

**TOWN OF WINDERMERE
EXECUTIVE SUMMARY**

SUBJECT: Marina Bay Stormwater Pond Repairs

REQUESTED ACTION: Staff Recommends Approval

- Work Session (Report Only)
 Regular Meeting

DATE OF MEETING: August 13, 2019
 Special Meeting

CONTRACT: N/A

Vendor/Entity: Gregori Construction,
Inc.

Effective Date: 08/14/2019
Managing Division / Dept:

Termination Date: 08/15/2020
Public Works

BUDGET IMPACT: Not To Exceed \$85,000.00

- Annual
 Capital
 N/A

FUNDING SOURCE: CIP Stormwater Projects
EXPENDITURE ACCOUNT: 004 5380 000 7530

HISTORY/RECOMMENDATIONS:

Mayor & Council,

History

Due the failing system, the Town of Windermere issued a Notice to Proceed in or around May of 2017 to C & M Dredging, Inc. for Stormwater improvements and for the removal of existing failed underdrain system, re-grading of the existing stormwater pond including the removal of excess sediment deposition; the plugging of underdrain connections at the existing control structure; construction of permanent erosion control at all storm sewer inflow points and flumes; and the restoration of all disturbed areas.

Since this time, the pond has not recovered to the desired dry conditions and it is recommended that an underdrain system be reinstalled to assist in the draw down of the ponding water in order to properly maintain vegetation in the bottom of the pond.

Recommendation

Bids were solicited thru RFP #2019-02 Marina Bay Estates Underdrain Improvements via DemandStar and the Town website. One (1) vendor, Cathcarth Construction of Florida, LLC submitted a bid. This bid was deemed unreasonable based on the engineers estimate to not be within industry standard costings. Staff has the responsibility of due diligence to seek a reasonable bid, as provided under the guidance of Chapter 287 FS and

Rule Chapter 60A. For this, three (3) other contractors were contacted for quotes and for industry cost comparisons. Each of these contractors also noted that as the construction industry has inundated workloads, they were not able to provide a quote within the timeframe of the original bid request. Two (2) of these three (3) contractors were still not able to provide a bid in a timely manner, which left us with two (2) bids (see attached bid tabulation).

As noted, the first bidder Cathcart Construction of Florida, LLC cost is deemed unreasonable and the second bid from Gregori Construction, Inc was deemed reasonable and within industry standards for costings.

For this, Staff recommends that the Town Council awards the contract to Gregori Construction, Inc. as they have the equipment and manpower to complete the project, and within reasonable cost.

August 6, 2019

TOW-053

1-1.0

Mr. Scott Brown
Public Works Director
Town of Windermere
614 Main Street
Windermere, Florida 34786

Re: **BID NO. 2019-02**
MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS
Town of Windermere, Florida

Subj: **RECOMMENDATION OF AWARD**

Dear Mr. Brown:

On Wednesday, July 11, 2019, the Town of Windermere received sealed construction bids for the above referenced project from one (1) prospective contractor. The bids were tabulated based on bid proposals for the Total Bid.

The bid review indicates Cathcart Construction, Inc. to be the apparent low bidder with a Total Bid proposal of **\$127,840.00**. This was the only bid received during the solicitation of **Bid No. 2019-02 MARINA BAY UNDERDRAIN IMPROVEMENTS**. Due to the total bid price to be well above the engineer's estimate, the Town opted to solicit other bids for comparative costs in accordance to Chapter 287 F.S., **PROCUREMENT OF PERSONAL PROPERTY AND SERVICES** and Chapter 60A, F.A.C. The Town solicited three (3) additional contractors (Gregori Construction, Barracuda Building Corporation and C&D Excavating) for bids on the underdrain improvements. The Town received only one (1) additional bid (Gregori Construction), with Barracuda Building Corp. and C&D Excavating not submitting, resulting in a NO BID consideration.

A review of the bid tabulations revealed no arithmetic errors for the two (2) apparent low bidders. Based on the attached bid tabulations, the ranking remains the same, from lowest bidder to the second lowest bidder, and is summarized as follows:

Mr. Scott Brown, Public Works Director
 Town of Windermere
 Bid No. 2019-02 – Marina Bay Estates Underdrain Improvements
 August 6, 2019
 Page 2

Rank	Description	Contractor	Total Bid Price
1	Lowest Bidder	Gregori Construction, Inc.	\$79,870
2	Second Lowest Bidder	Cathcart Construction Company	\$127,840.00
-	Non-Responsive Bidder	Barracuda Building Corp.	-
-	Non-Responsive Bidder	C&M Dredging, Inc.	-

The bid proposals of the two (2) apparent low bidders are complete and properly indicated in the attached Bid Checklist form. They have acknowledged receipt of all addenda as required and have submitted proposals to comply with the Town’s bidding requirements. While other requirements must be verified by the Town, we believe that these bid proposals are in conformance with all material respect to the invitation for bids and are, therefore, responsive bids.

Based upon the information presented in the bid proposals, each of the two (2) apparent low bidders are licensed contractors in the State of Florida and seem to possess the manpower and equipment necessary to perform the classes of work contemplated within the specified contract time. We have also contacted the references for the low bidder (Gregori Construction, Inc.), which is summarized in the attached Bid Reference List. During the reference check process, a number of references were interviewed. This was done to determine the ability and competency of the low bid contractor to conduct the work; the ability of the contractor to complete the work in a timely fashion and whether the contractor provided good communication and was responsive to the Owner. The reference check process also asked whether any significant change orders were issued during the course of construction; whether the contractor showed initiative and willingness to resolve construction-related issues; and whether the contractor is in good standing with the reference interviewed.

In addition, a representative of the low bid contractor (Gregori Construction, Inc.) was interviewed to determine the availability of manpower and equipment to complete the above reference project concurrently with any other projects awarded to the contractor. The contractor representative affirmatively acknowledged that they had sufficient manpower and equipment to complete the project in a timely manner, regardless of other concurrent projects beyond this project.

A comparison of the low bidder total and the estimated project budget was conducted to ascertain the comparison of unit prices and total prices. The estimated project budget was approximately \$54,000 and the low bidder’s total bid price was \$79,870.00, a difference of \$25,870 or an increase of 47 % above the Engineer’s estimate. We can attribute the

Mr. Scott Brown, Public Works Director
Town of Windermere
Bid No. 2019-02 – Marina Bay Estates Underdrain Improvements
August 6, 2019
Page 3

escalated unit prices on the prosperity within the Central Florida construction market, with significant projects such as the I-4 Ultimate Improvements affecting not only the unit prices but the availability of needed construction material such as Portland cement, sand, concrete pipe, etc. We find this increase to be acceptable within the Town's budgetary constraints and the current construction market value.

Based on our review of the submittals from each of the two (2) apparent low bidders, we find that Gregori Construction, Inc., is the lowest responsible, responsive bidder. **Therefore, we recommend that the referenced construction contract for be awarded to Gregori Construction, Inc., based on their total bid proposal of \$79,870.00.**

We are submitting this recommendation on the good faith that the information provided to the Town and MGEC/Michael Galura Engineering Consultants by the references interviewed and the low bid contractor is truthful and accurate.

If you have any questions, please do not hesitate to contact me directly at (407) 493-9983 or by e-mail at mchgalu@aol.com.

Respectfully,

MGEC/Michael Galura Engineering Consultants, LLC



Michael B. Galura, P.E.
President/Principal Engineer

C:\Users\Michael\Documents\My Projects\TOW-053 Marina Bay\Post-Design - UD Improvements\Awarding of Bid\Letter to Scott Brown (Recommendation of Award).docx.doc

Enclosure

cc: Robert Smith, Town of Windermere
Dorothy Burkhalter, Town of Windermere
John Fitzgibbon, Town of Windermere

BID CHECKLIST				
PROJECT DATA		BIDDER INFORMATION		
Owner: Town of Windermere		Name: Gregori Construction, Inc.		
Location: 614 Main Street Windermere, Florida 34786		Address: 3950 South Street Titusville, Florida 32780 Phone: (321) 593-9103 Fax: (321) 806-1765		
Contract: Bid No. 2019-02 Marina Bay Underdrain Improvements		Contractor's No.: CGC1512990 CUC1224399		
Checklist	Check One			Comments
	Yes	No	N/A	
Acknowledges all Addenda?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No Addendums Issued
Incomplete unit prices?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Conditional bid?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Bid Proposal properly signed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Serious bid omissions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Local Agency/Federal Aid Program Certification	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Drug Free Workplace Certification?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Equal Employment Opportunity Certification?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Non-Collusion Oath?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Good Faith Affidavit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bid Bond or Cashier's Check?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
References?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Licenses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Certificate of FDOT Qualification	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

in box for properly completed Bid

BID CHECKLIST				
PROJECT DATA		BIDDER INFORMATION		
Owner: Town of Windermere		Name: Cathcart Construction Company – Florida LLC		
Location: 614 Main Street Windermere, Florida 34786		Address: 2564 Connection Point Oviedo, Florida 32765 Phone: (407) 629-2900 Ext 18 Fax: (321) 203-4900		
Contract: Bid No. 2019-02 Marina Bay Underdrain Improvements		Contractor's No.: CGC051005 CUC057230		
Checklist	Check One			Comments
	Yes	No	N/A	
Acknowledges all Addenda?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No Addendums Issued
Incomplete unit prices?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Conditional bid?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Bid Proposal properly signed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Serious bid omissions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Local Agency/Federal Aid Program Certification	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Drug Free Workplace Certification?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Equal Employment Opportunity Certification?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Non-Collusion Oath?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Good Faith Affidavit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Bid Bond or Cashier's Check?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
References?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Licenses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Certificate of FDOT Qualification	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

in box for properly completed Bid.

