, Project Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, AsBUILTs, and written interpretations and clarifications in good order and annotated to show changes made during construction.

SC-6.13

Amend paragraph 6.13.A.3 by replacing it with the following paragraph:

other property at the Project or adjacent thereto, including, but not limited, to trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in course of construction.

SC-6.20

Amend the paragraphs 6.20.A.1 and 6.20.A.2 by replacing them with the following paragraph.

To the fullest extent permitted by Laws and Regulations, the Parties agree that in consideration of the first \$1,000.00 dollars to be paid by Village to Contractor hereunder and other specific consideration, the receipt and sufficiency of which is hereby acknowledged, the Contractor shall indemnify, defend and hold harmless the Village and Village Engineer and their consultants, agents, officers and employees, and the elected officials of the Village, from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professional and court and arbitration costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of Contractor, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is implied by Law and Regulations regardless of the negligence of any such party.

Amend paragraphs 6.20.B by replacing it with the following paragraph:

In any and all claims against Village and Village Engineer and their consultants, agents, officers and employees, and the elected officials of the Village by any Contractor, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20 shall not be limited in any way, by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 8 - VILLAGE'S RESPONSIBILITIES - Page 36

SC-8.02

Amend paragraph 8.02.A by replacing it with the following paragraph:

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

ARTICLE 9 - VILLAGE ENGINEER'S STATUS DURING CONSTRUCTION - Page 37

SC-9.03

Amend paragraph 9.03.A by adding the following language at the end of the paragraph:

The Village Engineer will provide a Resident Project Representative for this Project with duties, responsibilities and limitations of authority as outlined in Exhibit "B" attached at the end of these Supplementary Conditions. The Resident Project Representative will not be a full time Representative, but will work such periods of time so as to cover the Project in accordance with Exhibit "B".

SC-9.04

Amend paragraph 9.04.A by deleting the following sentence from the end of the paragraph:

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

SC-9.07

Amend paragraph 9.07.A by replacing the word "decision" in the second sentence with the word "recommendation" and adding the words "recommendation will be submitted to the Village Manager whose" into the third sentence between the words "written" and "decision".

SC-9.08

Amend paragraph 9.08.D by replacing the word "decision" with "recommendation" in the second paragraph and deleting the words "Village or" from the last sentence.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS - Page 40

SC-10.01

Amend paragraph 10.01.A by replacing the first sentence of the paragraph with the following sentence:

Without invalidating the Contract and without notice to any Surety, Village may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, a Work Change Directive, or a Field Directive.

Amend paragraph 10.05.D by adding the following sentence at the end of the paragraph:

Adherence to the terms of paragraph 10.05 is a condition precedent to bringing any further action in litigation.

SC-10.05

Amend paragraph 10.05.A by replacing it with the following paragraph:

B. Village Manager's Decision: Village Engineer will render a formal recommendation to the Village Manager for a binding decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any. Village Managers decision on such Claim, dispute, or other matter will be final and binding upon Village and Contractor:

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCE; UNIT PRICE WORK - Page 42

SC-11.01

Amend paragraph 11.01.A.1 by deleting the word Saturday from the last sentence of the paragraph.

Delete paragraph 11.01.A.4 in its entirety.

SC-11.03.C

Amend paragraph 11.03.C by replacing it with the following paragraph:

C. A Claim may be made for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES –
Page 46

SC-12.01.C

Amend paragraph 12.01.C.2.a. by replacing the entire sentence with the following sentence:

for costs incurred under paragraph 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 10 percent;

SC-12.01.C

Modify paragraph 12.01.C.2.c. to change the fee as follows in the first sentence:

Will be paid a fee of 10 percent of the costs incurred by such Subcontractor under paragraph 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

SC-12.03

Amend paragraph 12.03 by replacing the entire paragraph with the following paragraph:

Contractor will not be entitled to any adjustment in the Contract Price for delays extended general conditions, extended overhead, loss of productivity, acceleration or any damages or other compensation whatsoever in the event of any delays in the progress of the Work on account of hindrances or delays from any cause whatsoever. Such causes of delay include but are not limited to differing site conditions, difficulty in acquiring building permits, limited access to the Project, failure to approve plans and shop drawings on time, delays caused by governmental action, inaction or regulation, subsurface conditions, material shortages or delay in delivery of materials. It is the specific intent hereunder that an extension of time will be the sole and exclusive remedy for delay of any type, description of category. However, if occasioned by an act of God, or by any act or omission on the part of the Village such act, hindrance or delay may entitle the Contractor to an extension of time in which to complete the Work which shall be determined by the Village Engineer, provided that the Contractor will give notice as provided herein. The foregoing limitations on adjustments to Contract Price also apply to any causes of delay which affect any subcontractor, materialman, supplier or laborer on the Project. In no event, if any such events of delay occur, shall any subcontractor, materialman, supplier or laborer be entitled to additional compensation for delays including claims for extended general conditions, extended overhead and the like against the Village or Village Engineer.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK - Page 48

SC-13.04

Amend paragraph 13.04.A by replacing it with the following paragraph:

If any Work is covered contrary to the Technical Specifications, Drawings or Contract Documents, it must, if requested by Village Engineer, be uncovered for Village Engineer's observation and replaced at Contractor's expense.

Amend paragraph 13.04.B by adding the following language at the end of the second sentence:

, or direct payment if remaining Contract funds are not sufficient.

SC-13.09

Amend paragraph 13.09.C by adding the following language at the end of the first sentence:

, or direct payment if remaining Contract funds are not sufficient.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION - Page 52

SC-14.02.A.2

Amend paragraph 14.02.A.2 by deleting the existing paragraph and replacing it with the following paragraph:

With each Application for Payment, the Contractor shall include a Partial Waiver Upon Progress Payment or Statutory Waiver and Final Release, as appropriate from each and every materialman, supplier and or laborer ("Potential Lienor") who has provided labor, services or materials for the Project. Contractor shall submit its own Statutory Waiver and Partial Release of Lien or Statutory Waiver and Final Release of Lien, as appropriate, with each Application for Payment. Moreover, Contractor shall ensure that no construction liens, or any encumbrances in the nature thereof or any other encumbrances whatsoever (including equitable lien claims), shall be filed or maintained by the Contractor or by any Potential Lienor in connection with any Work for which Village has made payment or for which payment is not yet due. As a condition precedent to the receipt of each progress payment from the Village, Contractor must furnish the Partial Waiver Upon Progress Payment Statutory Waiver and Final Release from each Potential Lienor, in the form prescribed by Village and/or Village Engineer, together with a Contractor's Affidavit and Partial Release, in the form prescribed by the Village and/or Village Engineer.

Further, as a condition precedent to the receipt of the final payment, the Contractor shall provide Village with a Statutory Waiver and Final Release from each Potential Lienor in the form prescribed by Village and/or the Village Engineer, together with a Contractor's Affidavit and Final Release. Each Release given to the Village shall waive and release any lien rights of the Potential Lienor to the extent payment is made with respect to any Work performed through the date of the Release. For any Potential Lienor who has served a Notice to Village and/or Notice to Contractor, but who has not provided labor, services or materials during the period of time covered by an Application for Payment, the Contractor shall provide a Zero Dollar Release in the form prescribed by Village and/or Village Engineer. Contractor shall comply with all requirements of Florida Statutes, Chapter 713. Contractor agrees to indemnify, defend and hold the Village harmless from and against any and all liens or other claims whatsoever filed against the Village or the Village's property by any Potential Lienor for worked performed or materials or services furnished in connection with the Work for which Contractor has been paid or for which payment is not yet due at the time the Lien is recorded. In the event a Claim of Lien is recorded against the Village's property, the Contractor shall cause the same to be satisfied within ten (10) days following the date of recordation of the Claim of Lien, or in the alternative, shall cause the Claim of Lien to be transferred to a Bond. In the event any Liens are not cleared of record within ten (10) days of recordation, Village shall have the right to settle, satisfy, or transfer such Lien to a Bond at Contractor's sole cost and expense and Village may offset any such cost against the next payment due to Contractor, or Contractor shall make a direct payment if remaining Contract funds are not sufficient. Village shall not be limited to and is entitled to all other remedies available at law or in equity. The provisions of this paragraph shall be deemed an independent covenant of the Contractor and shall be effective with respect to all Work performed and materials and services furnished under the Contract Documents, Change Orders or any other agreement for work with respect to the Project.

SC-14.02.D.1.b

Amend paragraph 14.02.D.1.b by deleting the existing paragraph and replacing it with the following:

Liens have been recorded in connection with the Work or the Project.

SC-14.07

Amend paragraph 14.07.A.1 by replacing it with the following paragraph:

After Contractor has, in the opinion of Village Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operation instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in paragraph 6.12), final releases, final affidavits, Asbuilts, and other documents, Contractor may make application for final payment following the procedure for progress payments.

Amend paragraph 14.07.A.2 by adding the following language at the end of the first sentence:

or claims made against the Bonds provided by Contractor under the Contract Documents.

Delete paragraph 14.07.A.3 in its entirety.

SC-14.09

Amend paragraph 14.09.A.1 by replacing it with the following paragraph:

a waiver of all Claims by Village against Contractor, except Claims arising from unsettled Liens or Claims against the Bonds, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION - Page 59

SC-15.03

Delete paragraph 15.03.A.3 in its entirety.

Delete paragraph 15.03.A.4 in its entirety.

SC-15.04

Amend paragraph 15.04.B. by deleting the last sentence of the paragraph.

EXHIBIT "B" A LISTING OF THE DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF THE RESIDENT PROJECT REPRESENTATIVE

Village Engineer shall furnish a Resident Project Representative (RPR), assistants and other field staff to assist Village Engineer in observing performance of the Work of the Contractor.

Through more extensive on-site observations of the Work in progress and field checks of materials and equipment by the RPR and assistants, Village Engineer shall endeavor to provide further protection for Village against defects and deficiencies in the Work; but, the furnishing of such services will not make Village Engineer responsible for or give Village Engineer control or supervisory control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs, or responsibility for Contractor's failure to perform the Work in accordance with the Contract Documents.

The duties and responsibilities of the RPR are limited to those of Village Engineer in Village Engineer's agreement with the Village and in the construction Contract Documents, and are further limited and described as follows:

A. General

RPR is Village Engineer's agent at the site, will act as directed by and under the supervision of Village Engineer, and will confer with Village Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with Village Engineer and Contractor keeping Village advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Village with the knowledge of and under the direction of Village Engineer.

B. Duties and Responsibilities of RPR

1. Schedules: Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with Village Engineer concerning acceptability.
2. Conferences and Meetings: Attend meetings with Contractor, such as pre-construction conferences, progress meetings, job conferences and other Project-related meetings, and prepare and circulate copies of minutes thereof.
3. Liaison:
 - a. Serve as Village Engineer's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of the Contract Documents; and assist Village Engineer in serving as Village's liaison with Contractor when Contractor's operation affect Village's on-site operations.
 - b. Assist in obtaining from Village additional details or information, when required for proper execution of the Work.
4. Shop Drawings and Samples:
 - a. Record date of receipt of Shop Drawings and samples.
 - b. Receive samples that are furnished at the site by Contractor, and notify Village Engineer of availability of samples for examination.
 - c. Advise Village Engineer and Contractor of the commencement of any Work requiring a Shop Drawing or sample if Village Engineer has not approved the submittal.
5. Review of Work, Rejection of Defective Work, Inspections and Tests:
 - a. Conduct on-site observations of the Work in progress to assist Village Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

- b. Report to Village Engineer whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Village Engineer of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
 - c. Verify that tests, equipment and systems startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that Contractor maintains adequate records thereof; and observe, record and report to Village Engineer appropriate details relative to the test procedures and startups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to Village Engineer.
6. Interpretation of Contract Documents: Report to Village Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Village Engineer.
7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to Village Engineer. Transmit to Contractor decisions as issued by Village Engineer.
8. Records:
- a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, Village Engineer's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
 - b. Keep a diary or log book, recording Contractor hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Village Engineer.
 - c. Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment.
9. Reports:
- a. Furnish Village Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.

- b. Consult with Village Engineer in advance of scheduled major tests, inspections or start of important phases of the Work.
 - c. Draft proposed Change Orders and Work Directive Changes, obtaining backup material from Contractor and recommend to Village Engineer Change Orders, Work Directive Changes, and Field Orders.
 - d. Report immediately to Village Engineer and Village upon the occurrence of any accident.
10. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Village Engineer, noting particularly the relationship of the payment requested to the schedule of values. Work completed and materials and equipment delivered at the site but not incorporated in the Work.
11. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to Village Engineer for review and forwarding to Village prior to final payment for the Work.
12. Completion:
- a. Before Village Engineer issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
 - b. Conduct final inspection in the company of Village Engineer, Village and Contractor and prepare a final list of items to be completed or corrected.
 - c. Observe that all items on final list have been completed or corrected and make recommendations to Village Engineer concerning acceptance.

C. Limitations of Authority

Resident Project Representative:

- 1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by Village Engineer.
- 2. Shall not exceed limitations of Village Engineer's authority as set forth in the Contract Documents.
- 3. Shall not undertake any of the responsibilities of Contractor, subcontractors or Contractor's superintendent.

4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not accept Shop Drawings or sample submittals from anyone other than Contractor.
7. Shall not authorize Village to occupy the Project in whole or in part.
8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Village Engineer.

END OF SECTION

**SWORN STATEMENT PURSUANT TO SECTION 287.133(3)(a),
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES**

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

1. This sworn statement is submitted to _____
[print name of the public entity]

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: _____.)

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

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

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

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

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

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

___ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity, has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

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

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

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED, I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FLORIDA STATUTES FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED INT HIS FORM.

[signature]

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

Personally known _____

OR Produced identification _____

Notary Public - State of

My commission expires

(Type of identification)

(Printed typed or stamped commissioned
name notary public)

Form PUR 7068 (Rev. 06/11/92)

SECTION 01000

GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Furnish all labor, equipment and materials for construction of the Baywalk Plaza Area Design project. The project will include but not be limited to specialty paving, landscaping, irrigation, retaining walls, decorative gates, site lighting/electrical, site furniture, monument signs, grading, drainage, maintenance of traffic, roadway restoration, site restoration, and all other appurtenances necessary for a complete project.
- B. Construction of this project will require close coordination with the Owner and Engineer.
- C. Omission of a specific item or component part of a system obviously necessary for the proper functioning of the system shall not relieve the Contractor of the responsibility of furnishing the item as part of the work at no additional cost to Owner.
- D. The Specification Divisions and Drawings are an integrated part of the Contract Documents and as such will not stand alone if used independently as individual Sections, Divisions, or Drawing Sheets. The Drawings and Specifications establish minimum standards of quality for this Project. They do not purport to cover all details entering into the design and construction of materials or equipment.
- E. Where portions of the work traverse or cross federal, state, county or local highways, roads, streets, or waterways, and the agency in control of such property has established standard specifications governing items of work that differ from these specifications, the most stringent requirements shall apply.
- F. The Contractor shall become familiar with the existing operating conditions of the Owner's wastewater system and pumping stations and take such into consideration in planning and scheduling work. No extra claims shall be made for work required to achieve conditions beyond those obtainable under normal operation of the existing transmission, collection and pumping facilities necessary to accomplish the work.

1.02 QUALITY ASSURANCE

- A. Laws and Regulations: Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations applicable to the work.

If Contractor observes that the Specifications or Drawings are at variance therewith, Contractor shall give Engineer prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If Contractor performs any work, knowing or having reason to know, that it is contrary to such laws, ordinances, rules, and regulations, and without such notice to Engineer, Contractor shall bear all costs arising therefrom. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with such laws, ordinances, rules, and regulations.

1.03 PROJECT SPECIFICATIONS

- A. The Miami-Dade Water and Sewer Department Donation Standard Specifications and Details for Design and Construction, latest edition are hereby incorporated by reference and the Contractor shall comply with all requirements.
- B. The Florida Department of Transportation Standard Specifications for Road and Bridge Construction and their Roadway and Traffic Design Standards, hereinafter referred to as the DOT Standard Specifications, are referred to herein, and the same are hereby made a part of this Contract to the extent of such references and shall be as binding upon the Contract as though reproduced herein. Such reference shall mean the current edition, including all supplements. In case of a conflict in the requirements of the DOT Specifications and the requirements stated herein, the requirements herein shall prevail.
- C. Contractor will be required to submit Maintenance of Traffic (MOT) plans for work on the Village streets and State highways. Contractor shall coordinate with MOTs for nearby or highway work and obtain approval for all traffic control as required by the permit jurisdiction having authority
- D. The applicable portions of North Bay Village Code and Florida Building Code shall apply to the project.

PART 2 SEQUENCE OF OPERATIONS

2.01 SCHEDULING

- A. General: Prepare and submit schedule in accordance with the provisions of Section 01300.
- B. Plan the Work and carry it out with minimum interference to the operation of the existing facilities. Prior to starting the work, confer with the Engineer and Owner's representative to develop an approved work schedule which will permit the facilities to function normally as practical. It may be necessary to do certain parts of the construction work outside normal working hours in order to avoid undesirable conditions. The Contractor shall do this work at such times, and at no additional cost to the Owner.

Do not make connections between existing work and new work until necessary inspection and tests have been completed on the new work and it is found to conform in all respects to the requirements of the Contract Documents.

- C. No work shall be started until the Contractor has received approved shop drawings, established material/delivery dates for all equipment, and received approval of the construction schedule from the Engineer or Owner. The Contractor shall have sufficient manpower, equipment, and material to complete the project.
- D. No work shall commence without express consent of the Engineer or Owner.
- E. If a privately owned staging area is required, no work shall commence until approval of the facility is obtained in accordance with Village requirements.

2.02 MOBILIZATION AND DEMOBILIZATION

- A. Contractor shall be responsible for mobilization and demobilization of labor, materials and equipment. Payment for mobilization and demobilization shall be included in the lump sum price for the Project.

2.03 COORDINATION

- A. Contractor shall cooperate in the coordination of separate activities in a manner that will provide the least interference with the Owner's operations and other contractors and utility companies working in the area, and in the interfacing and connection of the separate elements of the overall project work.
- B. If any difficulty or dispute should arise in the accomplishment of the above, the problem shall be brought immediately to the attention of the Project Manager or Owner.

2.04 SHUTDOWN OF EXISTING OPERATIONS OR UTILITIES

- A. Continuous operation of the Owner's service functions is of critical importance. The Contractor's work shall not result in the interruption of sewage, water, or solid waste service to any customers.
- B. Minimizing conflicts with the ongoing area-wide commercial activities is of critical importance. The Contractor's work shall minimize in the interruption of operations at any facility or business.
- C. Connections to existing services or utilities, or other work that requires the temporary shutdown of any existing operations or utilities shall be planned in detail with appropriate scheduling of the work and coordinated with the Owner or Project Manager. Two business days advanced notice shall be given in order that the Owner or Project Manager may witness the shutdown, tie-in, and startup. The temporary shutdown must be approved by the Owner.

All tie-in and bypass operations shall be the responsibility of the Contractor and are considered incidental to the cost of construction and provided at no additional cost to the Owner.

- D. All materials and equipment (including emergency equipment) necessary to expedite the tie-in shall be on hand prior to the shutdown of existing services or utilities.

2.05 OPERATION OF EXISTING SYSTEM PROHIBITED

- A. At no time undertake to close off any utility lines or open valves or take any other action which would affect the operation of existing systems. The Owner's forces will operate all valves. Provide at least one business day notice to Owner prior to any operations.

PART 3 SITE CONDITIONS

3.01 SITE INVESTIGATION AND REPRESENTATION

- A. The Contractor acknowledges satisfaction as to the general nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, availability of labor, water, electric power, roads, and uncertainties of weather, or similar physical conditions, the character of equipment and facilities needed preliminary to and during the prosecution of the work, and all other matters which can in any way affect the work or the cost thereof under this Contract.
- B. Failure by the Contractor to become acquainted with the physical conditions and all the available information will not relieve the Contractor from responsibility for properly estimating the difficulty or cost of successfully performing the work.

3.02 UTILITIES

- A. The Contractor shall be responsible for determining and/or confirming, at his cost, the locations of all utilities within the project area, and shall be responsible for contacting each utility for location and notification prior to commencing work.
- B. The Contractor shall contact potentially affected utilities as needed.
- C. The Contractor shall contact Sunshine State One Call at 1-800-432-4770 at least 2 working days prior to any excavation and make arrangements for locating all utilities in the project area.

3.03

CONTRACTOR RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

- A. Where the Contractor's operations could cause damage or inconvenience to utilities, telephone, television, power, water, or sewer systems, the operations shall be suspended until all arrangements necessary for the protection of these utilities and services have been made by the Contractor with the owner of the utility affected.
- B. Notify all utility offices which are affected by the construction operation at least 2 working days in advance. Under no circumstances expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities.
- C. The Contractor shall be solely and directly responsible to the Owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
- D. Neither the Owner nor its officers or agents shall be responsible to the Contractor for damages as a result of the Contractor's failure to protect utilities encountered in the work.
- E. In the event of interruption to domestic water, sewer, storm drain, or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.
- F. In the event the Contractor encounters water service lines or sewer laterals that interfere with trenching, he may, by obtaining prior approval of the property owner, the Engineer and the Owner, cut the service, dig through, and restore the service with similar and equal materials at the Contractor's expense.
- G. The Contractor shall replace, at his own expense, all existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract documents or ordered by the Engineer.

3.04

INTERFERING STRUCTURES

- A. Take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground.

- B. Protect underground and aboveground existing structures from damage. Where such existing fences, gates, sheds, buildings, or any other structure must be removed in order to properly carry out the construction, or are damaged during construction, restore to their original condition to the satisfaction of the property owner involved at the Contractor's own expense. Notify the Project Manager of any damaged underground structure, and make repairs or replacements before backfilling.
- C. Without additional compensation, the Contractor may remove and shall replace in a condition as good as or better than original, such small miscellaneous structures as fences, mailboxes, and signposts that interfere with the Contractor's operations.

PART 4 SAFETY AND CONVENIENCE

4.01 SAFETY AND ACCESS

- A. The Contractor shall do all work necessary to protect the general public from hazards, including, but not limited to, surface irregularities or unramped grade changes in pedestrian sidewalk or walkway, and trenches or excavations in roadway. Barricades, lanterns, and proper signs shall be furnished in sufficient amount to safeguard the public and the work. All barricades and signs shall be clean and serviceable, in the opinion of the Project Manager.
- B. The Contractor shall notify all residences and businesses of planned construction at least 5 working days prior to the start of work in the block where they are located. Such notices shall be brochures or door-hangers with sufficient information to describe the extent and duration of the planned work. Notification activities shall be coordinated with the Village Engineer.
- C. Homeowners and business owners shall be provided reasonable access. The Contractor shall provide temporary sidewalks, bridges or driveway access, including safe passage over open excavations as required.

4.02 ACCIDENT REPORTS

- A. In addition, the Contractor must promptly report in writing to the Engineer all accidents whatsoever arising out of, or in connection with, the performance of the work whether on, or adjacent to, the site, giving full details and statements of witnesses. If death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Project Manager.
- B. If a claim is made by anyone against the contractor or any subcontractor on account of any accident, the Contractor shall promptly report the facts in writing to the Project Manager, giving full details of the claim.

4.03 PROTECTION OF PROPERTY

- A. Protect stored materials located adjacent to the proposed work. Notify property owners affected by the construction at least two business days in advance of the time construction begins. During construction operations, construct and maintain such facilities as may be required to provide access by all property owners to their property. No person shall be cut off from access to his residence or place of business for a period exceeding 2 hours, unless the Contractor has made special arrangements with the affected persons.
- B. The Contractor shall identify and isolate his active work zone in such a manner as to exclude all personnel not employed by him, the Project Manager, and the Owner.

4.04 FIRE PREVENTION AND PROTECTION

- A. The Contractor shall perform all work in a fire-safe manner. He shall supply and maintain on the site adequate fire-fighting equipment capable of extinguishing incipient fires. The Contractor shall comply with applicable federal, state, and local fire-prevention regulations. Where these regulations do not apply, applicable parts of the National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241) shall be followed.

4.05 ACCESS FOR POLICE, FIRE, AND POSTAL SERVICE

- A. Notify the fire department and police department before closing any street or portion thereof. No closing shall be made without the Owner's approval of MOT plan. Notify said departments when the streets are again passable for emergency vehicles.

Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, without special written permission from the fire department. Conduct operations with the least interference to fire equipment access, and at no time prevent such access.

- B. Maintain postal service facilities in accordance with the requirements of the U.S. Postal Service.

PART 5 PRESERVATION, RESTORATION, AND CLEANUP

5.01 SITE RESTORATION AND CLEANUP

- A. At all times during the work, keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment and leave the project free of rubbish or excess materials of any kind.
- B. Stockpile excavated materials in a manner that will cause the least damage to adjacent lawns, grassed areas, gardens, shrubbery, or fences, regardless of whether these are on State or Village rights-of-way.

Remove all excavated materials from grassed and planted areas, and leave these surfaces in a condition equivalent to their original condition.

5.02 FINISHING OF SITE, BORROW, AND STORAGE AREAS

- A. Upon completion of the project, all areas used by the Contractor shall be properly cleared of all temporary structures, rubbish, and waste materials and properly graded to drain and blend in with the abutting property. Areas used for the deposit of waste materials shall be finished to properly drain and blend with the surrounding terrain. Grassed areas shall be restored as specified.

PART 6 PERMITS

6.01 GENERAL

- A. Permits to be Obtained by the Contractor may include, but are not limited to the following:
 - 1. Local Building permits.
 - 2. Local and State contracting licenses.
 - 3. State utility permit.
 - 4. State/County dewatering permit.

END OF SECTION

SECTION 01020

ALLOWANCE

PART 1 SCOPE OF WORK

1.01 DEFINITION

- A. Included in the contract sum is an Owner's allowance account for unforeseen conditions, potential construction changes and adjustments, if ordered and authorized by the Village in accordance with the contract documents.

1.02 ALLOWANCE ACCOUNT

- A. Monies in the allocation account will be used only with pre-approval in writing by the Village and issuance of change order.

1.03 SELECTION OF PRODUCTS UNDER ALLOWANCES

- A. Engineer's Duties:
 - 1. Consult with the Contractor in consideration of products and supplier or installers or changes in quantities of Proposal items.
 - 2. Make selection in consultation with the Owner. Obtain Owner's written decision, designating:
 - a. Product, model and/or class of materials.
 - b. Accessories and attachments.
 - c. Supplier and installer as applicable.
 - d. Cost to Contractor, delivered to the site or installed, as applicable.
 - e. Warranties
 - f. Quantities
 - 3. Transmit Owner's decision to the Contractor.
 - 4. Prepare change orders.
- B. Contractor's Duties:
 - 1. Assist Engineer and Owner in determining qualified suppliers, quantities or subcontractor.
 - 2. Obtain proposals from a minimum of three (3) suppliers and/or subcontractors when requested by Engineer.
 - 3. Make appropriate recommendations for consideration of the Engineer.
 - 4. Notify Engineer promptly of:
 - a. Any reasonable objections Contractor may have against any supplier, or party under consideration for installation.
 - b. Any effect on the construction schedule anticipated by selection under consideration.

1.04 CONTRACTOR RESPONSIBILITY FOR PURCHASE, DELIVERY AND INSTALLATION

- A. On notification of selection, execute purchase agreement with designated suppliers and/or subcontractors.
- B. Arrange for and process shop drawings, product data and samples, as required.
- C. Make all arrangements for delivery.
- D. Upon delivery, promptly inspect products for damage or defects.
- E. Submit claims for transportation damage.
- F. Install and finish products in compliance with requirements of referenced specification sections, including restoration.

1.05 ADJUSTMENT OF COSTS

- A. Should the net cost be more or less than the specified amount of the allowance, the contract sum will be adjusted accordingly by change order. Should work be changed by change order:
 - 1. The amount of the change order will recognize any changes in handling costs at the site, equipment, labor, installation costs, overhead, profit, and other expenses caused by the change order.
 - 2. For products specified under a unit cost in the change order schedule of values, the unit cost shall apply to the additional quantities actually used.
- B. Submit any claims for anticipated additional costs at the site, or other expenses caused by the selection under the allowance, prior to execution of the work.
- C. Failure to submit claims within the designated time will constitute a waiver of claims for additional costs.
- D. At contract closeout, reflect all approved changes in contract amounts in the final statement of accounting.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01150

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE OF THIS SECTION

- A. The following explanation of the Measurement and Payment for the Bid Form items is provided; however, the omission of reference to any item shall not alter the intent of the Bid Form or relieve the Contractor of the necessity of constructing a complete project under this Contract.

1.02 METHOD OF MEASUREMENT

- A. **Measurement of Length:** Unless otherwise specified for the particular items involved, all measurements of distance for items to be paid for on the basis of length shall be taken horizontally or vertically.
- B. **Measurement of Area:** In the measurement of items paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the actual dimensions measured along the surface of the completed work within the neat lines shown or designated. At intersections, the measurement used for length of side area will be measured from the outside edge of the width allowed along the main trench.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 BID ITEMS

- A. **BID ITEM NO. 1 - Mobilization, Bonds & Insurance**

Measurement: Work as specified in this section shall consist of work preparatory to actual construction at the site. It shall include, but not be limited to, movement of personnel, equipment, supplies, and incidentals to the project site, and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, sanitary and other facilities as required by these Specifications and state and local laws and regulations. This cost should include the construction of two (2) project signs that shall be displayed at approaches to the project area. The intent is that the signs will be freestanding. The sign shall display on both sides the project name, Village Logo, elected officials, and contact information.

The costs of permits, bonds and any required insurance, and any other preconstruction expense necessary for the start of the work, excluding the cost of construction materials, shall be included in this section. Also included in this section will be all costs associated with meetings and coordination with the Owner and Engineer for the purpose of discussing project progress.

Payment: Payment shall be made as a lump sum quantity in accordance with the following schedule and the contract documents:

<u>Percentage Contract Amount Earned</u>	<u>Allowable Percentage of Lump Sum Price</u>
5%	25%
10%	50%
25%	75%
50%	100%

The standard retainage will be applied to these allowances.

B. BID ITEM NO. 2 – Maintenance of Traffic

Measurement: The cost shall include all work associated with Maintenance of Traffic throughout the project.

Payment: Payment for this work shall be made at the lump sum price and shall include all labor and equipment needed to maintain vehicular and pedestrian traffic. All crosswalks and sidewalks shall remain open and free of obstructions. Temporary painting for roadways and crosswalks shall be maintained throughout the project. Costs shall include the use of flagmen.

C. BID ITEM NO. 54 – Site Restoration

Measurement: The cost shall include all general construction requirements for project restoration so that all areas disturbed or damaged during construction shall be restored to conditions existing prior to the work.

Payment: Payment for the site work shall be made at the lump sum price and shall include all materials, labor and equipment necessary to perform site restoration work including grading, planting, sodding, landscape, irrigation, lighting, striping, signage, fencing, monuments, removal and replacement of asphalt, sidewalk, driveway, curb and gutter, limerock, base material, clean-up, and any other work required to restore the project area to its original condition.

Restoration other than or in addition to what is indicated by the plans, specifications, and defined herein will be considered incidental to the construction and the costs of this incidental restoration should be included in the cost of project.

D. **BID ITEM NO. 55 – Owner’s Allowance**

Measurement: The cost shall include a fixed amount per the Bid Form.

Payment: Use of the allowance account shall be for unforeseen conditions, for construction changes and for utility adjustments, if ordered and authorized by the Village. At the closeout of contract, monies remaining in the allowance account will be credited to the Owner by change order.

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This section covers the requirements for submittal procedures as they pertain to:
 - 1. Construction progress schedules
 - 2. Proposed Products list
 - 3. Shop drawings
 - 4. Product data

1.02 SUBMITTAL PROCEDURES

- A. Submittals shall be addressed to:

North Bay Village
1666 Kennedy Causeway, Suite 300
North Bay Village FL 33141
- B. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- C. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the Engineer and shall bear the Contractor's stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the Contractor for resubmission.

1.03 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in triplicate within 15 days after date established in the Notice to Proceed for Engineer review.
- B. Revise and resubmit as project conditions require. Revised schedules shall be submitted a minimum of two (2) weeks prior to commencement of Work covered by schedule.
- C. An updated project schedule in accordance with this section will be provided with every application for payment.

1.04 SHOP DRAWINGS

- A. When used in the Contract Documents, the term "Shop Drawings" shall be considered to mean, Contractor's drawings plans for material and equipment which become an integral part of the Project.

- B. These drawings shall be complete and detailed. Shop Drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawings, and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature, and performance and test data, shall be considered only as supportive to required Shop Drawings as defined above.
- C. Data on materials and equipment include, without limitation, materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish and all other pertinent data.

1.05 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Engineer for review, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Engineer.

1.06 RECORD DOCUMENTS

- A. Engineer will review submitted record documents for compliance with specifications.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01400

QUALITY CONTROL

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This section covers the work as required to provide and/or coordinate:
 - 1. Quality assurance and control of installation
 - 2. References
 - 3. Inspection
 - 4. Manufacturers' field services and reports

1.02 REFERENCES

- A. Conform to reference standard by date of current issue on date for receiving bids.
- B. Should specified reference standards conflict with Contract Documents, request clarification from Owner or Engineer before proceeding.
- C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.03 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Owner or Engineer before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01500

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Enclosures and fencing, protection of the Work, traffic control, temporary bypass sanitary pumping, and water control.
- C. Construction Facilities: Access roads, parking, progress cleaning, and temporary buildings.
- D. Some of the items specified herein are not specifically required for the project. However, these items shall be provided as required for the convenience of the Contractor or as required for proper completion of the Work.

1.02 TEMPORARY ELECTRICITY (AS APPLICABLE)

- A. Provide and pay for power service, as required, from Florida Power and Light source.
- B. Provide temporary electric feeder from electrical service. Power consumption shall not disrupt Owner's need for continuous service.
- C. Provide separate metering and pay Florida Power and Light for cost of energy used.
- D. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.
- E. Provide main service disconnect and overcurrent protection at a convenient location.
- F. Permanent convenience receptacles may not be utilized during construction.

1.03 TEMPORARY LIGHTING (AS APPLICABLE)

- A. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.
- B. Maintain lighting and provide routine repairs.

1.04 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- B. Provide ventilation and other equipment and procedures as required to meet OSHA Confined Spaces Entry Requirements.

1.05 TEMPORARY WATER SERVICE (AS APPLICABLE)

- A. Provide and maintain suitable quality water service, as required, for construction operations.
- B. All water used must be metered by Owner, but Contractor will not be charged for the metered water use.
- C. Extend branch piping with outlets located so water is available by hoses with threaded connections.
- D. Make arrangements with Owner for obtaining meter. Owner will also direct contractor as to where water may be obtained.

1.06 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Existing private facilities shall not be used. Portable Sanitary Facilities shall not be placed so that they are not readily visible from 79th Street Causeway.

1.07 FENCING

- A. Construction: Commercial grade chain link fence.
- B. Provide 6-foot high fence to secure material storage areas. Security fence shall be equipped with gates and locks.

1.08 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Prohibit traffic from landscaped areas.

1.10 SECURITY

- A. Provide security and facilities to protect Work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.11 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Broom and vacuum clean interior areas prior to start of surface finishing and continue cleaning to eliminate dust.
- C. Remove waste materials, debris, and rubbish from sites weekly and dispose of at an approved site.

1.12 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary equipment, facilities, materials, prior to Final Inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01700

CONTRACT CLOSE-OUT

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Contract Close-out Procedures.
- B. Final Inspection.
- C. Contract Close-out Submittals.
- D. Final Application for Payments.

1.02 SUBSTANTIAL COMPLETION

- A. When Contractor considers the Work is substantially complete, he shall submit to the Owner or Engineer:
 - 1. A written notice that the Work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, the Owner or Engineer will make an inspection to determine the status of completion.
- C. Should the Owner or Engineer determine that the Work is not substantially complete:
 - 1. The Owner or Engineer will promptly notify the Contractor in writing, giving the reasons therefor.
 - 2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Owner or Engineer.
 - 3. The Owner or Engineer will reinspect the Work.
- D. When the Owner or Engineer finds that the Work is substantially complete, he will:
 - 1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final payment.
 - 2. After consideration of any objections made by the Owner as provided in the Contract Documents, and when the Owner or Engineer considers the Work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

1.03 FINAL INSPECTION

- A. When Contractor considers the Work is complete, he shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.
 - 4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
 - 5. Work is completed and ready for final inspection.
- B. The Owner or Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should the Owner or Engineer consider that the Work is incomplete or defective:
 - 1. The Owner or Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.
 - 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the Owner or Engineer that the Work is complete.
 - 3. The Owner or Engineer will reinspect the Work.
- D. When the Owner or Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closet submittals

1.04 RE-INSPECTION FEES

- A. Should the Owner or Engineer perform re-inspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:
 - 1. Owner will compensate the engineer for such additional services.
 - 2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.05 CONTRACTOR'S CLOSE-OUT SUBMITTALS TO OWNER OR ENGINEER

- A. Evidence of compliance with requirements of governing authorities.
- B. Shall be in accordance with Section 01720 - Project Record Documents.
- C. Spare Parts and Maintenance Materials: To requirements of the individual Specification Sections, as applicable.
- D. Evidence of Payment and Release of Liens: To requirements of Contract Documents, Supplementary Conditions, and Supplementary Conditions (Construction) Exhibit WWFS-04Li.

- E. Certificate of Insurance for Products and Completed Operations, as applicable.
- F. Consent of Surety for final payment.
- G. Final building permit inspection documents and Certificate of Occupancy as applicable.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the Owner or Engineer.
- B. Statement shall reflect all adjustments to the contract Sum:
 - 1. The original Contract Sum.
 - 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for uncorrected Work.
 - e. Penalties and Bonuses.
 - f. Deductions for liquidated damages.
 - g. Deductions for re-inspection payments.
 - h. As-Built Quantities.
 - i. Other adjustments.
 - 3. Total Contract Sum, as adjusted.
 - 4. Previous payments.
 - 5. Sum remaining due.