**PROJECT: TOWN OF WINDERMERE
CONTRACT NAME: MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS
BID NO. 2019-02**

REFERENCES FOR: GREGORI CONSTRUCTION, INC.			
Item	No. 1	No. 2	No. 3
Contact Person	Jesus Vieiro	Benjamin Bartlett	Nicolas Gagliardo
Date Contacted	July 15, 2019	July 15, 2019	July 15, 2019
Organization	City of Titusville	Volusia County Road and Bridges Division	City of Palm Bay
Telephone No.	(321) 567-3733 Jesus.vieiro@titusville.com	(386) 822-6422 bbartlett@volusia.org	(321) 952-3400 Nicholas.gagliardo@palmabayflorida.com
Project Name	Main Street and Sycamore Baffle Boxes (Completed June 22, 2018)	Gemini Springs Baffle Boxes (Completed June 13, 2018)	City of Edgewood Roadway Improvements (Completed August 2018)
Contract Amount	\$965,587	\$287,970	\$842,141
Owner	City of Titusville	County of Volusia	City of Palm Bay
Completed on Schedule	Yes	Yes	Yes
Change Orders	Yes (City incurred)	No	No
Comments:	The City was very pleased with the work by Gregori Construction on the installation of the baffle boxes at the intersection of Main Street and Sycamore Street in Titusville. The City issued a change order to Gregori Construction to make adjustments to the baffle box plan due to unforeseen conflicts that were encountered during construction. Gregori worked with the City on making the change and still maintained the project schedule. Gregori Construction is also retained by the City for continuing construction work including sewer and drainage improvements as directed by the Public Works Department.	The project involved the construction of baffle boxes within the Gemini Springs County Park to provide water quality improvements of stormwater runoff before discharging into the springs. The County was very pleased with the work conducted by Gregori Construction, which constructed the baffle box project on time and within budget. No change orders were incurred during construction.	The City was pleased with the work Gregori Construction did on the City of Palm Bay box culvert improvements. This project was for the replacement of existing culverts on the C-75 Canal, Pembroke, Emerson and Pebble for the City. Three (3) separate CMP culverts were replaced along the Melbourne-Tillman Water Control District Canal No. 75. The box culverts were pre-cast 9'x6', 9'x7' and 10'x6' in size with cast-in-place headwalls and wingwalls. No change orders were issued by the City to Gregori Construction.

TOWN OF WINDERMERE
MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS
WINDERMERE, FLORIDA
BID NO. 2019-02
BID TABULATION

BID ITEM NO.	BIDDING ITEM NO.	ITEM DESCRIPTION	ESTD. QTY.	UNIT	GREGORI CONSTRUCTION		CATHCART CONSTRUCTION		BARRACUDA BUILDING CORP.		C&M DREDGING, INC.	
					UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
1	101-1	Mobilization/Demobilization (5% of items below)	1	LS	\$ 3,250.00	\$ 3,250.00	\$ 6,000.00	\$ 6,000.00	\$ -	\$ -	\$ -	\$ -
2	101-2	Survey, Construction Layout and Certified As-Built	1	LS	\$ 3,500.00	\$ 3,500.00	\$ 5,000.00	\$ 5,000.00	\$ -	\$ -	\$ -	\$ -
3	102-2	Maintenance of Traffic	1	LS	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ -	\$ -	\$ -	\$ -
4	104-4	Prevention, Control and Abatement of Erosion and Water Pollution	1	LS	\$ 1,950.00	\$ 1,950.00	\$ 2,500.00	\$ 2,500.00	\$ -	\$ -	\$ -	\$ -
5	110-1-1	Cleaning and Grubbing	1	LS	\$ 3,350.00	\$ 3,350.00	\$ 11,000.00	\$ 11,000.00	\$ -	\$ -	\$ -	\$ -
6	120-9	Excavation and Grading	1	LS	\$ 4,000.00	\$ 4,000.00	\$ 10,000.00	\$ 10,000.00	\$ -	\$ -	\$ -	\$ -
7	400-0-10	Class NS Concrete (Miscellaneous)	2	CY	\$ 2,750.00	\$ 5,500.00	\$ 1,000.00	\$ 2,000.00	\$ -	\$ -	\$ -	\$ -
8	440-1-06	Underdrain, 6" (Complete)	665	LF	\$ 40.00	\$ 26,600.00	\$ 100.00	\$ 66,500.00	\$ -	\$ -	\$ -	\$ -
9	440-70	Underdrain Cleanout, Complete	16	EA	\$ 260.00	\$ 4,160.00	\$ 100.00	\$ 1,600.00	\$ -	\$ -	\$ -	\$ -
10	440-73-5	Underdrain Outlet Pipe, 12" (Complete)	136	LF	\$ 85.00	\$ 11,560.00	\$ 90.00	\$ 12,240.00	\$ -	\$ -	\$ -	\$ -
11	570-1-2	Performance Turf, Sod	2,000	SY	\$ 7.50	\$ 15,000.00	\$ 5.00	\$ 10,000.00	\$ -	\$ -	\$ -	\$ -
TOTAL						\$ 79,870.00	\$ 127,840.00	\$ 127,840.00	\$ -	\$ -	\$ -	\$ -

APPARENT LOW BIDDER: GREGORI CONSTRUCTION, INC. \$ 79,870.00
 APPARENT SECOND LOW BIDDER: CATHCART CONSTRUCTION COMPANY \$ 127,840.00
 NON-RESPONSIVE BIDDER: BARRACUDA BUILDING CORP. \$ -
 NON-RESPONSIVE BIDDER: C&M DREDGING, INC. \$ -

**TOWN OF WINDERMERE
MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS
WINDERMERE, FLORIDA
BID NO. 2019-02
BID TABULATION**

BID ITEM NO.	FDOT ITEM NO.	ITEM DESCRIPTION	ESTD. QTY.	UNIT	GREGORI CONSTRUCTION		CATHCART CONSTRUCTION		BARRACUDA BUILDING CORP.		C&M DREDGING, INC.	
					UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
1	101-1	Mobilization/Demobilization (5% of items below)	1	LS	\$ 3,250.00	\$ 3,250.00	\$ 6,000.00	\$ 6,000.00	\$ -	\$ -	\$ -	\$ -
2	101-2	Survey, Construction Layout and Certified A-S-Built	1	LS	\$ 3,500.00	\$ 3,500.00	\$ 5,000.00	\$ 5,000.00	\$ -	\$ -	\$ -	\$ -
3	102-2	Maintenance of Traffic	1	LS	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ 1,000.00	\$ -	\$ -	\$ -	\$ -
4	104-4	Prevention, Control and Abatement of Erosion and Water Pollution	1	LS	\$ 1,950.00	\$ 1,950.00	\$ 2,500.00	\$ 2,500.00	\$ -	\$ -	\$ -	\$ -
5	110-1-1	Clearing and Grubbing	1	LS	\$ 3,350.00	\$ 3,350.00	\$ 11,000.00	\$ 11,000.00	\$ -	\$ -	\$ -	\$ -
6	120-9	Excavation and Grading	1	LS	\$ 4,000.00	\$ 4,000.00	\$ 10,000.00	\$ 10,000.00	\$ -	\$ -	\$ -	\$ -
7	400-0-10	Class NS Concrete (Miscellaneous)	2	CY	\$ 2,750.00	\$ 5,500.00	\$ 1,000.00	\$ 2,000.00	\$ -	\$ -	\$ -	\$ -
8	440-1-06	Underdrain, 6" (Complete)	665	LF	\$ 40.00	\$ 26,600.00	\$ 100.00	\$ 66,500.00	\$ -	\$ -	\$ -	\$ -
9	440-70	Underdrain Cleanout, Complete	16	EA	\$ 260.00	\$ 4,160.00	\$ 100.00	\$ 1,600.00	\$ -	\$ -	\$ -	\$ -
10	440-73-5	Underdrain Outlet Pipe, 12" (Complete)	136	LF	\$ 85.00	\$ 11,560.00	\$ 90.00	\$ 12,240.00	\$ -	\$ -	\$ -	\$ -
11	570-1-2	Performance Turf, Sod	2,000	SY	\$ 7.50	\$ 15,000.00	\$ 5.00	\$ 10,000.00	\$ -	\$ -	\$ -	\$ -
TOTAL						\$ 79,870.00	\$ 127,840.00	\$ 127,840.00	\$ -	\$ -	\$ -	\$ -

APPARENT LOW BIDDER: GREGORI CONSTRUCTION, INC. \$ 79,870.00
 APPARENT SECOND LOW BIDDER: CATHCART CONSTRUCTION COMPANY \$ 127,840.00
 NON-RESPONSIVE BIDDER: BARRACUDA BUILDING CORP. \$ -
 NON-RESPONSIVE BIDDER: C&M DREDGING, INC. \$ -



CONSTRUCTION PLANS FOR MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS

PROJECT NO. : 2019-03

TOWN OF WINDERMERE
WINDERMERE, FLORIDA



PROJECT
LOCATION

GOVERNING STANDARDS AND SPECIFICATIONS :
FLORIDA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS FOR DESIGN, CONSTRUCTION,
MAINTENANCE AND UTILITY OPERATIONS
ON THE STATE HIGHWAY SYSTEM (LATEST EDITION)
AND
STANDARD SPECIFICATIONS FOR ROAD AND
BRIDGE CONSTRUCTION (LATEST EDITION)
AS AMENDED BY CONTRACT DOCUMENTS

COUNTY MAP
NTR

BID SET PLANS
PLAN DATE: JUNE 2019

PROJECT LENGTH	FEET	MILES
DRAINAGE	40	0.0265
BRIDGES	0	0
TOTAL LENGTH	40	0.0265

MAYOR JIM O'BRIEN

TOWN MAYOR

TOWN COUNCIL

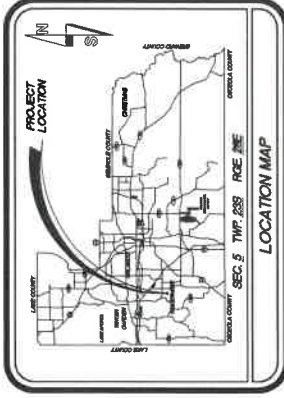
ANDY WILLIAMS
CHRIS SAPP
BILL MARTINI
ROBERT MCKINLEY
LIZ ANDERT
ROBERT SMITH
SCOTT BROWN

COUNCIL MEMBER
COUNCIL MEMBER
COUNCIL MEMBER
COUNCIL MEMBER
TOWN MANAGER
PUBLIC WORKS DIRECTOR

CERTIFICATION TO PLANS

I HEREBY CERTIFY THAT THE DESIGN FOR THIS PROJECT AND THE ATTACHED CONSTRUCTION PLANS COMPLY WITH THE REQUIREMENTS OF SECTION 336.046 OF THE FLORIDA STATUTES AND ARE IN SUBSTANTIAL CONFORMANCE WITH THE STANDARDS CONTAINED IN THE EDITION OF THE "MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS" IN EFFECT ON THIS DATE AS ADOPTED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION PURSUANT TO SUBSECTION 336.046(7) OF THE FLORIDA STATUTES.

DATE: 6/2019 ENGINEER: MICHAEL B. GALLIRA REG. NO.: 40728



SHEET	COVER SHEET	DESCRIPTION
1	COVER SHEET	
2	GENERAL NOTES	
3	TYPICAL SECTION	
4	SUMMARY OF QUANTITIES	
5	UNDERDRAIN LAYOUT PLAN	
6	CROSS-SECTIONS - STA. C+49 TO STA. I+54	
7	CROSS-SECTIONS - STA. I+54 TO STA. J+89	
8	CROSS-SECTIONS - STA. J+89 TO STA. K+124	
9	UNDERDRAIN DETAILS	

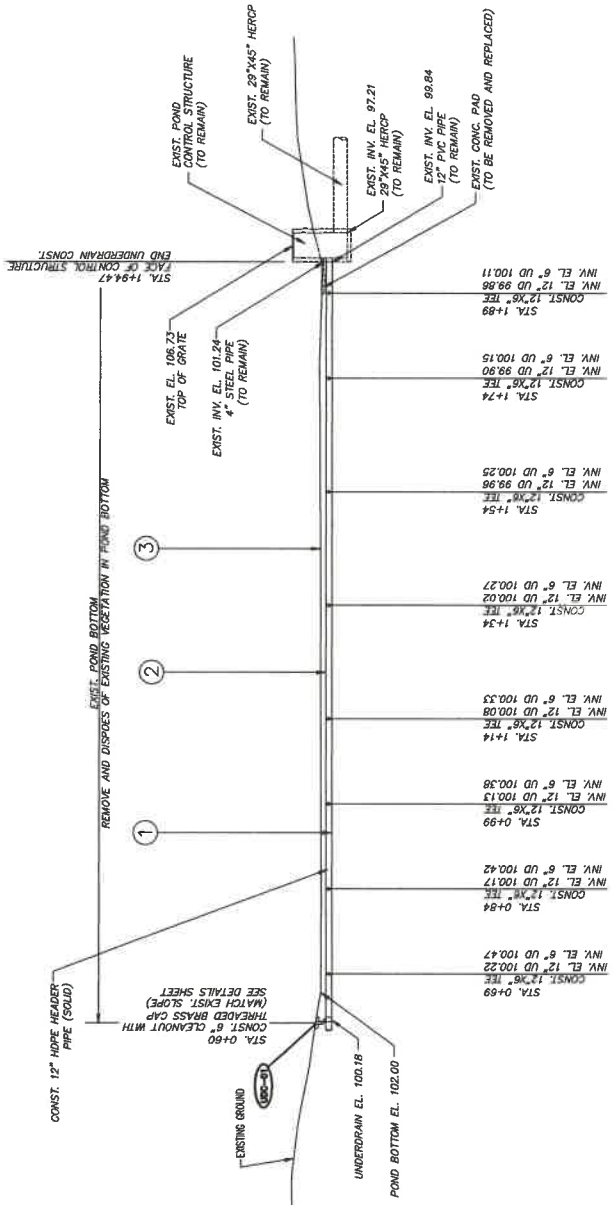
UTILITIES ENCOUNTERED	DESCRIPTION	DEPTH
POWER: PROGRESS ENERGY	1-800-700-8744	
PHONE: CENTURY LINK	407-814-5393	
WATER: UTILITIES INC. OF FLORIDA	407-869-1919	
SEWER:	NONE	
GAS: LAKE APOPKA NATURAL GAS DISTRICT	407-656-2734	
CITY: BRIGHT HOUSE NETWORK	407-532-8509	

PREPARED BY:
MGE MICHAEL GALLIRA
ENGINEERING
CONSULTANTS, LLC
8822 County Dr., Suite H
Lakeland, FL 34601
CERTIFICATE OF AUTHORIZATION NO. 2928 407/465-9886

PERSONS	DATE	BY

DESIGNED BY: MBO DATE: 6/2019
DRAWN BY: CAD DATE: 6/2019
CHECKED BY: MBO DATE: 6/2019
APPROVED BY: MBO DATE: 6/2019
PROJECT NO.: 2019-03-003

SHEET 1
OF 9



TYPICAL SECTION
MARINA BAY ESTATES STORMWATER POND UNDERDRAIN

N.T.S.

STA. 0+00.00 TO STA. 1+94.17

- NOTE:**
- CONTRACTOR IS TO MAINTAIN AS MUCH OF THE EXISTING SAND BOTTOM OF THE POND INTACT WHEN INSTALLING THE PROPOSED UNDERDRAIN. THE PROPOSED UNDERDRAIN INSTALLATION METHODS USING TRENCHING EQUIPMENT THAT WILL MINIMIZE DISTURBANCE OF THE POND SAND BOTTOM WILL BE USED. USE OF DITCH WATCH OR EQUIVALENT IS RECOMMENDED WHEN CUTTING THE UNDERDRAIN TRENCHES.
 - THE COST OF ALL UNDERDRAIN FITTINGS INCLUDING THE THREADED CLEAN OUT TOP SHALL BE INCLUDED IN THE UNIT COST FOR "UNDERDRAIN CLEANOUTS, COMPLETE, EACH."
 - THE COST FOR THE ROCK WRAP FOR THE PERFORATED PIPES SHALL BE INCLUDED IN THE UNIT COST FOR "UNDERDRAIN, COMPLETE, LF."
 - ALL FITTINGS SHALL BE INCLUDED IN THE COST OF UNDERDRAIN FITTINGS INCLUDING ALL LABOR, EXCAVATION, BACKFILL, TEES, ELBOWS AND CROSSSES SHALL BE INCLUDED IN THE UNIT COST FOR "UNDERDRAIN, COMPLETE, LF."