1.07 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01720

PROJECT RECORD DRAWINGS

PART 1 GENERAL

1.01 PROJECT RECORD DOCUMENTS

- A. Maintain at the site for the Owner one record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed Shop Drawings.

1.02 MAINTENANCE OF DOCUMENTS

- A. Store documents in approved location apart from documents used for construction.
- B. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- C. Make documents available at all times for inspection by Owner and Engineer.

1.03 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in a color code.

1.04 RECORDING

- A. Label each document "RECORD DRAWINGS" in neat large printed letters.
- B. Record information currently with construction progress.
 - 1. Do not conceal any work until required information is recorded.
- C. Drawings; legibly mark to record actual construction:
 - 1. Field changes of dimension and detail.
 - 2. Changes made by Field Order or by Change Order.
 - 3. Details not on original Contract Drawings.
- D. Specifications and Addenda; legibly mark each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each item actually installed.
 - 2. Changes made by Field Order or by Change Order.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.01 SUBMITTAL

- A. During the entire construction operation, the Contractor shall maintain records of all deviations from the Drawings and Specifications and shall prepare there from "Record Drawings" showing correctly and accurately all changes and deviations from the work made during construction to reflect the work as it was actually constructed. Each month with the Contractor's Application for Payment, or as otherwise agreed, the Contractor shall submit to the Engineer a current listing and description of each change incorporated into the work since the preceding submittal. These drawings shall conform to recognized standards of drafting, shall be neat and legible, and signed and sealed by a Florida Registered Professional Land Surveyor.

- B. At Contract Close-out, the Contractor is required to provide one (1) set of reproducible "Record Drawings" to the Engineer for the Owner. These drawings shall conform to recognized standards of drafting, shall be neat and legible, and signed and sealed by a Florida Registered Professional Land Surveyor.

- C. Accompany "Record Drawing" submittal with transmittal letter in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each record document.
 - 5. Signature of Contractor or his authorized representative.

END OF SECTION

SECTION 02800

RESTORATION OF SURFACE FEATURES

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. The work includes restoration of driveways, lawn areas, trees and plants, and any other existing areas affected by the utility relocation work. This section includes furnishing equipment, labor and materials, and performing all necessary and incidental operations to perform the required work.
- B. All areas disturbed or damaged during construction shall be restored to conditions existing prior to the work.

1.02 SUBMITTALS

- A. Certification of quality by producer shall be delivered to Engineer ten days prior to use.
- B. Submit sod certification for grass species and location of sod source.
- C. Submit mix design for asphaltic concrete.
- D. Submit data on joint filter, concrete admixtures, and curing compound.
- E. Submit mix design for Portland cement concrete.

PART 2 PRODUCTS

2.01 SOD

- A. The sod used for restoration shall match the existing in the area. In areas without well-established sod, Argentine Bahia sod shall be used.
- B. The sod 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 planted as soon as possible after being dug and shall be shaded and kept moist from the time it is dug until it is planted. The sod shall be approved by the Engineer before placing.
- C. The sod shall be a minimum age of 18 months, with root development that will support its own weight without tearing when suspended vertically by holding the upper two corners.

2.02 PLANTS

- A. Existing damaged plants shall be replaced by plants of equal type, quality and size whenever possible. All new plants shall be sound, healthy, vigorous, and free from defects, decay, disfigurement, bark abrasions, plant diseases, insects, and insect eggs/larvae. The new plants shall be approved by the Engineer before placing.
- B. Existing plants may be removed, preserved, and replaced at the Contractor's option. Plants shall be handled by an approved nursery.

2.03 COMMERCIAL FERTILIZER

- A. Commercial fertilizers shall comply with the state fertilizer laws.
- B. The numeral 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.
- C. The chemical designation of the fertilizer shall be 12-8-8. At least 50 percent of the phosphoric acid shall be from normal super phosphate or an equivalent source that will provide a minimum of two units of sulfur. The amount of sulfur shall be indicated on the quantitative analysis card attached to each bag or other container.

2.04 WATER

- A. 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 that might be harmful to plant growth or disruptive to traffic. Salt water shall not be used.

2.05 ASPHALTIC CONCRETE PAVING

- A. Asphaltic concrete for surface and base course applications shall be as specified in Section 331 of the FDOT Standard Specifications.
- B. Primer: In accordance with FDOT Section 300, Prime and Tack Coats of Basis Courses.
- C. Tack Coat: In accordance with FDOT Section 300.
- D. Perform work in accordance with FDOT Section 300.
- E. Pavement markings shall be replaced in their original location, color, and material where disturbed.

- F. All equipment associated with the operations of pavement placement and related work shall be entirely suitable for the applicable operations performed and shall be maintained in good condition.

2.06 PORTLAND CEMENT CONCRETE PAVING AND SIDEWALKS

- A. Portland cement concrete used in the performance of this concrete shall be Type I or Type II with a minimum 28-day compressive strength of 3,000 psi and shall conform to the requirements of Section 345 of the FDOT Standard Specifications.
- B. Form materials shall conform to ACI 301.
- C. Joint filter material shall be per FDOT Section 932.
- D. Reinforcement shall be welded steel and wire fabric: Deformed type, A497.
- E. Concrete materials shall be in accordance with FDOT Section 345 and related sections referenced under Section 345.
- F. Curing compound shall be in accordance with FDOT Section 350.
- G. Pavement markings shall be replaced in their original location, color, and material where disturbed.
- H. All equipment associated with the operations of pavement placement and related work shall be entirely suitable for the applicable operations performed and shall be maintained in good condition.

PART 3 EXECUTION

3.01 LANDSCAPING RESTORATION

- A. Any lawn area affected by the required work shall be restored to a condition equal to or better than the conditions existing before the work.
- B. Where required plants shall be adequately balled with firm natural balls of soil, sized as set forth in "Grades and Standards." Balls shall be firmly wrapped with burlap or equally approved strong cloth. No balled plant will be planted if the ball is cracked or broken before or during the process of planting.

3.02 SOD PLACEMENT

- A. The areas over which the sod is to be placed shall be scarified or loosened to suitable depth. On areas where the soil is sufficiently loose, particularly on shoulders and fill slopes, the Engineer may, at his discretion, authorize the elimination of the ground preparation.

- B. Contractor shall, at his expense, maintain the planted areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include watering, filling, leveling, and repairing of any washed or eroded areas as necessary.

3.03 PAVEMENT REPLACEMENT

- A. Asphalt pavement shall be removed by saw cutting on a straight line with edges as vertical as possible. Concrete pavement or asphalt surfaced concrete shall be removed by cutting with a concrete saw in as straight a line and as vertically as possible.
- B. When placing the aggregate base course:
 - 1. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and recompacting.
 - 2. Place aggregate in maximum six inch layers and compact to 98% AASHTO T180.
 - 3. Add small quantities of fine aggregate as appropriate to assist compaction.
 - 4. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
 - 5. Use mechanical tamping equipment in areas inaccessible to compaction equipment.
 - 6. The following tolerances for the aggregate base course shall be maintained.
 - a. Flatness: maximum variation of 1/4 inch measured with 10 foot (3m) straight edge.
 - b. Scheduled compacted thickness: within 1/4 inch.
- C. When placing asphaltic concrete paving:
 - 1. Verify that compacted granular base is dry and ready to support paving and imposed loads.
 - 2. Verify gradients and elevations of base are correct.
 - 3. Apply primer in accordance with FDOT Section 300.
Apply tack coat in accordance with FDOT Section 300.
Install Work in accordance with FDOT standards.
 - 6. Place asphalt within 24 hours of applying primer or tack coat.
 - 7. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
 - 8. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.
 - 9. All existing pavement edges shall be saw cut prior to placing new abutting asphalt pavement.
 - 10. The following tolerances for the asphaltic concrete paving shall be maintained.
 - a. Flatness: maximum variation of 1/4 inch measured with 10 foot (3m) straight edge.
 - b. Scheduled compacted thickness: within 1/4 inch.
 - c. Variation from true elevation: within 1/4 inch.

- D. When placing Portland cement concrete paving and sidewalks:
1. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.
 2. Verify gradients and elevations of base are correct.
 3. Prepare subbase in accordance with FDOT Section 350 Compact Subgrade to 100% maximum density AASHTO T-99.
 4. Moisten subgrade to minimize absorption of water from fresh concrete.
 5. Notify Engineer at least 24 hours prior to commencement of concrete operations.
 6. Place and secure forms to correct locations, dimension, profile, and gradient.
 7. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.
 8. Place reinforcement at bottom of slabs-on-grade, 2" clear.
 9. Place concrete in accordance with FDOT Section 350.
 10. Place joint filler between paving components and building or other appurtenances.
 12. Sidewalk paving: Broom finished with even, dustless surface.
 13. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

3.04 CURB REMOVAL AND REPLACEMENT

- A. Curb removal and replacement required in the construction of this work shall be done by the Contractor. Reasonable care shall be exercised in removing the curb, and the Contractor shall either stockpile or dispose of this material as directed by the Engineer. Curb shall be replaced of like material in a manner and condition equal to or better than that existing at the time of removal. Materials and methods of replacing state highway sidewalks or curbs shall conform to the FDOT Standard Specifications.

3.05 CONCRETE SIDEWALK

- A. Concrete sidewalk shall be removed by saw cutting on a straight line with edges as vertical as possible. The new sidewalk segments shall match the existing sidewalk as to width, thickness, Finish and elevation or as specified in the contract documents.
- B. Expansion joints between the sidewalk and the curb or driveway or at fixed objects and sidewalk intersections shall be 1/2-inch joints formed with a preformed joint filler.

END OF SECTION

SECTION 015713.01

EROSION AND SEDIMENTATION CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Erosion, sedimentation and water pollution control features in place or relocated as indicated on Drawings, prior to start of all grading or construction.
- B. Provide erosion control blanket at locations indicated on Drawings.

1.02 PREFERENCES

- A. Use FDOT standard specs for Florida projects.

1.03 DEFINITIONS

- A. Control features: Includes, but not limited to berms, erosion control blankets, gravel bags, sand bags, silt barriers, silt fences, swales, and other features in accord with referenced specifications and standards.

1.04 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's detailed technical materials and application data.
 - 2. Submit filter fabric material specifications and installation configuration prior to start of construction.
 - 3. For erosion control blankets and mats, submit manufacturer's descriptive literature and technical data.
- B. Shop Drawings: Plans and details, including layout and locations of erosion and sedimentation control features. Indicate dimensions, materials, and anchorage underlying substrates.
- C. Samples: None.

1.05 QUALITY ASSURANCE

- A. Performance criteria:
 - 1. Prevention, control and abatement of erosion, sedimentation, and water pollution shall be in accordance with FHWA FP-92 Section 157.

2. In addition to FDOT Section 104, provisions shall adhere to the following detailed specifications:
 - a. Maintenance of water quality is of utmost importance. During construction, operations involving modifications to shoreline where the possibility exists of runoff entering surrounding bodies of water, turbidity and suspended solids measurements shall be taken daily, each morning. These measurements shall be taken on workdays only. These samples and testing shall be taken by a Florida Department of Health and Rehabilitative Services State Certified Laboratory, at expense of Contractor. Contractor may elect to solicit these services from the RCID (Reedy Creek Environmental Laboratory) at Contractor's expense.
 - b. Environmental consultant shall be selected by Contractor and approved by Owner. Samples shall be taken using state-of-the-art practices. Sample gathering and laboratory practices and techniques, including test and evaluation equipment specifications, shall be submitted to Owner prior to start of construction for approval.
 - c. Samples shall be taken in areas designated by Owner.
 - d. Results from tests shall be forwarded to Owner the same day samples are taken. If levels of turbidity and/or suspended solids exceed limits stated below, Contractor shall stop work immediately and notify Owner. Contractor shall not restart work until written authorization to do so is received.
 - e. The acceptable level of turbidity is background plus 25 NTU or less. Background water quality is considered to be 5 NTU unless otherwise noted by RCID.
 - f. All water from a designated construction site (including dewatering activities) which does not meet water quality standards as established by FDEP, EPA, SFWMD, and RCID shall not be allowed to discharge off-site onto adjacent property, wetlands, and/or Waters of the State of Florida or the United States of America.

- B. Performance criteria: Prevention, control and abatement of erosion, sedimentation and water pollution shall be in accordance with:
 1. As indicated on Drawings.
 2. As called for in Owner's approved Storm Water Pollution Prevention Plan (SWPPP).
 3. As established under the accepted Contractor's Stormwater Management Plan (CSMP):
 - a. Contractor shall prepare a comprehensive plan for the management of incident and transient storm water within the limits of work or such larger area as may be indicated in Attachment A.
 - b. Contractor's plan shall indicate all measures required to comply with the applicable requirements of the SWPPP as relates to the Work and the situation within limits of work during the Contract Time.

- c. The SWPPP was prepared solely for the purpose of expediting permitting for the Work, and Owner's having prepared same shall not be construed as relieving Contractor of any responsibility it has to establish and maintain proper stormwater management pursuant to its signing of the SWPPP Certificates of Compliance and any other applicable regulations. Neither shall Owner's review or approval of the CSMP relieve Contractor of such responsibility.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Filter fabric for silt barriers:
 - 1. Synthetic material, containing ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120°F.
 - 2. Pervious sheet of polypropylene, nylon, polyester, and certified by manufacturer or supplier to conform to [FHWA Section 714, Type III or IV(AASHTO M288)][FDOT Section 985].
 - 3. Provide in continuous roll for cutting to single lengths and to minimize joints.
- B. Materials for other control features: In accordance with referenced standards and specifications and approved submittals.
- C. Erosion control blankets and mats:
 - 1. Acceptable manufacturers: North American Green., Evansville, IN, Tel: (800) 772-2040.
 - 2. Erosion control blanket: SC250 as manufactured by North American Green.
 - 3. The erosion blanket shall be in accordance with the following physical properties:

Property	Test Method	Value
Thickness (in.)	ASTM D6525	0.48 (minimum)
Weight (oz. per yd.)		10 (minimum)
Density (oz/in ³)	ASTM D792	0.529(minimum)
Mass / Unit Area (oz per yd ²)	ASTM D6566	17.88
Tensile strength (lb. per ft.)*1	ASTM D6818 [D-5035]	MD - 655 TD - 666
Elongation (%)*1	ASTM D6818 [D-5035]	MD - 35 TD - 16
Porosity	ECTC Guidelines	99%
Flexibility (oz-in)	ASTM D1388	222.65 (minimum)
Ultraviolet stability: % strength retained after 1000 hours	ASTM D4355	100 (minimum)

Property	
Roll Dimensions:	
Length (ft.)	55.50
Width (ft.)	6.5
Area (yd2)	40
Weight (lb.)	34

Footnotes:

*1 MD - Machine direction TD - Transverse direction

PART 3 EXECUTION

3.01 INSTALLATION - SILT BARRIERS

- A. General: Install staked silt barriers in existing inlets and outfall swale, and floating silt barriers as indicated on Drawings.
 - 1. Staked silt barriers:
 - a. Erect around the existing inlets in accordance with FDOT Roadway and Traffic Design Standards, Index No. 102, Staked Silt Barrier Protection Around Ditch Bottom Inlets.
 - b. Silt barrier shall be staked type with stakes installed vertically.
 - c. Height of the silt barrier fabric shall be a minimum of 15 in. and a maximum of 18 in.
 - d. Stakes shall be wood, 1 ft. x 2 ft. x 3 ft. long and spaced a maximum of 6 ft. apart at barrier location, and driven securely into the ground.
 - e. Excavate a trench approximately 4 in. wide x 4 in. deep along the line of stakes and upward of inlet. Tie or staple filter fabric to wood stakes with 8 in. of fabric extended into trench. Staples shall be heavy-duty wire, at least 1/2 in. long. Backfill trench and compact soil over filter fabric.
 - f. When joints are necessary, filter fabric shall be spliced together only at a support post, with a 6 in. overlap, and securely sealed.

- B. Maintenance:
 - 1. Inspect silt barriers immediately after each rainfall event and at least once a day during periods of prolonged rainfall events. Immediately repair silt barriers to maintain intended function and performance.
 - 2. Replace filter fabric that exhibits damage, decomposition, or is otherwise ineffective.
 - 3. Prevent excessive accumulation of sediment deposits. Remove sediment deposits at a frequency of not less than after each rainfall event.

4. Dress sediment deposits remaining in place, after silt barrier is removed, to conform to existing grade, and prepare for seeding or sodding.

3.02 OTHER CONTROL FEATURES

- A. Erect and maintain in accordance with referenced standards and specifications and approved submittals.

3.03 REMOVAL OF CONTROL FEATURES

- A. Remove control features when directed by Owner.

END OF SECTION

SECTION 311000

SITE CLEARING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Clearing and protection of vegetation.
- B. Removal of existing debris.

1.02 DEFINITIONS

- A. Clearing: Removal of trees, shrubs, bushes, and other organic matter found at or above original ground level.
- B. Grubbing: Removal of stumps, roots, boards, logs, and other organic matter found at or below original ground level.
- C. Topping: Removal of those portions of trees, bushes, and shrubs projecting above an elevation or plane shown on the drawing.

1.03 PROJECT CONDITIONS

- A. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
- B. Comply with other requirements specified in Section 01700.

PART 2 PRODUCTS

2.04 MATERIALS

- A. Provide all materials, equipment and appurtenances required for completion of clearing work.
- B. Fill Material: As specified in Section 312200 - Grading

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces for conditions that will adversely affect execution, permanence, and quality of work of this section.

- B. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 PROTECTION

- A. Public and adjacent properties: Protect in accord with applicable laws and ordinances.
- B. Public waterways: Protect in accord with applicable laws and ordinances.
- C. Existing on site features, including flora scheduled to remain: Protect from damage at all times.
 - 1. Do not allow earth moving equipment within the branch spread perimeter (drip line) of existing trees which are to remain.
 - 2. Do not cut tree roots over 2 in. in dia. without prior approval from Owner.
 - 3. Do not impact, trespass upon, or otherwise violate areas designated on Drawings as easements, buffer zones, wetlands, or similar environmentally-sensitive areas.
 - 4. Protect existing piezometers and monitoring wells located on-site which have been identified and flagged by owner.
- D. Utilities
 - 1. Protect all active utility lines on-site.
 - 2. Remove from Site abandoned lines encountered during clearing and grubbing operations
 - 3. Capping and/or rerouting of active utility lines encountered during clearing and grubbing operations shall be performed as part of the work of other sections.
 - 4. Expeditiously repair damaged utilities at no cost to owner.
 - a. Damage to high voltage electric system shall be repaired by RCES, charged to Contractor, and deducted from Contract Price by Change Order.
 - b. Natural gas utility lines discovered or damaged by Contractor shall not be disturbed by Contractor. All work related to this utility shall be performed by natural gas company. Specific instructions appropriate to the issues shall be given to Contractor by responsible agencies and Owner. Damage to natural gas utility lines caused by Contractor shall be repaired only by qualified agencies as selected by owner, and all costs reimbursed to Owner by Contractor in accord with provisions of Contract Documents.
- E. Dust Control:
 - 1. Throughout entire construction period, effectively dust-palliate working area, unpaved roads, and involved portions of the site.
 - 2. Palliation: Intermittently water and sprinkle with such frequency as will satisfactorily allay dust at all times. Chemical treatment of any type is not permitted.

3. Use of reclaimed water shall conform to requirements and guidelines of governing health authorities and be specifically approved by Owner.

F. Soil redistribution: Do not redistribute existing soils beyond immediate area of origin

3.03 CLEARING

A. Limit of clearing: Areas indicated on Drawings. Clearing limits shall be approved by Owner prior to starting clearing operations.

B. Remove trees, saplings, shrubs, bushes, vines and undergrowth within limits of clearing

3.04 GRUBBING

A. Limits of grubbing: As specified for clearing.

B. Remove tree stumps and root systems completely, unless removal damages roots of plants to remain. Do not cut tree roots over 2 in. in dia. without prior approval from Owner.

C. For vegetation other than trees, remove stumps, roots and matted roots to depths specified below:

1. Under footings: 18 in.

2. Under walks: 12 in.

3. Under roads: 18 in.

4. Under parking areas: 12 in.

5. Under planting areas: 12 in.

6. Under fills: 8 in.

7. Where footings, roads, walks, and other construction is on fill, the greater depth applies.

3.05 DISPOSAL AND RESTORATION

A. Do not begin clearing, grubbing or topping until vegetation to be relocated has been removed.

B. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.

1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.

2. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.

3. Remove materials resulting from clearing and grubbing operations from site daily as they accumulate.
 4. When work continues beyond normal working hours, do not allow materials to accumulate on-site for more than 48 hours.
- C. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.
- D. Debris
1. Remove debris, junk, and trash from site.
 2. Leave site in clean condition, ready for subsequent work.
 3. Clean up spillage and wind-blown debris from public and private lands.

3.06 TREE REMOVAL, RELOCATION OR SALVAGE

- A. Protect trees from damage until Owner removes trees as indicated on Drawings to be salvaged or removed by Owner.
- B. Cut and remove other trees from site unless designated on Drawings to remain or be relocated.
- C. Verify with Owner which trees are to be salvaged, removed or relocated.

END OF SECTION

SECTION 312200

GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal and storage of topsoil.
- B. Site Grading, including:
 - 1. Site stripping.
 - 2. Removal of organic soils.
 - 3. Import or export of soils as required to complete grading.
 - 4. Rough grading and shaping of site.
 - 5. Final finish grading and shaping of site.
 - 6. Groundwater control and dewatering of excavations.
 - 7. Removal from site and proper disposition of all debris and excess material resulting from the work.
 - 8. Fill and compact holes resulting from tree removal.

1.02 DEFINITIONS

- A. Dewatering: Control of surface water runoff and ground water accumulation

1.03 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Florida, Highway Department standards.
- B. Tests and inspections:
 - 1. Procedure: In accord with Section 01 40 00 (01400) - Quality Requirements.
 - 2. Required tests:
 - a. Fill material: Determine suitability of fill material not previously evaluated.
 - b. Maximum density tests: Determine optimum moisture content and maximum dry density of fill materials placed and compacted in accord with ASTM D1557, procedure A.
 - c. Field density tests: Determine in-place density of fill materials placed and compacted in accord with ASTM D1556, ASTM D2922, or ASTM D2937. Provide one test for every 10,000 sq.ft. per lift.
 - d. Certification of all subgrade improvements and engineered fills and subgrades with respect to their adequacy and suitability values for intended uses.
 - e. Suitability and classification testing for all soils of unknown characteristics prior to use as compacted fills.
 - f. Other tests as may be required by Owner.

3. Required inspections and controls:
 - a. General inspection of stripping of surfaces and removal of root mat, peat, organic soils (muck), clay, and other unsuitable material.
 - b. Detailed inspection of exposed subgrades prior to finishing or placing fill materials.
 - c. Continuous control of placing and compacting of all engineered fills.
 - d. Continuous inspection and monitoring during placing and compacting operations.
 - e. Observation and consultation in processes of bank shaping, safety in excavations, dewatering, and identification of materials encountered.

- C. Requirements of regulatory agencies: In addition to complying with other legal requirements, comply with the following.
 1. Code of Federal Regulations Title 29 CFR Part 1926, Subpart P, Excavations.
 2. Occupational Safety and Health Administration Document 2226.
 3. Florida Statutes, Chapter 553 Building Construction Standards, Part VI, Trench Safety Act.

- D. Reference specifications and standards:
 1. ASTM: D1556 Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 2. ASTM: D1557 Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft.-lbf/ft³).
 3. ASTM: D2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 4. ASTM: D2937 Density of Soil In-Place by the Drive-Cylinder Method.
 5. CFR: Title 29 CFR Part 1926 Safety and Health Regulations for Construction.
 6. Florida Statutes: Chapter 553 Building Construction Standards.
 7. OSHA: Document 2226 Excavations.

- E. Allowable tolerances:
 1. Grading elevations and contours: Accuracy of final grading elevations and contour shall be the responsibility of a land surveyor licensed in the State of Florida.

1.04 PROJECT CONDITIONS

- A. Utilities:
 1. Protect all active utility lines on-site.
 2. Remove abandoned utility lines encountered during grading, and dispose of off-site.
 3. Cap and reroute indicated active utility lines encountered during grading operations performed as part of specific work section pertaining to utility encountered.

4. Repair damaged utilities expeditiously and at no cost to Owner.
 - a. Damage to high voltage electric system shall be repaired by RCES, charged to Contractor, and deducted from Contract Price by Change Order.
 - b. Natural gas utility lines discovered or damaged by Contractor shall not be disturbed by Contractor. All work related to this utility shall be performed by the natural gas company. Specific instructions appropriate to the issues shall be given to Contractor by responsible agencies and Owner. Damage to natural gas utility lines caused by Contractor shall be repaired only by qualified agencies as selected by Owner, and all costs shall be reimbursed to Owner by Contractor in accord with provisions of Contract Documents.

- B. Public and adjacent properties: Protect in accordance with applicable laws and ordinances.

- C. Existing on-site features, plant life, including trees, scheduled to remain:
 1. Protect from damage at all times.
 2. Do not allow earth-moving equipment within the branch spread perimeter (drip line) of existing trees.

- D. Protect plants, lawns, rock outcroppings, and other features to remain as a portion of final landscaping.

- E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from grading equipment and vehicular traffic.

- F. Dust control:
 1. Throughout entire construction period, effectively dust-palliate working area, unpaved roads, and involved portions of site.
 2. Palliation: Intermittently water and sprinkle with such frequency as will satisfactorily allay dust at all times. Chemical treatment of any type is not permitted.
 3. Use of reclaimed water shall conform to requirements and guidelines of governing health authorities and be specifically approved by Owner.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Topsoil: See Section 32 93 00 (02900) - Planting.

- B. Other Fill Materials: See Section 31 23 23.

- C. On-site and borrow fill:
 - 1. Nonexpansive, predominantly granular material:
 - a. Particles less than 2 in. in any dimension;
 - b. Free of organic and inorganic debris;
 - c. Not more than 12% by weight passing the No. 200 sieve.
 - 2. Acceptable to geotechnical engineer retained by Owner.
 - 3. Top soil: All soil above the lower root line of fine vegetation (grasses and sod).
 - 4. Borrow site: At location approved by Owner.

- D. Recycled fill: Refer to Section 02 41 00 (02225) - Demolition. Limit use as follows:
 - 1. Not more than 10% (by volume, compacted) of total fill, and
 - 2. Not less than 2 ft. below bottom of concrete foundations.
 - 3. Imported, recycled fill is not acceptable

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 STRIPPING AND CLEARING

- A. Strip dry ground areas of all top soil, surface vegetation, muck, roots, organic material, and debris to result in a uniform surface of exposed clean, natural sand or soils.
- B. Except as directed otherwise by Owner, dispose of all waste materials to legal off-site disposal areas.
- C. Dispose of all waste material removed by above procedures to areas designated on-site as waste areas for this class of material. Disposal area shall be at a location designated by Owner.

3.03 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.

3.04 EXCAVATION

- A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.
- B. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.
- C. When excavating through roots, perform work by hand and cut roots with sharp saw.
- D. See Section 31 23 23 for filling procedures.
- E. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.
- F. Excavate materials of every nature to dimensions and elevations indicated. Use equipment of suitable type for materials and conditions involved.
- G. Where additional excavation is required to remove unsatisfactory materials encountered, such additional work shall be paid for by means consistent with terms of the Contract.
- H. Remove from site materials not approved for use as topsoil or fill and excess excavated materials.

3.05 FILLING, COMPACTING AND GRADING

- A. Filling:
 - 1. Place fill in uniform lifts not exceeding 12 in. in loose thickness that will uniformly compact to the required densities.
 - 2. Bring each layer to between $\pm 4\%$ of optimum moisture content before compaction. Add water by uniform sprinkling and mixing with soils. Add or blend additional fill materials or dry out existing materials as required.
 - 3. When moisture content and condition of each layer is satisfactory, compact to specified density. Compact areas not accessible to motor-driven equipment with mechanical or heavy hand tampers.
 - 4. Rework compacted areas failing to meet specified density as determined by tests. Recompact and retest as required or directed to achieve proper density.
 - 5. Correct unauthorized excavation made below depth indicated, as acceptable to geotechnical engineer retained by Owner, at no additional cost to Owner.
 - 6. Do not place fill materials until subgrade is acceptable to geotechnical engineer retained by Owner, nor until preceding fill layer is acceptable.
 - 7. Prior to placing fill material on existing surfaces, scarify to a depth of 12 in. and recompact to same degree of compaction as overlying fill material.

- B. Compacting:
 1. Parking and pavement areas: Compact soils below all parking areas, walks, slabs, and asphalt pavement to 95% of the Modified Proctor maximum dry density for full depth of fill.
 2. Landscape areas: Compact soils below all landscape, planting ,and sod areas to 85% of the Modified Proctor maximum dry density for the full depth of fill.
 3. Minor structures: Support catch basins and other minor structures on bottom and all sides by soils compacted to 95% of the Modified Proctor maximum dry density for full depth of fill.

- C. Before Finish Grading:
 1. Verify building and trench backfilling have been inspected.
 2. Verify subgrade has been contoured and compacted.

- D. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

- E. Lightly compact placed topsoil.

3.06 DEWATERING

- A. Drain excavations and other prepared work areas occurring below groundwater level and maintain in a dewatered condition while performing work at those elevations.

- B. Prevent surface water drainage from entering excavations, and ponding on subgrades and other prepared work areas.

- C. Maintain dry excavations and subgrades by whatever means necessary while working in each area.
 1. Reduce groundwater level to a sufficient depth to ensure that bottom soils are not saturated or develop a "quick" condition.
 2. Reroute surface water drainage away from excavations, prepared subgrades, and other work areas.
 3. Prevent excessive rainwater, to the extent that detrimental softening, undermining, washout, and similar damage would occur, from accumulating in excavations, upon subgrades, and at other prepared work areas.
 4. Do not use excavations as temporary drainage.

- D. Dewatering methods selected by Contractor shall be subject to approval by Owner.

3.07 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) (30 mm) from required elevation.
- B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch) (13 mm).
- C. Grade (cut or fill) site to the elevations indicated on Drawings within the following tolerances:
 - 1. Top Surface of Subgrade: Plus or minus 1/10 foot (30 mm) from required elevation.
 - 2. All cuts and fills: Within a tolerance ± 0.10 ft. for grades indicated on Drawings.
 - 3. Structures at or on grade: Within 0.02 ft. (including hardscape).
- D. Elevations and contours indicated on Drawings are to finish grade unless otherwise indicated. Make allowances for pavement thickness, bases, and sod materials where applicable.

3.08 CLEANING

- A. Remove unused stockpiled topsoil. Grade stockpile area to prevent standing water.
- B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 312316

EXCAVATING AND BACKFILLING FOR STRUCTURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating, backfilling, and compacting for structures.
- B. Restore grades to required elevations.
- C. Remove excess materials from site.
- D. Pumping and dewatering.
- E. Support of excavations.

1.02 QUALITY ASSURANCE

- A. Tests and inspections:
 - 1. Test methods:
 - a. Maximum dry density of backfill materials shall be determined by ASTM D1557, Procedure A.
 - b. Field density tests shall be determined by ASTM D1556, ASTM D2922, or ASTM D2937.
 - 2. Required tests:
 - a. Backfill material: Determine suitability of backfill material not previously evaluated.
 - b. Maximum density tests: Determine optimum moisture content and maximum dry density of backfill materials placed and compacted.
 - c. Field density tests: Determine in-place density of backfill materials placed and compacted. one test for every 100 cu. yd. of material placed and one test for each 1 ft. vertical lift.
 - d. Other tests as may be required by Owner.
 - 3. Required inspections:
 - a. Excavation inspection: Detailed inspection of exposed excavations prior to placing backfill material.
 - b. Placement and compaction inspection: Continuous inspection and monitoring.
- B. Requirements of regulatory agencies: In addition to complying with other legal requirements, comply with the following.
 - 1. Code of Federal Regulations Title 29 CFR Part 1926, Subpart P, Excavations.
 - 2. Occupational Safety and Health Administration Document 2226.

3. Florida Statutes, Chapter 553 Building Construction Standards, Part VI, Trench Safety Act.

C. Reference specifications and standards:

1. ASTM: D1556 Density and Unit Weight of Soil in Place by the Sand-Cone Method.
2. ASTM: D1557 Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft.-lbf/ft³).
3. ASTM: D2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
4. ASTM: D2937 Density of Soil In-Place by the Drive-Cylinder Method.
5. CFR: Title 29 CFR Part 1926 Safety and Health Regulations for Construction.
6. Florida Statutes: Chapter 553 Building Construction Standards.
7. OSHA: Document 2226 Excavations.

1.03 SUBMITTALS

- A. Drawings and engineering design calculations: Signed and sealed engineering drawings and calculations for required shoring, sheeting, or cribbing for approval prior to start of installation of shoring, sheeting, or cribbing.

PART 2 PRODUCTS

2.01 MATERIALS

- A. On-site materials and borrow fill:
1. Nonexpansive, predominantly granular material:
 - a. Particles less than 2 in. in any dimension.
 - b. Free of organic and other deleterious materials.
 - c. Not more than 12% by weight passing the No. 200 sieve behind retaining walls and 25% elsewhere.
 2. Acceptable to a geotechnical engineer retained by Owner.
 3. Top soil: All soil above the lower root line of fine vegetation (grasses and sod).
 4. Borrow site: At location approved by Owner.

PART 3 EXECUTION

3.01 PROTECTION

- A. Public and adjacent properties: Protect in accord with applicable laws and ordinances.

- B. Existing on-site features, plant life, including trees, scheduled to remain:
1. Protect from damage at all times.
 2. Do not allow earth-moving equipment within the branch spread perimeter (drip line) of existing trees.
 3. Do not cut tree roots over 2 in. in dia. without prior approval from Owner.
 4. Support trees during excavation in an approved manner.
 5. When excavating adjacent to existing trees is necessary, use all possible care to avoid injury to trees and tree roots. Excavate by hand areas where 2 in. and larger roots occur. Tunnel under and heavily wrap with burlap roots 2 in. and larger in dia., except directly in the path of pipe or conduit, to prevent scarring or excessive drying. When a trenching machine runs close to trees having roots smaller than 2 in. in dia., hand trim wall of trench adjacent to tree, making clean cuts through roots. Paint roots 1 in. and larger in dia. with two coats of Tree Seal, or Owner-approved equivalent. Close trenches adjacent to trees within 24 hr.; when this is not possible, shade side of trench adjacent to tree with burlap or canvas.
 6. All work around and adjacent to existing trees, including inspection prior to backfill, shall be approved by Owner. Obtain Owner's approval in writing for all procedures prior to commencement of work. Trees that die due to damage or unacceptable work shall be back-charged to Contractor.
- C. Utilities:
1. When utility line excavation occurs near existing utilities, whether or not indicated on Drawings, maintain existing utility services fully operational. Protect and support utility lines in a manner to prevent damage. Method of protection is subject to Owner's approval.
 2. Expeditiously repair damaged utilities at no cost to Owner.
 - a. Damage to high voltage electric system shall be repaired by RCES, charged to Contractor, and deducted from Contract Price by Change Order.
 - b. Natural gas utility lines discovered or damaged by Contractor shall not be further disturbed by Contractor. All work related to this utility shall be performed by RCES. Specific instructions appropriate to the issues shall be given to Contractor by responsible agencies and Owner. Damage to natural gas utility lines caused by Contractor shall be repaired only by qualified agencies as selected by Owner and all costs shall be reimbursed to Owner by Contractor in accord with provisions of Contract Documents.
 3. Remove abandoned lines encountered during excavating and dispose of off-site. Report unidentified lines to Owner prior to removal.
 4. Capping and rerouting of indicated active utility lines encountered during Work of this Section will be performed as part of the work of Divisions 15 and 16.

- D. Dust control:
 - 1. Throughout entire construction period, effectively dust-palliate working area, unpaved road, and involved portions of site.
 - 2. Palliation: Intermittently water and sprinkle with such frequency as will satisfactorily allay dust at all times. Chemical treatment of any type is not permitted.
 - 3. Use of reclaimed water shall conform to requirements and guidelines of governing health authorities and be specifically approved by Owner.

- E. Water control:
 - 1. Maintain excavation free of water while foundations are being placed and until backfill has been completed and approved.
 - 2. Maintain adequate pumping equipment at all times to provide for emergencies.
 - 3. Dispose of water in such a manner as not to create a nuisance, cause damage to property, or interfere with activities of other contractors. Prevent water from migrating outside of construction areas. Use Owner-approved methods and materials to confine water to construction areas. Failure to contain water is not permitted.
 - 4. Dewater as required to maintain site in a relatively dry condition, including well point dewatering.
 - 5. Methods of dewatering and disposal of water is subject to Owner's approval.

- F. Cribbing and shoring:
 - 1. Provide temporary or permanent cribbing, sheeting, and shoring as necessary to safely retain earth banks and protect excavations from caving or other damage.
 - 2. Design, install, and maintain cribbing, sheeting, and shoring and remove after use.

- G. Stockpiled excavated materials: Confine excavated materials to immediate area of stockpiled location.

3.02 STRIPPING

- A. Stockpile materials from excavations suitable for use in fill and backfill.

- B. Remove from site materials not approved for use as topsoil, fill or backfill, and excess excavated materials.