- UNDERDRAIN TRENCH EXCAVATION:
TRENCH EXCAVATION OF POND BOTTOM TO 12" UNDERDRAIN ELEVATION
REMOVE UNDESIRABLE SOIL MATERIAL AND UNDESIRABLE VEGETATION AND DISPOSE
- UNDERDRAIN TRENCH BACKFILL
BACKFILL WITH CLEAN AND FREE FLOWING SAND
MINIMUM HYDRAULIC CONDUCTIVITY = 15 FEET/DAY
(TO BE APPROVED BY ENGINEER)
- SOD TO MATCH EXISTING SOD IN ALL DISTURBED AREAS OF THE POND

REV.	DATE	DESCRIPTION	APP'D BY	CHECKED BY	DATE	FIELD: PKC SURVEY	DATE	
						DRAWN BY: CAD		
						CHECKED BY: MFG		
						DATE: MARCH 2018		
			MICHAEL CALIURA ENGINEERING, LLC 3222 Collins Dr., Suite H Orlando, Florida 32803 407/483-9863 ENGINEERING BUSINESS NUMBER 0025868					TOWN OF WINDERMERE PUBLIC WORKS DEPARTMENT 64 MAIN STREET, WINDERMERE, FLORIDA, 34716
				JOB NO. TOW-08317.000 FILE NAME SEE LEFT MARGIN ARCHIVE DESC: SCALE AS NOTED				
							DRAWN	
							SHEET 3 OF 9	
							TYPICAL SECTION STORMWATER POND	

SUMMARY OF SODDING

	PLAN SY	FINAL SY
LOCATION STA. TO STA.		
MARINA BAY ESTATES STORMWATER POND	1,186	
TOTALS	1,186	

NOTE: THE LIMITS OF SODDING ARE APPROXIMATE AND ARE TO BE ADJUSTED WHERE NECESSARY AS DIRECTED BY THE ENGINEER TO PROMOTE FOR CONTINUITY OF CONSTRUCTION OR TO SUIT THE ACTUAL REQUIREMENTS

SUMMARY OF EARTHWORK

DESCRIPTION	EMBANKMENT		EXCAVATION	
	PLAN CY	FINAL CY	PLAN CY	FINAL CY
TOTALS				

NOTE: NO COMPACTION AND/OR EXPANSION FACTORS WERE USED TO CALCULATE THE EARTHWORK QUANTITIES. THE CONTRACTOR IS RESPONSIBLE FOR DERIVING COMPACTION AND/OR EXPANSION QUANTITIES.

SUMMARY OF PAY ITEMS

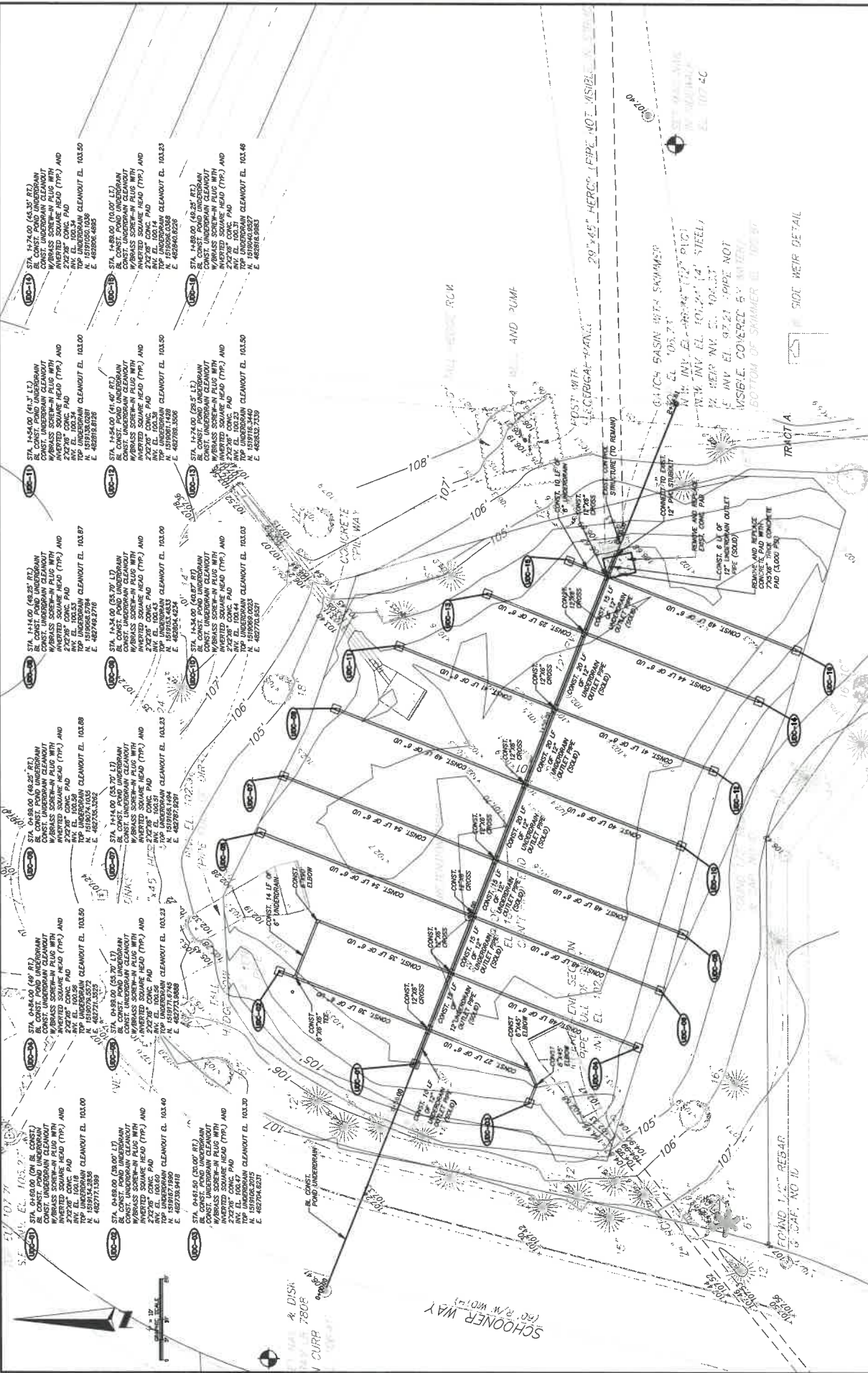
MARINA BAY ESTATES UNDERDRAIN POND IMPROVEMENTS

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY TOTAL	
			PLANS	FINAL
	BASE BID			
101-1	MOBILIZATION/DEMOLITION (5% OF ITEMS BELOW)	LS	1	
101-2	SURVEY, CONSTRUCTION LAYOUT AND CERTIFIED AS-BUILT	LS	1	
102-1	MAINTENANCE OF TRAFFIC	LS	1	
104-14	PREVENTION, CONTROL & ABATEMENT OF EROSION & WATER POLLUTION	LS	1	
110-1	CLEARING AND GRUBBING	LS	1	
120-1	EXCAVATION AND GRADING	LS	1	
400-0-10	CONCRETE CLASS NS, MISCELLANEOUS	CY	2	
440-1-06	UNDERDRAIN, 6" (COMPLETE)	LF	665	
440-70	UNDERDRAIN CLEANOUT, COMPLETE	EA	16	
440-73-5	UNDERDRAIN OUTLET PIPE, 12" (COMPLETE)	LF	136	
570-1-2	PERFORMANCE TURF, SOD	SY	2,000	