3.03 EXCAVATING

- A. Excavate materials of every nature to dimensions and elevations indicated on Drawings. Use equipment of suitable type for materials and conditions involved.
- B. Extend excavation a sufficient distance from walls to allow for forming and shoring, application of waterproofing, installation of services, and approvals. Do not excavate below indicated depths.
- C. Correct unauthorized excavation made below depths indicated on Drawings, as recommended by geotechnical engineer retained by Owner, at no additional cost to Owner.
- D. Where additional excavation is required to remove unsatisfactory materials encountered, such additional work shall be paid for by means consistent with terms of Contract.

3.04 FILL, BACKFILL, AND COMPACTION

- A. Fill and backfill:
 - 1. Place earth fill and backfill in layers that will uniformly compact to required densities, but in loose layers not more than 8 in. thick.
 - a. Place backfill only after walls have been supported by completion of interior floor systems or have been sufficiently braced to resist imposed loading.
 - b. Place backfill against walls below grade after waterproofing systems have been completed and approved.
 - c. Protect waterproofing systems during backfill operations.
 - d. If waterproofing is damaged, do not continue backfilling until membrane damage is repaired as approved by Owner.
 - e. Restore grades to indicated elevations.
 - 2. Slurry cement (lean concrete) backfill:
 - a. Where specifically indicated on Drawings, slurry cement backfill consisting of a fluid, workable mixture of aggregate, cement, and water shall be used as foundation structure backfill.
 - b. Cement shall be Portland cement conforming to provisions in Section 03300, except that testing will not be required.
 - c. Water used for slurry cement backfill shall be free from oil, salts, and other impurities which would have an adverse effect on quality of backfill material.

- d. At Contractor's option, aggregate shall be either 1) material selected from excavation, imported material, or a combination thereof, which is free of organic material and other deleterious substances, or 2) commercial quality concrete sand. Material selected from excavation, imported material, or a combination thereof shall meet the following grading:

Sieve Sizes	Percentage Passing
1-1/2 in	100
1 in	80-100
3/4 in.	60-100
3/8 in	50-100
No. 4	40-80
No. 100	10-40

- e. Aggregate, cement, and water shall be proportioned either by weight or by volume. Not less than 188 lb. of cement shall be used for each cu. yd. of material produced. Water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of aggregate while being placed.
- f. Materials for slurry cement backfill shall be thoroughly machine-mixed in a pugmill, rotary drum, or other approved mixer. Mixing shall continue until cement and water are thoroughly dispersed throughout material. Slurry cement backfill shall be placed in the Work within 1 hr. after mixing.
- g. Slurry cement backfill shall be placed in a uniform manner that will prevent voids in, or segregation of, backfill and will not float or shift foundation structures. Foreign materials which fall into trench prior to or during placing of slurry cement backfill shall be immediately removed.
- h. Placing material over slurry cement backfill shall not commence until 4 hr. after slurry cement backfill has been placed.

B. Compaction:

1. Bring each layer to within [CA-±2%][FL-±4%] of optimum moisture content before compaction. Add water by uniform sprinkling. Jetting and flooding are prohibited. Add and blend additional fill materials or dry out existing materials as required.
2. When moisture content and condition of each layer is satisfactory, compact to not less than 95% of maximum dry density in accord with ASTM D1557.
3. Compact areas not accessible to motor-driven equipment with mechanical or heavy hand tampers.
4. Rework compacted areas failing to meet specified maximum dry density, as determined by tests. Recompact and retest as required to achieve 95% of the maximum dry density in accord with ASTM D1557.

- C. Grading:
1. Build compacted backfills to indicated or required finish grades, less allowances for thickness of slabs, paving, and required base courses.
 2. Rough grade backfilled surfaces smooth, level to within 0.10 ft. of intended surface. Compact loose material and maintain in a moist condition until covered.

END OF SECTION

SECTION 312316.13

TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating, backfilling and compacting for utilities outside the building to utility main connections.
- B. Excavating, backfilling and compacting for structures.
- C. Dewatering, excavating, shoring, sheeting, bracing, trenching, backfilling and all other earthwork operations required for utility and other underground lines and appurtenances.
- D. Providing access to open trenches after utility lines have been installed and bedded, but prior to backfilling being commenced, to permit recording of record or "as-built" survey information.
- E. Restore grades to required elevations.

1.02 QUALITY ASSURANCE

- A. Tests and inspections:
 - 1. Test methods:
 - a. Maximum dry density of backfill materials shall be determined by ASTM D1557, Method A.
 - b. Field density tests shall be determined by ASTM D1556, ASTM D2922, or ASTM D2937.
 - 2. Required tests:
 - a. Backfill material: determine suitability of backfill and bedding material not previously evaluated.
 - b. Maximum density tests: Determine optimum moisture content and maximum dry density of backfill and bedding materials placed and compacted.
 - c. Field density tests: Determine in-place density of backfill materials placed and compacted. Conduct one test for every 100 cubic yards. of material placed, one test for every 100 linear feet of trench and one test for each 1 foot vertical lift.
 - d. Other tests as may be required by Owner.
 - 3. Required inspections:
 - a. Excavation inspection: Detailed inspection of exposed excavations prior to placing bedding and backfill material.
 - b. Bedding conditions: Determine and evaluate condition of bedding to receive utility lines.

- c. Placement and compaction inspection: Continuous inspection and monitoring.
- B. Requirements of regulatory agencies: In addition to complying with other legal requirements, comply with the following.
 - 1. Code of Federal Regulations Title 29 CFR Part 1926, Subpart P, Excavations.
 - 2. Occupational Safety and Health Administration Document 2226.
 - 3. Florida Statutes, Chapter 553 Building Construction Standards, Part VI, Trench Safety Act.

1.03 REFERENCES

- A. ASTM D 422-63 - Standard Test Method for Particle-Size Analysis of Soils; 2002.
- B. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
- C. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³).
- D. ASTM D 2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate; 2004
- E. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- F. ASTM D 2937 - Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method; 2004.
- G. Florida Statutes: Chapter 533 Building Construction Standards.
- H. OSHA: Document 2226 Excavations.

1.04 SUBMITTALS

- A. Drawings and engineering design calculations: Signed and sealed engineering drawings and calculations for required shoring, sheeting or cribbing for approval prior to starting installation of shoring, sheeting or cribbing.
- B. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where indicated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.
- C. Verify that survey bench marks and intended elevations for the Work are as indicated.
- D. Protect plants, lawns, rock outcroppings, and other features to remain.
- E. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, curbs, and existing/proposed utilities from excavating equipment and vehicular traffic.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. Borrow fill:
 - 1. Nonexpansive, predominantly granular material:
 - a. Particles less than 2 inches in any dimension;
 - b. Free of organic and inorganic debris;
 - c. Not more than 12% by weight passing the No. 200 sieve behind retaining walls and 25% elsewhere.
 - 2. Acceptable to geotechnical engineer retained by Owner.
 - 3. Borrow site: At location approved by Owner.

2.02 SOURCE QUALITY CONTROL

- A. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 PROTECTION

- A. Public and adjacent properties: Protect in accordance with applicable laws and ordinances.

- B. Existing on-site features, plant life, including trees, scheduled to remain:
1. Protect from damage at all times.
 2. Do not allow earth-moving equipment within the branch spread perimeter (drip line) of existing trees.
 3. Do not cut tree roots over 2 inches in diameter without prior approval from Owner.
 4. Support trees during excavation in an approved manner.
 5. When excavation adjacent to existing trees is necessary, use all possible care to avoid injury to trees and tree roots. Excavate by hand all areas where 2 in. and larger roots occur. Tunnel under and heavily wrap with burlap roots 2 in. and larger in dia., except directly in the path of pipe or conduit, to prevent scarring or excessive drying. When a trenching machine runs close to trees having roots smaller than 2 in. in dia., hand trim wall of trench adjacent to tree, making clean cuts through roots. Paint roots 1 in. and larger in dia. with two coats of Tree Seal, or Owner-approved equivalent. Close trenches adjacent to trees within 24 hr.; when this is not possible, shade side of trench adjacent to tree with burlap or canvas.
 6. All work around and adjacent to existing trees, including inspection prior to backfill, shall be approved by Owner. Obtain Owner's approval in writing for all procedures prior to commencement of work. Trees that die due to damage or unacceptable work shall be back-charged to Contractor.
- C. Where utility line excavation occurs in lawn, grassed, or landscaped areas, carefully remove and stockpile sod and plants to preserve for transplanting.
1. Place excavated material from trenches on lawn or grass, provided a drop cloth or other approved method is employed to protect lawn or grass from permanent damage. Do not keep stockpiled materials on lawn or grass for more than 72 hours.
 2. Immediately after completion of backfilling and testing of utility lines, replace sod and replant plants in a manner to restore lawn, grass and landscaping to its original condition within practical limits. Replace damaged landscaping at no cost to Owner as part of the work of this Section.
- D. Replace removed pavement with new pavement to match existing in accordance with Project Specifications.
1. Do not use removed pavement as backfill material.
 2. Where utility line excavation occurs in paved areas, saw-cut existing pavement along straight, uniform lines such that the amount of pavement cut and removed shall be the minimum consistent with safe excavation practices.
- E. Open trenches: Barricade all open trenches during work hours and cover at the close of each day's work.

- F. Utilities:
1. Open trenches: Barricade all open trenches during work hours and cover at the close of each day's work.
 2. Where utility line excavation occurs near existing utilities, whether or not indicated on Drawings, maintain existing utility services fully operational. Method of protection is subject to Owner's approval.
 3. Expeditiously repair utilities damaged at no cost to Owner.
 - a. Damage to high voltage electric system shall be repaired by RCES, charged to Contractor, and deducted from Contract Price by Change Order.
 - b. Natural gas utility lines discovered or damaged by Contractor shall not be further disturbed by Contractor. All work related to this utility shall be performed by RCES. Specific instructions appropriate to the issues shall be given to Contractor by responsible agencies and Owner. Damage to natural gas utility lines caused by Contractor shall be repaired only by qualified agencies as selected by Owner and all costs shall be reimbursed to Owner by Contractor in accordance with provisions of Contract Documents.
 4. Remove abandoned lines encountered during excavating and dispose of off-site. Report unidentified lines to Owner prior to removal.
- G. Dust control:
1. Throughout entire construction period, effectively dust-palliate working area, unpaved roads, and involved portions of site.
 2. Palliation: Intermittently water and sprinkle with such frequency as will satisfactorily allay dust at all times. Chemical treatment of any type is not permitted.
 3. Use of reclaimed water shall conform to requirements and guidelines of governing health authorities and be specifically approved by Owner.
- H. Water control:
1. Maintain trenches and other excavations free of water while lines are being placed and until backfill has been completed and approved.
 2. Maintain adequate pumping equipment at all times to provide for emergencies.
 3. Dispose of water in such a manner as not to create a nuisance, cause damage to property, or interfere with activities of other contractors. Prevent water from migrating outside of construction areas. Use Owner-approved methods and materials to confine water to construction areas. Failure to contain water is not permitted.
 4. Dewater as required to maintain site in a relatively dry condition, including well point dewatering.
 5. Methods of dewatering and disposal of water are subject to Owner's approval.

- I. Bracing and shoring:
 - 1. Support excavations in accordance with all legal requirements.
 - 2. Set and maintain sheet piling and shoring timbers in a manner that will prevent caving of walls of excavations or trenches and not impose other loads or surcharges on lines.
 - 3. When it is impractical to remove shoring and bracing, obtain approval from Owner to leave in place. Record locations of such "in-place" shoring and bracing on Project Record Documents.

- J. Stockpiled excavated materials: Confine excavated materials to immediate area of stockpile location.

- K. Temporary shoring to protect Monorail pier piles and caps:
 - 1. Provide shoring to protect the load capacity of the existing Monorail piles and pile caps during open excavation.
 - 2. Shoring used for retaining over 15 ft. of soil or adjacent to existing structures (i.e., closer than the 1-1/2:1 plane extending down from the adjacent structure at lowest grade) shall utilize tie-backs or shall be internally braced. Shoring used for retaining less than 15 ft. of soil or not adjacent to existing structures (i.e., outside of the 1-1/2:1 plane extending down from the adjacent structure at lowest grade) may be cantilevered. Refer to geotechnical data. Limit deflection of shoring. Provide continuous lagging between soldier piles.
 - 3. The critical zone for protection of pile caps/piles is indicated on Drawings under operational and non-operational conditions and shall not be permitted to be disturbed.

3.02 TRENCHING

- A. General: Include removal of materials and obstructions that interfere with the execution of the Work. Unless indicated otherwise, excavation for utilities lines shall be by open trench.

- B. Notify Owner of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

- C. Sides of trenches should be as nearly vertical as practicable. Slope banks of excavations deeper than 4 feet (1.2 meters) to angle of repose. Provide shoring where necessary in accordance with Section 3.01.

- D. Obtain prior approval of Owner for use of tunneling.

- E. Do not interfere with 45 degree bearing splay of foundations.

- F. Trench widths: Cut trenches wide enough to allow inspection of installed utilities.
 1. Lines less than 6 inches outside dia.: 18in. minimum.
 2. Larger lines: Clear distance on each side of line of not less than 8 in. or more than 1/2 of outside diameter of line.
- F. Hand trim excavations. Remove loose matter.
- G. Remove excavated material that is unsuitable for re-use from site.
- H. Trench depth: Excavate trenches to lines and grades as necessary for construction of utility lines indicated.
- I. Over-excavation: Backfill over-depth excavations to required grade with specified bedding and backfill material. Compact bedding and backfill material to specified density.
- J. Perform any dewatering and pumping required to keep excavations free of standing water.
- K. Refer to geotechnical reports for seasonal high groundwater table elevation estimates. It is the sole responsibility of the contractor to make its own judgements as to the actual conditions, and to draw its own conclusions as to means and methods required for performance of the work. Provide dewatering, if required, at whatever elevation groundwater is actually encountered.
- L. A plan for any proposed dewatering shall be submitted for approval prior to commencement of any such work. Any permitting for dewatering which may be required shall be the responsibility of Contractor.
- M. Sequence, schedule, coordinate, and perform the work so as to maintain safe, unobstructed passage as required for emergency egress and general site access. Provide any and all bridging of trenches of work, barricades, etc., that may be required to comply with this requirement.

3.03 PREPARATION FOR UTILITY PLACEMENT

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with specified bedding and backfill material. Compact bedding and backfill material to specified density.
- B. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.04 BACKFILLING

- A. General: Backfill consists of bedding, backfill, and restoration of surface.
- B. Employ a placement method that does not disturb or damage other work.
- C. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Bedding: Bedding is defined as material supporting, surrounding and extending to 12 inches above the top of utility line. Bedding shall not be required under or around structures, except at utility lines.
 - 1. Do not cover lines until they have been inspected and approved for alignment and grade and recording of record or "as-built" survey information has been performed.
 - 2. Commence bedding immediately after approval and survey information recording, to preclude damage to utility lines.
 - 3. Carefully place bedding around utility lines so as not to displace or damage line, and fill symmetrically on each side of line to 12 inches above top of line.
 - 4. Compact bedding to 90% of relative dry density in accordance with ASTM D1557 using mechanical equipment.
- F. Backfill: Backfill includes material from 12 inches above the lines to, and including, surface restoration.
 - 1. Do not backfill against structures until concrete has attained sufficient strength to withstand loads, and structures have been approved.
 - 2. Place Backfill in loose uniform lifts not exceeding 8 inches.
 - 3. Use mechanical compactors for compaction of backfill.
 - 4. Coordinate and ensure installation of underground utilities marking in accord with Section 02505.
- G. Compacting:
 - 1. Parking and pavement areas: Compact soils below parking areas, walks, slabs, and asphalt concrete pavement to 95% of the maximum dry density in accord with ASTM D1557 for full depth of fill.
 - 2. Landscape areas: Compact soils below landscape, planting, or sod areas to 85% of the maximum dry density in accord with ASTM D1557 for full depth of fill.
 - 3. Building areas: compact soils below all buildings and for a distance of 5 feet beyond the perimeter footing to at least 95% of the maximum dry density in accordance with ASTM D1557 for full depth of fill. Proof roll within these limits with a self-propelled vibratory compactor capable of imparting a maximum dynamic drum force of at least 36,000 lb. Proof roll from a level that is 2 feet above the ambient water table. This may require locally filling low areas prior to utilizing a vibratory compactor.

Density subsoils by making repeated overlapping coverages of roller as it operates at its full vibrational frequency and at a travel speed of not more than 2 feet per second.

4. Minor structures: support catch basins and other minor structures on bottom and all sides by soils compacted to 95% of the maximum dry density in accordance with ASTM D1557 for full depth of fill.

3.05 FIELD QUALITY CONTROL

- A. Field density tests will be performed by the Owner in accordance with Section 1.03 of this Section.
- B. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 1557 ("modified Proctor").
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest at the Contractor's expense.
- D. Frequency of Tests: Per Section 1.03 of this Section.

3.06 CLEANING

- A. Stockpile excess soil at an on-site area designated by Owner.
- B. Remove and dispose of all rubbish, debris, and vegetation as it accumulates. Dispose of debris off-site or at an on-site disposal area designated by Owner.
- C. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- D. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.
- E. Surface restoration:
 1. Restore surface areas over trenches equivalent to conditions which existed prior to start of work.
 2. Reconstruct surfaces in accordance with applicable Sections of the Specifications.

END OF SECTION

SECTION 312323

FILL

PART 1 GENERAL

1.0 SECTION INCLUDES

- A. Filling, backfilling, and compacting for building volume below grade, footings, pile caps, slabs-on-grade, paving, and site structures.
- B. Backfilling and compacting for utilities outside the building to utility main connections.
- C. Remove excess materials from site.
- D. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 DEFINITIONS

- A. Finish Grade Elevations: Indicated on drawings.
- B. Subgrade Elevations: 4 inches (100 mm) below finish grade elevations indicated on drawings, unless otherwise indicated.

1.04 REFERENCE STANDARDS

- A. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- B. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
- C. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)).
- D. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).

- E. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- F. ASTM D 2937 - Standard Test Method for Density of Soil in Place by the Drive-Cylinder Method, 2004.
- G. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
- H. CFR: Title 29 CFR Part 1926 Safety and Health Regulations for Construction.
- I. Florida Statutes: Chapter 553 Building Construction Standards.
- J. OSHA: Document 2226 Excavations.

1.05 SUBMITTALS

- A. Materials Sources: Submit name of imported materials source.
- B. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- C. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where indicated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.
- C. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. On-site materials and borrow fill:
 - 1. Nonexpansive, predominantly granular material:
 - a. Particles less than 2 in. in any dimension.
 - b. Free of organic and other deleterious materials.
 - c. Not more than 12% by weight passing the No. 200 sieve behind retaining walls and 25% elsewhere.
 - 2. Acceptable to a geotechnical engineer retained by Owner.
 - 3. Top soil: All soil above the lower root line of fine vegetation (grasses and sod)
 - 4. Borrow site: At location approved by Owner.

- B. CLSM or Slurry cement (controlled low strength material) backfill:
 - 1. Cement shall be Portland cement conforming to provisions in Section 03 30 00 - Cast-in-Place Concrete, except that testing will not be required.
 - 2. Water used for slurry cement backfill shall be free from oil, salts, and other impurities which would have an adverse effect on quality of backfill material.
 - 3. At Contractor's option, aggregate shall be either:
 - a. material selected from excavation, imported material, or a combination thereof, which is free of organic material and other deleterious substances, or
 - b. commercial quality concrete sand. Material selected from excavation, imported material, or a combination thereof shall meet the following grading:

Sieve Sizes	Percentage Passing
1-1/2 in.	100
1 in.	80-100
3/4 in.	60-100
3/8 in.	50-100
No. 4	40-80
No. 100	10-40

- 3. Aggregate, cement, and water shall be proportioned either by weight or by volume. Not less than 188 lb. of cement shall be used for each cu. yd. of material produced. Water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of aggregate while being placed.
- 5. Materials for slurry cement backfill shall be thoroughly machine-mixed in a pugmill, rotary drum, or other approved mixer. Mixing shall continue until cement and water are thoroughly dispersed throughout material. Slurry cement backfill shall be placed in the Work within 1 hr. after mixing.

2.02 SOURCE QUALITY CONTROL

- A. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Identify required lines, levels, contours, and datum locations.
- B. See Section 31 22 00 for additional requirements.
- C. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
- D. Verify structural ability of unsupported walls to support imposed loads by the fill.

3.02 PREPARATION

- A. Scarify and proof roll subgrade surface to a depth of 6 inches (150 mm) to identify soft spots.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 PROTECTION

- A. Public and adjacent properties: Protect in accordance with applicable laws and ordinances.
- B. Existing on-site features, plant life, including trees, scheduled to remain:
 - 1. Protect from damage at all times.
 - 2. Do not allow earth-moving equipment within the branch spread perimeter (drip line) of existing trees.
 - 3. All work around and adjacent to existing trees, including inspection prior to backfill, shall be approved by Owner. Obtain Owner's approval in writing for all procedures prior to commencement of work. Trees that die due to damage or unacceptable work shall be back-charged to Contractor.
- C. Utilities: When utility line backfill occurs near existing utilities, whether or not indicated on Drawings, maintain existing utility services fully operational. Protect and support utility lines in a manner to prevent damage. Method of protection is subject to Owner's approval.
- D. Dust control:
 - 1. Throughout entire construction period, effectively dust-palliate working area, unpaved road, and involved portions of site.
 - 2. Palliation: Intermittently water and sprinkle with such frequency as will satisfactorily allay dust at all times. Chemical treatment of any type is not permitted.
 - 3. Use of reclaimed water shall conform to requirements and guidelines of governing health authorities and be specifically approved by Owner.

3.04 FILLING, BACKFILL, AND COMPACTION

- A. Fill up to subgrade elevations unless otherwise indicated.
- B. Employ a placement method that does not disturb or damage other work.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Correct areas that are over-excavated.
 - 1. Correct unauthorized excavation made below depths indicated on Drawings, as recommended by geotechnical engineer retained by Owner, at no additional cost to Owner.

- E. Fill and backfill:
1. Place earth fill and backfill in layers that will uniformly compact to required densities, but in loose layers not more than 8 in. thick.
 - a. Place backfill only after walls have been supported by completion of interior floor systems or have been sufficiently braced to resist imposed loading.
 - b. Place backfill against walls below grade after waterproofing systems have been completed and approved.
 - c. Protect waterproofing systems during backfill operations.
 - d. If waterproofing is damaged, do not continue backfilling until membrane damage is repaired as approved by Owner.
 - e. Restore grades to indicated elevations.
 2. Slurry cement (lean concrete) backfill:
 - a. Where specifically indicated on Drawings, slurry cement backfill consisting of a fluid, workable mixture of aggregate, cement, and water shall be used as foundation structure backfill.
 - b. Slurry cement backfill shall be placed in a uniform manner that will prevent voids in, or segregation of, backfill and will not float or shift foundation structures. Foreign materials which fall into trench prior to or during placing of slurry cement backfill shall be immediately removed.
 - c. Placing material over slurry cement backfill shall not commence until 4 hr. after slurry cement backfill has been placed.
- F. Compaction:
1. Bring each layer to within $\pm 4\%$ of optimum moisture content before compaction. Add water by uniform sprinkling. Jetting and flooding are prohibited. Add and blend additional fill materials or dry out existing materials as required.
 2. When moisture content and condition of each layer is satisfactory, compact to not less than 95% of maximum dry density in accord with ASTM D1557.
 3. Compact areas not accessible to motor-driven equipment with mechanical or heavy hand tampers.
 4. Rework compacted areas failing to meet specified maximum dry density, as determined by tests. Recompact and retest as required to achieve 95% of the maximum dry density in accord with ASTM D1557.
- G. Grading:
1. Build compacted backfills to indicated or required finish grades, less allowances for thickness of slabs, paving, and required base courses.
 2. Rough grade backfilled surfaces smooth, level to within 0.10 ft. of intended surface. Compact loose material and maintain in a moist condition until covered.

3.05 FIELD QUALITY CONTROL

- A. Compaction density testing will be performed on compacted fill in accordance with ASTM D1556 or ASTM D2922.
- B. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 1557 ("modified Proctor").
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- D. Frequency of Tests: In-place density of backfill materials placed and compacted; one test for every 100 cu. yd. of material placed and one test for each 1 ft. vertical lift.
- E. Other tests as may be required by Owner.
- F. Proof roll compacted fill at surfaces that will be under slabs-on-grade, pavers, and paving.
- G. Required inspections:
 - 1. Excavation inspection: Detailed inspection of exposed excavations prior to placing backfill material.
 - 2. Placement and compaction inspection: Continuous inspection and monitoring.

3.06 CLEANING

- A. Leave unused materials in a neat, compact stockpile.
- B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 320190

LANDSCAPE MAINTENANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Provide equipment, materials, services, and do all work necessary to perform landscape maintenance to limits of work indicated on Drawings.

1.02 SUBMITTALS

- A. Submit a tentative schedule, description of methods, and equipment to be used.

1.03 MAINTENANCE PERIOD

- A. Maintenance shall commence at the completion of the construction contract with all punch list items signed-off and a letter of completion signed by Owner as indicated in Planting Specifications.
- B. Maintenance shall be a period of:
 - 1. Month-to-month (submit to Owner a month-to-month cost for a period of 6 months to 12 months.

1.04 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
 - 1. Tree Care Industry Association” (TCIA)
 - 2. Standards as established by the Florida Department of Grade and Standards for Nursery Plants.

1.05 OWNER-REQUIRED INFORMATION FROM CONTRACTOR

- A. During the maintenance period, provide records to Owner regarding man-hours required per task, and cost to accomplish the work per task.
- B. Notify Owner of the intended work schedule sufficiently in advance to allow Owner time to serve as field observer during the maintenance period.

1.06 SITE FAMILIARIZATION

- A. Carefully and closely inspect the area development within the Limit of Work Line to become familiar with site conditions.
- B. Meet and walk site at the initiation of the maintenance program to determine the condition at the time of all paved areas, planting areas, and irrigation system included within the Limit of Work.

1.07 QUALITY ASSURANCE

- A. Trees, shrubs, and ground covers:
 - 1. All materials shall be maintained in a healthy, vigorous, and robust condition at all times. Tree crowns shall exhibit a full head of foliage, leaves shall show no desiccation, and the color shall be consistent with the species. Trunks, bark, and outer skin shall have no “unhealed breaks” or scars, decay cavities, , no indications of borer tunneling, or evidence of soft wood.
 - 2. Materials shall not exhibit symptoms of attack by any manner of plant pest or fungus, either in the leaf structure, the bark of outer skin, at the base of the trunk, or in the root system.
 - 3. Trees planted and staked or guyed with water basins shall have stakes and guys firm, with a full thickness of mulch and water basins fully maintained. (Owner may direct removal of water basins, during the maintenance period.)
 - 4. Shrubs, hedges, and ground covers shall have a neat, healthy appearance, and shall be trimmed in a manner to preserve the natural character of the plants. Beds shall be free of weeds.
 - 5. Hedges shall be trimmed as directed by Owner for height and width, generally wider at the bottom than the top.
- B. Grasses: Grasses shall exhibit a vigorous, healthy, uniformly green appearance, relatively free from insects, grubs, chinch bugs or other pests, free from an excessive accumulation of thatch.
- C. Irrigation system:
 - 1. Irrigation system shall be supplemented by hose as required. Contractor shall visit site, inspect the system, and confer with Owner regarding the system’s capabilities.
 - 2. Grass and shrubs shall not interfere with operation of the irrigation heads.
 - 3. System shall operate automatically on the normal watering schedule as approved by Owner.
 - 4. System shall operate without breaks or interruptions in service. Malfunctions shall be promptly reported and repaired.

- D. Pavement:
 - 1. Hardscape paving shall be free from clippings, edgings, or vegetative trimmings caused by maintenance operations.
 - 2. Vehicles shall be equipped with drip pans. Contractor shall be responsible for all damage to paved surfaces caused by dripping from vehicles.

- E. General cleanliness:
 - 1. The entire area shall be maintained in a neat and clean condition at all times. There shall be no accumulation of debris or litter along roadways, shrubs, beds, building corners, steps, and other structures.
 - 2. During leaf drop, there shall be no accumulation creating hazards or hardships for vehicular or pedestrian traffic.

1.08 MAINTENANCE TASK SCHEDULES

- A. Submit a report semi-monthly, including photographs, to Owner which will cover observations and conclusions made during the site walk. The report shall include maintenance task schedules adjusted by Contractor to cover all special conditions or problems at that time. The final acceptable schedules will be as approved by Owner.

- B. Notify Owner of the intended work schedule sufficiently in advance to allow Owner time to serve as field observer during the maintenance period.

1.09 SEMI-MONTHLY SUMMARY REPORT

- A. Deliver to Owner a semi-monthly summary report on the condition of the pavement areas, grass areas, planting areas, and irrigation system. Include 4 in. x 6 in. color photographs and negatives for damaged items or damaged or dying plant materials. The format and headings shall be the same for each report.

- B. If it becomes necessary to revise maintenance task schedules based on changing conditions or problems which arise, include revised schedules in the summary report.

1.10 SAMPLES AND APPROVALS

- A. Before ordering, if ordering materials for the site should become necessary, submit typical samples to Owner for selection and approval. Do not order materials until approval by Owner has been obtained. Delivered materials shall closely match approved samples.

- B. Submit list of proposed equipment to be used in the Work.

1.11 MAINTENANCE INSTRUCTIONS

- A. 30 days prior to start of maintenance operations, provide a notebook to Owner of written maintenance instructions for all turf areas, planting areas, and irrigation systems within the project area. All necessary information needed to maintain areas and systems shall be provided, including man-hours required per task and cost per task to accomplish the work including total area sq. ft. for all areas to be maintained. Submit five copies of instructions to Owner for approval. Owner may require resubmittals of maintenance instructions if it is determined that the information provided is not sufficient or adequate to allow for proper maintenance.

1.12 QUALIFICATIONS OF CONTRACTOR

- A. Demonstrate experience by principals in landscape maintenance as proprietor, partnership, or corporation. In addition, provide the name of the school or organization from which their training and experience was obtained, and the address and period of time by dates from start to finish of training. Give names of companies, addresses, and written references. Maintenance Contractor shall be bondable and show evidence of financial stability satisfactory to Owner that it is in good financial position to carry on the work. Contractor shall be able to take on the maintenance and welfare of the Contract areas throughout the specified period. Such care and maintenance of the Contract area shall be supervised by Contractor.
- B. All applications of materials, including fertilizers, fungicides, insecticides, and herbicides, shall be applied by licensed applicators in a manner that will ensure maximum effectiveness of materials and minimal hazard to the public, property, and total ecological environment. All claims, lawsuits, or litigations arising directly or indirectly from application or use of maintenance materials shall be the sole responsibility of Contractor. Types of materials and rates of application, where applicable, shall be consistent with recommendations of appropriate state and local governing agencies.

1.13 CONTRACTOR RESPONSIBILITY

- A. Conform to provisions of Specifications in performing the work required. Make management recommendations to Owner which will enhance the appearance of the site.
- B. In performance of this Contract, require all employees to comply with instructions pertaining to conduct and Walt Disney World Resort property regulations issued by Owner.

- C. During the term of this agreement, maintain insurance coverage in amounts deemed by Owner to be mutually adequate.
- D. During the term of this agreement, comply with all pertinent federal, state, and local ordinances and regulations.
- E. Provide periodic inspections of the site when requested by Owner.

PART 2 PRODUCTS

2.01 EQUIPMENT

- A. Furnish and utilize adequately maintained equipment in sufficient quantity to properly carry out the work specified herein. Unless specific arrangements are made in advance with Owner, Contractor's maintenance equipment shall not be stored on-site.

2.02 PLANTS

- A. Replace plants, trees, shrubs, grasses, and vines that are dying or in poor condition in accord with Owner's approved Contract Directive or deficiency notice. Submit to Owner a list of replacement materials, indicating botanical name, common name, size, and unit cost installed complete and in place. In addition, indicate if the material is under the Contract installation warranty period. Obtain Owner's approval and written authorization prior to all replacements.
- B. All replacement plant materials shall be planted in accord with Project installation Specifications.

2.03 MULCH

- A. At all times, maintain mulch to thickness indicated in the installation Specifications.

2.04 GUYING AND STAKING MATERIALS

- A. In accord with original Specifications and installation details.

2.05 SOD

- A. Sod in accord with original Drawings and Specifications.

PART 3 EXECUTION

3.01 PRODEDURES - GENERAL

- A. The following procedures may be adjusted as required by monitor's observations and recommendations.

3.02 TRASH AND LITTER PICKUP

- A. Complete trash and litter cleanup of all pavement, lawn, and planting areas within the limit of work shall be carried out a minimum of once daily and additionally as necessary to maintain the site in a clean, neat, and orderly condition.
- B. Complete trash and litter cleanup of all pavement, lawn, and planting areas and emptying of trash receptacles shall be carried out Monday through Friday of each week for duration of Contract.
- C. Trash receptacles shall be emptied twice per week minimum.
- D. Trash shall be legally disposed of off-site.

3.03 PAVEMENT AREA CLEANING/SWEEPING

- A. Pavement areas within the Limit of Work shall be swept clean of all dirt, litter, and other debris a minimum of once weekly and additionally as necessary to maintain a clean condition. Pavement areas shall be either mechanically broom swept or power vacuumed as approved by Owner.
 - 1. Pavement areas shall be swept clean of all dirt, litter, and other debris Monday through Friday.
 - 2. Wash paved areas away from landscape areas to avoid contaminating landscape areas with cleaners and to avoid excessive water on the perimeter of the landscape area.

3.04 PAVED AREA WASHING

- A. Pavement areas within the Limit of Work shall be washed clean with water using hose or other means approved by Owner a minimum of once weekly and additionally as necessary to maintain a clean condition.

3.05 DAMAGE INSPECTION

- A. Regularly inspect areas and report all vandalized and otherwise damaged materials or conditions within the Limit of Work.

3.06 GRASS MAINTENANCE

- A. Soil analysis: At start of the maintenance program, take soil tests in varying locations within each of the grass areas to determine fertilizer requirements of the soils. The number and exact locations shall be subject to approval by Owner. Provide minimum one test for every 5000 sq. ft.
 - 1. For fertilizer requirements, take soil samples to a depth of 3 in. to 6 in. Take a thin, uniform slice off the straight side of a troweled or spaded V-shaped hole from top to bottom. Store each sample separately from every other sample. Spread out samples to dry on paper which is clean and free from contamination. Protect samples from contamination. After samples are collected, they shall be sent to Owner-approved agricultural testing laboratory.
- B. Watering: Watering of the lawn and planting areas by the landscape irrigation system shall be applied in accord with Owner-approved irrigation schedule. The Schedule shall provide an application rate of at least 1 in. of water every 5 to 7 days. Water shall be allowed to penetrate the soil to a depth of 6 in.
 - 1. Contractor shall familiarize itself with the existing system, and shall inform Owner regarding malfunctions or imperfections within the system. The cost of repairs to the system shall be borne by Owner, unless the repair is directly attributable to negligence of Contractor.
 - 2. Water weak areas by and to avoid excessive irrigation in other areas. Adjust flow rates and head placements as needed to give uniform precipitation. Alter system in areas of high or low water evapotranspiration rates to avoid overly dry or wet areas. Aerate as needed to avoid poor aeration or poor water infiltration. Maintain good soil moisture.
- C. Grass fertilization program: Furnish and apply commercial fertilizer at the rates recommended by the soil analysis approved by Owner. Provide for applications of Turf Royal (Bandini) 21-7-14 at the minimum rate of 5 lb. for every 1000 sq. ft. each application.
- D. Weed control:

1. If weeds occur, they shall first be identified and the appropriate herbicide used to eradicate them. Apply herbicide in accord with manufacturer's instructions and recommendations and as approved by Owner. Application shall be carried out by Contractor as recommended by manufacturer's instructions and approved by Owner.
2. Control weeds in selected areas where weeds are present. Timing on control shall depend on type of weed (perennial or annual) and its characteristics.
3. Do not apply herbicides for weed control when the wind exceeds 5 mps. Use herbicides carefully, especially in areas adjacent to other planting. Do not apply herbicides in conjunction with lawn renovations and reseeding or overseeding. All weed control measures shall be placed under the immediate supervision of Owner.
4. Herbicide applications for control of annual grassy weeds shall be made with preemergence herbicides in accord with label instructions.
5. Herbicide applications for control of existing broadleaf weeds shall be made in accord with label instructions.
6. Apply non-selective and/or preemergence herbicides to cracks in paved areas as necessary for weed control.
7. Apply herbicides under the supervision of a Certified Pesticide Applicator, with prior approval from Owner.

E. Disease and pest control:

1. Notify Owner of diseased or distressed grass areas, and submit diseased or distressed samples to Owner for testing. Apply insecticides and/or fungicides to grass areas only where necessary and as recommended by Owner.
2. Control insects, pests, and fungus by inspecting grass at periodic intervals for presence of grubs, chinch bugs, blight, rust, leaf spot and other pathogens, verify identifications, and treat affected areas as required. Apply all controls under the direct supervision of Owner.

F. Sod replacement:

1. If grass areas are at any time determined to be dead, in a state of damage, or decline to the point of requiring resodding, identify areas and report them to Owner.
2. It shall then be the responsibility of Contractor to ensure that the area is resodded as soon as weather conditions permit.
 - a. Carry out the replacement with the cost being borne by Owner, unless there has been some negligence on the part of Contractor.
 - b. Replacement sod shall be of the same species as is in the ground. All sodding procedures shall be as approved by Owner.

3.07

PLANT MATERIAL MAINTENANCE

- A. Weeding and edging:
 - 1. Mulched planting beds and individual mulched plant pits shall be neat in appearance and maintained to the lines originally laid out.
 - 2. Edging of grass around mulch shall be done as necessary to maintain a natural appearance.
 - 3. Hand weeding of mulched planting beds and pits shall be done to maintain mulch depths indicated on installation documents.
 - 4. Debris from weeding and edging shall be removed from site and disposed of properly by Contractor.