PAY ITEM NOTES

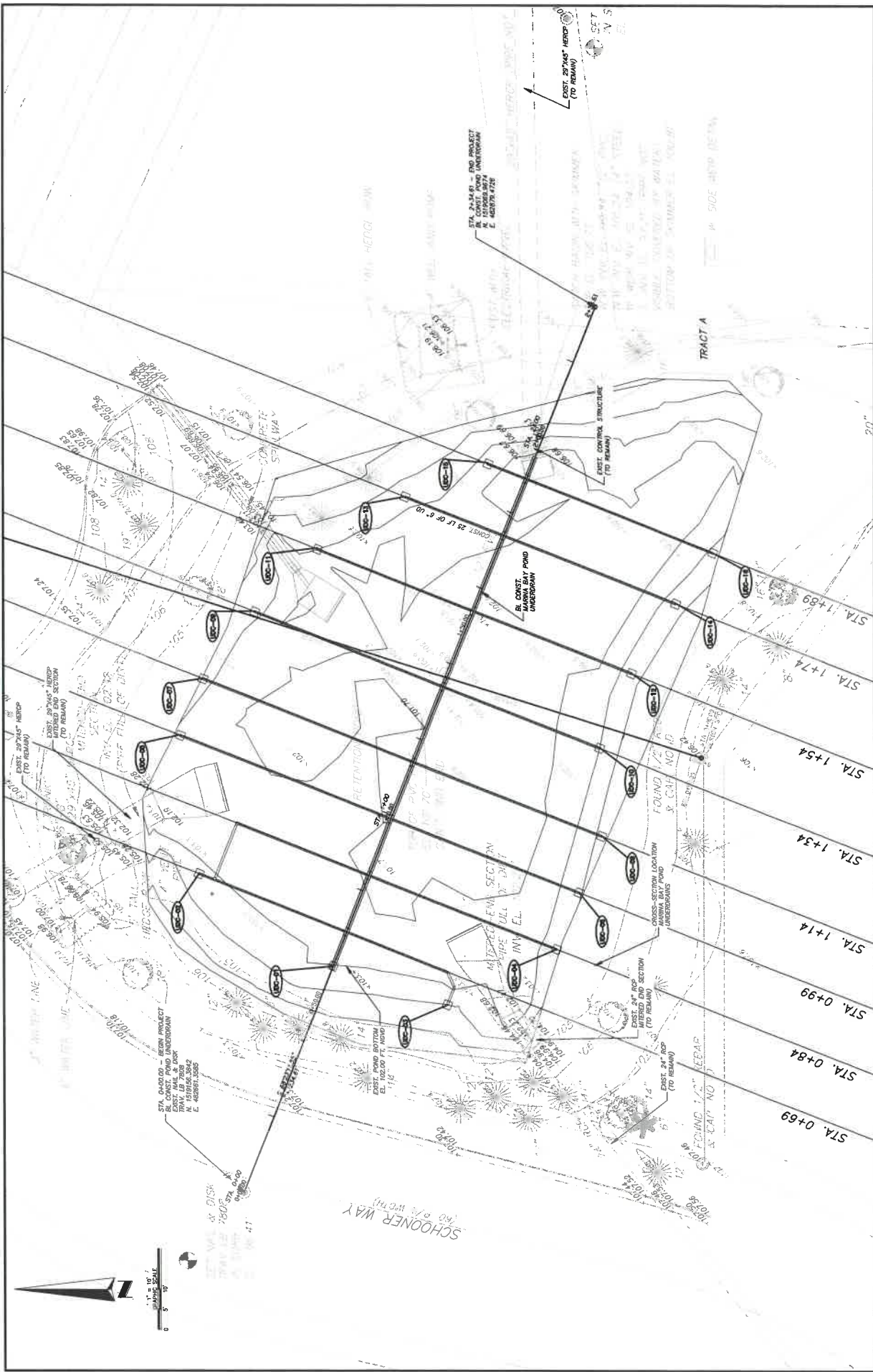
- 101-1 MOBILIZATION/DEMOLITION SHALL NOT EXCEED 5% OF THE TOTAL COST OF THE REMAINING ITEMS. INCLUDES REMOVAL AND DISPOSAL OF ALL CONCRETE.
- 104-14 INCLUDES ALL ITEMS UNDER SECTION 104 OF THE FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL BE RESPONSIBLE TO USE WHATEVER MEASURES DEEMED NECESSARY FOR THE CONTROL OF EROSION AND WATER POLLUTION AS DESIGNATED BY THE PLANS AND THE ENGINEER.
- 110-1-1 THIS PAY ITEM INCLUDES ALL LABOR AND EQUIPMENT NECESSARY FOR THE COMPLETE REMOVAL AND DISPOSAL OF ALL VEGETATION AND DEBRIS IN THE BOTTOM OF THE MARINA BAY STORMWATER POND.
- 120-1 THIS PAY ITEM INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT NECESSARY TO CONDUCT EXCAVATION AND BACKFILLING OPERATIONS FOR THE RE-GRADING OF THE MARINA BAY POND BOTTOM AND THE INSTALLATION OF THE PROPOSED UNDERDRAIN SYSTEM.
- 440-1-06 THIS PAY ITEM INCLUDES ALL LABOR, MATERIALS AND EQUIPMENT TO CONSTRUCT UNDERDRAINS, COMPLETE, INCLUDING ALL COST OF PERFORATED PIPE, FITTINGS, SOCK, FILTER FABRIC, TRENCH EXCAVATION, BACKFILLING SAND INTO PLACE, AND THE REMOVAL OF EXCESS MATERIALS.
- 440-70 THIS PAY ITEM INCLUDES ALL LABOR, MATERIALS AND EQUIPMENT TO CONSTRUCT UNDERDRAIN CLEANOUTS, COMPLETE, INCLUDING ALL COST FOR FITTINGS, PIPE, THREADED BRASS CAPS (INVERTED SQUARE HEAD), 6" CONCRETE PAD, BACKFILL INTO PLACE AND THE REMOVAL OF EXCESS MATERIALS.
- 440-73 THIS PAY ITEM INCLUDES ALL LABOR, MATERIALS AND EQUIPMENT TO CONSTRUCT THE UNDERDRAIN OUTLET PIPE, INCLUDING TRENCH EXCAVATION, PIPE, FITTINGS, HARDWARE CLOTH, BACKFILL INTO PLACE AND THE REMOVAL OF EXCESS MATERIALS.
- 570-1-2 THE UNIT PRICE (SY) FOR PERFORMANCE TURF SHALL INCLUDE ALL WORK AND MATERIALS FOR THE APPLICATION OF SOD, FERTILIZER, MOWING AND THE WATER REQUIRED TO MAINTAIN THE SODDED AREAS UNTIL FINAL ACCEPTANCE OF THE PROJECT.

REV. DATE APP'D BY CHECKED BY: MRO DRAWN BY: CARD FIELD: P&S SURVEY DATE: JUNE 2018	MICHAEL CALIURA ENGINEERING CONSULTANTS, LLC <small>3222 Corrine Drive, Suite H Orlando, Florida 32811 DISPATCH BUSINESS NUMBER 0226895</small>	TOWN OF WINDERMERE <small>PUBLIC WORKS DEPARTMENT 94 HADEN STREET, WINDERMERE, FLORIDA 34786</small>	JOB No. TOW-03671.000 FILE NAME SET LEFT MARION APPROX. DATE: 1/18 SCALE: HORIZONTAL 1" = 10' VERTICAL 1" = 10'	SUMMARY OF QUANTITIES DWG. 6-1 SHEET 4 OF 9
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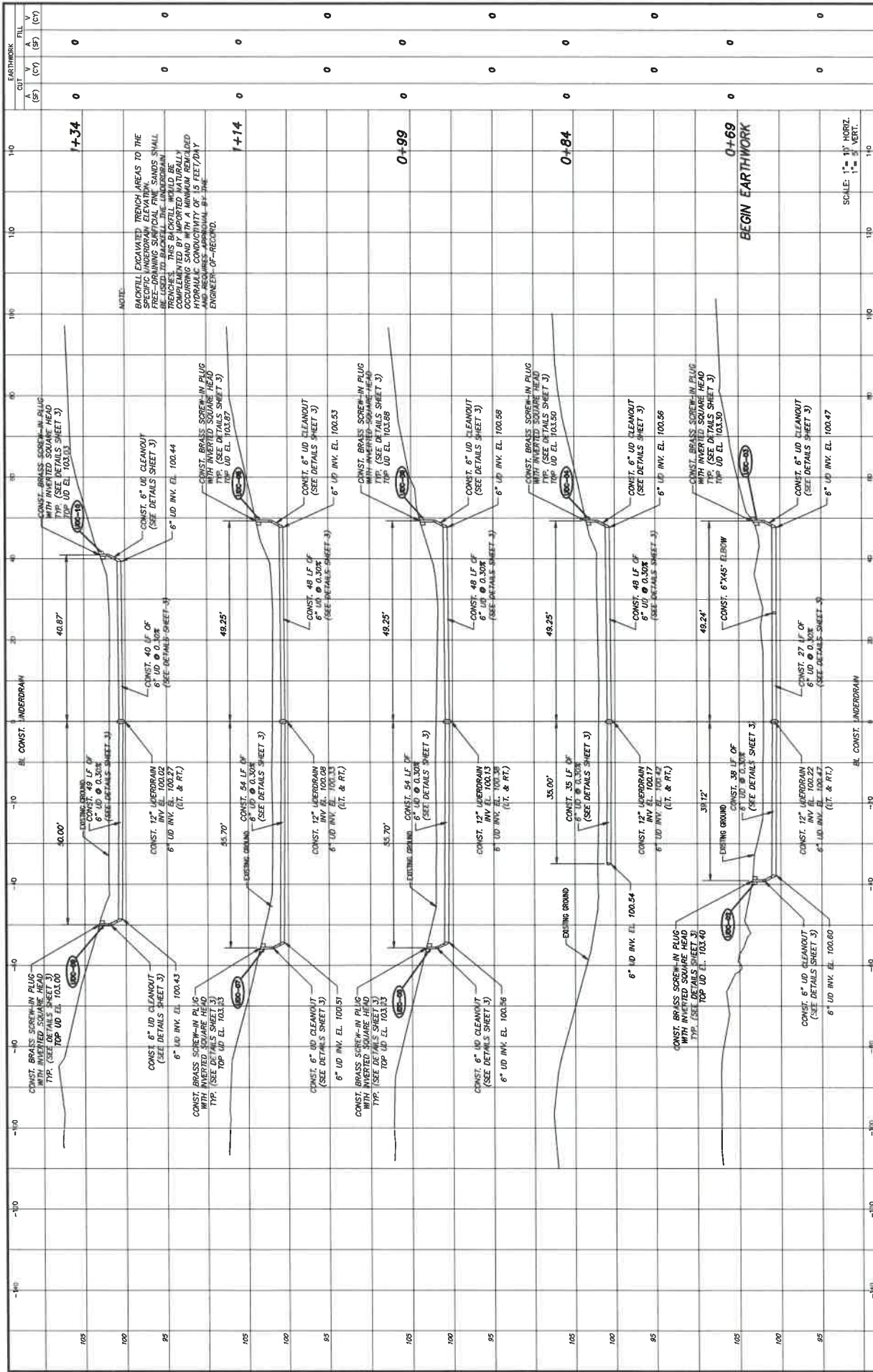


TOWN OF WINDERMERE		FILE NO. TW-05.01.000	DATE: _____
PUBLIC WORKS DEPARTMENT 16140 STREET, WINDERMERE, FL 34618		FILE NAME: SEE LEFT MARGIN	SCALE: 1" = 40'
		PROJECT NO. TW-05.01.000	DATE: _____
MGECS MICHAEL GALLURA ENGINEERING CONSULTANTS, LLC 3222 Curlew Drive, Suite H Windermere, FL 34618 407/493-9683 ENGINEERING BUSINESS NUMBER 002593		FIELD: PKG SURVEY	DATE: JUNE 2013
DATE: _____	SCALE: _____	APPROVED BY: _____	CHECKED BY: _____
DATE: _____	SCALE: _____	DATE: _____	DATE: _____
DATE: _____	SCALE: _____	DATE: _____	DATE: _____
DATE: _____	SCALE: _____	DATE: _____	DATE: _____
DATE: _____	SCALE: _____	DATE: _____	DATE: _____
DATE: _____	SCALE: _____	DATE: _____	DATE: _____

UNDERDRAIN LAYOUT PLAN

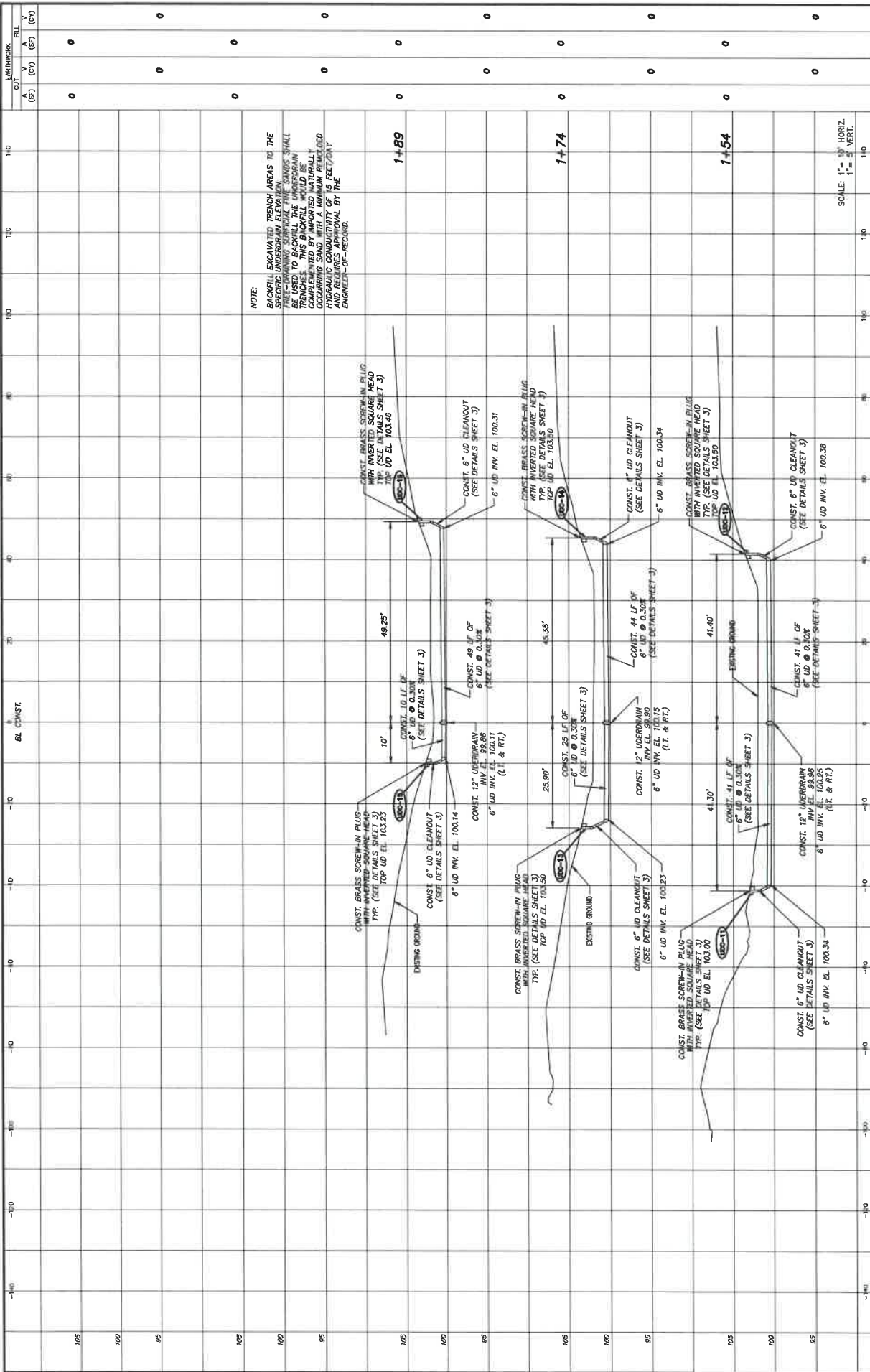


JOB NO. 10W-0645.000 FILE NAME SEE LEFT MARGIN ARCHIVE DESC. SCALE	TOWN OF WINDERMERE PUBLIC WORKS DEPARTMENT 61 JAMES STREET, WINDERMERE, FLORIDA 34786		MICHAEL CALURA ENGINEERING CONSULTANTS, LLC 3222 Cornelia Drive, Suite H Orlando, Florida 32803 ENGINEERING BUSINESS NUMBER 0025365		CROSS-SECTION LOCATION PLAN DRAWN: SHEET 6 OF 9
	DATE	FIELD PLOT SURVEY	DRAWN BY: CAD	CHECKED BY: MGS	
REV.	DATE	DESCRIPTION	DATE	DATE	DATE



REV.	DATE	DESCRIPTION	APP'D BY				DATE	OTHERS
			DESIGNED	CHECKED	DRAWN	FIELD		
			DESIGNED BY: MEG	CHECKED BY: MEG	DRAWN BY: CAMD	DATE: MARCH 2019		
			MGEC MICHAEL CALUPA ENGINEERING, LLC CONSULTANTS, LLC 3222 Collins Drive, Suite H Orlando, Florida 32803 ENGINEERING BUSINESS NUMBER: 6025885 407/493-9883					
			TOWN OF WINDERMERE PUBLIC WORKS DEPARTMENT 65 HAWTHORNE STREET, WINDERMERE, FLORIDA 34786					
			JOB NO. 19W-0640.000 FILE NAME: SEE LEFT MARGIN ASSUME DES: SCALE AS NOTED					

UNDERDRAIN SECTIONS
 MARINA BAY POND
 STA. 0+69 TO STA. 1+34
 DWG. SHEET 7 OF 9



NOTE:
 BACKFILL EXCAVATED TRENCH AREAS TO THE SPECIFIC UNDERDRAIN INVERT ELEVATION. SANDS SHALL BE USED TO BACKFILL THE UNDERDRAIN TRENCHES. THIS BACKFILL SHOULD BE COMPACTED TO A MINIMUM OF 95% RELATIVE DENSITY OCCURRING SAND WITH A MINIMUM PERMEABILITY AND HYDRAULIC CONDUCTIVITY OF 15 FEET/DAY AND REQUIRES APPROVAL BY THE ENGINEER-OF-RECORD.

SCALE: 1" = 10' HORIZ.
 1" = 3' VERT.