- B. Weed control:
 - 1. All plant materials shall be closely monitored for insect and disease problems. Due to the nature of these problems, plants shall be inspected weekly. Insecticides shall be applied on a control basis under the supervision of a licensed Certified Pesticide Applicator and approved by Owner for application around animal areas.
 - 2. A weed spray or granular material for both pre-emergent and perennial weeds shall be applied in the early spring, to be followed by spot treatments in trouble areas.
 - 3. Safety measures shall be employed to ensure that toxic substances are used in a responsible manner without adversely affecting plant materials and the general public. These measures include applying materials in accord with manufacturer's recommendations, alerting Owner regarding the timing, material, its toxicity, and its usage.

- C. Disease and pest control:
 - 1. Provide all seasonal and required spraying and/or dusting of trees, shrubs, and ground covers. Spray materials and techniques shall be as recommended by the local agricultural extension service.
 - 2. Show spraying dates on schedule submitted to Owner.

- D. Fertilization:
 - 1. Prior to maintenance, obtain maintenance fertility recommendations from A & L Southern Agricultural Laboratories, Tel: (305) 972 3255, Attn.: Lynn Griffith.
 - 2. For estimating purposes, provide 4 lb. of nitrogen per 1000 sq. ft. Nutro Coat Fertilizer 17-6-8 (360-day formulation) application techniques in accord with standard horticultural practices.

E. Mulching:

1. Maintain a minimum depth of 3 in. of mulch as specified on original Drawings and Specifications over the entire surface of the plant beds and tree pits to maintain a neat and attractive appearance. The mulch shall be maintained throughout the growing season and new mulch shall be installed as required to keep a neat and attractive appearance.
2. Spray or treat for borers, ants, or ground insects as required. All spraying shall be done under the immediate supervision of Owner.

F. Pruning:

1. Pruning techniques shall be in accord with ANSI A300 standards and Owner's direction.
2. Trees shall be pruned in late fall or during the winter months to remove dead, damaged, or diseased wood and to encourage new and healthy growth, to limb up, shape, or allow unobstructed views. Tropicals and subtropicals shall be pruned in the spring and summer. With young trees, the first few years will require minimum pruning, with time spent removing wood from lower portions of trees. Pruning shall occur when damage has occurred.
 - a. All pruning cuts shall be made adjacent to bud or branch to reduce sucker growth. Cuts at the trunk of a tree shall be made in line with the "collar" where the branch meets the trunk-not parallel with the trunk. Tree branch collar shall not be damaged.
 - b. Deciduous trees shall be pruned to maintain shape and clearance. Broken branches or dead material shall be removed as necessary. Lower branches of trees shall be removed should they interfere with pedestrian or vehicular traffic as directed by Owner.
 - c. Flowering trees shall be pruned only after blooming.
 - d. Palms, tropicals, and subtropicals shall be pruned in late spring or summer.
 - 1) Shrubs:
 - (a) The broadleaf evergreens shall be lightly pruned after flowering and before the new growth matures and turns dark green. Prune to retain the natural character and shape of the plant using hand pruners, not hedge shears.
 - (b) Conifers shall be lightly pruned after the new growth has developed but before the new growth matures and turns dark green. Prune to retain the natural character and shape of the plant using hand pruners, not hedge shears.
 - (c) Deciduous shrubs shall be pruned after flowering, removing no more than 1/3 of the old wood. Prune to retain the natural character and shape of the plant using hand pruners, not hedge shears. Approval of pruning goal must be approved by Owner prior to the work.
 - (d) Rejuvenation and special pruning can occur at any time of the year, depending upon the specific type of shrub.
 - (e) Multi-stemmed upright shrubs shall be put on a 3- or 4-year rotation once they have approached mature or desired size. In this manner 1/3 to 1/4 of the largest stems are removed to the ground each year.

- (f) Vines shall be pruned after the new growth has developed but before the new growth matures and turns dark green. Primarily only ends of vines will require pruning to keep vines from spreading into adjacent beds, paved areas, protected areas, and to direct the vine in the desired direction and encourage new growth. Pruning shall be performed to retain natural character of vines and to disguise pruning cuts on ends of vines.
- G. Tree guys and water basins: Tighten guy wires, reshape saucers, and refurbish mulch as required. Remove guys when tree root system is adequately established for the tree canopy and trunk to move without falling over in windy conditions.
- H. Dead and/or damaged plant material removal: Remove plant material (as required throughout the year) that is dead, damaged beyond repair, or badly diseased when no appropriate treatment is likely to save it or return it to an appearance that is acceptable to Owner.
- I. Plant material replacement: Plants that are dead or not in satisfactory condition as determined by Owner, shall be removed from site. These plants and any plants missing shall be replaced as soon as conditions permit. All replacement shall be plants of the same variety and size as plants that were removed. Obtain Owner's approval for costs prior to installation.

3.08 LANDSCAPE IRRIGATION SYSTEM MAINTENANCE

- A. System familiarization: Contractor shall inspect irrigation system and become familiar with layout of the system, materials and equipment used, and services relating to it. This includes irrigation system as installed, all piping, valves, sprinkler heads, access boxes, controls, drains, and appurtenances.
- B. Shop drawings: Contractor shall obtain a set of the complete shop drawings and "As Built" drawings from Owner.
- C. Operation and maintenance manual: At the start of the irrigation system maintenance program, Contractor shall obtain one copy of the "Operation and Maintenance Manual" from Owner. No substitution of irrigation equipment will be permitted unless approved by Owner in writing before substitution is made.
- D. System maintenance procedures:
 - 1. Maintain irrigation system in optimum operating condition during entire maintenance period. Ensure that manufacturer's printed instructions and recommendations are closely followed.

2. If at any time any item or part of the system is not functioning properly or is not as intended, bring the condition to the attention of Owner and record the problem in the semi-monthly summary report. All replacement parts, materials, and labor (except for defects in original parts, materials, and workmanship which shall be the responsibility of others to replace and repair) shall be the responsibility of Contractor to provide and ensure that the necessary repairs or changes are made to bring the system to an operable and acceptable condition. Carry out the replacement with Owner and with the cost being borne by Owner, unless there has been negligence on the part of Contractor.
3. All replacement parts and irrigation pipe shall be by the same manufacturer or Owner-approved equal.
4. In all cases for repairs or changes, a reasonable time period shall be determined during which the work can be accomplished.
5. Be responsible for the following items on a weekly basis:
 - a. Check spray heads to ensure their proper operation and check for damage. Adjust head spray patterns if required to provide complete and adequate coverage of areas to be watered.
 - b. Clean spray heads and trim grass around heads.
 - c. Immediately repair all damage that may occur, after notifying Owner and noting the problem in the semi-monthly summary report.
 - 1) Test entire irrigation system at the start of the maintenance period.
 - (a) Irrigation system shall be tested for satisfactory operation. Water shall be turned into each portion of irrigation line and maintained at full pressure. If unsatisfactory performance or leaks develop, this shall be described in the summary report, the condition corrected, and these testing procedures repeated until satisfactory operation is obtained.
 - (b) Check all heads to ensure their proper operation and coverage.
 - (c) Check all electrical and plumbing systems to ensure their proper operation.
 - (d) Observe the operation for a complete day's cycle.
 - (1) IRRIGATION SYSTEM MAINTENANCE SCHEDULE
 - (2) TASK
 - (3) IMPORTANCE
 - (4) FREQUENCY
 - (5) Spray head check
 - (6) X
 - (7) Weekly
 - d. Spray head cleaning
 - 1) X
 - (a) Weekly

- 2) Spray-head repairs
 - (a) O
 - (1) As necessary
 - (2) System testing
 - (3) X
 - (4) Monthly
 - (5) System repairs
 - (6) O
 - (7) As necessary

6. X = Task is mandatory.

7. O = Task done as needed (approval required by Owner).

END OF SECTION

SECTION 321123

AGGREGATE BASE COURSES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aggregate base course.

1.02 REFERENCE STANDARDS

- A. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses; American Association of State Highway and Transportation Officials.
- B. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- C. ASTM C 150 - Portland Cement.
- D. ASTM C 558 - Moisture-Density Relations of Soil-Cement Mixtures.
- E. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
- F. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)).
- G. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
- H. ASTM D 2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- I. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

- J. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
- K. FDOT: Standard Specifications for Road and Bridge Construction.

1.03 SUBMITTALS

- A. Samples: 10 lb (4.5 kg) sample of each type of aggregate; submit in air-tight containers to testing laboratory.
- B. Materials Sources: Submit name of imported materials source.
- C. Certificates/Certifications: Supplier's certification that materials conform to Specification requirements.
 - 1. Sieve analysis of asphalt concrete aggregates in accordance with ASTM C 136.
- D. Compaction Density Test Reports.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Existing conditions: Do not conceal or cover any work until required tests or inspections have been performed and accepted.
- B. When necessary, store materials on site in advance of need.
- C. Aggregate Storage, General:
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.
- D. Coordinate and sequence the application or installation of work of this Section with adjacent or integral materials, products, and work specified in other Sections. Such work includes, but is not limited to, the following:
 - 1. Concrete curbs and gutters.
 - 2. Concrete paving.
 - 3. Utility services.
- E. Protection: Protect completed installation from damage due to subsequent construction activities. Immediately remove all foreign matter that accumulates on exposed surfaces.

- F. Provide flagmen, barricades, warning signs, and warning lights for movement of traffic and safety, and to cause the least interruption of work.
- G. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Stabilizing materials: Conform to FDOT Section 914, Type B or C at Contractor's option.
- B. Special aggregate base ("Dura-Rock"):
 - 1. Materials:
 - a. Limerock: Conform to FDOT Section 911, and classified as Ocala Formation.
 - b. Sand: Conform to the following gradation.

Sieve	Percentage Passing
No. 10	92 - 100
No. 20	62 - 80
No. 40	38 - 58
No. 60	17 - 35
No. 100	0 - 19
No. 200	0 - 8

- c. Cement: ASTM C150, Type I Portland cement.
 - d. Water: Potable.
 - 2. Mix:
 - a. Blend as follows:
 - 1) Limerock: 40%.
 - 2) Sand: 60%.
 - 3) Cement: 4% by weight of aggregate.
 - 4) Water: 9%-13% by dry mixture weight of aggregate and cement.
 - b. Batching and mixing:
 - 1) Batch and mix all "Dura-Rock" at a commercial batching plant.
 - 2) Do not batch and mix materials in field.

2.02 SOURCE QUALITY CONTROL

- A. Where aggregate materials are specified using ASTM D2487 classification, test and analyze samples for compliance before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces for conditions that will adversely affect execution, permanence, and quality of work.
- B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.
- C. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place aggregate on soft, muddy, or frozen surfaces.
- C. Proof-roll subgrade using heavy, rubber-tired rollers to locate unstable areas or areas requiring additional compaction.
- D. Compact unstable areas or areas requiring additional compaction in accord with FDOT Section 120-9.4.

3.03 INSTALLATION

- A. Stabilization of subgrade:
 - 1. Stabilize subgrade in accord with FDOT Section 160, to depths and bearing values indicated on Drawings. Compact in excess of 98% of Modified Proctor maximum dry density in accord with ASTM D1557 (AASHTO T180).
 - 2. Materials for stabilized subgrade beneath the "Dura-Rock" base shall be mixed outside the placement area

- B. Limerock base course: Transport, spread, shape, compact, and finish limerock base material in accord with FDOT Section 200, to minimum compacted thickness as indicated on Drawings. Compact in excess of 98% of Modified Proctor maximum dry density in accord with ASTM D1557 (AASHTO T180).

- C. Special aggregate base course ("Dura-Rock"):
 - 1. Transport from batch plant, spread, shape, compact, and finish special aggregate base ("Dura-Rock") material in a single layer to minimum compacted thickness as indicated on Drawings. Compact in excess of 98% of maximum dry density in accord with ASTM D558 (AASHTO T134).
 - 2. Do not allow more than 4 hours to elapse between batching and final compaction. Do not allow materials to remain undisturbed for more than 2 hours without being worked.
 - 3. Wet surface with potable water as necessary during final rolling to prevent excessive surface moisture loss.

3.04 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch (6 mm) measured with 10 foot (3 m) straight edge.

- B. Scheduled Compacted Thickness: Within 1/4 inch (6 mm).

- C. Variation From Design Elevation: Within 1/2 inch (12 mm).

3.05 FIELD QUALITY CONTROL

- A. Mixes: Do not deliver batches of base materials to job site which do not conform to specified requirements.

- B. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556.

1. Limerock base: Perform field density tests in accord with ASTM D1557 (AASHTO T180).
 2. Special aggregate base ("Dura-Rock"): Perform field density tests in accord with ASTM D558 (AASHTO T134).
- C. Verify that base material delivered meets Specification. Visually observe uniformity and moisture condition of base material as it is delivered to project site.
- D. Observe and monitor placement and construction of base material to ensure that work meets or exceeds specified requirements. Make random depth checks before and after final compaction to assure minimum compacted thickness is obtained.
- E. Additional inspection required for special aggregate base ("Dura-Rock"):
1. Continuously monitor batching and mixing operations at the batch plant.
 2. Provide written reports to Owner listing the following:
 - a. Gradation of sand, weight, and proportion to limerock.
 - b. Limerock weight and proportion to sand.
 - c. Cement weight and proportion to sand and limerock.
 - d. Water, in gallons, and proportion to dry materials.
 3. Perform inspections not less than once each day for duration of special aggregate base ("Dura-Rock") batching and mixing operations.
 4. Perform a detailed inspection of the completed special aggregate base ("Dura-Rock") at the age of 7 days to ensure sufficient hardness to withstand anticipated traffic without marring and distortion.
- F. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- G. Proof roll compacted aggregate at surfaces that will be under slabs-on-grade.

3.06 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 321313

AREA DEVELOPMENT CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Batching, delivery, placement and testing of all concrete for Area Development work.
- B. Sub-grade preparation, form work, steel reinforcement and other accessory materials required for Area Development concrete work.
- C. Finishing, texturing, curing, sealing and protection of all Area Development concrete paving including, but not limited to, curbs, gutters, ramps, and steps.

1.02 REFERENCES

- A. ACI 117 - Tolerances for Concrete Construction and Materials.
- B. ACI 301 - Specifications for Structural Concrete for Buildings
- C. ACI 302 - Recommended Practices for Concrete Floor and Slab Construction.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting and Placing Concrete
- E. ACI 305R - Hot Weather Concreting
- F. ACI 306R - Cold Weather Concreting
- G. ACI 308 - Standard Practices for Curing Concrete
- H. ACI 347 - Guide to Formwork for Concrete
- I. ASTM A 497 - Standard Specification for Welded Wire Reinforcement for Concrete

- J. ASTM A 615 - Standard Specification for Deformed and Plain Billet Steel Bars for Concrete
- K. ASTM C 31 - Making and Curing Concrete Test Specimens
- L. ASTM C 33 - Standard Specification for Concrete Aggregates
- M. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
- N. ASTM C 94 - Standard Specification for Ready-Mixed Concrete
- O. ASTM C 150 - Standard Specification for Portland Cement
- P. ASTM C 171 - Sheet Materials for Curing Concrete
- Q. ASTM C 309 - Standard Specifications for Liquid Membrane-Forming Compounds for Curing Concrete
- R. ASTM C 494 - Standard Specification for Chemical Admixtures for Concrete

1.03 QUALITY ASSURANCE

- A. Tests and Inspections:
 1. Owner shall incur the costs for all required tests and inspections, except re-tests and re-inspections required due to failures. All costs for re-tests and re-inspections will be charged to the Contractor by way of Change Order deduction from the Contract.
 2. Testing Agency shall meet requirements of ASTM C 1077, with personnel conducting laboratory tests that are certified as ACI Concrete Laboratory Technician, Grade 1. Field tests shall be conducted by personnel certified as ACI Concrete Field Testing Technician, Grade 1.
 3. Test Cylinders:
 - a. Take one sample of four cylinders from each day's placement in accord with ASTM C 172. Provide additional or more frequent samples as requested by Owner.
 - b. Take samples at evenly spaced intervals as concrete is placed in forms.
 - c. Mark each cylinder with date, sample number, mix design number, and location taken.
 - d. Cure and test cylinders in accord with ASTM C 39. Test results shall be the average of two specimens. Test one cylinder at 7 days for information and two cylinders at 28 days for acceptance.

- e. Should test results indicate that concrete does not meet the specified minimum requirements, the installed concrete will be deemed deficient and subject to rejection and replacement at Owner's discretion.
- 4. Slump Tests:
 - a. Make one slump test for each set of test cylinders in accord with ASTM C 143. Provide additional or more frequent samples as requested by Owner.
 - b. Retain a record of all slump tests indicating date and location taken, mix design number, temperature of concrete and test results.
 - 5. Batch Tickets:
 - a. Provide, to Owner, a batch ticket for each concrete load delivered. Each ticket shall state mix design number, cement, aggregates and admixtures in load, the initial mix time, initial quantity of water added, total quantity of water allowed and signature by the ready-mix plant dispatcher.
 - b. Color additives are to be listed on the batch ticket by designating the manufacturer, the product number and name. (i.e. Scofield Chromix #C-21, 'Adobe Tan')
- B. Workman Qualifications:
- 1. Installation to be performed by workmen with not less than 3 years' experience, and foremen with not less than 5 years' experience, properly executing all concrete forms and finishes specified on the drawings and/or contained within the owner furnished samples for this project.
 - 2. A foreman or supervisor shall be present during all phases of installation and finishing. On-site supervisor shall have qualified as ACI Certified Concrete Flatwork Technician.
 - 3. Where specific licensed patterns are required, the stamped or patterned concrete finish shall be performed by a contractor that is licensed, tooled and trained by the stamp pattern vendor.
- C. Environmental Conditions:
- 1. Do not place concrete when ambient temperature is 35F or lower or is expected to go below that temperature within 24 hours of placement. Follow all cold weather procedures in accord with ACI 306.
 - 2. Follow hot weather procedures in accord with ACI 305 and ASTM C 94. During hot weather, when air temperature is 90 F. or greater, mixing and delivery time shall be reduced to a maximum of 60 minutes. Any concrete deliveries made after that time shall be rejected.
 - 3. Do not place concrete during rain unless proper protection has been provided. Protective covers shall be constructed to be self-supporting and braced to support wind and rain loads.
- D. Site Conditions:
- 1. Do not conceal any work until all required tests and inspections have been performed and approved.

2. Maintain vehicular and pedestrian traffic during all concrete operations. Do not limit access to other site work.
 3. Provide flagmen, barricades, warning signs and lights for control and movement of traffic as needed.
 4. Provide protection of all new concrete from any and all pedestrian and vehicular traffic.
- E. Pour Cards:
1. A signed and approved pour card shall be required for all elements of each concrete pour at least 24 hrs. prior to installation of concrete.
 2. Provide a Pour Card to the owner for his signature, verifying Owners review and visual approval of the sub-base, base material, formwork, reinforcement and coordination with other trades where required.

1.04 PRE-INSTALLATION CONFERENCE

- A. At least two weeks prior to the scheduled commencement of installing finish work, conduct a 'Pre-job Conference' with the Owner at the Project site. This meeting shall include all parties responsible for installing, pumping, finishing, scheduling and testing of the work performed under this Section. Record discussions of conference including all decisions, directions and agreements reached. Furnish copies of record to all parties in attendance.
- B. Review methods and procedures related to the work of this Section, including, but not necessarily limited to the following:
1. Required submittals and procedures.
 2. Required details and finishes.
 3. Scheduling and sequencing of work.
 4. Coordination with other trades and site conditions.
 5. Forecasted weather and procedures for coping with unfavorable conditions.
 6. Required testing, inspections, reviews and procedures for approvals.

1.05 SUBMITTALS

- A. In accord with Section 01 30 00 (01330) - Administrative Requirements for Submittal Procedures.
- B. Product data:
1. Provide a list of all products and materials intended for use in the work.

- C. Mix Design:
1. For Owner's approval, provide concrete suppliers formulations for concrete mix, certified by an independent technical agency and stamped by a licensed engineer. All required quantities of materials to be expressed in ratio per cubic yard of concrete.
 2. Statement of mix design shall include;
 - a. Owner, project name and project location
 - b. Date of report
 - c. Name and address of batch plant
 - d. Mix design number
 - e. Type, size and quantity of coarse and fine aggregates
 - f. Type, brand and quantity of hydraulic cement
 - g. Water/Cement Ratio
 - h. Density
 - i. Average compressive strength
 - j. PSI strength at 28 days
 - k. Method of testing used
 - l. Type, quantity and manufacturer of admixtures
 - m. Type, quantity, manufacturer and specific name of integral color additive
- D. Shop Drawings:
1. Provide scaled drawings of all paving areas indicating proposed types and locations for all joints and pattern of concrete placement. Drawings to include locations of drain inlets, surface utilities and structures. Show proposed sequence for installation of work. Drawings are to be approved by Owner prior to installation of work.
- E. Mock-up Samples:
1. Pre Mock-up Conference:
 - a. At least two (2) weeks prior to the scheduled commencement of preparing the mock-up samples, schedule a 'Pre-Mock-up Conference' with the Owner to review specific paving requirements. Include the foreman or supervisor of concrete finishers intended for the work. Record discussions of conference including all decisions, directions and agreements reached. Furnish copies of record to all parties in attendance.
 - b. Review methods and procedures related to construction and finishing of samples including, but not limited to the following;
 - 1) Proposed location, of suitable size, to execute and store samples.
 - 2) Required materials, tools, and procedures.
 - 3) Availability of materials and construction schedule.
 - 4) Required inspections and approvals.
 2. Sample Panels:
 - a. Provide for Owner's approval a 8' x 8' sample panel, 3 ½ in. min. thick, cast and finished for each concrete paving type specified on the drawings. Requirement for inclusion of other work in the samples such as curbs, gutters, etc. will be determined during the pre-Mock-up Conference.

- b. Construct each sample using products, materials and methods identical to those to be used in the finished work. Concrete used for samples shall be of the same approved mix design, including source, admixtures and batching procedures to be used in the finished work.
 - 1) Finishers and foreman that execute the approved mock-ups shall be the same workmen who execute the finished work.
 - 2) Include in each sample all joint types, which will occur in the finish work.
 - 3) Include in the finishing of any formed surfaces, patching and repairing of major and minor defects.
 - 4) Include in each sample all specific aggregate types and sizes that may be specified on the drawings or present within the owner's sample.
 - 5) Cure, harden and seal all mock-ups with materials and methods specified for the finished work.
- c. Cast and finish samples at a location approved by Owner.
- d. Approved Mock-ups and Sample Panels will be used to judge final acceptance of the finished work. Contractor will be responsible to relocate samples adjacent to the final work for reference when requested by Owner. For this purpose, samples are to be constructed in a manner that will allow for them to be moved without damage.
- e. Obtain Owner's approval of each mock-up prior to commencement of final work. If first samples are not approved, prepare additional mock-ups until approval is obtained.
- f. Contractor shall be responsible for the care and protection of approved samples. Any lost or damaged samples shall be re-cast at the Contractors' expense. Replacement sample shall be completed to match all original requirements and approvals
- g. Final demolition and removal of Mock-ups and Sample Panels from the project site will be the responsibility of the Contractor, when directed to do so by Owner.

PART 2 PRODUCTS

2.01 FORMWORK

- A. Form boards; construction grade, S4S, Douglas Fir in accord with WWPA standards.
 - 1. Form boards to be solid lumber, free of warping, cupping, loose knots, cracks or other imperfections that would produce objectionable defects in the finish work.
 - 2. Use boards a min. of 1 ½" inches in thickness. Bender board or back-cut boards, installed with sufficient bracing, to be used for curves and radiuses. Layer bender boards to approximate a total min thickness of 1".
 - 3. Depth of all forms shall be equal to the depth of the concrete being placed.

4. All form boards to be new lumber or re-used formwork that has been thoroughly cleaned to remove all cement and laitance. Treat all boards with form release prior to pouring concrete.
- B. Joint Fillers:
1. Pre-molded asphalt impregnated type, conforming to ASTM D 1751. 3/8 in. thick, as shown on drawings or otherwise selected by Owner.

2.02 REINFORCEMENT

- A. Rebar: Grade 60 deformed new billet steel bars conforming to ASTM A615.
- B. Supports: Spacers for supporting and securing reinforcement in-place.
1. For all slabs on grade, provide pre-cast, 3000 PSI concrete ‘dobies’ with integral wire ties. Supports to be of a size adequate to hold reinforcement mat centered in the slab. Spacing shall be sufficient to hold all reinforcement in-place at required offsets during concrete pour.
 2. For all concrete that formed surfaces will be exposed to view, reinforcement shall be supported and tied in-place to provide adequate coverage and eliminate any exposure of supports.
 3. Do not use brick, wood or other non-specified materials to support reinforcements in place.
- C. Slip Dowels.
1. Smooth, square plates cut from hot-rolled plate steel, per ASTM A 36. Installed with pre-fabricated, two-piece plastic, installation sleeves as manufactured and supplied by ‘Diamond Dowel Systems’, PNA, Inc., (800) 542-0214. Size as required, by manufacturer, based on the thickness of the concrete slab.

2.03 READY MIX CONCRETE

- A. Materials: To insure consistency of color and finish, a single source and supplier of cement and aggregates shall be maintained for each paving type throughout the duration of the project.
1. Cement: Conforming to ASTM C 150, type I or II Portland.
 2. Fly ash: Per ASTM C 618, Class F, with low carbon content and low loss on ignition, 3% or less. Note: Fly ash is not acceptable for use in integrally colored concrete mixes for this work.
 3. Fine and Coarse aggregates: Per ASTM C 33, consisting of washed natural sand and hard, fine grained crushed rock
 4. Water: Clean, potable water, conforming to ASTM C 1602

B. Batching:

1. Measure, batch, mix and deliver concrete in accordance with ASTM C 94, from plants certified under the NRMCA Certification of Ready Mix Concrete Production Facilities.
2. Use only mix designs approved by Owner.
3. Deliver and discharge concrete from the truck within 1-1/2 hours after the introduction of water to the mix or within 300 revolutions of the drum. Concrete delivered to the site after this time shall be considered deficient and subject to rejection by Owner.
4. Do not add water to concrete during delivery or placement. To attain specified slump, additional water may be added to concrete at the project site before placement, provided that amount of water will not exceed total amount allowed on the delivery ticket.
5. Water to cement ratio shall not exceed 0.50.
6. Concrete strength to be a min. of 3000 PSI at 28 days.
7. Design slumps;
 - a. Slabs on grade up to 8 in thick: 4 in.+/- 1 in.
 - b. Slabs greater than 8 in. thick: 4-1/2" +/- 1 in.
 - c. Curbs and gutters: 4-1/2" +/- 1 in.

C. Admixtures:

1. Chemical admixtures conforming to ASTM C 494 / C 494M, Type A and G.
2. Provide approved water reducers, super-plasticizers and retarders as conditions require.
3. Selected admixtures shall not reduce the specified concrete strength, cause corrosion of embedded steel, create excessive shrinkage (10% or greater) or negatively affect the concrete color or finish.
4. Do not use admixtures which contain calcium chloride, triethanolamine, thiocyanates or will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
5. Approved admixture manufactures:
 - a. Applied Concrete Technology
 - b. Euclid Chemical Co.
 - c. Master Builders, Inc.
 - d. Sika Chemical Co.
 - e. W.R.Grace & Co.

D. Integral Color Additives:

1. Synthetic mineral oxide pigments conforming to ASTM C 979.
2. Provide specific colors and manufacturer of pigments as indicated on the Drawings.
3. Proportion of color admixture in concrete is to be determined by the manufacturer to provide full color or to match Owner's samples.
4. Mix and consolidate color admixtures per manufacturer's recommendations.

5. If no specific color manufacturer has not been specified, select from one of the following Owner approved sources;
 - a. Chromix; by L.M. Scofield Co., Los Angeles, CA, (800) 800-9900

- E. Synthetic Fibers: Conforming to ASTM C 1116.
 1. Nylon: Filamentized 100% virgin nylon fibers;
 - a. Nylon 6: as mfg'd. by Nycon, Inc., 101 Cross street, Westerly, R.I., (800) 456-9266
 2. Polypropylene: Fibrillated virgin polypropylene fibers, 3/4 in. long;
 - a. Fiberstand 100: by Euclid Chemical,
 - b. Grace Fiber: by W.R. Grace
 - c. Fibermesh: by Fibermesh, Inc.
 - d. HARDENERS AND TOPPINGS

- F. Colored Hardeners: Topically applied colors for all areas indicated as such on Drawings.
 1. Cementitious powder of high color opacity and surface hardening characteristics, conforming to ASTM C979, for topical application on freshly placed concrete.
 2. Provide specific colors and manufacturer of Color Hardeners as indicated on the Drawings.
 3. In the event that a specific manufacturer has not been specified, use the following Owner approved sources;
 - a. Lithochrome; by L.M. Scofield Co., Los Angeles, CA, (800) 800-9900
 - b. Emerchrome; by L.M. Scofield Co., Los Angeles, CA, (800) 800-9900

- G. Colored Aggregate Toppings: Special topically applied aggregates for all areas indicated as such on Drawings.
 1. Provide materials containing specific combinations of specially ground and graded colored stones, glass and aggregates for topical application and embedment on freshly placed concrete.
 2. Provide specific mixes and manufacturers as indicated on the Drawings and Owner furnished samples when provided.
 3. In the event that a specific manufacturer has not been specified, use the following Owner approved sources;
 - a. Lithotex; by L.M. Scofield Co., Los Angeles, CA, (800) 800-9900

- H. Slip-Resistant Abrasive Topping:
 1. Aluminum oxide or a blend with not less than 58% aluminum oxide and approximately 14/36 mesh grading.
 - a. Lithochrome Abrasive: by L.M. Scofield Co.

2.04

ACCESSORIES

- A. Release Agent - for stamped and textured patterns:
 - 1. Colored bond-breaking powder, L.M. Scofield Lithochrome Antiquing Release or approved equal. Provide both initial and secondary colors for each application to complement the integral concrete color. Colors to be as designated on drawings or selected by Owner.

- B. Chemical Stains:
 - 1. Water-based acid solutions with metallic salts, containing no pigments or resins. Provide chemical stains in all colors and quantities as required per the Drawings or to match the Owner's samples.
 - 2. Chemical stains shall be applied with brushes, sponges and hand-pump sprayers as needed to attain desired effects.
 - 3. If no specific manufacturer has been specified, use one of the following Owner approved sources;
 - a. Lithochrome Chemstain; by L.M. Scofield, Co., Los Angeles, Ca., (800) 800-9900

- C. Curing Compounds:
 - 1. Liquid, membrane-forming, curing and evaporation reducer (resin-based dissipating type) as required to facilitate proper curing and hardening of finished concrete surfaces.
 - 2. Curing compound shall not discolor or stain the concrete and shall be compatible for use with the selected concrete sealer.

- D. Curing Covers:
 - 1. Hydracure Covers, as manufactured by PNA Technologies, (800) 542-0241.

- E. Protection Paper:
 - 1. Seekure 892, reinforced and laminated protection paper, by Fortifiber.
 - 2. Orange Label Sisalkraft, reinforced and laminated protection paper, by Fortifiber.

- F. Joint Sealant:
 - 1. Single or multi-component, self-leveling polyurethane sealant conforming to ASTM C920, Type S or M, Grade P, Class 25, with an average shore hardness of 30 or more (in accord with ASTM C661), for horizontal, traffic bearing applications
 - a. Owner reserves the right to select from manufacturer's expanded or extended color systems or custom colors as desired to coordinate with paving colors.

- b. In the event that no specific manufacturer has been specified, use one of the following Owner approved sources;
 - 1) Dynatrol II, by Percora Corp.
 - 2) Dymeric 511, by Tremco
 - 3) Sikaflex 2C N, by Sika Corp.
 - 4) Sonolastic NP 2, by Sonneborn Building Products.
- 2. Warrant sealants and caulking against faulty workmanship and defective materials for a period of 5 years from date of Substantial Completion.
- 3. Compressible Backing:
 - a. 'Backer Rod'; Closed cell neoprene, polypropylene or other resilient material compatible with recommendations of sealant manufacturer.

G. Sealers:

- 1. Apply sealers to all concrete paving as indicated on the drawings. In the event that no specific manufacturer has been specified, use one of the following Owner approved sources;
 - a. Low-sheen, Penetrating type:
 - 1) Protecrete Repeller, by Applied Concrete Technology, Inc., (800) 228-6694.
 - 2) Protecrete Densifier-Plus, by Applied Concrete Technology, Inc., (800) 228-6694.
 - 3) Repello, by L. M. Scofield Company., (800) 800-9900
 - b. Glossy, Non-penetrating Type:
 - 1) Cementone, by L. M. Scofield Company., (800) 800-9900
 - 2) Brickform Satinseal, by Rafco Products, (800) 483-9628
 - 3) Brickform Masterseal, by Rafco Products, (800) 483-9628

2.05 WEB SITES

- A. F.L.M. Scofield Co.: <http://www.scofield.com/>

PART 3 EXECUTION

3.01 SUBGRADE AND COMPACTION

- A. Insure sub-grade soil is compacted to required specifications and set to proper grades.
- B. Sub-grade is to be free of all soft, compressible or expansive soils. Remove any exposed rocks and all loose soil or debris.

- C. Lightly moistened sub-grade with an even spray, just prior to placing concrete, to control any initial rapid loss of moisture from the slab. Concrete shall not be placed if sub-grade is overly saturated.

3.02 FORMWORK

- A. Set forms to meet alignment, shape, dimensions and grades as shown on Drawings.
- B. Straight lines are to be set true, plumb and with limited deviation. Radiuses shall be formed concentric and smoothly transition to all adjoining straight segments.
- C. Forms shall be of sufficient thickness to ensure they will not deform when loaded. Hold forms rigidly in-place with sufficient amount of stakes, clamps, spreaders and braces to ensure formwork will not move or deflect when loaded.

3.03 REINFORCEMENT

- A. Place steel reinforcement as indicated on drawings. Interrupt reinforcement at all construction joints.
- B. Set and secure reinforcement grid on sufficient quantity of spacers to insure steel remains in proper placement during concrete pour.
- C. Place 2-piece dowel sleeves on formwork as required. Insure sleeves remain in alignment with slab during concrete placement.

3.04 PLACEMENT

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete no faster than it can be properly finished with due regard to weather, concrete temperature and the size and abilities of the finishing crew.
- C. Place concrete in forms no later than 1-1/2 hours after water was first added to the batch. During hot weather, 90 F. or greater, placement time shall be reduced to a maximum of (1) hour. Any concrete placement made past these durations may be rejected and replaced at Owner's discretion.
 - 1. Placement and Finishing:
 - a. Place concrete continuously and in one direction within the formwork.
 - b. Screed or strike-off surface to provide slab at required grades.

- c. Prior to the accumulation of any bleed water, bullfloat or darby to level and smooth the surface.
- d. After all bleed water has been evaporated, tool all required joints and edges, hand float and finish as needed.
- e. Finish concrete surface to achieve the following tolerances when measured in accord with ASTM E 1155.
 - 1) Trowel finished surfaces: FF32/FL25.
 - 2) Float and broom finished surfaces: FF25/FL20.

3.05 FINISHES AND TEXTURES

- A. Provide all finishes and textures as noted on the Drawings and Paving Schedule or match approved Owner's samples when available. In the event the Owner has not provided a sample for a specified finish, the following descriptions are provided for reference:
 - 1. Steel or Smooth Trowel Finish:
 - a. A smooth, hard and dense surface free of all marks from trowels, groovers and edgers. To be performed only after the concrete has been floated and when no water can be brought up to the surface from the troweling process. Surface to receive subsequent passes until the trowel makes a ringing sound as it moves over the surface.
 - 2. Smooth Float or 'Sweat' Finish:
 - a. A relatively even and smooth finish that still contains enough texture to provide good slip resistance. Produced with a wood or metal float leaving a fine texture with a consistent circular trowel pattern. See drawings or take owners art direction for desired pattern.
 - 3. Sponge Float Finish:
 - a. A slightly rougher finish than the Smooth float, achieved by final troweling with a sponge or rubber faced float leaving a pronounced radial trowel pattern. See drawings or take owners art direction for desired pattern.
 - 4. Broom Finish:
 - a. Brush or broom finish is achieved by drawing a clean stiff-bristle broom across the still-plastic surface to create uniform striations. Direction of broom pattern is to be alternated between each adjoining panel. However, the pattern may be otherwise directed by owner.
 - b. Light Broom; executed with a medium to stiff poly-bristle push broom.
 - c. Medium Broom; executed with medium to stiff Palmyra bristle push broom.
 - d. Heavy Broom; executed with a stiff Palmyra bristle or steel wire push broom
 - 5. Acid Washed Finish:
 - a. Surface layer of mortar is removed by applying an approved surface retarder or a diluted solution of muriatic acid over the hardened concrete.

The contractor must take all necessary precautions to protect any and all surrounding materials and finishes from effects of the acid solution, including control and proper removal of all water used to remove the acid and cement from the concrete.

6. Salt Finish:
 - a. #2 size rock salt crystals are scattered across the still-plastic concrete at a rate of 1 pound per 10 square feet of surface area and tamped into the surface with a wood darby. Salt crystals are to be dissolved and removed by water-washing after concrete has had sufficient time to cure and not be damaged by the washing process.
7. Exposed Aggregate Finish:
 - a. Water-wash;
 - 1) Surface layer of mortar is removed with a light, controlled spray of water and scrubbed with a stiff brush to expose aggregate fines in concrete.
 - b. Retardant;
 - 1) Surface layer of mortar is removed by applying an approved retardant to the finished concrete, to effect the setting of the top mortar paste, and then removing it by water-wash and/or brushing to expose aggregate to the desired finish.
8. Seeded Aggregate Finish:
 - a. An exposed aggregate finish achieved by surface applying a decorative aggregate. Aggregate is to be uniform in size and thoroughly washed prior to installation. Evenly distribute aggregate across the surface and tamp into the concrete with a hand float or darby. Apply immediately after the concrete has been bull-floated and tamp until completely embedded in concrete surface. Expose aggregate by water-wash technique or with retardant finish process.
9. Sand-blast Finish:
 - a. Sand-or abrasive blasted to remove cement-sand matrix to expose aggregate face until aggregate is in uniform relief.
 - 1) Light: Removes mortar to leave only exposure of fine aggregate. Maximum reveal of 1/16 in. and uniform in color.
 - 2) Medium: Maximum reveal of 1/4 in. and uniform in color.
 - 3) Heavy: Rugged and uneven appearance leaving approx. 80% of surface as coarse aggregate. Maximum reveal of 1/3 diameter of coarse aggregate; 3/8 to 1/2 in. reveal.
 - b. Perform abrasive- and sand-blasting on concrete surfaces at the same time intervals after concrete placement used to produce sample panels.
 - c. Surface textures shall match Owner-approved sample panels as applicable.
 - d. Sandblasting shall be performed by a qualified technician using only equipment that is of sufficient size and capacity for the work.
 - e. Contractor shall be responsible for protection of all adjacent work, control of airborne material and removal of all debris from the blasting process.

10. Stamped and Patterned Concrete:
 - a. Provide pre-formed mats or stamps and other required tools designed to achieve specific patterns and textures as indicated on Drawings and to match approved samples. Install by a contractor licensed to use specific stamps or texture mats specified on the Drawings when required by the pattern licensee.
 - b. Release agent for textured patterns: Colored bond-breaking powder applied in two colors at a min. rate of 3 ½ lbs. per 100 sq. ft. of surface area. Additional material may be required depending on concrete and depth of impressions to be made.
 - c. Placement:
 - 1) Prepare concrete mix and place in accord with all specifications herein.
 - 2) After final floating, apply colored release agents and imprint pattern or texture in surface in accord with pattern manufacturer's recommendations and to match approved samples.
 - 3) Poorly registered patterns or finishes with 'flat-spots' that are void of the required texture will be considered deficient.

B. Colored Aggregate Toppings:

1. Provide seeded aggregates, and textures as indicated on Drawings or match Owner's approved samples. Install by a contractor licensed to use specific aggregate toppings when required by manufacturer of product specified for use.
2. Placement:
 - a. Surface broadcast materials at rates and coverage required per the manufacturer's recommendations and to match Owner's samples.
 - b. Apply material when concrete slab has set to a point that seeded aggregate will not sink into concrete and prior to the concrete surface becoming too stiff to work the aggregates into the surface.
 - c. Material shall be applied by hand and dropped vertically at a 90 deg. angle to the surface from a distance of 18 to 24 inches.
 - d. Float the seeded materials after each application. Trowel the finish surface after the final application to flat, dense and uniform finish.

C. Heavy-duty Metallic Aggregate Topping:

1. Apply at dumpster and compactor pads and other areas indicated on Drawings requiring a high-strength, impact-resistant wearing surface.
 - a. Apply bonding agent over hardened concrete sub-slabs as recommended by topping manufacturer.
 - b. Mix and apply topping in accord with manufacturer's recommendations. Unless indicated otherwise on Drawings, provide minimum 1 in. topping thickness.
 - c. Provide hard, steel trowel finish in order to obtain maximum surface density and cure as recommended by topping manufacturer.

3.06

JOINTING

- A. Place joints in concrete work as indicated on Drawings, per approved shop drawings and as directed in the field by Owner.
- B. Verify specific types and layout of all joints with Owner prior to placing concrete. Although layout depends on specific shape and size of areas, do not space control joints more than 12 ft. on center in a square pattern.
- C. Accurately lay out areas and make all joints straight and true, with clearly defined angles, unless directed otherwise by Owner.
- D. Provide isolation joints, with expansion material and joint sealing compound, at all vertical surfaces and adjoining construction, to the full depth of the slab.
- E. Saw-cut Joints:
 - 1. Make saw-cut control joints in concrete no later than 12 hours after finishing or as soon as concrete is strong enough to not be damaged by the blade or weight of the machine.
 - 2. Carefully check condition of concrete before commencing saw-cutting to ensure that the saw will not fret, ravel, spall edges of cuts or dislodge aggregate. Use saw-cutting equipment appropriate for hardness of the concrete.
 - 3. Depth of saw-cuts shall be no less than 1/4 of the installed slab thickness. Do not cut through steel bar reinforcing. Saw-cuts to be 1/8 in. wide unless otherwise noted on Drawings.
- F. Hand-tooled Joints:
 - 1. Make all hand-tooled control joints with a brass V-shaped grooving tool with 1/4 in. rounded edges and a keel of 1 1/2" depth.
- G. Expansion Joints (isolation joints):
 - 1. Provide foam or rigid joint filler material as required to the full depth of the slab. Note: non-removable plastic joint strips will not be allowed for the installation of any expansion or isolation joints.
 - 2. Unless otherwise directed by owner, provide a 1/4 in. radius, tooled edge, for all expansion joints and paving edges.

3.07

CURING & SEALING

- A. All concrete shall be properly cured with approved methods and materials as specified.
 - 1. Commence curing of concrete immediately after finishing is completed. Do not permit any traffic, debris or material storage on surfaces during curing.
 - 2. Alternating wet and dry surface conditions during curing are not permitted.

- B. Natural Gray Concrete:
 - 1. Cure standard gray flat work with liquid applied curing compound and curing blankets or by water-curing methods as follows:
 - a. Curing Compound method:
 - 1) Immediately after finishing concrete, apply two separate and overlapping applications of curing compound at opposing right angles.
 - 2) Cover with approved curing blankets. Lap joints 12 in. and seal with a water-resistant, pressure-sensitive tape. Seal perimeter edges and penetrations to slab to prevent loss of moisture.
 - 3) Maintain blankets in-place for a minimum of 14 days.
 - b. Water-curing method:
 - 1) Maintain concrete surfaces continuously wet for 14 days by either ponding with water, using a constructed dam around the perimeter or by applying a continuous fine spray of potable water.

- C. Colored Concrete:
 - 1. Cure colored concrete slabs by covering with approved curing blankets and maintaining a thoroughly wet condition between the concrete and cover for no less than 14 days.
 - a. Curing blankets are to be kept flat and unwrinkled against the concrete surface.
 - 2. Where wet cure method is not compatible with the specified concrete finish. Cure concrete, with compound recommended by manufacturer of the integral color concrete pigments. Curing compound(s) shall not discolor, lighten, darken, stain, or impart other unsightly characteristics to colored concrete and shall be compatible with specified sealer.
 - a. After application of curing agent, cover with approved curing blankets. Lap joints a minimum of 12 in. and seal with pressure-sensitive, water-proof tape.
 - b. Curing blankets is to be kept flat and unwrinkled against the concrete surface and are to remain in-place for no less than 15 days.

- D. Seal all concrete flatwork immediately after it has been properly cured.
 - 1. When approved by Owner, remove concrete protection and thoroughly clean surface.
 - 2. Apply specified sealer per manufacturer's directions.

3. Protect concrete from all pedestrian and vehicular traffic until sealer has properly dried.
4. Re-install protection paper or other Owner approved material to protect finished concrete from damage.

3.08 JOINT SEALANT

- A. Conform to ACI 504, ASTM C1193 and sealant manufacturer's recommendations.
 1. Clean joints with wire brush and air blasting or vacuum. Insure that all dirt and loose materials are thoroughly removed joints and surrounding area prior to installing sealant.
 2. Mask or otherwise protect adjacent surfaces from sealant materials.
 3. Install foam backer rod to proper depth. Joint width-depth ratio shall comply with sealant manufacturer's recommendations.
 4. Install sealant material by pouring or gunning directly in joints. Neatly tool to eliminate air pockets and voids and to provide a smooth finish.
 5. Protect all joints from dirt, debris and all pedestrian and vehicular traffic until it has been properly cured.

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END OF SECTION

SECTION 323119

DECORATIVE METAL FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Decorative aluminum fences and gates.

1.02 REFERENCE STANDARDS

- A. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes.
- B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- C. ASTM D523 - Standard Test Method for Specular Gloss.
- D. ASTM D714 - Test Method for Evaluating Degree of Blistering in Paint.
- E. ASTM D822/D822M - Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- F. ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- G. ASTM D2244 - Test Method for Calculations of Color Differences from Instrumentally Measured Color Coordinates.
- H. ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- I. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test.
- J. ASTM F2408 - Ornamental Fences Employing Galvanized Steel Tubular Pickets.

1.03 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings:
 - 1. Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
 - 2. Foundation details, concrete design mix and reinforcing schedule for anti-ram barrier system.
- D. Installer's Qualification Statement.
- E. Manufacturer's Warranty.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Experienced with type of construction involved and materials and techniques specified and approved by fence manufacturer.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Store materials in a manner to ensure proper ventilation and drainage. Protect against damage, weather, vandalism and theft.

1.06 WARRANTY

- A. Finish: 10 years.

PART 2 PRODUCTS

2.01 GATES

- A. Gates: Complete factory-fabricated system of posts and panels, accessories, fittings, and fasteners; finished with electrodeposition coating, and having the following performance characteristics:
 - 1. Capable of resisting vertical load, horizontal load and infill performance requirements for fence categories defined in ASTM F2408.

- B. Electro-Deposition Coating: Multi-stage pretreatment/wash with zinc phosphate, followed by epoxy primer and acrylic topcoat.
 - 1. Total Coating Thickness: 2 mils (0.058 mm), minimum.
 - 2. Color: As selected by Architect from manufacturer's standard range.
 - 3. Coating Performance: Comply with general requirements of ASTM F2408.
 - a. Adhesion: ASTM D3359 (Method B); Class 3B with 90 percent or more of coating remaining in tested area.
 - b. Corrosion Resistance: ASTM B117, D 714 and D 1654; 1/8 inch (15.8 mm) coating loss or medium No.8 blisters after 1,500 hours.
 - c. Impact Resistance: ASTM D2794; 60 inch pounds (6.8 N m).
 - d. Weathering Resistance: ASTM D523, D822/D822M and D2244; less than 60 percent loss of gloss.

- C. Aluminum: ASTM B221.
 - 1. Tubular Pickets, Rails and Posts: 6005-T5 alloy.
 - 2. Extrusions for Posts and Rails (Outer Channel): 6005-T5 alloy.
 - 3. Extrusions for Pickets and Rail (Inner Slide Channels): 6063-T5 alloy.

- D. Fasteners: ASTM A276/A276M, Type 302 stainless steel; finished to match fence components.
 - 1. Tamper-proof security bolts.
 - 2. Self-drilling hex-head screws.

2.02 ALUMINUM GATE

- A. Decorative Aluminum Privacy Fence and Swinging Gates:
 - 1. Fence Panels: Formed aluminum sheets; 4'-9.5"- 5'-1-1/4" high by 6'-6" long.
 - 2. Posts: Aluminum extrusions; 2-1/2 inches (63 mm) square.
 - 3. Color: To be selected by Landscape Architect from manufacturer's standard range.
 - 4. Products:
 - a. Substitutions: See Section 01 60 00 - PRODUCT REQUIREMENTS.

- B. Decorative Aluminum Post-and-Rail Fence and Swinging Gates:
 - 1. Posts: Aluminum extrusions; 2.5" inches square.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Landscape Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Set fence posts in accordance with the manufacturer recommended spacing.
- C. When cutting rails immediately seal the exposed surfaces by:
 - 1. Removing all metal shavings from cut area.
 - 2. Apply zinc-rich primer to thoroughly cover cut edge and drilled hole; allow to dry.
 - 3. Apply 2 coats of custom finish spray paint matching fence color.
 - 4. Failure to seal exposed surfaces in accordance with manufacturer's instructions will negate manufacturer's warranty.
- D. Space gate posts according to the manufacturers' drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected.
 - 1. Base type and quantity of gate hinges o the application; weight, height, and number of gate cycles.

3.04 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch (6.3 mm).
- B. Maximum Offset From Indicated Position: 1 inch (25.4 mm).

- C. Minimum distance from property line: 6 inches (152 mm)..

3.05 CLEANING

- A. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.
- B. Clean fence with mild household detergent and clean water rinse well. .

3.06 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION

SECTION 328423

LANDSCAPE IRRIGATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Materials, equipment and services required to install the complete automatic landscape irrigation system as indicated on Drawings.

1.02 REFERENCES

- A. ASTM A 126 - Standard Specification for Gray Iron Castings for Valves, Flanges and Fittings
- B. ASTM A 536 - Standard Specification for Ductile Iron Castings
- C. ASTM B 32 - Standard Specification for Solder Metal
- D. ASTM B 62 - Standard Specification for Composition Bronze Metal Castings
- E. ASTM B 302 - Standard Specification for Threadless Copper Pipe
- F. ASTM B 828 - Standard Specification for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings
- G. ASTM D 1784 - Standard Specification for Rigid Poly Vinyl Chloride (PVC) Compounds
- H. ASTM D 1785 - Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and Class 200
- I. ASTM D 2464 - Standard Specification for Threaded Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80
- J. ASTM D 2466 - Standard Specification for Poly Vinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40

- K. ASTM D 2564 - Standard Specification for Solvent Cements for Poly Vinyl Chloride (PVC) Plastic Piping Systems
- L. ASTM F 477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- M. ASTM F 493 - Solvent Cements for CPVC Plastic Pipe and Fittings
- N. ASTM F 714 - Polyethylene (PE) Plastic Pipe
- O. NEMA 250 - Enclosures For Electrical Equipment

1.03 QUALITY ASSURANCE

- A. In accord with Section 01 40 00 (01440) - Quality Requirements.
- B. Workman Qualifications:
 1. Contractor with no less than five (5) years' experience performing work similar to the scope and complexity of this Project. Documented completion of no less than five (5) installations with successful in-service performance of commercial, computer controlled, irrigation systems.
 2. Contractor shall maintain a competent supervisor who shall remain on-site during all specified work in progress and who is experienced with all aspects of the irrigation system.
- C. Tests and Inspections:
 1. Do not conceal any work until all required tests and inspections have been completed.
 2. Conduct the following tests, inspections and conference with Owner. Provide advanced notification of each according to the times indicated:
 - a. Pre-installation conference: 7 days.
 - b. System layout: 24 hrs.
 - c. Hydrostatic testing of pressure main line and non-pressure lateral lines installed under paving: 48 hrs.
 - d. Coverage tests: 24 hrs.
 - e. Final inspection: 48 hrs.
 3. During final inspection, provide two-way radios and sufficient personnel to provide constant communication between inspection areas and the controller.
 4. Hydrostatic tests:
 - a. Furnish force pump and all equipment required to perform hydrostatic testing.
 - b. Center load backfill over pipes, leaving all joints exposed until the installation has been inspected, tested, and approved by Owner.

- c. Except for ball valves installed upstream of control valves, all testing shall be completed prior to the installation of all other valves and valve assemblies.
 - d. Perform hydrostatic tests in presence of Owner. Maintain 125 psi pressure in the lines for a period of 2 hours without interruption. If leaks develop, remake joints and repeat tests until the entire system has proven watertight.
5. Coverage test:
- a. Upon completion of the sprinkler system and prior to planting of shrubs, ground cover or turf, perform a coverage test in presence of Owner to determine that irrigation coverage for all planting areas is complete and adequate.
 - b. Furnish materials and perform work required to correct any inadequacies of coverage. Re-schedule and perform additional coverage test with Owner for approval.

D. Final Acceptance:

- 1. Prior to final approval of work, all of the following requirements shall be met:
 - a. Landscape irrigation system completed and approved by Owner.
 - b. Coverage tests completed and approved by Owner.
 - c. Punch list items completed and approved by Owner.
 - d. As-built drawings completed and approved by Owner.
- 2. Maintain irrigation system and sufficient watering schedule until all conditions of approval have been completed.
- 3. Contracted irrigation maintenance period shall begin upon Owner's final acceptance.

1.04 PROJECT CONDITIONS

- A. Coordinate work with underground utilities and trades responsible for other underground improvements including the location and planting of specimen trees, and other planting as applicable. Verify location of all planting requiring excavations 24 inch in dia. and larger with Owner prior to layout of main lines.
- B. Provide temporary irrigation at all times to properly maintain existing plant materials where required.

1.05 PRE-INSTALLATION CONFERENCE

- A. At least two (2) weeks prior to the commencement of work, conduct a pre-installation conference with the Owner. This meeting shall include all parties responsible for installation, scheduling and testing of the finish work under this section.

- B. Review methods and procedures related to the work of this Section, including, but not necessarily limited to the following:
 - 1. Products and system requirements
 - 2. Review of required submittals
 - 3. Review of required details
 - 4. Schedule and sequencing of work
 - 5. Coordination with other trades and existing site conditions
 - 6. Forecasted weather and procedures for coping with unfavorable conditions
 - 7. Required inspections, reviews and procedures for approvals

- C. Record discussions of conference including all decisions, directions and agreements reached. Furnish copies of record to all parties in attendance.

1.06 SUBMITTALS

- A. In accord with Section 01 30 00 (01330) - Administrative Requirements for Submittal Procedures.

- B. Provide documentation to show required prior experience and workman qualifications.
 - 1. Provide copy of certificates for professional memberships training, and training,
 - 2. List project names, location, address, and telephone numbers of a contact person for information regarding completed work.

- C. List of materials:
 - 1. Submit a complete list of materials prior to commencing work. List of materials shall include the name of manufacturer, model number, and description of each item intended for use in the installation
 - 2. Irrigation submittal shall be specific and complete. All items shall be listed, including solvent, primer, wire, wire connectors, valve boxes, and all other items needed to complete work.
 - 3. Although manufacturer and other information may differ, the following is a guide to the proper format for submittal:
 - 4. Submit operating manuals and maintenance data of equipment.
 - 5. Any equipment or materials furnished without the prior approval of Owner may be rejected and required to be removed at Contractor's expense.
 - 6. Substitutions will not be allowed without prior written approval by Owner.

- D. Project record documents:
 - 1. Provide and keep up-to-date, a complete red-lined record set of full size drawings which shall be corrected daily. Prints for this purpose may be obtained from Owner at cost. Document every change from the original Drawings and the exact installed locations, sizes, and types of equipment.

2. Red-lined drawings shall be kept on job site and shall be used only as a record set. The record drawings shall be available at all times for review by Owner. Submit copies of the red-lined record drawings to Owner, for review, each month.
3. Red-lined drawings shall serve as record for the progress of work completed and shall be used by the Owner as a basis for measurement and payment. Should record drawings not be available for review or not be up-to-date at the time of review, it will be assumed no work has been completed.
4. As-built locations shall be dimensioned from two permanent points of reference, such as building corners, curbs, hardscape edges, roadways, or similar elements. Offsets should be taken at 90 degree angles from reference points whenever possible.
 - a. Provide the location of the following items:
 - 1) Pressure main line routing. Include all changes in direction
 - 2) Point of connection to the existing water supply lines
 - 3) Sprinkler control valves
 - 4) Quick coupling valves and washdown valves
 - 5) Gate valves (manual and automatic)
 - 6) Communication and flow sensor cable routing
 - 7) Flow sensors
 - 8) Point of connection to electrical power service
 - 9) Diagrammatic routing of irrigation control wire
 - 10) Field satellite location
 - 11) Irrigation electrical pull box locations
 - 12) Other related equipment, as directed by Owner
5. Two weeks prior to date of Substantial Completion of irrigation system, transfer all information from the redlined record set of drawings to AutoCAD format electronic files. Prepare drawings in accord with Owner's current AutoCAD standards. An electronic file of base drawing will be provided by Owner. Provide drawing plot for Owner's review and approval.
 - a. Indicate all component locations noted on redline drawings with Northing and Easting coordinates.
 - b. Indicate elevations for all components where site conditions require installation deeper than 36 in.

E. Controller charts:

1. Submit As-built drawings for approval by Owner prior to preparation of controller charts.
2. Provide one controller chart for each field satellite supplied.
3. Controller charts shall be prepared in AutoCAD. Provide hard copy plots of controller charts and AutoCAD electronic files on disk. Provide preliminary plot for Owner approval prior to final submittal.
4. The controller chart shall show the area controlled by each field satellite and shall be provided at a scale and size approved by Owner. Chart shall depict each area of coverage in separate background colors.
5. Controller charts to be completed and approved prior to the final acceptance of system.

1.07 PRODUCT HANDLING

- A. In accord with Section 01 66 00 (01660) - Product Storage and Handling Requirements.
- B. Deliver and store products and equipment in manufacture's unopened packaging until ready for installation.
- C. Protect all materials and equipment from damage. Store in dry area protected from rain and moisture contamination.

1.08 SPARE PARTS

- A. Furnish the following items to Owner prior to Final Approval. Deliver items packaged and clearly labeled for storage, to location determined by Owner. Include itemized inventory list.
 - 1. (6) ea. sprinkler bodies of each type used.
 - 2. (6) ea. sprinkler nozzles of each type used.
 - 3. (6) ea. pressure compensating nozzle screens of each type used.
 - 4. (2) wrenches for each rotor type sprinkler installed.
 - 5. (2) valve box keys.
 - 6. (1) valve key for manual valves.
 - 7. (2) quick coupler key assemblies for every (5) washdown valves installed (or fraction there-of). Key assembly shall include; one Buckner QB7DK15 key, one Nibco T-580 1 in. ball valve, one 1 in. x 2 in. brass nipple, and one Rain Bird SH-1 hose swivel.
 - 8. Dripline Parts:
 - a. (500) feet of drip tubing of each drip interval and discharge rate.
 - b. (2) plastic handle punches.
 - c. (25) ea. barbed couplings
 - d. (25) ea. barbed 90 degree elbow fittings
 - e. (25) ea. barbed tee fittings
 - f. (25) ea. 2 way 180 degree adapters
 - g. (25) ea. 3/4 inch FPT male adapters
 - h. (5) spare filter elements of same mesh size required
 - i. (5) line size flushing valves

1.09 WARRANTY

- A. Submit warranty documents in accord with Section 01770 - Closeout Procedures.
- B. Warranty the entire landscape irrigation system to give satisfactory service, including all equipment and materials for a period of one (1) year from the date of Final Acceptance.

- C. Warranty the temporary landscape irrigation system to give satisfactory service for a period of 6 months from the date of acceptance by Owner.
- D. Should any problems develop within the warranty period due to inferior and faulty materials or workmanship, correct problems to Owner's satisfaction at no additional cost.
- E. Any damages or re-work required of the landscape or hardscape due to repairs of the irrigation system shall be completed to Owner's satisfaction at no additional cost.
- F. Owner reserves the right to make temporary repairs, as necessary, to keep the landscape irrigation system in an operating condition. Exercising this right does not in any way relieve the contractor of any responsibilities under the terms of the warranty.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Plastic Pipe and Fittings:
 1. All buried irrigation water pipe, both pressure mainline and lateral lines, shall be purple color pigmented PVC pipe.
 2. Wash-down main lines shall be standard white PVC pipe.
 3. Pipe shall be marked with Manufacturer's name, nominal pipe size, schedule or class, pressure rating in psi, date of extrusion and labeled "Reclaimed Water".
 - a. Non-pressure lateral line pipe: Schedule 40, PVC plastic, ASTM D1785, Type I, Grade I with solvent welded joints.
 - b. Pressure main line pipe, sizes 3 in. and smaller: Schedule 40, PVC plastic, ASTM D1785, Type I, Grade I, with solvent welded joints.
 - c. Pressure main line pipe, sizes 4 in. and larger: Class 200, PVC plastic, ASTM D1785, Type I, Grade I with rubber gasketed bell and spigot connections. Insertion marks shall be visible to show proper depth into spigot.
 4. Fittings shall bear manufacturer's name or trademark, material designation, size, and applicable I.P.S. schedule.
 - a. Glued socket type, for pipe sizes 3 in. and smaller; Schedule 40, PVC plastic; Grade I, ASTM D2466, Type I.
 - 1) Solvent cement: ASTM D 2546, for PVC pipe and fittings.
 - b. Threaded type, for pipe sizes 3 in. and smaller; Schedule 80, PVC plastic; threaded type; Grade I, ASTM D2464, and ASTM F 437.

- c. Bell-end, sizes 4 in. and larger; Ductile iron, grade 70-55-05 in accord with ASTM A 536, having deep bell push-on joints with gaskets meeting ASTM F477.
 - 1) Harco 'Deep Bell' by the Harrington Corp. of Lynchburg, VA. (804) 845-7094, or Owner-approved equivalent.

- B. Copper Pipe and Fittings:
 - 1. Type K, hard tempered pipe, ASTM B 88.
 - 2. Solder joint type wrought copper fittings, ASTM B 828.
 - 3. 95/5 solder, ASTM B32.

- C. Brass Pipe and Fittings
 - 1. 125 lb. class cast bronze pipe, ASTM B62, with threaded cast bronze fittings.

- D. Thrust Blocks:
 - 1. Standard concrete mix in accord with ASTM C 150, ASTM C 33, and ASTM C 94 with a compressive strength of 3000 psi. after 28 days.

- E. Valve Boxes:
 - 1. For all subgrade valves and valve assemblies located within planting areas; Provide green plastic boxes with matching green lids as noted:
 - a. Manual gate valves; 10 in. x 10-1/4 in. round box, Carson Industries No. 910-12B with bolt-down cover. Extension sleeve shall be PVC with minimum depth of 6 in.
 - b. Electric control valves; 11-3/4 in. x 17 in. x 12 in. rectangular box for all electric control valves, Carson Industries No. 1419-12B, with bolt-down cover.
 - c. Control Valves with wye strainer assembly; 16 in. x 25-1/2 in. x 12 in. jumbo rectangular box, Carson Industries No. 1324-12 with bolt-down cover.
 - d. Dripline control valve assemblies; 15 in. x 21-1/2" x 12 in. rectangular box, Carson Industries No. 1220-12B, with bolt-down cover.
 - e. Communication cable and flow sensor wire pull boxes; 12 in. x 18 in. rectangular box, Carson No. 1419B with green bolt-down cover.
 - 2. Gate valves located in hardscape and traffic areas;
 - a. Concrete boxes with cast iron lids, Brooks No. 36 HFL concrete body with cast iron frame and cast iron hinged locking cover.
 - 3. Washdown Valves; Ford Crescent Box, model no. CBD-95578-04, customized cast iron valve box as manufactured by Ford Meter Box Company, Wabash, In., (800) 826-3487.
 - 4. Furnish compatible valve box extensions from same manufacturer as boxes.

- F. Control Wire:
1. UL-approved direct burial copper wire AWG-U.F. 600V.
 2. Provide No.14 for control wires and No.12 for common wires.
 - a. Provide separate control wires and single common wire for operation of each automatic gate valve.
 - b. Color of all common wire shall be white. Multiple common wires in the same trench shall be white with a different colored stripe on each. Provide separate common wire for each field satellite or controller installed.
 - c. When more than one field satellite or controller is installed at the same location, control wires shall be a different color for each.
 - d. For new control valves installed on an existing controller, control wire and common wire shall match existing wire colors for that controller.
- G. Wire Connectors: DBY-6 & DBR-' Direct Bury Splice Kits by 3M with Scotchlok™ connectors.
- H. Conduit:
1. PVC Schedule 40 gray conduit, 2 inch dia. minimum. Size as indicated on the Drawings or as needed to accommodate anticipated number of wires, per National Electric Code requirement, not to exceed 40 percent of inside area of conduit.
 2. Use separate conduit for each type of wire or cable run.
- I. Sleeves:
1. Schedule 40 PVC for applications requiring 3 inch dia.
 2. Class 200 PVC for applications 4 inch dia. and larger.
 3. All sleeves shall be sized 2 times the diameter of the protected pipe run for all pipe under 6 inch diameter or 2 pipe sizes larger for pipe runs 6 inch and larger.
- J. Valve Identification Tags:
1. Christy brand, Maxi Tag™ or Owner approved equivalent, manufactured from Behr polyurethane Desopan 2, hot-stamped with black letters on yellow background. Attach one tag to each electric control valve providing CCU, field satellite and station numbers.
 2. All valves, regardless of type, shall have 'Reclaimed Water' ID tags attached. Tags shall be Christy brand Maxi Tag™, hot-stamped with black letters on purple background. Tags shall read "Warning - Reclaimed Water - Do Not Drink." Tag shall be printed in English and Spanish.

2.02 EQUIPMENT

- A. Backflow Device: As specified on Drawings.

- B. Gate Valves:
 - 1. Manual Gate Valves 2-1/2 in. and smaller:
 - a. Nibco T-113 or Owner-approved equivalent that includes the following options;
 - 1) 200 lb. saturated steam rated brass body, ASTM B 62, with threaded joints, non-rising stem, screwed bonnet and bronze hand wheel.
 - 2. Manual Gate Valves 3 in. and larger:
 - a. Nibco F-619 or Owner-approved equivalent that shall include the following options;
 - 1) 200 lb. W.O.G. epoxy coated iron body, ASTM A126 Class B, with flanged joints, non-rising stem and double disk, and bolted bonnet with 2 in. square operating nut.

- C. Ball Valves:
 - 1. Spears No. 2121 series industrial grade PVC ball valve with threaded ends or Owner-approved equivalent that includes the following options;
 - a. Heavy bodied PVC construction with 236 psi min. pressure rating.
 - b. PTFE ball seats.
 - c. EPDM high grade abrasion resistant O-rings.
 - d. NSF listed for potable water.

- D. Electric Control Valves (globe type): Type and size as indicated on Drawings.

- E. Washdown Valves: Type and size as indicated on Drawings.

- F. Quick Coupler Valves: Type and size as indicated on Drawings.

- G. Surge Arresters:
 - a. For 120V power wiring: Surge-arresting duplex outlet by Leviton, Model No. 528-I or Owner approved equivalent.
 - b. For two-wire communication path: RainBird MSP-1 or Owner approved equivalent, Low Resistance, in-line, transient voltage surge protector.

- H. Grounding Equipment:
 - 1. Ground rods to be 5/8" dia. x 10 ft. long copper clad; Paige Electric, No. 182007 or equal.
 - 2. Grounding wire to be #6 AWG bare solid copper.

3. Grounding plates to be 4 inch x 96 inch x.06 inch copper alloy with integral connection of 25 feet of #6 AWG bare, solid copper wire, UL Listed conforming to the minimum requirements of Section 250 of the National Electric Code. Connection of the wire to plate shall be performed by the plate manufacturer.
 4. Grounding connections to utilize an exothermic welding process, Cadweld connectors, UL Listed, Model GT1161G and straight through couplers.
 5. Ground enhancement material shall be Powerset as manufactured by Loresco, 50 pound bags, minimum of two bags per grounding plate.
- I. Flow Sensor:
1. Flow sensor as manufactured by Data Industrial Co or Owner approved equivalent.,
 - a. Model No. IR-250B; brass, tee mounted flow sensor for 1 in., 1-1/4 in., & 1-1/2 in. sizes.
 - b. Model No. IR-228B; brass, tee mounted flow sensor for 2 in. size.
 - c. Model No. IR-220-SS; insert style, stainless steel flow sensor for sizes 2-1/2 in. and larger.
- J. Pulse Transmitter:
1. Product: Rain Bird Model PT 322 or Owner approved equivalent.
- K. Pulse Decoder:
1. Product: Rain Bird Pulse Decoder Model No. F-69300 or Owner approved equivalent
- L. Sprinkler Heads: Type, size and manufacturer as indicated on Drawings.
- M. In-Line Drip Irrigation System:
1. Dripline: RainBird LD series pressure in-line emitter tubing with Rainbird ADI inline dual port, pressure compensating and self-cleaning emitters. A flexible brown polyethylene tubing with 0.054 inch inside diameter, Model No. LD-09-12-XX. Emitters to be internally welded in-place at 12 inches on center with a flow rate of .09 GPH at 8.5 to 60 psi.
 2. Insert Fittings: Molded brown acetyl plastic as manufactured by Rainbird Irrigation, to be compatible with Rainbird LD series dripline tubing. Provide Barb x Barb tee's, ell's and couplings as needed.
 3. Compression Fittings and Adapters: Easy Fit series compression fittings as manufactured by Rainbird irrigation to be compatible with LD series dripline tubing. Fittings and threaded adapters to be made of UV-resistant ABS plastic with Buna-N rubber seals.
 4. Non-pressure Supply and Exhaust Headers: Rigid PVC SCH. 40 pipe and fittings, size as noted on Drawings.

5. In-line Flush Valve: Netafim model no. TL050MFV-1, 1/2" normally open hydraulic valve with automatic flushing capability, based upon volumetric quantity of water, to flush 1 gal. of water per each 15 GPM demand at 50 psi.upon initial build-up.
6. Pressure Regulator: Rainbird brand inline pressure regulator. Size and pressure rating as noted on drawings.
7. Air/Vacuum Relief Valve: Rainbird AR valve kit with internal sliding poppet valve and 3/4" female pipe threads.
8. In-line Filter: Rain Bird Quick Check series in-line basket filter, model no. QKCHK-200M with 200 mesh filter, size shall be as indicated on the Drawings.

N. Battery-operated Controllers:

1. Rain Bird 'Easy Rain' model, single valve battery-operated controller with DC latching solenoid and waterproof 9 volt battery compartment, compatible with Rainbird valves.
2. Provide (1) one battery operated controller for each valve used to control temporary irrigation.

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS

- A. Layout of irrigation pipe and equipment indicated on Drawings is diagrammatic. Actual locations are contingent upon site conditions and integration with other underground utilities.
- B. Verify dimensions, grades and points of connection in field prior to commencement of work.
- C. Do not proceed with installation when it is apparent that obstructions, grade differences or conflicts in the Drawings exist. Bring all such conflicts or discrepancies to the immediate attention of Owner for clarification.
- D. Obtain and pay all plumbing permits and inspections required by governing agencies.

3.02 EXCAVATION AND BACKFILLING

- A. Trenching:
 1. Lay-out system using an approved staking method.
 2. Coordinate routing of mainline piping and trenching with specimen tree locations.

- a. Planting locations shall take precedence over sprinkler and piping locations.
- b. Notify Owner of any major deviations from original layout.
3. Excavate trenches with straight and vertical sides. Provide continuous support for pipe on bottom of trenches. Lay pipe to uniform grade.
 - a. Maintain 1 in. minimum clearance between lines which cross at 45° to 90° angles.
 - b. Maintain 6 in. minimum clearance between sprinkler lines and between lines of other trades. Do not install sprinkler lines directly above any another pipes or utilities.
 - c. Hand dig trenches within the dripline of all existing trees or when roots 2 inch dia. and larger are encountered.
4. Where irrigation lines occur under paving, depth of coverage shall be measured from the bottom of paving material.
 - a. Provide minimum cover of 36 in. over all pressure supply main lines 6 in. and larger. Maximum cover shall be 48 in. unless otherwise approved by Owner.
 - b. Provide minimum cover of 24 in. over all pressure supply main lines 4 in. and larger. Maximum cover shall be 48 in. unless otherwise approved by Owner.
 - c. Provide minimum cover of 12 in. over non-pressure lateral lines. Maximum cover shall be 18 in. unless otherwise approved by Owner.
5. Install one continuous No. 14 AWG UF tracer wire under mainline, in all locations where control wires are not installed in same trench as mainline. Tracer wire shall be black with white stripe.

B. Backfilling:

1. Backfill and compaction: In accord with Section 02320, Excavation & Backfilling for Utilities.
2. Initial backfill over all pipe shall be clean, fine granular material.
3. Backfill only when pipe is cool. During hot weather, pipe can be cooled by operating the system for a short time prior to backfilling.
4. Provide marking tape, as specified in Section 02505 - Underground Utility Marking, for all all pressure supply main lines.
5. Properly compact backfill in trenches to dry density equal to the adjacent undisturbed soil, and conform to adjacent grades without dips, sunken areas, humps, or other irregularities.
6. Restore grades and repair any damage where settlement may occur.

3.03 INSTALLATION

A. Point of Connection:

1. Connections to water source shall be at approximate location indicated on Drawings. Make any minor changes caused by actual site conditions without additional cost to Owner.

- B. Valve Assemblies:
1. Install and connect all assemblies in accord with Drawings.
 2. Do not install multiple assemblies on plastic lines. Provide each assembly with its own outlet. When used, the pressure relief valve shall be the last assembly.
 3. All threaded fittings shall be assembled using Teflon tape applied to the male threads.
 4. When specified, install backflow assemblies in shrub areas at the minimum height required by local codes.
 5. Locations for all equipment, as indicated on Drawings, such as point of connection, CCU's, field satellites and valves are approximate.
 - a. Minor modifications to layout and location of equipment shall be provided at no additional costs to Owner.
 - b. Stake out all equipment locations for Owner's review and obtain approval prior to installation. Failure to obtain Owner's approval prior to installation may require Contractor to relocate or re-work installation at no additional costs to Owner.
- C. Plastic Pipe and Fittings:
1. Install and connect plastic pipe in accord with manufacturer's recommendations.
 2. Prepare all welded joints with approved primer prior to applying solvent.
 - a. Allow welded joints at least 15 minutes set-up/curing time before moving or handling.
 - b. Partially center load pipe in trenches to prevent movement or shifting when water pressure is applied.
 - c. Do not permit water in pipe for a minimum of 4 hours after applying solvent welds.
 - d. When the temperature is above 80°F, allow solvent weld joints at least 24 hr. curing time before water is introduced under pressure.
 - e. Suspend all solvent welding if air temperature falls below 40°F. Pipe and fittings installed at temperatures below 40°F shall be removed and replaced at no cost to Owner.
 3. Pipe Under Existing Pavement:
 - a. Piping under existing pavement may be installed by jacking, boring, or hydraulic driving. Hydraulic driving will not be permitted under asphalt paving.
 - b. Secure permission from Owner prior to cutting or breaking any existing pavement. Repairs or replacement to existing paving shall be approved and completed to the satisfaction of the Owner and shall be installed and finished at no additional cost.
 4. Marking Tape: Install continuous identifying warning tape 12" above all pressure and washdown mainline piping.
 5. Flushing System:
 - a. After all sprinkler pipe and risers are in place, open control valve and thoroughly flush system clean prior to installing sprinkler heads.