EARTHWORK		CUT		FILL	
(CY)	(CY)	(CY)	(CY)	(CY)	(CY)
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0
0	0	0	0	0	0

TOWN OF WINDERMERE
 PUBLIC WORKS DEPARTMENT
 61 JACOB STREET, FOND DU LAC, WI 54601

UNDERDRAIN SECTIONS
 MARINA BAY POND
 STA. 1+54 TO STA. 1+89

MGEC MICHAEL GALURA
 ENGINEERING CONSULTANTS, LLC
 3222 Center Drive, Suite H
 FOND DU LAC, WI 54601
 ENGINEERING BUSINESS NUMBER 9225985 407/493-9983

DATE: JUNE 2018
 DRAWN BY: MGD
 CHECKED BY: MGD
 DATE: JUNE 2018

JOB NO. TW-0507.000
 FILE NAME: SEE LEFT MARGIN
 APPROVE DESG:
 SCALE: HORIZ=1"=10'

REV.	DATE	DESCRIPTION
1	06/08/18	ISSUE FOR BIDDING

DATE: JUNE 2018

DATE	FIELD	REC SURVEY
06/08/18	0	0
06/08/18	0	0
06/08/18	0	0

DATE	FIELD	REC SURVEY
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06/08/18	0	0
06/08/18	0	0

DATE	FIELD	REC SURVEY
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06/08/18	0	0
06/08/18	0	0

DATE	FIELD	REC SURVEY
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06/08/18	0	0
06/08/18	0	0

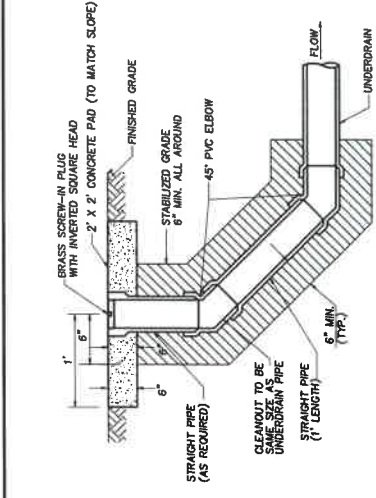
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06/08/18	0	0

DATE	FIELD	REC SURVEY
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06/08/18	0	0
06/08/18	0	0

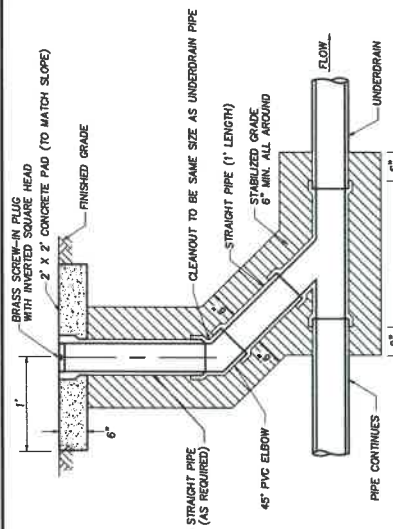
DATE	FIELD	REC SURVEY
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DATE	FIELD	REC SURVEY
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06/08/18	0	0
06/08/18	0	0

DATE: JUNE 2018

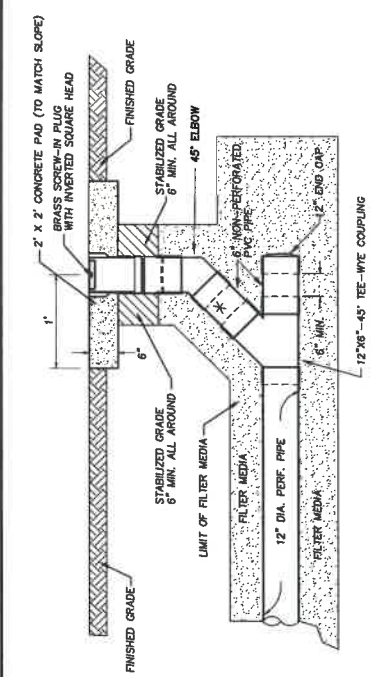


TERMINAL CLEANOUT



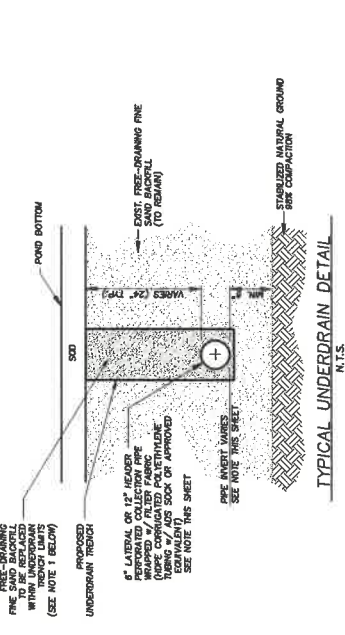
IN-LINE CLEANOUT

UNDERDRAIN CLEANOUT DETAILS
N.T.S.



HEADER PIPE CLEANOUT

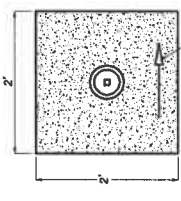
NOTES: ALL PIPE AND FITTINGS TO MEET ASTM F758-82 SPECIFICATIONS.
300' MAXIMUM DISTANCE BETWEEN CLEANOUTS
* COUPLING PIPE LENGTH TO BE FIELD ADJUSTED.



TYPICAL UNDERDRAIN DETAIL
N.T.S.

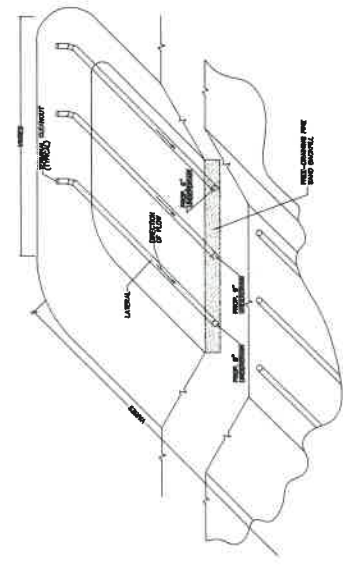
NOTE:

- WITHIN THE POND BOTTOM (NOT INCLUDING THE SIDE SLOPES), THE SOLES OVER-EXCAVATED AND REPLACED WITH FREE-DRAINING FINE SAND FROM THE UPPER MIDDLE OF THE SOIL PROFILE. THE MINIMUM HYDRAULIC PERMEABILITY SHALL BE 100 DRAINS PER FOOT. THE SAND SHALL BE VERIFIED BY THE SOIL LABORATORY OPERATOR AS MONITORED BY A REPRESENTATIVE OF THE PROJECT GEOTECHNICAL ENGINEER TO ENSURE COMPLIANCE WITH THE DESIGN INTENT.
- CONTRACTOR SHALL CONSTRUCT UNDERDRAINS IN ACCORDANCE WITH RECOMMENDATIONS BY DR. DEVA SERRERAM, Ph.D., P.E., CONSULTING GEOTECHNICAL ENGINEER, AS CITED IN THE REPORT ENTITLED GEOTECHNICAL INVESTIGATION AND RECOMMENDATIONS TO THE TOWN OF WINDERMERE, PROJECT NO. 16-026-001 DATED SEPTEMBER 30, 2016.
- THESE SHALL BE A 2' TYPICAL COVER OVER THE TOP OF THE UNDERDRAIN PIPES.
- SPACING OF LATERALS SHALL TYPICALLY BE BETWEEN 15' AND 20' (REFER TO PLAN FOR SPACING).
- THE MINIMUM COVER OF THE LATERAL PIPES SHALL BE 0.30X FOR THE HEADER PIPE FOR THE UNREPORTED EXISTING PAVED SURFACE.
- CAPPED AND SEALED INSPECTION AND CLEANOUT PORTS, WHICH EXTEND TO THE GRADING SURFACE, SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS:
* AT EVERY 400'-FEET OR EVERY BEND OF 45° OR MORE, WHICHEVER IS GREATER.



CONTRACTOR SHALL PRINT AN ARROW SHOWING DIRECTION OF UNDERDRAIN PIPE RUN (SINGLE LINE) AND THE DIRECTION OF FLOW FOR THE TYPICAL ARROWHEAD FOR IN-LINE CLEANOUT


CONCRETE PAD DETAIL
N.T.S.



TYPICAL UNDERDRAIN PERSPECTIVE VIEW
N.T.S.