- b. Contractor shall be responsible for repair of clogged nozzles for a period of thirty days after notice of substantial completion.

D. Thrust Blocks:

1. All thrust blocks shall be cast in place. Allow concrete to cure and complete pressure tests for pipe prior to backfilling.
2. Provide concrete thrust blocks on all pressure mainline piping. Thrust blocks shall be required at all changes in size and direction of bends, reducers, plugs, and the opposite side of "T" intersections. Refer to detail drawings.
3. Thrust block sizes shall be dictated by working pressure, size of pipe, type of fitting and soil conditions. Calculate area required for concrete thrust block in contact with soil. Refer to ductile iron fitting manufacturer's thrust block sizing table to determine sizes for each condition.

E. Conduit:

1. All control wires shall be installed within a PVC Schedule 40 gray conduit, 2 inch min. diameter, at a minimum of 18 inches below finish grade.
2. Install conduit for all flow sensor and communication cables.
3. Use separate conduit for each type of wire or cable run.

F. Sleeves:

1. Install sleeves for pipes passing through or under walks, walls and paving as indicated on Drawings. Sleeving shall be of adequate size to accommodate retrieval of wiring or piping for repair and shall extend 18 in. beyond edges of paving or other construction.
2. Field verify the location, size and depth of existing sleeves where so noted on Drawings. Notify owner of any discrepancies prior to the start of installation.

G. Control Wire:

1. Run all control wire in PVC conduit as specified. Control wires to be installed in same trench as main line pipe whenever possible. Provide 12 inch spacing between pipe and conduit.
 2. Make all wire connections to electric remote control valves with approved wire connectors.
 3. Provide wire expansion curl at each wire connection. Length of curl to be sufficient to extend valve bonnet to finish surface for repairs without disconnecting wires.
 4. Install continuous wire runs between control valves and controller. Do not install wire splices without prior approval by Owner.
5. For approved wire splice locations, install in a plastic valve box, size as required and approved by owner. Provide each wire with a 3 ft. min. expansion loop set loosely in trench.

- H. Gate Valves:
 - 1. Install in accord with Drawings.
 - 2. Check and tighten valve bonnet packing before backfill.

- I. Electric Control Valves:
 - 1. Install in accord with Drawings.
 - 2. Install at sufficient depth to provide not more than 6 in. and not less than 4 in. clearance from top of valve to underside of valve box cover.
 - 3. Install valves in a plumb position with 24 in. minimum maintenance clearance from other equipment.
 - 4. Electric control valves shall be connected to field satellites in numerical sequence as indicated on Drawings.
 - 5. Install Drip System Control Valve Assemblies with basket strainer and in-line pressure regulator equipment as shown on drawings.

- J. Quick coupler valves/washdown valves: Install in accord with Drawings.

- K. Sprinkler Heads:
 - 1. Install in a plumb position, perpendicular to finish grade, at intervals not to exceed maximum spacing indicated on drawings.
 - 2. Install heads 1/2 in. above finish grade along curbs, walks, paving, and similar areas.
 - 3. Lay out sprinkler heads and make all minor adjustments required due to differences between site conditions and Drawings. All such deviations in layout shall be within the intent of the original Drawings, and without additional cost to Owner. Routing and layout of all piping shall be approved by Owner prior to installation.
 - 4. After all permanent sprinkler pipe lines and risers are in place and prior to installation of sprinkler nozzles, open control valves and flush out the system with a full head of water.
 - 5. Install nozzles of the required size and pattern for the area of coverage. Install pressure compensating screens per manufacturer's recommendations.

- L. Flow Meter and Flow Sensor:
 - 1. Install in accord with manufacturer's instructions and as indicated on Drawings.
 - 2. Provide separate flow sensor cable from each flow sensor to its' respective pulse decoder. Run all cables in PVC Sch 40 conduit.
 - a. Maximum of two (2) cables from the same point of connection may be installed within the same conduit. Cables from different points of connection are not permitted within the same conduit.
 - b. Control and common wires for automatic gate valve shall be installed within flow sensor cable conduit.

M. Grounding:

1. Field satellites and other devices requiring lightning protection shall be grounded in accordance with manufacturer's requirements and installation guide.
2. Located ground rods a minimum of 12 ft. from equipment and connect with No. 6 AWG solid bare copper wire from device to rod. Keep wire runs in as straight a line as possible from device to rods. Use only Cadweld connectors to make wire connections.
 - a. If it is necessary to make a turn or bend, it shall be done in a sweeping curve with a minimum radius of 9 inches and a minimum included angle of 90 degrees
 - b. There shall be no splices in the bare copper wire.
3. The top of the grounding rod is to be driven vertically into the ground to 6" below finish grade and covered with a standard 10" round plastic valve box. Label cover "Ground Rod".
4. When tested, grounding protection shall have an earth resistance no greater than 10 ohms. If earth resistance is greater than 10 ohms, additional grounding rods shall be added to the grid until required test results have been met.
 - a. Space additional rods at 20 ft. intervals in the opposite direction from the controller.
5. Grounding plates shall be installed 36 inches below grade with 100 lbs. of Powerset ground enhancement material spread evenly above and below the plate in accordance with manufacturer's requirements.
 - a. Plates shall also be covered with a 4 inch grated cover as specified, set a minimum of 1 inch below grade, to facilitate drainage onto the plate. Cover shall be installed on a minimum of 36 inches of 4 inch ADS corrugated polyethylene, perforated drainage pipe.
 - b. Space additional plates at 3 ft. intervals in the opposite direction from the controller.

N. Emitter Installation and Operation:

1. Cut emitter tubing using tubing manufacturer's recommended tubing cutter.
2. Install emitters and/or self-piercing barb connectors in emitter tubing using Rain Bird Bug Gun emitter installation tool.
3. Flush all emitter tubing and PVC lateral lines prior to installation of emitters. Refresh lines after installation of emitters.

O. Drip line Irrigation System:

1. Begin layout of drip line tubing 3 to 4 inches away from all hardscape edges. Mark intended layout of tubing intervals on ground with irrigation flags or other type of marking that can be maintained throughout the installation.
2. Install tubing per manufacturer's recommendation unless directed by Owner.
3. Install dripline tubing parallel with contours to the greatest extent practical.
4. Install supply and exhaust headers perpendicular to contours to the greatest extent possible.

5. Dripline tubing may be installed with emitter outlets facing up and down or laterally. Place dripline tubing in a manner that will stagger emitter outlets to form a triangular pattern between parallel lines.
6. Secure tubing to all barbed and compression type fittings per manufacturer's directions.
7. Install air/vacuum relief valves per drawings, below grade at the highest elevation within each zone. Additional air/vacuum relief valves may be required based upon layout and site conditions. Locate an air/vacuum relief valve lateral line for each berm within the system. Provide "blank" dripline tubing from lowest elevation of dripline, perpendicular to the highest elevation of the mound or berm for connection to the valve.
8. Install drip system operation indicator on each zone per manufacturer's detail.
9. Prior to installation of flush valves, flush entire system to remove any dirt and sediment.
10. Prior to backfilling dripline system, open control valves and operate each circuit to test for leaks around fittings and connectors. Make all necessary repairs to correct deficiencies. Re-test repaired circuits for acceptance prior to backfilling.

3.2 FINAL ADJUSTMENTS

- A. Adjust sprinkler heights and vertical alignment, as required, to maintain proper relationship to established grades and planting. Regrade and replant around sprinkler heads as necessary.
- B. Fill-in all depressions that arise from possible settlement over trenching or other excavations, with proper soil mix. Compact lightly, and replant as needed to maintain planting design.
- C. Adjust nozzles to provide optimum coverage with no overspray to hardscape or building walls.
- D. Replace nozzles where required to provide complete coverage.
- E. Adjust or relocate moisture sensing equipment, as required, for proper operation.
- F. Adjust irrigation schedule and run times to provide adequate water to maintain landscaping.

END OF SECTION

SECTION 329300

PLANTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Labor, equipment, materials, plants, soil preparation, planting, and maintenance requirements for all landscaping work as indicated on Drawings.

1.02 DEFINITIONS

- A. Injury; defined, without limitation, as any bruising, scarring, tearing, or breaking of roots, trunk, bark, branches or foliage which may lead to or result in permanent damage to plant health or significantly alter the desired aesthetics of the plant for which it was intended.
- B. Dead Tree; is a tree that has died or that has been damaged or stressed to an advanced state of decline and has been determined to be so by the Owner's Certified Arborist.
- C. Drip Line; defined as the outer most limits of the tree canopy.
- D. Certified Arborist; an individual with a current certification from the International Society of Arboriculture (ISA) or member of the American Society of Consulting Arborists trained and experienced in all aspects of proper tree care.

1.03 REFERENCES

- A. International Society of Arboriculture (ISA) - 'Guide for Plant Appraisal 8th Edition 1992,' prepared by the Council of Tree and Landscape Appraisers (CTLA).
- B. Standardized Plant names; as established by Hortus III.
- C. 'Cabling, Bracing, and Guying Standards for Shade Trees,' as published by the National Arborist Association (NAA), 174 Rt. 101, Bedford, NH 03102.
- D. ANSI: A300 - 'American National Standards for Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices'. 1995.

- E. ANSI Z60.1 - American standards for Nursery Stock, 2004, as approved by the American Association of Nurseryman.

1.04 QUALITY ASSURANCE

- A. In accord with Section 01400 - Quality Assurance and Quality Control.

- B. Qualification of workmen:
 - 1. Contractor shall have a minimum of 5 years of documented experience with successful landscape installations similar to the scope of work for this contract.
 - 2. During all operations, maintain a landscape supervisor or foreman on site who is fluent in English and satisfactory to Owner. Supervisor shall not be changed, except with prior consent of Owner. Supervisor shall represent Contractor in his absence and all direction given to the supervisor shall be as binding as if given to the Contractor.
 - 3. Provide at least one person who is a Certified Arborist, to direct and be present during all tree pruning operations.

- C. Tests and Inspections:
 - 1. Observation Schedule
 - a. Observation and inspection of the work will be made on an ongoing basis and at the following stages of the work. Provide Owner prior notification to of the following with the advanced times indicated:
 - 1) Prejob conference: 7 days.
 - 2) Completion of finish grading and soil preparation: 48 hrs.
 - 3) Plant delivery to site: 7 days.
 - 4) Tree locations prior to excavation of pits: 48 hrs.
 - 5) Shrub layout prior to excavation pits: 48 hrs.
 - 6) Premulch inspection: 48 hrs.
 - 7) Premaintenance: 48 hrs.
 - 8) Final walk-through: 7 days.
 - 2. Plant Material:
 - a. All plant material shall be received in a healthy condition, free from pests and disease. Plants delivered to Contractor that are found to be damaged, root bound, diseased or distressed shall be brought to Owners' attention prior to accepting delivery.
 - b. Plants shall be subject to inspection and approval by Owner at nursery, growing grounds and upon delivery to site, for conformity to Specifications. Such approval shall not impair the right of further inspection or rejection during progress of work.
 - c. Pre-selection and tagging of plant material by Owner is to meet design intent only and does not constitute any guarantee by Owner of the selected plants. Health and vigor of plant material shall remain the sole responsibility of Contractor.

- d. Owner reserves the right to have plant samples analyzed at any time to verify health and conformity to Specifications. Furnish samples upon request. Testing to be done by Owner's designated laboratory.
 - 1) Cost of testing plant samples will be responsibility of Contractor. Lab fees for testing found to be negative will be reimbursed by Change Order to the Contract.
 - 2) Rejected material shall be promptly removed and replaced at no cost to Owner.
3. On-site Soils:
- a. After rough grading has been completed and prior to planting operations, on-site soils are to be tested for suitability and amending requirements. Contractor shall make all adjustments to comply with final soils analysis recommendations as directed by soils report.
 - b. In the event that soil amendment recommendations are substantially different than those described for base bid, adjustments will be made by Change Order to Contract as agreed upon by Owner.
 - c. Owner shall engage the services of a qualified agricultural soils testing laboratory to perform soil testing services of all areas to be planted.
 - d. Laboratory services shall include the following:
 - 1) A minimum of six samples or one sample per 5000 sq. ft. (whatever quantity is greater) of base soil after completion of rough grading in landscape areas as directed by Owner.
 - 2) Chemical analysis and written report of each individual sample to cover the following:
 - 3) Soil structure and percentage of organic matter.
 - 4) pH, Salinity and Lime content
 - 5) Mineral nutrients, including concentrations of nitrogen, phosphorus, potassium, calcium, magnesium, iron, manganese, zinc, copper, sulfur, and molybdenum.
 - 6) Potential hazards to healthy plant growth such as high salinity, sodium chloride, boron, impaired soil structure, or drainage.
 - 7) Recommendations for organic materials, fertilizers, and other materials found necessary to amend base soil for optimum plant growth.
 - 8) Recommendations for backfill mix, or mix as appropriate to be utilized in installation of all plants for the project.
 - 9) Testing laboratory shall follow standards set forth in the USDA Agricultural Suitability Test in accord with Handbook-60 and the University of California Soil Fertility Test for Soils Analysis.
 - e. Testing laboratory may be employed by Owner to provide additional periodic sampling and testing of amended landscape planting areas to ensure compliance with recommendations.
4. Import Soil:
- a. In the event that supplemental or replacement planter soils are required, all proposed import soils for planting areas shall meet specified requirements and be pre-approved by Owner based on soil test results.

- b. Cost for soils tests for this purpose shall be paid by Contractor. Provide chemical analysis report and written recommendation for each individual sample to Owner.
- c. In the event that the initial proposed import soil is found unsuitable, additional sources shall be found and tested at Contractor's expense.

1.05 SUBMITTALS

- A. In accord with Section 01300 - Administrative Requirements for Submittal Procedures
- B. Submit manufacturer's data sheets for all proposed products to be used in work. Indicate specific items and product numbers.
- C. Unless indicated as Owner-furnished, Contractor shall furnish all plant material indicated on Drawings. Any and all substitutions due to unavailability shall be requested in writing prior to confirmation of ordering.
 - 1. Submit for Owner's approval within 30 days after award of contract and prior to any start of work:
 - a. Documentation listing all required plant material by size, source, and quantity. Sort list by construction zone sequence if applicable.
 - b. 4 x 6 in. photos representative of each tree, shrub, vine, and ground cover species being Contractor-furnished. Clearly label each photo with nursery source, plant name, container size and general width, height and caliper of plant.
 - c. Weed control program. Include all product information and schedule of operations.
 - d. Proposed schedule and sequence of work plan for all planting operations, with start dates and completion dates for planting trees, shrubs and groundcover.
 - e. List of proposed equipment to be used for tree planting and plan for plant storage on-site.
 - f. Soil test results.

1.06 EXISTING CONDITIONS

- A. Protect all existing plant material that is to remain within or adjacent to the work being performed. This shall include installing and maintaining protective barriers and/or temporary fencing as may be required by Owner.
- B. Vehicles and equipment shall not be parked, serviced, or operated within the drip line of existing trees or within newly planted areas. Access to all planting areas shall be limited to the personnel required for landscape installation.

1.07 WARRANTY

- A. Warranty all plant material to be in healthy and flourishing condition of active growth for a period of one (1) year from the date of Substantial Completion.
- B. Promptly replace all plant material found dead, dying, or damaged during the warranty period.
- C. Replacement shall be with material of same variety, size, form and character. Final selection to be approved by Owner.
- D. Replacement shall include cost of plant material, delivery, labor, equipment and materials required for installation.
- E. Specimen trees that require replacement shall be removed and replaced in a timely and expedient manner. Replacement work shall not impede park operations and shall be performed and completed during non-operating park hours. Coordinate with owner for selection of replacement tree and planting.
- F. Contractor will not be held responsible for failures that can be directly attributed to Acts-of-God, vandalism or proven negligent care by Owner. Acts of God do not include diseases, pests, or moisture extremes noted herein.

1.08 PRODUCT HANDLING

- A. Delivery:
 - 1. Deliver fertilizers to site in original unopened packages and containers, bearing manufacturer's name, trade mark, guaranteed chemical analysis, and conformance to State Law. Deliver bulk materials to site with certificate that includes manufacturer name, trade mark, guaranteed chemical analysis, conformance to State Law and quantity delivered.
 - 2. Furnish delivery receipts for all amendments to Owner.
 - 3. Notify Owner 7 days in advance of plant material deliveries.
 - a. Submit an itemized list of plants included in each delivery.
 - 4. Deliver all plants with legible identification labels.
 - a. Label trees, bundles, or containers of like shrubs or ground cover plants.
 - b. State correct botanical name and container size.
 - c. Use durable waterproof labels with UV and water-resistant inks. Do not remove labels until so directed by Owner.
 - 5. Protect plant material from damage during delivery. Plants loaded for delivery from nurseries should not be double stacked or layered in any way to cause damage or stress.

6. Inspect all plant material for injury, disease and insect infestation. Evaluate trees and shrubs for improper pruning. In the event such conditions are found, bring to Owner's attention for direction and remedial action to be taken.
7. Owner-furnished Materials:
 - a. Owner-furnished materials will be shipped in full-truck loads. Should Contractor desire partial loads to be shipped, additional costs will be responsibility of Contractor.
 - b. Owner warrants that all Owner-furnished plant material from outside vendors will be released to the Contractor in viable condition. Should exception to any material be taken at time of receipt, immediately notify Owner. Such notification is to be accompanied by documentation reporting defect or malady which has been prepared by a recognized authority or expert.

B. Handling:

1. Exercise care in handling, loading, unloading, and storing of plant material. Plants that have been damaged prior to or during installation shall be replaced at Contractor's expense.
2. Provide equipment of suitable size and capacity to safely off-load, transport and plant all trees.
3. The "choke" strapping method of lifting trees is strictly forbidden (except for single trunk palms); any trees hoisted in this manner will be rejected.

C. Storage:

1. Plant materials shall be maintained in a healthy and vigorous condition. Protect plants from physical damage by construction operations as well as inclement weather conditions such as high winds, excessive heat or frost and dust.
2. Plants stored on-site shall be spaced to allow clearance for light and air and not be spaced tightly together such that limbs are crowded.
3. Maintain root balls with adequate moisture at all times.
4. Plants grown in shade conditions shall be stored and maintained in equivalent shade conditions.
5. Do not store plants directly on asphalt paving.

1.09 VERIFICATION OF DIMENSIONS AND QUANTITIES

- A.** All scaled dimensions are approximate. Before proceeding with any work, carefully check and verify all dimensions and quantities. Immediately inform Owner of all discrepancies between Drawings, Specifications, and actual conditions. Do not do work in any area where there is a discrepancy until approval to proceed has been given by Owner.

1.10 REGULATORY REQUIREMENTS

- A. Provide for all inspections and permits required by federal, state, and local authorities for furnishing and transporting plant materials.
- B. Perform work in accord with all applicable laws, codes, and regulations including licensing and training requirements for pesticide and herbicide applications.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Plants:
 - 1. Nomenclature: Plant names listed on Drawings conform to "Standardized Plant Names" established by Hortus III. Except for changes covered therein, established criteria of horticulture nomenclature is followed.
 - 2. All plants shall meet or exceed American Standards for Nursery Stock, ANSI Z60.1 latest edition.
 - 3. Plants shall be symmetrical as is typical for their variety and species, in a condition of healthy and vigorous growth with healthy normal root systems well filling their containers, but not to the point of being rootbound. They shall be free from plant disease, insects or their eggs or soil borne pathogens.
 - 4. Height and spread of all plants shall be measured with branches in their normal position. Where specific dimensions of any plant material are omitted from Plant List, plants shall be as approved by Owner.
 - 5. All liners, plugs, dug sprigs, and flatted material shall be fully rooted. Plants should not be pruned prior to delivery, except as authorized by Owner.
 - 6. Balled and burlap plant material shall meet standards of American Standards for Nursery Stock. Burlap shall be 100% natural fiber. No leno will be accepted.
- B. Palm Trees:
 - 1. Palms shall have square shaped root balls cut a minimum of 18 in. from base of trunk face. Retain a minimum of six fronds on head of palm or as directed by Owner.
- C. Amendments:
 - 1. Organic Amendment:
 - a. Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, sludge, peat moss, etc., low in salts and heavy metals, free from weed seeds, pathogens and other deleterious materials.
 - b. Composed wood products are conditionally acceptable (stable humus shall be present). Wood based products are not acceptable which are based on red wood or cedar.

- c. Sludge-based materials are not acceptable if the soil already has a high level (toxic level) of zinc, copper, or other heavy metals.
 - d. The compost shall be aerobic without malodorous presence of decomposition products.
 - e. Humus material with an ash content of not less than 8% and not more than 50%.
 - f. The pH shall be between 6 and 7.5.
 - g. Salt content shall be less than 10 milliohm/cm at 25°C (Ece less than 10) in a saturated paste extract. The maximum rate of application shall not exceed 15% by volume unless the salinity is lower than 10 milliohm/cm at 25°C.
 - h. Boron content of the saturated extract shall be less than 1.0 parts per million.
 - i. Silicon content (acid-insoluble ash) shall be less than 20%.
 - j. Calcium carbonate shall not be present.
 - k. Carbon: nitrogen ratio shall be less than 20:1.
 - l. Approved organic amendments and suppliers include;
 - 1) Composted & Washed Steer Manure, as supplied by Earth Works, Tel: (909) 270-0088
 - 2) Hydro Blend, as supplied by Aguinaga Fertilizer Co., Tel: (949) 786-9558.
2. Peat: Milled Canadian Sphagnum peat; light brown and fibrous without excessive sticks, with a pH of 4 to 6 or Owner-approved equivalent.
 3. Sand: Washed, No 16 granite.

Sieve No. (US Standard)	Percent Dry Weight Passing
10	100
16	65-100
20	0-20
35	0-5
40	0-2

4. Pine Bark: Green or slightly aged (not composted), 1/4 to 1/2 in. size.
 5. Perlite: Coarse or No. 2 perlite, free of weeds and impurities.
 6. Calcium Carbonate: Minimum 95% calcium carbonate, 100% passing a No. 60 sieve.
 7. Single Super Phosphate (0-20-0): Granular commercial grade, minimum 20% P205.
 8. Commercial fertilizer: Osmocote Plus, (15-9-12) stock no. 90328, controlled release fertilizer, by Scotts-Sierra Horticultural Products, (800)-492-8255.
- D. Fertilizer Tablets: 21 gram, (20-10-5) Agriform brand tablets by Sierra Chemical Company

- E. Pre-emergent Herbicide: Chipco Ronstar-G as manufactured by Bayer.
- F. Soil Fumigant: Basamid G granular soil fumigant, as manufactured by Certis USA, Ltd.
- G. Mulch:
 - 1. Mulch shall be certified by manufacturer to be free of weeds, herbicides, fungus, and other deleterious material.
 - 2. Provided from one of the following Owner approved sources:
 - 3. Provide sample of material for Owner approval prior to purchase.
- H. Tree Stakes:
 - 1. Lodge Pole Pine, with CCA pressure treated wood preservative, 2 in. diameter x length as required. Available from C & E Lumber, Tel: (909) 626-3591 or Sullivan & Mann, Tel: (714) 547-0976.
- I. Staking Ties:
 - 1. 32" long black, flexible ties manufactured from virgin vinyl meeting ASTM D 412 for elongation and tensile strength, with a double-back configuration for securing tie and preventing slippage. Cinch Ties, by V.I.T. Products, Inc., Tel: (800) 729-1314.
- J. Tree Guys:
 - 1. Type A: Tree Saver by Lawson Landscape Products, 479 Gardner Ave., Martinsville, IN 46251, Tel: (800) 833-5323, (317) 342-5458, or Owner-approved equivalent for trees up to 3 inch caliper.
 - 2. Type B: Duckbill DTS Guy Kit, Model DTS-88 and Model DTS-138 for trees 10 in. caliper and larger by Forsight Products, Inc., www.earthanchor.com, Tel: (800) 325-5360.
 - 3. Type C: Duckbill DTS Guy Kit, Model RBA-88 and Model RBK-138 for rootball anchoring systems of palm trees. Forsight Products, Inc., www.earthanchor.com, Tel: (800) 325-5360.
- K. Sod: Variety as noted on drawings.
 - 1. Number 1 quality, grown from certified seed. The turf shall be sufficiently dense so that no soil is visible when mowed to a 1 ½" height.
 - 2. Purchased in fresh, mature state from local suppliers, delivered weed free containing no more than 1% undesirable grasses.
 - 3. Growing media shall be friable and well-drained and shall not exceed 1/2 in. when cut. Standard size sections of turf grass shall be strong enough that they can be picked up and handled without damage.
- L. Water: Furnished by Owner. Distribution and connections provided by Contractor.

M. Import Soil:

1. Source and location to be approved by Owner. Contractor to submit soils report for Owner's approval.
2. Recommended sources for import soil include;
3. Soil shall meet the following requirements;
 - a. General: Free of roots, clods, and stones larger than 1 in. in the greatest dimension, pockets of coarse sand, noxious weeds, sticks, brush, and other litter. It shall not be infested with nematodes or other undesirable disease organisms such as insects and plant pathogens. Soil shall be friable and have sufficient structure in order to give good tilth and aeration to the soil. Total pore space content on a volume/volume basis shall be at least 15% when moisture is present at field capacity. Soil shall have a field capacity of at least 15% by weight.
 - b. Gradation: Soil shall be a sandy loam, or loam, and similar to the native site soil. The definition of soil texture shall be in accord with USDA classification scheme. Obtain Owner's approval prior to grading operations.
 - c. Permeability: Hydraulic conductivity rate shall be not less than 1 in. per hr. or more than 20 in. per hr. when tested in accord with USDA Handbook No. 60, Method 34b or other Owner-approved methods.
 - d. Acidity: Soil pH range measured in the saturation extract (USDA Handbook No. 60, Method 21a) shall be 6.0 to 7.9.
 - e. Salinity: Salinity range measured in the saturation extract (USDA Handbook No. 60, Method 3a) shall be 0.5 to 2.0 dS/m. If calcium ions and sulfate ions both exceed 20 milliequivalents per liter in the saturation extract, the maximum salinity shall be 4.0 dS/m.
 - f. Chloride: Maximum concentration of soluble chloride in the saturation extract (USDA Handbook No. 60, Method 3a) shall be 150 mg/l (parts per million).
 - g. Boron: Maximum concentration of soluble boron in the saturation extract (USDA Handbook No. 60, Method 3a) shall be 1 mg/l (parts per million).
 - h. Sodium Absorption Ratio (SAR): Maximum SAR shall be 6 measured in accord with USDA Handbook No. 60, Method 20b.
 - i. Organic Matter Content: Sufficient soil organic matter shall be present to impart good physical soil properties, but not be excessive to cause toxicity or cause excessive reduction in the volume of soil due to decomposition of organic matter. Calcium carbonate content - free calcium carbonate (limestone) shall not be present.

- j. Heavy metals: Maximum permissible elemental concentration in soil shall not exceed the following:

Metal	Parts per million (mg/kg) ¹
Arsenic	3
Cadmium	2
Chromium	10
Cobalt	2
Lead	30
Mercury	1
Nickel	5
Selenium	3
Silver	0.5
Vanadium	3

¹ Amonia Bicarbonate / DTPA Extractable, dry weight basis.

4. Fertility - Range of essential elemental concentration in soil shall be as follows:
5. If soil pH is between 6 and 7, maximum permissible elemental concentration shall be reduced 50%. If soil pH is less than 6.0, maximum permissible elemental concentration -12. Phytotoxic constituent, herbicides, hydrocarbons, and similar materials: Germination and growth of plant shall not be restricted more than 10% compared to standard controls. Standard controls shall be both monocots and dicots. Total petroleum hydrocarbons shall not exceed 100 mg/kg dry soil measured in accord with modified EPA Method No. 8015. Total aromatic volatile organic hydrocarbons (benzene, toluene, zylene, and ethylbenzene) shall not exceed 2 mg/kg dry soil measured in accord with EPA Method No. 8020.

PART 3 EXECUTION

3.01 SITE PREPARATION

- A. Weed Control:
1. Before, during and after finish grading, remove all noxious or invasive weeds and grasses by their roots and dispose of off-site. Any non-perennial type grasses, except for Torpedo and Nut Grass, less than 2-1/2 in. high and not bearing seeds, may be turned under. Prior to planting, eliminate any weeds present in containerized plat stock.
 2. Site shall be maintained weed-free throughout planting operations and until final acceptance. Prior to mulching, apply pre-emergent herbicide to all shrub and groundcover areas.
 3. Fumigate soil for all sodded or seeded planting areas with Basamid G granular soil fumigant. Apply per manufacturer's directions.

- B. Soil Preparation (pre-tillage) for all planted areas:
 - 1. All planting areas that are compacted 85% to 90% are to be cross-ripped to 12 in. depth. Areas with over 90% compaction shall be cross-ripped to 24 in. depth, and all unacceptable materials removed.
 - 2. In areas to receive import soil, scarify top of the existing soil to 4 in. minimum depth prior to backfilling.
 - 3. Soil for planting shall be free of rocks over 1/2 inch in dia., and any foreign debris, refuse, plant roots, clods, weeds, sticks, solvents, petroleum products, concrete, plaster, or other deleterious, undesirable and unwanted materials. Such materials shall be removed, including all temporary road bases or pavement already in place.
 - 4. Soil shall be free of soil-borne diseases and capable of sustaining healthy plant life.

- C. Landscape Erosion Control:
 - 1. Provide and maintain temporary erosion control for all planting areas. This shall include, but not necessarily limited to; installation of silt fences at top and bottom of slopes and at 10 ft intervals along the face. Do not block irrigation coverage with silt fences.
 - 2. Provide sand bags, sod, and/or erosion control silt fence at drainage swales until planting is established and soil has been stabilized. See Section 02730 - Erosion and Sedimentation Control, for additional requirements.
 - 3. Repair all scars caused by erosion to original grades.

3.02 LAYOUT

- A. Confirm locations and depth of all underground utilities and obstructions. If underground construction or utility lines are encountered during excavating of planting areas, alternate locations for planting may be selected by Owner.

- B. Final locations for all plant material shall be as directed and approved by Owner. Owner will have sole responsibility to determine final plant material locations based on field conditions and design intent.

- C. Layout for trees and large shrubs shall be accomplished with colored flags or wooden stakes each indicating plant name and container size (or other Owner approved method). Shrub material shall be spotted and approved in place by Owner prior to planting.
 - 1. Supply to Owner marked flags or wooden stakes and plant list for each zone to be planted. Provide 48-hr. notice to owner for required plant layout.

- D. Specimen trees that require planting prior to completion of finish grades shall be located by surveyor for position and elevation. Adjust or replant all plant material that does not meet final grades, at no additional cost to Owner.

3.03 FINISH GRADING

- A. Minor grading modifications may be required to establish final grades.
- B. Finish grading shall ensure proper drainage of site as indicated on Civil Engineering Drawings and Owner.
- C. Planting areas shall be graded such that final grades will be 2 in. below adjacent paving, sidewalks, headers and similar conditions unless otherwise indicated on Drawings.
- D. Surface drainage shall be away from building foundations at 1/4 in. per ft. to aid in water runoff.
- E. Remove or redistribute excess soil before application of fertilizer. Make allowances when establishing finish grades for earth excavation from planting pits and mulch.
- F. Trenches: If sprinkler system has been installed after grading and fertilizing has been completed, retil trench backfill and fertilize to depth specified for area, to conform to specified requirements.
- G. Eliminate all erosion scars after each erosion event and prior to commencing maintenance period, unless directed otherwise by Owner.

3.04 INSTALLATION

- A. General:
 - 1. Ensure that final grades to ± 0.10 ft. have been established. Provide for inclusion of all amendments, settling, and other preparatory needs. Ensure that finish grading of all planting areas is as indicated on Drawings and as directed by Owner. Ensure all drainage swales and flow lines have been established.
 - 2. Do not commence any planting until completion of all soil import, soil amendment and grading operations have been completed and approved by Owner.
 - 3. Do not commence shrub planting until the landscape irrigation system has been installed and approved for proper coverage. Trees may be planted in advance of final landscape irrigation system provided provisions for adequate interim watering have been made. Interim watering may include providing automatic drip irrigation to all trees. Refer to irrigation Drawings and Specifications for requirements.

4. Actual planting shall be performed only during periods of suitable weather and soil conditions and during daylight hours.
5. Only as many plants as can be planted and watered on that same day shall be distributed in a specific planting area.
6. Relative position of each tree and plant as shown on the Drawings is subject to Owner approval and shall, if necessary to achieve project design objectives, be relocated prior to planting at no additional cost to Owner. Verify exact layout and locations of all plants with Owner prior to planting.

B. Planting:

1. Excavate plant pit sizes as indicated on Drawings.
 - a. Auger drain holes in bottom of planting pits as required on drawings.
 - b. Excavation for planting shall include stripping and stacking of all acceptable topsoil encountered within areas to be excavated for trenches, tree pits, plant pits, and planting beds.
 - c. Excess soil generated from planting pits not used as backfill, water basins, or in establishing final grades shall be removed from site.
2. Handle each plant in such a manner as to not cause injury or damage during placement or planting. Any plants damaged as a result of Contractor's operations shall be rejected and replaced at Contractor's expense.
3. The "choke" strapping method of lifting trees is strictly forbidden (except for single trunk palms); any trees hoisted in this manner will be rejected.
4. Scarify root ball as needed or as required to cut any circular root systems. Properly cut off any broken or frayed roots.
5. Center plants in pits or as directed by Owner.
6. Face plants with fullest growth facing forward or as directed by Owner.
7. Plant trees and shrubs to expose original container soil and set with root crown approx. 1 in. above finished grade. Backfilling will not be permitted around trunks.
8. All plants which settle deeper than their surrounding grade are to be carefully raised and replanted at correct elevation at no additional cost to Owner.
9. Set each plant plumb and hold rigidly in position until soil has been tamped firmly around rootball. Fill pit with prepared soil, progressively settling soil by water jetting and flooding to remove air pockets and voids.
10. Water thoroughly immediately following planting. Backfill all voids which develop with additional prepared planting soil to bring to finish grade
11. Box container removal:
 - a. Remove bottom of wood boxes before planting. If it is not possible to remove box bottom because of size, soil type or condition of rootball, remove every other bottom board, or other method approved by Owner.
 - b. Remove sides of box without damage to root ball after positioning plant and partially backfilling.
12. Ball and burlap removal: Remove burlap away from the crown of the tree or palm. Cut away as much of burlap as possible without injury to root ball. Remove wire basket to 18 in. below finish grade

- C. Root Control Barriers: prior to backfilling, install root control barriers around rootballs as required for tress specified on Drawings. Connect panels to form a continuous barrier around each rootball. Install per manufacturer's directions.
- D. Backfill:
1. Planting pits shall be backfilled with amended soil mix. Water jet to remove all air pockets.
 2. In a suitable area "central mix" all backfill soil to achieve a uniform blend with amendments. The intent is to achieve a consistent well blended soil in one location and not amend soil adjacent to each planting pit. Clean-up unused excavated soil and dispose of off-site. Protect mix from water until it has been placed around plants.
 3. The following backfill mix is intended to be used for bid purposes only. Specific backfill requirements may vary based on recommendations from Soil Analysis.
 - a. Rates are for each cubic yard of soil:
 - 1) 15% approved organic amendment
 - 2) Commercial fertilizer: Single superphosphate (0-20-0) 1/4 lb.; potassium sulfate (0-0-50) - 1/3 lb.
 - 3) Agricultural gypsum - 1 lb.
 - 4) 1/2 lb. of Urea formaldehyde (38-0-0) per cu. yd. of blended soil (in lieu of plant tablets).
 4. During backfilling of pits, drench backfill soil with a water solution prepared with 0.02% PAM or 1-1/2 lb. per 1000 gal. of water.
- E. Fertilizer Tablets:
1. Apply in accord with manufacturer's recommendations.
 2. Initially set required number of tablets on the top of each root ball while plants are still in their containers to facilitate planting and verification by Owner.
 3. Locate plant tablets 1/3 depth of root ball in accord with manufacturer's instructions.
- F. Watering Basins:
1. Where no other temporary watering system is required, construct an earthen basin around each tree. Each basin shall be of a depth sufficient to hold at least 4 in. of water. Maintain water basins until removal is required for installation of shrubs or turf.
 2. Monitor tree and shrub root balls for adequate moisture content. Deep water and/or flood water basins as needed to maintain proper soil moisture.
- G. Tree Staking and Guying:
1. Staking and guying of all trees shall be completed immediately after planting. Provide new stakes and ties or guying cables and anchors as shown on Drawings.
 2. Remove and dispose of all original nursery stakes and ties.

- H. Pruning: shall be limited to the minimum amount necessary to remove injured branches and to shape tree for design intent as directed by Owner. This shall include, but not be limited to: lifting of branch structure, thinning of canopy, and elimination of cross branching. Pruning is not be done in nursery prior to delivery. Pruning paint shall not be used.
- I. Auger Holes: Provide 12” dia. augured drain holes at 15 ft. o.c. in all planting areas and in each tree pit as indicated on drawings. Triangular space auger holes in large areas. Backfill with amended planting soil. Required depth of drain holes is to be to free draining soil layer below planter or a maximum of 6 ft. below bottom of planting pit.
- J. Soil Preparation:
1. For sodded, seeded and ground cover areas (except slopes 2:1 or greater): After approximate finished grades have been established, uniformly apply required amendments and thoroughly cultivate by means of mechanical tilling into the top 6 in. of soil.
 2. The following rates and quantities shall be used for basis of bid only. Specific recommendations will be made after rough grading operations are complete and soil samples have been tested. In the event conditions are substantially different than described, adjustment will be made by Change Order as agreed upon with Owner.
Application rates given are per 1000 sq. ft.:
 - a. Organic amendment: 2 cu. yd. (Humus material).
 - b. Commercial fertilizers: Single superphosphate (0-20-0) 6 lb.
 - c. Potassium sulfate (0-0-50): 4 lb.
 - d. Ureaformaldehyde (38-0-0): 1/2 lb.
 - e. PAM: 12 lb.
 - 1) NOTE: If PAM is unavailable, increase organic amendment to 3 cu. yd. per 1000 sq. ft.
 3. For soil preparation with PAM, broadcast the amendments and fertilizers as noted above. Apply PAM with a drop spreader. Use caution to avoid drift onto non-soil areas. PAM must be kept dry until it has been incorporated into the soil. Rototill amendments thoroughly into the soil 6 in. deep within 4 hr. after application of PAM. Slightly dampened soils will need an immediate tillage after the PAM application. If the organic amendment is damp and is applied after the PAM, rake the PAM into the soil to the addition of the organic amendment or allow the amendment to dry prior to application of PAM. Irrigate the soil to allow water to penetrate to a depth of 6 in. The soil needs to be damp but not saturated. Allow the soil to dry or at least dry to the point where the stringiness has disappeared, then re-rototill the soil 6 in. deep.

- K. Sod Planting:
1. Preparing soil: Remove rocks, debris and perform weed abatement for area to be sodded. Rip soil to a depth of 6 in. and break up all clods to less than 1 in. in size. Soil prep as described elsewhere in Specifications.
 2. Grading and rolling: Carefully smooth surface areas to be sodded. Roll areas to expose soil depressions or surface irregularities. Regrade as required to obtain optimum conditions.
 3. Fertilizing: As noted in soil preparation. Verify turf fertilizer with Soils Report prior to purchasing.
 4. Laying sod: Lay first strip of sod slabs along a straight line (use a string in irregular areas). Butt joints tightly, do not overlap edges. On second strip, stagger joints (much as in laying bricks). Use a sharp knife to cut sod to fit curves, edges, and sprinkler heads. Do not use sod strips less than 10 in. wide.
 5. Watering: Do not lay entire lawn area before watering. When a conveniently large area has been sodded, water lightly to prevent drying out. Continue to lay sod, and to water, until installation has been completed.
 6. Rolling sod: After laying of sod has been completed, lightly roll to eliminate irregularities and to form good contact between sod and soil. Avoid very heavy rollers or excessive initial watering to avoid roller marks.
 7. Irrigation: Thoroughly water complete lawn surface. Soil should be moistened at least 2 in. deep. Repeat sprinkling at regular intervals to keep sod moist 2 in deep at all times. After sod is established, decrease watering frequency and increase amount of water per application as needed. Do not allow water to pond. Avoid excessive watering. Soil shall be moist but not saturated. Monitor irrigation as required.
 8. Replacement: Replace all dead or dying sod with equivalent quality material as directed by Owner.
 9. Minimize pedestrian traffic over sodded areas during its growth establishment (90 days).
- L. Mulch:
1. All shrub-planted areas, except seed or sod areas, shall have an evenly-spread 3 in. deep layer of mulch.
 2. Mulch shall not be placed until all planting and finished grading has been completed and approved by Owner and pre-emergent has been applied.

3.05 CLEAN-UP

- A. Pick up all trash resulting from this work no less frequently than the last working day of each week or as directed by Owner. All trash shall be removed completely from site. After planting operations have been completed, remove trash, excess soil, empty plant containers and rubbish from property. Scars, ruts, and other marks in ground caused by this work shall be repaired and the site left neat and orderly throughout.

- B. Leave site area broom-clean and wash down all paved areas within Contract area, leaving premises in a clean condition.

3.06 FINAL ACCEPTANCE

- A. Maintain all planted areas free of debris and insects. Mow, cultivate, weed and water all areas until final acceptance of work is made by Owner. All punch list items shall be completed and all irrigation to be operational prior to Owner's acceptance of project installation.
- B. Prior to final approval of work:
 - 1. Resod or replant areas where necessary to obtain full and even coverage.
 - 2. Remove all debris resulting from work of this Section.
 - 3. Regrade, lightly compact, and replant around sprinkler heads where necessary to maintain proper vertical positioning in relation to established grade.
 - 4. Fill all depressions and eroded channels with sufficient soil mix to repair grade and ensure proper drainage. Compact lightly, and replant filled areas in accord with Drawing requirements.
- C. Final acceptance of work and approval by Owner for Substantial Completion shall include, but may not be limited to:
 - 1. Punch list items completed and approved by Owner.
 - 2. Final grades approved in accord with Drawings and Specifications.
 - 3. Site weed-free and in accord with approved weed control plan.
 - 4. Trees, shrubs, groundcovers, and mulches are all installed in accord with Drawings and Specifications.
 - 5. Landscape irrigation system complete and fully operational.
 - 6. As-built drawings complete and submitted to Owner.
- D. Owner will issue a Letter of Acceptance at final completion and approval of all work.

END OF SECTION

SECTION 334111

SITE STORM UTILITY DRAINAGE PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Storm drainage piping, fittings, and accessories.
- B. Connection of drainage system to existing storm drains.
- C. Catch basins, Plant area drains, Paved area drainage, and Site surface drainage.
- D. Alteration of existing storm drainage system.

1.02 QUALITY ASSURANCE

- A. Tests and inspections:
 - 1. Required tests:
 - a. Conduct leakage tests subsequent to alignment inspections and prior to flows being allowed in the line.
 - b. Test entire system for exfiltration in the presence of Owner. Limit leakage to 200 gal. per in. of pipe dia. per mile of length per 24 hr. Actual duration of test will be 4 hr.
 - c. Limit leakage to stated maximum limit, except that an allowance of an additional 10% of gallonage will be allowed for each additional 2 ft. of head over a basic 2 ft. minimum above pipe soffits.
 - d. Contractor shall be responsible to pay for leakage tests and required repairs and reconstruction.
- B. Requirements of regulatory agencies: In addition to complying with other legal requirements, comply with FDOT Standard Specifications for Road and Bridge Construction.

1.04 REFERENCE STANDARDS

- A. AASHTO - Specifications for Highway Bridges.
- B. AASHTO: M198 Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets.

- C. ASTM: A48 Gray Iron Castings.
- D. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
- E. ASTM C76M - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe [Metric].
- F. ASTM: C150 Portland Cement.
- G. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
- H. ASTM C443M - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets (Metric).
- I. ASTM: C923 Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.
- J. ASTM: D1784 Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- K. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
- L. ASTM: D2122 Determining Dimension of Thermoplastic Pipe and Fittings.
- M. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- N. ASTM: D2412 Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
- O. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
- P. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

- Q. ASTM: D3212 Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- R. ASTM F 477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2002e1.
- S. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems; 1999.
- T. AWWA C111/A21.11 - American National Standard for Rubber Gasket Joints For Cast Iron and Ductile Iron Pressure Pipe and Fittings. (ANSI/AWWA C111/A21.11).
- U. AWWA C150/A21.50 - Thickness Design of Ductile-Iron Pipe; 2002.
- V. AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast for Water; 2002.
- W. FDOT: Standard Specifications for Road and Bridge Construction.
- X. Fed. Spec. SS-S-210a - Preformed Plastic Sealing Compound for Expansion Joints and Pipe Joints.

1.05 DEFINITIONS

- A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.06 SUBMITTALS

- A. See Section 01 30 00 (01330) - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating pipe, pipe accessories, and fittings.
- C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

- E. Project Record Documents:
 - 1. Record location of pipe runs, connections, catch basins, cleanouts, material, pipe diameter and invert elevations.
 - 2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.07 REGULATORY REQUIREMENTS

- A. Conform to applicable code for materials and installation of the Work of this section.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Pipe and Fittings:
 - 1. Polyvinyl chloride (PVC) pipe and fittings for main lines 15 in. and smaller: Conform to ASTM D3034, SDR 35.
 - a. Manufacture pipe from approved, Type 1, Grade 1, PVC 12454 conforming to ASTM D1784 and meeting requirements of ASTM D2122 and ASTM D2412.
 - b. Pipe shall have integral wall thickened bells or extruded couplings with gasket seals. Solvent weld joints will not be permitted.
 - c. Pipe joints shall be gasket push-on type complying with ASTM D3212 and ASTM F477.
 - d. Fittings shall conform to same specifications as pipe in which they are to be installed.
 - e. Pipe shall be identified on exterior with the following information:
 - 1) Nominal pipe size and o.d. base.
 - 2) Material code designation number (12454).
 - 3) Dimension ratio number (SDR 35).
 - 4) Pipe stiffness designation (PS46).
 - 5) ANSI/ASTM designation (D3034).
 - 6) Pipe manufacturer's name and production code.
 - f. Acceptable manufacturers:
 - 1) National Pipe and Plastics, Inc. (formerly Robintech)
 - 2) CertainTeed.
 - 3) JM Eagle (www.jmeagle.com)
 - 2. Reinforced concrete pipe for pipe diameters 18 in. and larger:
 - a. Conforming to ASTM C76/C443, with D-loads as indicated on Drawings.
 - b. Joint seals: Gaskets conforming to ASTM C443.
 - c. Acceptable manufacturers:
 - 1) Johnson-Bateman.

- 2) Rinker Materials Corp.
 - 3) Other manufacturers capable of furnishing indicated sizes with respective D-loads.
3. Ductile iron pipe and fittings: Conform to ANSI/AWWA C151/A21.51.
- a. Pipe shall have a minimum tensile strength of 60,000 psi with a minimum yield strength of 42,000 psi.
 - b. Pipe thickness shall be in accord with Table 50.12, ANSI/AWWA C150/A21.50, Class 50.
 - c. Pipe shall be supplied in lengths not exceeding nominal 20 ft., single gasket, push-on joints (American Fastite or Owner-approved equivalent) conforming to ANSI/AWWA C111/A21.11.
 - d. Pipe shall have a minimum 1 mil bituminous coating on pipe exterior in accord with ANSI/AWWA C151/A21.51.
 - e. Polyethylene encasement, where required, shall be in accord with ANSI/AWWA C105/21.51. Polyethylene tubing shall conform to ASTM D1248.
 - f. Acceptable manufacturers:
 - 1) U.S. Pipe.
 - 2) American Cast Iron Pipe Co.
 - 3) Clow.
4. Helically corrugated steel pipe (CMP) or corrugated steel pipe arch (CMPA) pipe:
- a. Galvanized and bituminous coated, conforming to FDOT Section 943.
 - b. Joint seals:
 - 1) Metal bands and neoprene or rubber gaskets in accord with SSPWC Section 207-11.2.2.
 - 2) 1 in. x 3 in. continuous closed cell neoprene gasket on each end section of pipe, secured with a metal band.

PART 3 EXECUTION

3.01 EXCAVATION, TRENCHING AND BACKFILLING

- A. See Sections 31 23 16 - Excavation for additional requirements.
- B. Hand trim excavation for accurate placement of pipe to elevations indicated.
- C. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.02

INSTALLATION/PERFORMANCE

- A. Pipe laying: Lay pipe as indicated on Drawings, as specified herein, and in compliance with applicable portions of ASTM D2321.
1. Grade trench bottom to indicated elevation of pipeline and shape bottom to fit lower quadrant of pipe. Excavate holes at each bell hub such that pipe will be uniformly supported along entire length of barrel only.
 2. Pipe installation and jointing shall be in accord with pipe manufacturer's specifications and instructions for type of pipe used, and applicable requirements specified herein. Any pipe having a defective joint, bell, or spigot is unacceptable, shall be rejected, removed from site, and replaced with an acceptable unit.
 3. Commence pipe laying in finished trench at lowest point, or from a point designated by Owner, and lay upgrade from point of connection with bell ends forward.
 4. Install pipe to homing mark on spigot. On field cut pipe, provide a homing mark on spigot end in accord with manufacturer's recommendations.
 5. Maintain pipe alignment and joint closure until sufficient haunching and backfill is in place to adequately hold pipe in position.
 6. Prevent foreign materials from entering pipe while it is being placed in trench. Do not place debris, tools, articles of clothing, or other materials in pipe at any time.
 7. As each length of pipe is placed in trench, assemble joints and bring pipe to intended line and grade. Bed and secure pipe in place.
 8. When pipe laying is delayed for 10 min. or more, close open ends of pipe using a watertight plug or other approved means to ensure that absolute cleanliness is maintained inside pipe.
 9. At penetrations of manhole and similar structures, smoothly cut penetrating ends of pipe parallel to interior surface of structure. Maximum interior protrusion of pipe shall be the minimum necessary for proper sealing of pipe connection to structure. Use resilient connector when indicated on Drawings.
- B. Pipe jointing:
1. Pipe installation and jointing shall be in accord with pipe manufacturer's specifications and instructions for type of pipe used and applicable requirements specified herein.
 2. Ensure that interior of pipe and jointing seal is free of sand, dirt, trash, or other foreign materials before installation. Remove, clean, and re-lay pipe or fittings that have been installed containing dirt or other deleterious material. Extreme care shall be taken to keep bells of pipe free from sand, dirt, or rocks so that joints may be properly assembled without overstressing bells.
 3. Reinforced concrete pipe:
 - a. Rubber gaskets:
 - 1) At all joints, except at penetrations of manhole and similar structures.
 - 2) Immediately prior to joining pipe sections, lubricate rubber gaskets using Owner-approved lubricant.

- b. Mortar joints: At all joints in accord with SSPWC Section 306-1.2.4 that fail initial leakage tests.
 - 1) Pipe larger than 27 in. dia.: Inner and outer surfaces of joints.
 - 2) Pipe 27 in. and less dia.: Outer surfaces of joints only.
 - c. Mortar joints: At all joints that fail initial leakage tests.
 - 1) Pipe larger than 27 in. dia.: Inner and outer surfaces of joints.
 - 2) Pipe 27 in. and less diameter: Outer surfaces of joints only.
- C. Catch Basins and Cleanouts
- 1. Form bottom of excavation clean and smooth to correct elevation.
 - 2. Form and place cast-in-place concrete base pad, with provision for sanitary sewer pipe end sections.
 - 3. Level top surface of base pad; sleeve concrete shaft sections to receive storm drain pipe sections.
 - 4. Establish elevations and pipe inverts for inlets and outlets as indicated.

3.03 FIELD QUALITY CONTROL

- A. Alignment: Inspect storm drainage lines to determine if displacement of pipe has occurred during installation of bedding and compaction.
- B. Leakage: Conduct initial leakage tests. Failure to pass leakage test requirements shall require mortaring suspect joints as directed by Owner and subsequent leakage retests. Continued failure to pass leakage retests shall require removal and reinstallation of suspect pipe sections and replacement of suspect joint seals with new gaskets.
- C. Correct, at no additional cost to Owner, sections of piping that are deficient in material, alignment, grade, or joints.

3.04 PROTECTION

- A. Protect pipe and bedding cover from damage or displacement until backfilling operation is in progress.

END OF SECTION

**BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
NORTH BAY VILLAGE**

BID #2016-001

Appendix A

1. Miami- Dade Water and Sewer Department (WASD) Specifications latest edition. The Contractor is required to comply with these Specifications and include all costs associated with complying with these Specifications in the overall cost of the Total Bid Amount.
2. FDOT Standard Specifications for Road and Bridge Construction latest edition. The Contractor is required to comply with these Specifications and include all costs associated with complying with these Specifications in the overall cost of the Total Bid Amount.

**BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
NORTH BAY VILLAGE**

BID #2016-001

Appendix B

1. Florida Inland Navigation District Waterways Assistance Program Supplementary Conditions. The Contractor is required to comply with these Supplementary Conditions and include all costs associated with complying with these Supplemental Conditions in the overall cost of the Total Bid Amount.
2. Wage Rates, FL168 – Heavy Construction Projects

SUPPLEMENTARY CONDITIONS (CONSTRUCTION)

Florida Department of Environmental Protection
State Revolving Fund Program
Supplementary Conditions
for

Formally Advertised
Construction Procurement

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ENVIRONMENTAL PROTECTION
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FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION SUPPLEMENTARY CONDITIONS

The intent of the Florida Department of Environmental Protection (FDEP) Supplementary Conditions is to complement and supplement other provisions of the Bidding Documents. However, if there is any conflict between the FDEP Supplementary Conditions and other provisions of the Bidding Documents, the FDEP Supplementary Conditions shall take precedence over the other provisions except when the other provisions are similar to, but more stringent than, the FDEP Supplementary Conditions. When other provisions of the Bidding Documents are similar to, but more stringent than, the FDEP Supplementary Conditions, the more stringent provisions shall apply.

ARTICLE 1 - DEFINITIONS

Wherever used in these Supplementary Conditions (except in the appendices to these Supplementary Conditions), the following terms have the meanings indicated, which are applicable to both the singular and plural thereof.

- 1.1 Addendum - A written or graphic instrument that is issued prior to the opening of bids and that clarifies, corrects, or changes the Bidding Documents.
- 1.2 Agreement or Contract - The written agreement between the Owner and the Contractor covering the Work to be performed and furnished; these Supplementary Conditions and other Contract Documents are attached to the Agreement/Contract and made a part thereof as provided therein.
- 1.3 Bid - The offer or proposal of a bidder submitted on the prescribed form and setting forth the price(s) for the Work to be performed and furnished.
- 1.4 Bidder - Any person, firm, or corporation that submits a bid directly to the Owner.
- 1.5 Bidding Documents - The Advertisement for Bids or the Invitation to Bid, the Instructions to Bidders or the Information for Bidders, the Bid Form, the proposed Contract Documents, and all addenda.
- 1.6 Bond - An instrument of security.
- 1.7 Change Order - A document that is recommended by the Engineer and signed by the Contractor and the Owner; that authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Time; and that is issued on or after the Effective Date of the Agreement/Contract.
- 1.8 Contract Documents - The Agreement/Contract; the Contractor's Bid when attached as an exhibit to the Agreement/Contract; the Performance and Payment Bond(s); the General Conditions; the Supplementary Conditions (including these Supplementary Conditions); the Specifications (written technical descriptions of material, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto); the Drawings (drawings that show the character and scope of the Work to be performed and furnished); all addenda that pertain to the Contract Documents; and all change orders.
- 1.9 Contract Time - The number of days or the date stated in the Contract Documents for completion of the Work.
- 1.10 Contractor - The person, firm, or corporation with whom or which the Owner enters into the Agreement/Contract.
- 1.11 Effective Date of the Agreement/Contract - The date indicated in the Agreement/Contract on which the Agreement/Contract becomes effective, or if no such date is indicated in the Agreement/Contract, the date on which the Agreement/Contract is signed and delivered by the last of the two parties to sign and deliver the Agreement/Contract.
- 1.12 Engineer - The person, firm, or corporation named as such in the Contract Documents.
- 1.13 Minority Business Enterprise (MBE) - A historically Black college or university or a business that is (a) certified as socially and economically disadvantaged by the Small Business Administration, (b) certified as an MBE by a state or federal agency, or (c) an independent business concern which is at least 51-percent owned and controlled by minority group members. (A minority group member is an individual who is a citizen of the United States and one of the following: [i] Black American; [ii] Hispanic American [with origins from Puerto Rico, Mexico, Cuba, or South or Central America]; [iii] Native American [American Indian, Eskimo, Aleut, or native Hawaiian]; or [iv] Asian-Pacific American

[with origins from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the U.S. Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, Taiwan, or the Indian Subcontinent].)

1.14 Notice to Proceed -The written notice given by the Owner to the Contractor fixing the date on which the Contract Time will commence to run and on which the Contractor shall start to perform its obligations under the Contract Documents.

1.15 Owner - The local government (municipality, county, district, or authority; or any agency thereof; or a combination of two or more of the foregoing acting jointly) with which the Florida Department of Environmental Protection (FDEP) may execute, or has executed, a State Revolving Fund loan agreement and for which the Work is to be provided.

1.16 Project - The total construction or facilities described in a State Revolving Fund loan agreement between the FDEP and the Owner, of which the Work to be provided under the Contract Documents may be the whole or a part.

1.17 Sponsor – The recipient of the State Revolving Fund loan agreement that provides funds for the project.

1.18 Subcontract - A direct contract between a subcontractor and the Contractor, or any other subcontractor at any tier, for the furnishing of goods (material and equipment) or the performance of services (including construction) necessary to complete the Work.

1.19 Subcontractor - A person, firm, or corporation having a direct contract with the Contractor, or any other subcontractor at any tier, for the furnishing of goods (material and equipment) or the performance of services (including construction) necessary to complete the Work.

1.20 Successful Bidder - The lowest responsive, responsible bidder to whom or which the Owner intends to award the Agreement/Contract.

1.21 Women's Business Enterprise (WBE) - A business that is (a) certified as a WBE by a state or federal agency or (b) an independent business concern which is at least 51-percent owned and controlled/operated by women. (Determination of whether a business is at least 51-percent owned by women shall be made without regard to community property laws [e.g., an otherwise qualified WBE that is 51-percent owned by a married woman in a community property state will not be disqualified because the married woman's husband has a 50-percent interest in the married woman's share of the business; similarly, a business that is 51-percent owned by a married man and 49-percent owned by women will not become a qualified WBE by virtue of the married man's wife having a 50-percent interest in the married man's share of the business].)

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

ARTICLE 2 - PRIVACY OF AGREEMENT/CONTRACT

2.1. The Owner expects to finance this Agreement/Contract with assistance from the FDEP, which administers a State Revolving Fund loan program supported in part with funds directly made available by grants from the United States Environmental Protection Agency (USEPA). Neither the State of Florida nor the United States (nor any of their departments, agencies, or employees) will be a party to this Agreement/Contract or any lower-tier subcontract.

ARTICLE 3 - PROCUREMENT REQUIREMENTS

3.1. This Agreement/Contract and the Owner's solicitation and award of this Agreement/Contract are subject to requirements contained in Chapter 62-503 (Revolving Loan Program) and/or Chapter 62-552, Florida Administrative Code as applicable.

ARTICLE 4 - RESOLUTION OF PROTESTS AND CLAIMS/DISPUTES

Resolution of Protests Concerning the Owner's Solicitation and/or Award of this Agreement/Contract:

4.1. Protests concerning the Owner's solicitation and/or award of this Agreement/Contract must be filed in writing with the Owner to be considered.

4.2. All timely written protests concerning the Owner's solicitation and/or award of this Agreement/Contract are to be resolved in accordance with the Owner's dispute resolution process. A copy of the ordinance(s), resolution(s), or written policy (policies) that set forth the Owner's dispute resolution process is included elsewhere in the Bidding Documents or is to be made available by the Owner upon request.

4.3. Neither the (FDEP) nor the USEPA will become a party to, or have any role in resolving, protests concerning the Owner's solicitation and/or award of this Agreement/Contract. Protest decisions made by the Owner cannot be appealed to the FDEP or the USEPA.

Resolution of Claims and Disputes Between the Owner and the Contractor:

4.4. Unless otherwise provided in the Contract Documents, all claims and disputes between the Owner and the Contractor arising out of, or relating to, the Contract Documents or the breach thereof are to be decided by arbitration (if the Owner and the Contractor mutually agree) or in a court of competent jurisdiction within the State of Florida.

4.5. Neither the FDEP nor the USEPA will become a party to, or have any role in resolving, claims and disputes between the Owner and the Contractor.

ARTICLE 5 - CHANGES TO THE BIDDING AND CONTRACT DOCUMENTS

5.1. All changes to the Bidding Documents made subsequent to the FDEP's acceptance of the Bidding Documents and prior to the opening of bids are to be documented via addendum (addenda) to the Bidding Documents; all changes to the Contract Documents made after the opening of bids are to be documented by change order(s) to the Contract Documents. The Owner shall submit all addenda and change orders to the FDEP.

ARTICLE 6 - BONDS AND INSURANCE

Bid Guarantees:

6.1. Each bidder's bid is to be accompanied by a bid guarantee made payable to the Owner in an amount at least equal to five percent of the bidder's maximum bid price and in the form of a certified check or bid bond.

Performance and Payment Bond(s):

6.2. The Contractor shall furnish a combined performance and payment bond in an amount at least equal to 100 percent of the Contract Price (or, if required elsewhere in the Contract Documents, the Contractor shall furnish separate performance and payment bonds, each in an amount at least equal to 100 percent of the Contract Price) as security for the faithful performance and payment of all the Contractor's obligations under the Contract Documents. This(these) bond(s) are to be delivered to the Owner by the Contractor along with the executed Agreement/Contract. The Owner shall forward a copy of this (these) bond(s) to the FDEP.

Insurance:

6.3. The Owner and/or the Contractor (as required elsewhere in the Contract Documents) shall purchase and maintain, during the period of construction, such liability insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims that may arise out of, or result from, the Contractor's performance and furnishing of the Work (whether the Work is to be performed or furnished by the Contractor or any subcontractor at the Work site) and the Contractor's other obligations under the Contract Documents. This insurance is to include workers' compensation insurance, comprehensive general liability insurance, comprehensive automobile liability insurance, and contractual liability insurance applicable to the Contractor's indemnification obligations and is to be written for not less than the limits of liability and coverages determined by the Owner or required by law, whichever is greater.

6.4. The Owner and/or the Contractor (as required elsewhere in the Contract Documents) shall purchase and maintain, during the period of construction, property insurance upon the Work at the Work site in an amount equal to the full replacement cost of the Work or the full insurable value of the Work. This insurance is to include the interests of the Owner, the Contractor, and all subcontractors at the Work site (all of whom are to be listed as insured or additional insured parties); is to insure against the perils of fire and extended coverage; and is to include "all-risk" insurance for physical loss or damage due to theft, vandalism and malicious mischief, collapse, water damage, and/or all other risks against which coverage is obtainable.

6.5. Before any Work at the Work site is started, the Contractor shall deliver to the Owner certificates of insurance that the Contractor is required to purchase and maintain in accordance with Paragraphs 6.3 and 6.4 of this Article and other provisions of the Contract Documents, and the Owner shall deliver to the Contractor certificates of insurance that the Owner is required to purchase and maintain in accordance with Paragraphs 6.3 and 6.4 of this Article and other provisions of the Contract Documents.

ARTICLE 7 - AWARD OF AGREEMENT/CONTRACT

7.1. If this Agreement/Contract is awarded, it is to be awarded to the lowest responsive, responsible bidder. A fixed price (lump sum or unit price or both) agreement/contract is to be used. A clear explanation of the method of evaluating bids and the basis for awarding this Agreement/Contract are included elsewhere in the Bidding Documents. All bids may be rejected when in the best interest of the Owner. After the contract has been awarded, the Owner shall give the Contractor a notice to proceed fixing the date on which the Contract Time will commence to run. The Owner shall forward a copy of this notice to proceed to the FDEP.

ARTICLE 8 - ITEMIZED CONSTRUCTION COST BREAKDOWN; CONSTRUCTION AND PAYMENT SCHEDULES

8.1. The Contractor shall submit to the Owner, within ten calendar days after the Effective Date of this Agreement/Contract, an itemized construction cost breakdown and construction and payment schedules.

8.1.1. The itemized construction cost breakdown, or schedule of values, is to include quantities and prices of items aggregating the Contract Price and is to subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices are to include an appropriate amount of overhead and profit applicable to each item of Work.

8.1.2. The construction, or progress, schedule is to indicate the Contractor's estimated starting and completion dates for the various stages of the Work and is to show both the projected cost of Work completed and the projected percentage of Work completed versus Contract Time.

8.1.3. The payment schedule is to show the Contractor's projected payments cumulatively by month.

ARTICLE 9 – FDEP/USEPA ACCESS TO RECORDS AND PROJECT SITE

9.1. Authorized representatives of the Owner, the FDEP, and the USEPA shall have access to, for the purpose of inspection, the Work site(s), any books, documents, papers, and records of the Contractor that are pertinent to this Agreement/Contract at any reasonable time. The Contractor shall retain all books, documents, papers, and records pertinent to this Agreement/Contract for a period of five years after receiving and accepting final payment under this Agreement/Contract.

NOTE: ARTICLE 10 ONLY APPLIES TO FEDERAL CAP GRANT PROJECTS

ARTICLE 10 - DISADVANTAGED BUSINESS ENTERPRISES

10.1 A goal of five percent of the Contract Price is established for Minority Business Enterprise (MBE) participation in the Work, and a goal of five percent of the Contract Price is established for Women's Business Enterprise (WBE) participation in the Work. If bidders or prospective contractors (including the Contractor) intend to let any lower-tier goods

or services (including construction) subcontracts for any portion of the Work, they shall physically include these percentage goals for MBE and WBE participation in all solicitations for subcontracts and shall take good faith efforts to assure that MBEs and WBEs are utilized, when possible, as sources of goods and services. Good faith efforts are to include the following:

- 10.1.1. Require Disadvantaged Business Enterprises (DBEs) are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. For Indian Tribal, State and Local and Government recipients, this will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.
- 10.1.2. Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes, whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.
- 10.1.3. Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. For Indian Tribal, State and local Government recipients, this will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.
- 10.1.4. Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.
- 10.1.5. Use the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.
- 10.1.6. If the prime contractor awards subcontracts, require the prime contractor to take the steps in paragraphs 10.1.1 through 10.1.5 of this section.

10.2. Within ten calendar days after being notified of being the apparent Successful Bidder, the apparent Successful Bidder shall submit to the Owner documentation of the affirmative steps it has taken to utilize Minority and Women's Business Enterprises (MBEs and WBEs) in the Work and documentation of its intended use of MBEs and WBEs in the Work. The Owner shall keep this documentation on file and shall forward to the FDEP a copy of the apparent Successful Bidder's documentation concerning its intended use of MBEs and WBEs in the Work.

ARTICLE 11 - DEBARMENT AND SUSPENSION (EXECUTIVE ORDER 12549)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

11.1. The bidder certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

11.2. Where the bidder is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

11.3. The bidder also certifies that it and its principals:

11.3.1. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; violation of federal or state anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

11.3.2. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state or local) with commission of any of the offenses enumerated in paragraph 11.3.1 of this certification; and

11.3.3. Have not within a three-year period preceding this proposal had one or more public transactions (federal, state or local) terminated for cause or default. Where the bidder is unable to certify to any of the above, such owner shall attach an explanation to this proposal.

11.3.4. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the federal government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

11.3.5. The bidder shall incorporate the foregoing requirements 11.1 through 11.3 in all subcontracts.

ARTICLE 12 - EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

12.1. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246). (Applicable to contracts/subcontracts exceeding \$10,000)

12.1.1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

12.1.2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in Florida, are as follows:

Goal for female participation: 6.9 percent statewide

Goal for minority participation: (See Appendix B at FDEP-20 for goals for each county)

These goals are applicable to all the Contractor's construction work (whether or not it is federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

12.1.3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

12.1.4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is the State of Florida.

12.1.5. Contractors shall incorporate the foregoing requirements in all subcontracts.

12.2. Equal Opportunity Clause (Applicable to contracts/subcontracts exceeding \$10,000)

During the performance of this contract, the contractor agrees as follows:

12.2.1. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

12.2.2. The Contractor shall post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause. The notice can be obtained online at http://www.eeoc.gov/employers/upload/eeoc_self_print_poster.pdf. The Contractor shall state that all qualified applicants be considered without regard to race, color, religion, sex or national origin.

12.2.3. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

12.2.4. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

12.2.5. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

12.2.6. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

12.2.7. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

12.2.8. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs 12.2.1 through 12.2.8 in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

12.3. The Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

12.3.1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- d. "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

12.3.2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

12.3.3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

12.3.4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction Contractors performing construction work in geographical areas where they do not have a federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the FEDERAL REGISTER in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

12.3.5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

12.3.6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

12.3.7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 12.3.7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

12.3.8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (12.3.7a through 12.3.7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

12.3.9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

12.3.10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

12.3.11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12.3.12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

12.3.13. The Contractor, in fulfilling its obligation under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

12.3.14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

12.3.15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

12.4. Pursuant to 41 CFR 60-1.7, if the price of this bid exceeds \$10,000, the bidder, by signing and submitting this proposal, certifies the following:

12.4.1. Affirmative action programs pursuant to 41 CFR 60-2 have been developed and are on file;

12.4.2. Documentation of a previous contract or subcontract subject to the equal opportunity clause is available;

12.4.3. All reports due under the applicable filing requirements have been filed with the Joint Reporting Committee, the Deputy Assistant Secretary or the Equal Employment Opportunity Commission; and

12.4.4. Each prospective construction subcontractor that may be awarded a lower-tier construction subcontract with a price exceeding \$10,000 shall meet the above requirements 12.4.1 through 12.4.3.

12.5. Pursuant to 41 CFR 60-1.8, if the price of this bid exceeds \$10,000, the bidder, by signing and submitting this proposal, certifies the following:

12.5.1. That he/she does not maintain or provide for his/her employees any segregated facility at any of his/her establishments;

12.5.2. That he/she does not permit employees to perform their services at any location, under his/her control, where segregated facilities are maintained;

12.5.3. That he/she will not maintain or provide for employees any segregated facilities at any of his/her establishments;

12.5.4. That he/she will not permit employees to perform their services at any location under his/her control where segregated facilities are maintained;

12.5.5. That a breach of this certification is violation of the Equal Opportunity Clause of this contract; and

12.5.6. That he/she will obtain identical certifications from proposed Subcontractors prior to the award of Subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his/her files.

As used in this certification, the term “segregated facilities” means any waiting rooms, work eating areas, time clocks, locker rooms, and other storage or dressing areas, transportation and housing facilities provided for employees which are in fact segregated on the basis of race, color, religion, or otherwise.

12.6. If the price of this Agreement/Contract exceeds \$10,000, the Owner shall give written notice to the Director of the Office of Federal Contract Compliance Programs within ten working days of award of this Agreement/Contract. The notice is to include the name, address, and telephone number of the Contractor; the employer identification number of the Contractor; the dollar amount of this Agreement/Contract; the estimated starting and completion dates of this Agreement/Contract; the number of this Agreement/Contract; and the geographical area in which the Work is to be performed.

12.7. If the price of this Agreement/Contract equals or exceeds \$50,000 and if the Contractor has 50 or more employees, the Contractor shall electronically file Standard Form 100 (EEO-1) online at <https://egov.eeoc.gov/eeo1/eeo1.jsp> within 30 calendar days after the award of this Agreement/Contract, unless the Contractor has submitted such a report within 12 months preceding the date of award of this Agreement/Contract. In addition, the Contractor shall ensure that each construction subcontractor having 50 or more employees and a lower-tier construction subcontract with a price equaling or exceeding \$50,000 also electronically files this form within 30 calendar days after the award to it of the lower-tier construction subcontract, unless the construction subcontractor has submitted such a report within 12 months preceding the date of award of the lower-tier construction subcontract.

ARTICLE 13 - IMMIGRATION REFORM AND CONTROL ACT OF 1986 (STATE OF FLORIDA EXECUTIVE ORDER 11-116)

The Immigration Reform and Control Act of 1986 prohibits employers from knowingly hiring illegal workers. The Contractor shall only employ individuals who may legally work in the United States – either U.S. citizens or foreign citizens who are authorized to work in the U.S. The Contractor shall use the U.S. Department of Homeland Security’s E-Verify Employment Eligibility Verification system (<http://www.uscis.gov/portal/site/uscis>) to verify the employment eligibility of:

- all new employees, during the term of this Agreement, to perform employment duties within Florida; and,
- all new employees (including subcontractors and subrecipients) assigned by the Contractor to perform work pursuant to this Agreement.

The Contractor shall include this provision in all subcontracts/subgrants it enters into for the performance of work under this Agreement.

ARTICLE 14 – ENVIRONMENTAL COMPLIANCE

The Contractor, and all subcontractors at any tier, shall comply with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 U.S.C. 1857[h]), Section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738 (Administration of the Clean Air Act and the Federal Water Pollution Control Act with Respect to Federal Contracts, Grants, or Loans), and 40 CFR Part 15.

ARTICLE 15 – FEDERAL LABOR STANDARDS PROVISION

Contracts being constructed with assistance from the State Revolving Fund Program are currently required to comply with the Federal Labor Standards Provisions as provided in Appendix C. Signing Appendix A certifies compliance with these provisions.

ARTICLE 16 – AMERICAN IRON AND STEEL PROVISION

Contracts being constructed with assistance from the State Revolving Fund Program are currently required to comply with The American Iron and Steel Provision as provided in Appendix D. Signing Appendix A certifies compliance with these provisions.

ARTICLE 17 - PROHIBITED LOCAL GOVERNMENT CONSTRUCTION PREFERENCES

- A. Pursuant to Section 255.0991, F.S., for a competitive solicitation for construction services in which 50 percent or more of the cost will be paid from state-appropriated funds which have been appropriated at the time of the competitive solicitation, a state, college, county, municipality, school district, or other political subdivision of the state may not use a local ordinance or regulation that provides a preference based upon:
1. The contractor’s maintaining an office or place of business within a particular local jurisdiction;
 2. The contractor’s hiring employees or subcontractors from within a particular local jurisdiction; or
 3. The contractor’s prior payment of local taxes, assessments, or duties within a particular local jurisdiction.
- B. For any competitive solicitation that meets the criteria in Paragraph A., a state college, county, municipality, school district, or other political subdivision of the state shall disclose in the solicitation document that any applicable local ordinance or regulation does not include any preference that is prohibited by Paragraph A.

**APPENDIX A TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SUPPLEMENTARY CONDITIONS**

**CERTIFICATION OF COMPLIANCE WITH THE FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION SUPPLEMENTARY CONDITIONS**

This certification relates to a construction contract proposed by _____,
(insert the name of the Owner)

which expects to finance the proposed construction contract with assistance from the Florida Department of Environmental Protection (which administers a State Revolving Fund loan program supported in part with funds directly made available by grants from the United States Environmental Protection Agency). I am the undersigned prospective construction contractor or subcontractor.

I certify that I have read the Florida Department of Environmental Supplementary Conditions and agree to incorporate the following articles into the bid and/or contract:

- ARTICLE 11 DEBARMENT AND SUSPENSION (EXECUTIVE ORDER 12549)
- ARTICLE 12 EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)
- ARTICLE 13 IMMIGRATION REFORM AND CONTROL ACT OF (STATE OF FLORIDA EXECUTIVE ORDER 11-116)
- ARTICLE 14 ENVIRONMENTAL COMPLIANCE
- ARTICLE 15 FEDERAL LABOR STANDARDS PROVISION
- ARTICLE 16 AMERICAN IRON AND STEEL PROVISION

I agree that I will obtain identical certifications from prospective lower-tier construction subcontractors prior to the award of any lower-tier construction subcontracts with a price exceeding \$10,000. I also agree that I will retain such certifications in my files.

(Signature of Authorized Official)

(Date)

(Name and Title of Authorized Official [Print or Type])

(Name of Prospective Construction Contractor or Subcontractor [Print or Type])

(Address and Telephone Number of Prospective Construction Contractor or Subcontractor [Print or Type])

(Employer Identification Number of Prospective Construction Contractor or Subcontractor)

**APPENDIX B TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SUPPLEMENTARY CONDITIONS**

GOALS AND TIMETABLES FOR MINORITIES AND FEMALES

[Note: These goals and timetables are the goals and timetables referred to in Paragraph 2 of the "Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)"; these goals and timetables are to be included in all FDEP assisted construction contracts and subcontracts with a price exceeding \$10,000 and in all solicitations for such contracts and subcontracts.]

The following goals and timetables for female utilization shall be included in all federal and federally assisted construction contracts and subcontracts in excess of \$10,000. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a federal or federally assisted construction contract or subcontract.

Area covered: Goals for Women apply nationwide.

Goals and Timetables

Timetable	Goals (percent)
Indefinite	6.9

Goals for minority utilization can be found in the Department of Labor's Technical Assistance Guide for Federal Construction Contractors (May 2009), available on the internet at <http://www.dol.gov/ofccp/TAGuides/consttag.pdf>. These goals shall be included for each craft and trade in all federal or federally assisted construction contracts and subcontracts in excess of \$10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a federal, federally assisted or non-federally related project, contract or subcontract.

Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply with the applicable SMSA or EA goal contained in this Appendix.

APPENDIX C
TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
SUPPLEMENTARY CONDITIONS

Davis-Bacon Requirements

FEDERAL LABOR STANDARDS PROVISIONS

(Davis-Bacon Act, Copeland Act, and Contract Works Hours & Safety Standards Act)

The Project to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such federal assistance.

1 Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act, 29 CFR Part 3, the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii) (a) The sponsor, on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The FDEP shall approve a request for an additional classification and wage rate and fringe benefits; therefore, only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the sponsor(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the sponsor to the FDEP. The FDEP will transmit the request to the Administrator of the Wage and Hour Division, employment Standards Administration, U. S. Department of Labor. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional

classification action within 30 days of receipt and so advise the FDEP or will notify FEDP within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event that the Contractor, the laborers or mechanics to be employed in the Classification or their representatives, and the sponsor do not agree on the proposed classification and wage rate (including the amount designed for fringe benefits, where appropriate), the FDEP shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of FDEP, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program. Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account, assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding.

The sponsor shall, upon written request of the EPA or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, EPA may, after written notice to the contractor, sponsor, applicant, or owners, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017).

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed, a copy of all payrolls to the sponsor. Such documentation shall be available upon request by FDEP. As to each payroll copy received, the sponsor shall provide a certification that the project is in compliance with the requirements of 29 CFR 5.5(a)(1) with each disbursement request. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(I), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead, the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site <http://www.dol.gov/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current addresses of each covered worker, and shall provide them upon request to the sponsor for transmission to the FDEP or EPA if requested by EPA, the FDEP, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsor. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149).

(b) Each payroll submitted shall be accompanied by a Statement of Compliance, signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR Part 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR Part 5.5 (a)(3)(I), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Option Form WH-347 shall satisfy the requirement for submission of the Statement of Compliance required by paragraph A. 3(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3(I) of this section available for inspection, copying, or transcription by authorized representatives of the FDEP or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FDEP may, after written notice to the contractor, or sponsor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U. S. Department of Labor, the Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio

of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program, shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with the determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U. S. Department of Labor, the Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program the contract will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts.

The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract Termination, Debarment.

A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3 and 5 are herein incorporated by referenced in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6 and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the sponsor, FDEP, EPA, the U. S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded EPA contracts or participate in EPA programs pursuant to Executive Order 12549.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded EPA contracts or participate in EPA programs pursuant to Executive Order 12549.

(iii) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U. S. C. 1001. Additionally, U. S. Criminal Code, Section 1010, Title 18, U. S. C., Federal Housing Administration transactions, provides in part "Whoever, for the purpose of . . . influencing in any way the action of such Administration . . . makes, utters or publishes any statement, knowing the same to be false . . . shall be fined not more than \$5,000 or imprisoned not more than two years, or both".

11. Complaints, Proceedings, or Testimony by Employees.

A. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this contract are applicable shall be discharged or in any other manner discriminated against by the contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this contract to his employer.

B. Contract Work Hours and Safety Standards Act. The sponsor shall insert the following clauses set forth in paragraphs B.(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by item 3 above or 29 CFR 4.6. As used in the paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. The sponsor, upon written request of the FDEP or an authorized representative of the Department of Labor, may withhold or cause to be withheld, from any moneys payable on

account of work performed by the contractor or subcontractor under any such contract or any other federal contract with the same prime contract, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54.83 State 96).

(3) The contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

12. Guidance to Contractor for Compliance with Labor Standards Provisions

a) Contracts with Two Wage Decisions

If the contract includes two wage decisions, the contractor, and each subcontractor who works on the site, must submit either two separate payrolls (one for each wage decision) or one payroll which identifies each worker twice and the hours worked under each wage decision. One single payroll, reflecting each worker once, may be submitted provided the Contractor uses the higher rate in the wage decisions for each identical job classification. However, where a job classification is not listed in a wage decision and is needed for that portion of the work, the classification **must** be added to the wage decision. A worker may not be paid at the rate for a classification using the hourly rate for that same classification in another wage decision. After the additional classification is approved, the contractor may pay the higher of the two rates and submit one payroll, if desired.

b) Complying with Minimum Hourly Amounts

- 1) The minimum hourly amount due to a worker in each classification is the total of the amounts in the Rates and Fringe Benefits (if any) columns of the applicable wage decision.
- 2) The contractor may satisfy this minimum hourly amount by any combination of cash and bona fide fringe benefits, regardless of the individual amounts reflected in the Rates and Fringe Benefits columns.
- 3) A contractor payment for a worker which is required by law is not a fringe benefit in meeting the minimum hourly amount due under the applicable wage decision. For example, contractor payments for FICA or unemployment insurance are not a fringe benefit; however, contractor payments for health insurance or retirement are a fringe benefit. Generally, a fringe benefit is bona fide if (a) it is available to most workers and (b) involves payments to a third party.
- 4) The hourly value of the fringe benefit is calculated by dividing the contractor's annual cost (excluding any amount contributed by the worker) for the fringe benefit by 2080. Therefore, for workers with overtime, an additional payment may be required to meet the minimum hourly wages since generally fringe benefits have no value for any time worked over 40 hours weekly. (If a worker is paid more than the minimum rates required by the wage decision, this should not be a problem. As long as the total wages received by a worker for straight time equals the hours worked times the minimum hourly rate in the wage decision, the requirement of the Davis-Bacon and Related Acts has been satisfied.)

c) Overtime

For any project work over 40 hours weekly, a worker generally must be paid 150% of the actual hourly cash rate received, not the minimum required by the wage decision. (The Davis-Bacon and Related Acts only establishes minimum rates and does not address overtime. The Contract Work Hours Act contains the overtime requirement and uses basic rate of pay as the base for calculation, not the minimum rates established by the Davis-Bacon and Related Acts.)

d) Deductions

Workers who have deductions, not required by law, from their pay must authorize these deductions in writing. The authorization must identify the purpose of each deduction and the amount, which may be a specific dollar amount or a percentage. A copy of the authorization must be submitted with the first payroll containing the deduction. If deducted amounts increase, another authorization must be submitted. If deducted amounts decrease, no revision to the original authorization is needed. Court-ordered deductions, such as child support, may be identified by the responsible payroll person in a separate document. This document should identify the worker, the amount deducted and the purpose. A copy of the court order should be submitted.

e) Classifications Not Included in the Wage Decision

If a classification not in the wage decision is required, please advise the owner's representative in writing and identify the job classification(s) required. In some instances, the state agency may allow the use of a similar classification in the wage decision.

Otherwise, the contractor and affected workers must agree on a minimum rate, which cannot be lower than the lowest rate for any trade in the wage decision. Laborers (including any subcategory of the laborer classification) and truck drivers are not considered a trade for this purpose. If the classification involves a power equipment operator, the minimum cannot be lower than the lowest rate for any power equipment operator in the wage decision. The owner will provide forms to document agreement on the minimum rate by the affected workers and contractor.

The U.S. Department of Labor (USDOL) must approve the proposed classification and rate. The contractor may pay the proposed rate until the USDOL makes a determination. Should the USDOL require a higher rate, the contractor must make wage restitution to the affected worker(s) for all hours worked under the proposed rate.

f) Supervisory Personnel

Foremen and other supervisory personnel who spend at least 80% of their time supervising workers are not covered by the Davis-Bacon and Related Acts. Therefore, a wage decision will not include such supervisory classifications and their wages are not subject to any minimums under the Davis-Bacon and Related Act or overtime payments under the Contract Work Hours and Safety Standards Act. However, foremen and other supervisory personnel who spend less than 80% of their time engaged in supervisory activities are considered workers/mechanics for the time spent engaged in manual labor and must be paid at least the minimum in the wage decision for the appropriate classification(s) based on the work performed.

g) Sole Proprietorships / Independent Contractors / Leased Workers

The nature of the relationship between a prime contractor and a worker does not affect the requirement to comply with the labor standards provisions of this contract. The applicability of the labor standards provisions is based on the nature of the work performed.

If the work performed is primarily manual in nature, the worker is subject to the labor standards provisions in this contract. For example, if John Smith is the owner of ABC Plumbing and performs all plumbing work himself, then Mr. Smith is subject to the labor standards provisions, including minimum wages and overtime. His status as owner is irrelevant for labor standards purposes.

If a worker meets the IRS standards for being an independent contractor, and is employed as such, this means that the worker must submit a separate payroll as a subcontractor rather than be included on some other payroll. The worker is still subject to the labor standards provisions in this contract, including minimum wages and overtime.

If a contractor or subcontractor leases its workers, they are subject to the labor standards provisions in this contract, including minimum wages and overtime. The leasing firm must submit payrolls and these payrolls must reflect information required to determine compliance with the labor standards provisions of this contract, including a classification for each worker based on the nature of the work performed, number of regular hours worked, and number of overtime hours worked.

h) Apprentices / Helpers

A worker may be classified as an apprentice **only if participating in a federal or state program**. Documentation of participation must be submitted. Generally, the apprentice program specifies that the apprentice will be compensated at a percentage of journeyman rate. For Davis-Bacon Act purposes, the hourly rate cannot be lower than the percentage of the hourly rate for the classification in the applicable wage decision.

If the worker does not participate in a federal or state apprentice program, then the worker must be classified according to duties performed. This procedure may require classification in the trade depending on tools used, or as a laborer if specialized tools of the trade are not used. The contractor may want to consult with the Wage and Hour Division of the U.S. Department of Labor located in most large cities regarding the appropriate classification.

Presently, no worker may be classified as a helper. As with apprentices not participating in a formal apprentice program, the worker must be classified according to duties performed and tools used.

APPENDIX D TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION SUPPLEMENTARY CONDITIONS

American Iron and Steel Requirement

The Contractor acknowledges to and for the benefit of the _____ (“Owner”) and the State of Florida (the “State”) that it understands that iron and steel products to be installed as a part of this contract must be in compliance with the requirements in H.R. 3547, “Consolidated Appropriations Act, 2014,” (Appropriations Act). H.R. 3547 includes the following language in Division G, Title IV, Sec. 436, under the heading, "Use of American Iron and Steel,":

(a) (1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term "iron and steel products" means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the "Administrator") finds that--

(1) applying subsection (a) would be inconsistent with the public interest;

(2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

For waivers to these requirements based on (2)(b) above, contact Sheryl Parsons at USEPA Region IV. She can be reached by phone at (404) 562-9337.

General Decision Number: FL150168 03/20/2015 FL168

Superseded General Decision Number: FL20140168

State: Florida

Construction Type: Heavy

County: Miami-Dade County in Florida.

HEAVY CONSTRUCTION PROJECTS (Including Sewer and Water Lines)

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015
1	01/09/2015
2	03/20/2015

ELEC0349-007 09/01/2014

	Rates	Fringes
ELECTRICIAN.....	\$ 30.11	10.06

ENGI0487-017 07/01/2013

	Rates	Fringes
OPERATOR: Backhoe (Except Loader Combo).....	\$ 28.32	8.80

OPERATOR: Crane
 All Tower Cranes (Must have 2 operators) Mobile, Rail, Climbers, Static-Mount; All Cranes with Boom Length 150 Feet & Over (With or without jib) Friction, Hydro, Electric or Otherwise; Cranes 150 Tons & Over (Must have 2 operators); Cranes with 3 Drums (When 3rd drum is rigged for work); Gantry & Overhead Cranes; Hydro Cranes Over 25 Tons but not more than 50 Tons (Without

Oiler/Apprentice);
 Hydro/Friction Cranes
 without Oiler/Apprentices
 when Approved by Union; &
 All Type of Flying Cranes;
 Boom Truck.....\$ 29.05 8.80
 Cranes with Boom Length
 Less than 150 Feet (With
 or without jib); Hydro
 Cranes 25 Tons & Under, &
 Over 50 Tons (With
 Oiler/Apprentice); Boom
 Truck.....\$ 28.32 8.80
 OPERATOR: Drill.....\$ 25.80 8.80
 OPERATOR: Loader.....\$ 25.64 8.80
 OPERATOR: Oiler.....\$ 22.99 8.80

 * IRON0272-005 02/01/2015

	Rates	Fringes
IRONWORKER, STRUCTURAL.....	\$ 23.76	7.78

 LABO1652-004 06/01/2013

	Rates	Fringes
LABORER: Grade Checker.....	\$ 14.50	4.92

 PAIN0365-007 08/01/2014

	Rates	Fringes
PAINTER: Brush, Roller and Spray.....	\$ 19.50	8.83

 SUFL2009-164 06/24/2009

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 17.00	2.51
CEMENT MASON/CONCRETE FINISHER...	\$ 16.61	5.52
LABORER: Common or General.....	\$ 13.09	1.26
LABORER: Landscape.....	\$ 7.25	0.00
LABORER: Power Tool Operator (Hand Held Drills/Saws, Jackhammer and Power Saws Only).....	\$ 10.63	2.20
OPERATOR: Asphalt Paver.....	\$ 11.59	0.00
OPERATOR: Backhoe Loader Combo.....	\$ 16.10	2.44
OPERATOR: Bulldozer.....	\$ 14.95	0.81

OPERATOR: Excavator.....	\$ 21.16	1.67
OPERATOR: Grader/Blade.....	\$ 16.00	2.84
OPERATOR: Mechanic.....	\$ 14.32	0.00
OPERATOR: Roller.....	\$ 10.95	0.00
OPERATOR: Scraper.....	\$ 11.00	1.74
OPERATOR: Trackhoe.....	\$ 20.92	5.50
OPERATOR: Tractor.....	\$ 10.54	0.00
TRUCK DRIVER, Includes Dump Truck.....	\$ 9.60	0.00
TRUCK DRIVER: Lowboy Truck.....	\$ 12.73	0.00
TRUCK DRIVER: Off the Road Truck.....	\$ 12.21	1.97

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the

most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests

for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION

**BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
NORTH BAY VILLAGE**

BID #2016-001

Appendix C

1. South Side Materials Schedules

BAYWALK PLAZA

L-200S - SOUTH SIDE IMPROVEMENTS - TREE MITIGATION SCHEDULE

TREE DATA TABLE

TREE #	BOTANICAL NAME	COMMON NAME	HEIGHT	SPREAD	DBH	CONDITION	ACTION	MITIGATION
8	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
9	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
10	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
11	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
12	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
13	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
14	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
15	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
16	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
17	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
18	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
19	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
20	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
21	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
22	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
23	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
24	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
25	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
26	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
27	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
28	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
29	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
30	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
31	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314
32	Coccoloba uvifera	Sea Grape	25'	20'	8"	n/a	REMOVE	314

TOTAL TREE CANOPY TO BE REMOVED	8,792	SF
TREE CANOPY MITIGATION REQUIREMENTS	17,584	SF













TOTAL SPECIMEN TREE CANOPY TO BE REMOVED	0	SF
SPECIMEN TREE CANOPY MITIGATION REQUIREMENTS	0	SF

TOTAL MITIGATION CANOPY REQUIRED	17,584	SF
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BAYWALK PLAZA

L-400S - SOUTH SIDE IMPROVEMENTS - LANDSCAPE SCHEDULE

PLANT SCHEDULE: SOUTH SIDE

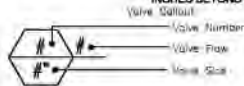
TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL	SIZE
	CN	5	COCOS NUCIFERA 'GREEN MALAYAN'	COCONUT PALM	F.G.	-	18' GW
	CR	1	CLUSIA ROSEA	PITCH APPLE	F.G.	3.5" CAL MIN	18' HT MIN
	SP	8	SABAL PALMETTO	CABBAGE PALM	F.G.	HEAVY	14'-20' CT VAREB, H.O.
	TR	5	THRINAX RADIATA	FLORIDA THATCH PALM	F.G.	-	18' HT MIN
SHRUBS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING	SIZE
	BG	34	BAMBUSA MALINGENSIS	SEABREEZE BAMBOO	3 GAL	SEE PLAN	8' HT MIN
	CS	8	CLUSIA GUTTIFERA	SMALL-LEAF CLUSIA	3 GAL	SEE PLAN	24" FULL
ORNAMENTAL GRASSES	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE	SPACING
	MR	14	MUHLENBERGIA CAPILLARIS	PINK MUHLY GRASS	3 GAL	24" HT MIN	36" o.c.
	TD	10	TRIPSACUM DACTYLOIDES	DWARF FAKAHATCHEE GRASS	3 GAL	24" HT MIN	36" o.c.
GROUND COVERS	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE	SPACING
	BF	14	BORRICHIA FRUTESCENS	SEA OXEYE DAISY	1 GAL		34" o.c.
	GM	23	CARISSA MACROCARPA	NATAL PLUM	3 GAL		48" o.c.
	HD	34	HELIANTHUS DEBILIS	BEACH SUNFLOWER	1 GAL		24" o.c.
	LL	51	LIMONIUM LATIFOLIUM	SEA LAVENDER	1 GAL		24" o.c.

BAYWALK PLAZA

L-500S - SOUTH SIDE IMPROVEMENTS - IRRIGATION SCHEDULE

IRRIGATION SCHEDULE: SOUTH SIDE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	RAIN BIRD XCC-150-PRB-COM HIGH FLOW CONTROL ZONE KIT, FOR LARGE COMMERCIAL DRIP ZONES. 1-1/2" PRESS VALVE WITH TWO 1" PRESSURE REGULATING (MOPSI) QUICK-CHECK BASKET FILTERS. FLOW RANGE: 15-40GPM.	1
	LARGE TREE DRIP RING EMITTERS CONTRACTOR TO PROVIDE FOUR (4) RAINBIRD PG DIFF SINGLE OUTLET, PRESSURE COMPENSATING DRIP EMITTERS WITH SELF-PIERCING BARR INLET AND DIFFUSER CAP. FLOW RATE: 24GPH-ORANGE.	18
	AREA TO RECEIVE DRILINE RAIN BIRD XFS-P-09-18 (18) XFS SUB-SURFACE PRESSURE COMPENSATING LANDSCAPE DRILINE W/COPPER SHIELD TECHNOLOGY. 0.8GPH EMITTERS AT 18.0" O.C. DRILINE LATERALS SPACED AT 18.0" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. PURPLE TUBING FOR NON-POTABLE WATER.	1,439 S.F.
	RAIN BIRD ESP-3M WITH (1) ESP-3M3 7 STATION, HYBRID MODULAR OUTDOOR CONTROLLER. FOR RESIDENTIAL OR LIGHT COMMERCIAL APPLICATIONS.	1
	RAIN BIRD RSD-3EX RAIN SENSOR, WITH METAL LATCHING BRACKET, EXTENSION WIRE.	1
	WATER METER 2"	1
	IRRIGATION LATERAL LINE: PVC CLASS 200 SDR 21 PVC CLASS 200 IRRIGATION PIPE. ONLY LATERAL TRANSITION PIPE SIZES 1" AND ABOVE ARE INDICATED ON THE PLAN, WITH ALL OTHERS BEING 3/4" IN SIZE.	172.2 L.F.
	IRRIGATION MAINLINE: PVC CLASS 200 SDR 21 PVC CLASS 200 IRRIGATION PIPE.	5.0 L.F.
	PIPE SLEEVE: PVC SCHEDULE 40 TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE. PIPE SLEEVE SIZE SHALL ALLOW FOR IRRIGATION PIPING AND THEIR RELATED COUPLINGS TO EASILY SLIDE THROUGH SLEEVING MATERIAL. EXTEND SLEEVES 18 INCHES BEYOND EDGES OF PAVING FOR CONSTRUCTION.	14.7 L.F.



VALVE SCHEDULE


NUMBER	MODEL	SIZE	TYPE	PSI	PSI @ POC	GPM	PRECIP
4	RAIN BIRD XCC-150-PRB-COM	1-1/2"	AREA FOR DRILINE	42.27	43.57	39.16	0.69 in/hr

CRITICAL ANALYSIS

Generated:	2015-07-29 06:36
P.O.C. NUMBER: 01	
Water Source Information:	
FLOW AVAILABLE	
Water Meter Size:	2"
Flow Available:	120.00 gpm
PRESSURE AVAILABLE	
Static Pressure at POC:	80.00 psi
Elevation Change:	5.00 ft
Service Line Size:	2 1/2"
Length of Service Line:	20.00 ft
Pressure Available:	57.00 psi
DESIGN ANALYSIS	
Maximum Station Flow:	39.16 gpm
Flow Available at POC:	120.00 gpm
Residual Flow Available:	80.84 gpm
Critical Station:	4
Design Pressure:	20.00 psi
Elevation Loss:	0.00 psi
Friction Loss:	2.13 psi
Fittings Loss:	0.21 psi
Loss through Valve:	19.83 psi
Pressure Req. at Critical Station:	42.27 psi
Loss for Fittings:	0.00 psi
Loss for Main Line:	0.00 psi
Loss for POC to Valve Elevation:	0.00 psi
Loss for Backflow:	0.00 psi
Loss for Water Meter:	1.25 psi
Critical Station Pressure at POC:	43.57 psi
Pressure Available:	57.00 psi
Residual Pressure Available:	13.43 psi

BAYWALK PLAZA

L-600S - SOUTH SIDE IMPROVEMENTS - LIGHTING SCHEDULE

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	7	A	SINGLE	3298	0.912	HASS AMERICA CITY ELEMENT CR230 AA900 AA900 2LV S 240 DEG LENS TYPE II 46W 4000K

Panel Board Schedule					
South Plaza Lighting					
Nema 3R, 1 Phase, 3 Wire, 240/120V 2-Pole 30A MCB					
Ckt No	SERVING	KVA	AMPS	C. BKR	CONDUCTOR
2	South Plaza Lighting	1.04	8.7	20A/1P	4
3	South Irrigation Controller	0.12	1.0	20A/1P	10

**BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
NORTH BAY VILLAGE**

BID #2016-001

Appendix D

1. Geotechnical Engineering Report

**REPORT OF SUBSURFACE SOIL EXPLORATION
GEOTECHNICAL EVALUATION AND RECOMMENDATIONS**

**BAYWALK PLAZAS PROJECT:
NE 79th STREET & BAYSHORE COURT
MIAMI, FLORIDA**

JULY 2015



Prepared for:

**KIMLEY HORN
1221 BRICKELL AVENUE, SUITE 400
MIAMI, FLORIDA 33131**

**NELCO TESTING AND ENGINEERING SERVICES, INC.
13370 SW 131st Street, Suite 105
Miami, Florida 33186**



NELCO
TESTING & ENGINEERING SERVICES, INC.

July 14th, 2015

Kimley Horn
1221 Brickell Avenue, Suite 400
Miami, Florida 33131

Reference: Report of Subsurface Soil Exploration and Recommendations
Evaluation of Subsurface Conditions
For the Proposed Construction:

Baywalk Plazas Project
NE 79th Street & Bayshore Court
Miami, Florida

NTES Project Number: B-150780

Dear Sirs,

Following please find the report of subsurface soil explorations and geotechnical evaluation for the above referenced property. Test Borings and soil sampling took place on July 1st, 2015 using procedures in general accordance with ASTM D-1586, the Standard Penetration Test. This report presents our findings, data, and recommendations.

We appreciate this opportunity to assist you in this project. If you have any questions or comments, please call us at (305) 259-9779.

Respectfully Submitted,
NELCO Testing and Engineering Services, Inc.

VMB Venkatesan
V.M.B Venkatesan 7/14/15
Professional Engineer No. 63107
State of Florida

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TESTING AND ENGINEERING SERVICES

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• Anticipated Settlement	4
• Soil Erosion	4
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Subsurface Soil Exploration and Recommendations
For
Baywalk Plazas Project
NE 79th Street & Bayshore Court
Miami, Florida

INTRODUCTION

The purpose of this sub-surface exploration was to obtain data in order to provide an evaluation of the sub-surface conditions and recommendations for foundation design for support of the proposed construction.

PROJECT INFORMATION

Site plan and construction information was provided by Mr. George Puig of Kimley Horn. At the time of testing, the project area was observed to be vacant. Proposed construction consists of a boardwalk and associated park structures.

SUB-SURFACE CONDITIONS

Sub-surface exploration consisted of two (2) Standard Penetration Test Boring conducted conforming to the guidelines as set forth in ASTM D-1586.

Testing was performed July 1st, 2015. A review of the Test Boring Reports generally indicates that the site consists of various layers of sand, sand with gravel and sand with shells throughout the maximum explored depth of fifteen (15) feet below existing grade.

Please note that soft soils have been encountered at approximate depths of 5.0 to 8.0 feet below existing grades. As a result these soils will need to be removed and replaced with controlled/engineered fill material as specified herein.

Groundwater at the time of testing was encountered at approximate depths of 9.0 feet below existing grade.

Please refer to the enclosed appendices for location, classification, and stratification information.

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FOUNDATION RECOMMENDATIONS

1. Remove any vegetation, organic material and soil within building areas plus five (5) feet outside the building footprint, down to an approximate depth of 8.0 feet below existing grade. The area under footings, foundations, and concrete slabs on grade shall have all vegetation, stumps, roots, and foreign materials removed prior to placement of fill.
2. Compact the cleared area to a minimum compaction of 95 percent of the dry soil density as determined by the Modified Proctor Test – ASTM D-1557.
3. Fill and compact the cleared areas in lifts not greater than 12 inches of compacted thickness to elevate to the required grade. Fill material for areas in support of footings is to be a mixture of limerock (minimum LBR Value 40) and sand, free of vegetation, organic material, construction debris, and large rocks. Fill material for slab on grade areas may be clean sand, filled and compacted in lifts not greater than 12 inches of loose material. The maximum size of fill material (rocks) within 12 inches below the floor slab shall be no more than 3 inches in diameter.
4. All fill material shall be inorganic containing no more than 5% by weight organic material. Silt-size fine particulates (material passing the No. 200 Sieve) in fill material shall be limited to less than 10% by weight.
5. Compact each lift of fill material and excavated footings to a minimum compaction of 95 percent of the dry soil density as determined by the Modified Proctor Test – ASTM D-1557 prior to placement of any additional fill required.
Prior to compaction, the moisture content of each lift of fill material shall be adjusted to within plus/minus 2 percent of the optimum moisture as determined by the Modified Proctor Test – ASTM D-1557.
6. Compaction of building site shall be verified by means of one Field Density Test for each 2500 square feet or fraction thereof for each lift of compacted soil for building pad or slab area. One Field Density Test will also be required for every 50 linear feet of excavated spread footings, and every isolated footing excavation. Field density tests shall be performed as per ASTM D-2922.
7. All Geotechnical work must be performed under the supervision of our geotechnical engineer or one of his representatives, in order to verify compliance with our specifications.

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SOIL BEARING CAPACITY FOR FOUNDATIONS

Our observations, exploration, and evaluation, supplemented by a review of sub-soil profile developed from the soil engineering Standard Penetration Test, indicate that the soils found, after improvements as specified, will be suitable for supporting foundations proportioned for a maximum allowable bearing stress of 3000 pounds per square foot, based on total load.

ANTICIPATED SETTLEMENT

Provided that foundations and soils (existing and fill material), are engineered and constructed in accordance with our recommendations and specifications the maximum total foundation settlement is expected to be less than 1 inch. Differential settlement between adjacent foundations is expected to be ½ of total settlement.

SOIL EROSION

The possibility exists for erosion to occur on soils providing structural support for any proposed or existing footings/foundations. This should be considered and addressed during the design and construction process for both existing soil and structurally placed fill material in support of any footings/foundations. This geotechnical report does not address this condition, its possibility of occurring, or its prevention.

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REPORT LIMITATIONS

The recommendations submitted are based on the available subsurface information obtained by Nelco Testing and Engineering Services, Inc. (NTES) and design details provided by Kimley Horn for the proposed project. If there are any revisions to the nature, design or location of proposed structures, NTES should be notified immediately to determine if changes in recommendations are required. If NTES is not retained to perform these functions, NTES will not be responsible for the impact of those conditions of the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with ASTM specifications, and generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed. Evaluations expressed in this report are based on field observations and data collected during exploration. Variations throughout the sub-surface profile may exist between designated boring locations, and in inaccessible areas with existing structures. These may not become evident until construction operations have commenced. Should any variations become evident, NELCO Testing and Engineering Services, Inc. must be notified. A reevaluation of the information and professional opinions expressed in this report may be necessary.

Please note analysis and recommendations mentioned in this report are obtained from the borings performed at the indicated locations on the "Soil Boring Test Location Sketch" included in this report. Local variations outside of the vertical reach of the boring locations may be encountered. Descriptions represent our interpretation of the subsurface data and observations at the specific boring locations, on the date tested.

This geotechnical report has been prepared by NTES for the intended use of Kimley Horn and the specific application to the named project as described. Any third party use of this report should be conducted with the expressed written permission of NTES.

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APPENDIX A

- Project Location Map
- Standard Penetration Test Boring Location Sketch



PROJECT LOCATION MAP
BAY WALK PLAZAS PROJECT
NE 79th STREET & BAYSHORE COURT, MIAMI, FLORIDA




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Soil Boring Test Location Sketch



 Soil Boring Test Location

VMB Venkatesan
7/16/15

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APPENDIX B

- Standard Penetration Test Boring Logs



TEST BORING LOG

Client: Kimley Horn

Date: July 1, 2015

Project: Baywalk Plazas Project

Job Number: B-150780

Project Location: NE 79 Street & Bayshore Court, Miami, Florida

Test Boring Number: 1

Depth	Water Level	Symbol	Strata Name	Description	SAMPLE			Standard Penetration Test N-value Blows/ft 10 30 50 70 90	
					Number	Blow Count			
						6"	6"		N-Value
0			Sand with some gravel	<i>Brown (with some limestone gravel)</i>					
1					1	X	11	20	
2									
3					2	6	9	21	
4									
5									
6									
7									
8			Sand	<i>Tan</i>	4	0	0	2	
9									
10									
11									
12									
13									
14									
15									
16			End of Boring		8	11	14	X	
17									
18									
19									
20									



TEST BORING LOG

Client: Kimley Horn

Date: July 1, 2015

Project: Baywalk Plazas Project

Job Number: B-150780

Project Location: NE 79 Street & Bayshore Court, Miami, Florida

Test Boring Number: 2

Depth	Water Level	Symbol	Strata Name	Description	SAMPLE			Standard Penetration Test											
					Number	Blow Count		N-Value	N-value										
						6"	6"		10	30	50	70	90						
0			Sand	<i>Brown</i>															
1			Sand with trace gravel	<i>Brown (with trace limestone gravel)</i>	1	X	9	14											
2						5	11												
3					2	18	13	23											
4						10	9												
5					3	5	7	10											
6						3	0												
7					4	0	0	0											
8						0	3												
9	July 1, 2015		Sand with some shells	<i>Tan (with some shells)</i>	5	9	14	24											
10						10	8												
11			Sand	<i>Tan</i>	6	6	5	11											
12						6	4												
13					7	2	11	25											
14						14	10												
15					8	8	6	X											
16			End of Boring																
17																			
18																			
19																			
20																			

NELCO

TESTING AND ENGINEERING SERVICES

PERCOLATION TEST REPORT

CLIENT: Kimley Horn
 1221 Brickell Avenue, Suite 400
 Miami, Florida 33131

DATE: July 1, 2015
JOB No.: P-150780


Project:	Baywalk Plazas Project
Location:	NE 79 Street and Bayshore Drive, Miami, Florida

PERCOLATION TEST RESULTS		
Test Number (No) (u)	1	SOIL CONDITIONS
Test Hole Diameter (d) (ft)	0.5	0.0' - 8.0': Sand with gravel
Depth to Water Table (H ₂) (ft)	9.5	8.0' - 15.0': Sand
Saturated Depth (Ds) (ft)	5.5	
"Stabilized" Flow Rate (Q) (c.f.s.)	6.67E-02	
Hydraulic Conductivity (K)	4.31E-04	

$$K = \frac{4Q}{\pi d (2H z^2 + 4H_2D_s + H_2d)}$$

Per S.F.W.M.D. Permitting Information Manual (Vol IV - May, 2004)" Usual Open-Hole Test"

Comments: **Please note:** "Soil Conditions" listed above are representative of material encountered in test hole only.
 In no way whatsoever shall any assumptions of soil conditions outside the test hole area be made based
 on the soil conditions outlined in this report.


V.M.B. Venkatesan 7/1/15
 Professional Engineer No. 63107
 State of Florida

NELCO

TESTING AND ENGINEERING SERVICES

PERCOLATION TEST REPORT

CLIENT: Kimley Horn
 1221 Brickell Avenue, Suite 400
 Miami, Florida 33131

DATE: July 1, 2015
JOB No.: P-150780

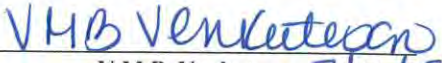
Project:	Baywalk Plazas Project
Location:	NE 79 Street and Bayshore Drive, Miami, Florida

PERCOLATION TEST RESULTS		
Test Number (No) (u)	2	SOIL CONDITIONS
Test Hole Diameter (d) (ft)	0.5	0.0' - 8.0': Sand with gravel, some shells
Depth to Water Table (H ₂) (ft)	8.75	8.0' - 15.0': Sand
Saturated Depth (Ds) (ft)	6.25	
"Stabilized" Flow Rate (Q) (c.f.s.)	6.40E-02	
Hydraulic Conductivity (K)	4.33E-04	

$$K = \frac{4Q}{\pi d (2H^2 + 4H_2D_s + H_2d)}$$

Per S.F.W.M.D. Permitting Information Manual (Vol IV - May, 2004) " Usual Open-Hole Test"

Comments: **Please note:** "Soil Conditions" listed above are representative of material encountered in test hole only.
 In no way whatsoever shall any assumptions of soil conditions outside the test hole area be made based on the soil conditions outlined in this report.


V.M.B. Venkatesan 7/16/15
 Professional Engineer No. 63107
 State of Florida

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Soil Percolation Test Location Sketch



Percolation Test Locations

**BAYWALK PLAZA AREA DESIGN (SOUTH SIDE ONLY)
NORTH BAY VILLAGE**

BID #2016-001

Appendix E

1. General Conditions, EJCDC C-700 (2007 Edition)

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

and

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
 12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop

Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The words or terms discussed in Paragraph 1.02.B-F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

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

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

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

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

- Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

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

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
 - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
 - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

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

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

- a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
 5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
 6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Owner's Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

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

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

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

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

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

- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
- 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

- c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and
 - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

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

- 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
- 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
- 3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

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

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 - 1. all persons on the Site or who may be affected by the Work;
 - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

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

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

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

- a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
- b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
- c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
- d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 6. any inspection, test, or approval by others; or
 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
1. written notice thereof will be given to Contractor prior to starting any such other work; and
 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 3. the extent of such authority and responsibilities will be provided.

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

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

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

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

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

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not

exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
 - 1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 - 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 - 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

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

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, and shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

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

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
 1. Contractor agrees that:
 - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:*
 1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 - 1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

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

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
 - 1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 - 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 - 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

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

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
 - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
 - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

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

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
 2. correct such defective Work; or
 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

- 1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

- involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
- b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If,

after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A-D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

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

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work

has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 Final Completion Delayed

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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