REV.	DATE	DESCRIPTION	APP'D BY	OTHERS

SIGN OFF CLIENT: PWS/CM BC PWS/CM DR CM OTHERS	FIELD P/E SURVEY DATE:	DRAWN BY: CAD DESIGNED BY: MRO CHECKED BY: MRO DATE: JUNE 2018	FILE NO. 16W-026-001 FILE NAME: SEE LEFT MARGIN ARCHIVE INFO: SCALE: AS NOTED
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MCEC MICHAEL CALURA
 ENGINEERING
 CONSULTANTS, LLC
 3222 Corinne Drive, Suite H
 Orlando, Florida 32803
 DOWNGRADING BUSINESS NUMBER: 8005265
 407/483-9983

TOWN OF WINDERMERE
 PUBLIC WORKS DEPARTMENT
 614 MAIN STREET, WINDERMERE, FLORIDA, 34786

TOWN OF WINDERMERE

BID NO. \$2019-02

MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS
WINDERMERE, FLORIDA
ENGINEER'S ESTIMATE

BID ITEM NO.	FDOT ITEM NO.	ITEM DESCRIPTION	EST'D. QTY.	UNIT	UNIT PRICE (FIGURES)	TOTAL PRICE (FIGURES)
1	101-1	Mobilization/Demobilization (5% of items below)	1	LS	\$2,542.50	\$2,542.50
2	101-2	Survey, Construction Layout and Certified As-Built	1	LS	\$5,000.00	\$5,000.00
3	102-2	Maintenance of Traffic	1	LS	\$1,000.00	\$1,000.00
4	104-4	Prevention, Control and Abatement of Erosion and Water Pollution	1	LS	\$1,500.00	\$1,500.00
5	110-1	Clearing and Grubbing	1	LS	\$8,000.00	\$8,000.00
6	400-0-10	Class NS Concrete (Miscellaneous)	2	CY	\$500.00	\$1,000.00
7	440-1-06	Underdrain, 6" (Complete)	665	LF	\$30.00	\$19,950.00
8	440-70	Underdrain Cleanout, Complete	16	EA	\$100.00	\$1,600.00
9	440-73-5	Underdrain Outlet Pipe, 12" (Complete)	136	LF	\$50.00	\$6,800.00
10	570-1-2	Performance Turf, Sod (Match Existing)	2,000	SY	\$3.00	\$6,000.00
TOTAL						\$53,392.50

The stamped seal of the Engineer indicates that this cost estimate was prepared under the direct supervision of the undersigned registered professional engineer. The presence of this seal does not certify, warrant or guarantee the estimated construction costs will be the actual value of the bid(s) received. The Engineer's opinion of probable construction cost is made on the basis of the Engineer's experience and qualifications and represents the Engineer's best judgment at the time this estimate was prepared.

Michael Galura Engineering Consultants, LLC

PROJECT MANUAL

BID #2019-02

MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS



**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

JUNE 2019

**BID SET
FOR BIDDING PURPOSES ONLY**

Prepared by:

MICHAEL GALURA ENGINEERING CONSULTANTS, LLC

3222 Corrine Drive, Suite H, Orlando, FL 32803

(407) 493-9983 - mchgalu@aol.com

<http://www.mgaluraengineeringconsult.com>

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID # 2019-02

**MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

TABLE OF CONTENTS

DIVISION 0 - BIDDING AND CONTRACT REQUIREMENTS

<u>SECTION</u>	<u>TITLE</u>
00007	Seals Page
00100	Invitation to Bid
00200	Instructions to Bidders
00300	Information Available to Bidders
00400	Bid Form
00400A	Local Agency Program
00401	Questionnaire
00401A	Drug-Free Workplace Certification
00430	Bid Bond
00450	Non-collusion Affidavit
00451	Certification of Non-segregated Facilities
00452	Sworn Statement on Public Entity Crimes
00453	Certification of Non-discriminatory Labor Practices
00501	Corporate Authority to Execute Documents
00510	Notice of (Intent to) Award
00520	Agreement between Owner and Contractor
00540	Indemnification Agreement
00550	Notice to Proceed
00600	100% Performance and Payment Bond
00611	Construction Payment Bond
00620	Certificate of Liability Insurance
00621	Certificate of Substantial Completion
00622	Change Order Form
00623	Periodic Estimate for Partial Payment
00640A	Release of Lien (Progress Payment)
00640B	Release of Lien (Final Payment)
00650	Final Contractor's Affidavit (Statutory Declaration Form)
00670	Certification of Owner's Attorney
00700	Standard General Conditions of the Construction Contract
00800A	Supplementary Conditions
00900	Addenda (As Required)

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID # 2019-02

**MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

**TABLE OF CONTENTS
(Cont'd)**

DIVISION 1 - GENERAL REQUIREMENTS

01001	General Requirements
01010	Summary of Work
01025	Measurement and Payment
01027	Application for Payment
01040	Coordination
01050	Field Engineering
01200	Project Meetings
01300	Submittals
01400	Quality Control
01490	Contractor Sampling and Testing
01500	Temporary Facilities and Controls
01558	Traffic Control
01600	Materials and Equipment
01630	Substitutions and Product Options
01700	Contract Closeout
01710	Final Cleaning

DIVISION 2 - SITE CONSTRUCTION

02140	Dewatering
02200	Earthwork
02222	Trenching Backfilling and Compacting
02605	Precast Concrete Manholes and Structures
02611	Reinforced Concrete Pipe for Gravity Service
02720	Drainage Structures and Piping
02801	Restoration of Surface Improvements
02930	Grassing

DIVISION 3 - CONCRETE

03100	Cast-In-Place and Poured Concrete
03300	Concrete
03600	Grout

DIVISION 4 - 5 (NOT USED)

DIVISION 11 - 16 (NOT USED)

ADDITIONAL TECHNICAL SPECIFICATIONS

Section 120 Earthwork and Related Operations for Local Agencies
Section 344 Local Agency Program – Concrete

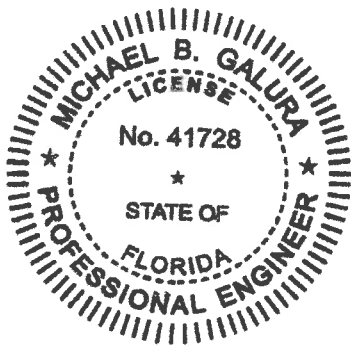
DIVISION 0
BIDDING AND CONTRACT REQUIREMENTS

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID #2019-02

MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS

The engineering material and data contained in the Contract Drawings and Specifications was prepared under the supervision and direction of the respective undersigned, whose seal as a registered professional engineer is affixed below:



Michael B. Galura, P.E.

Michael B. Galura, P.E.
President/Principal Engineer
MICHAEL GALURA ENGINEERING CONSULTANTS, LLC
ENGINEERING BUSINESS NO. 0025885
FBPE CERTIFICATE OF AUTHORIZATION NO. 29032
Drawings:
Specifications: All divisions not listed below

SECTION 00100

INVITATION TO BID

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID # 2019-02

**MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

Sealed bids, in duplicate, will be accepted at the office of the Town Clerk, in the Town Hall, Town of Windermere, Orange County, Florida, not later than **Thursday, July 11, 2019 at 2:00 p.m.** (local time). Sealed bids must be hand delivered, and dated and time stamped at the office of the Town Clerk. Immediately thereafter, bids will be publicly opened and read aloud at Town Hall.

Any bids received after the above noted time will not be accepted under any circumstances. Any uncertainty regarding the time a bid is received will be resolved against the Bidder. Bids submitted after this designated time will be returned unopened.

Description of Work:

All work for the Project shall be constructed in accordance with the Drawings and Specifications prepared by Michael Galura Engineering Consultants, LLC, Orlando, Florida, and the proposed contract will be awarded and constructed, if award is made, under these Contract Documents. Bids shall be submitted for furnishing, delivering, and installing all materials, equipment, incidentals and services, including labor, for the Work, which generally includes, but is not necessarily limited to, the following:

The project involves the clearing of vegetation of the existing stormwater pond bottom and the construction of 6-inch underdrains with cleanouts and a 12-inch header pipe connected to the existing pond outfall control structure. The underdrain trench will be backfilled with clean sand and the pond bottom sodded.

Program for Utilization of Disadvantaged Business Enterprises (DBE):

The Contractor shall be encouraged to comply with the State of Florida Equal Opportunity Office goals and objectives as follows:

Florida Fair Share Goals	
Construction (SRF)	9% MBE and 3% WBE
All Other Categories	15% Combined

The Contractor, to the fullest extent possible, shall agree that at least the applicable fair share objectives for supplies, construction, equipment or services are made available to organizations owned or controlled by socially and economically disadvantaged individuals, women and Historically Black Colleges and Universities. The Contractor shall also agree to include in its bid documents the applicable DBE fair share objectives and percentages.

Pre-Bid Conference: A pre-bid conference will be held on **Thursday, June 20, 2019 at 10:00 a.m.**

(local time) at the Town Hall, Town of Windermere, Orange County, Florida, 520 Main Street, Windermere, Florida, 34786. This is a non-mandatory Pre-Bid Conference.

Questions and clarifications shall be submitted in accordance with the Bidding Documents. Contact Michael Galura, P.E., Michael Galura Engineering Consultants, LLC, 3222 Corrine Drive, Suite H, Orlando, FL. 32803, (407) 493-9983, mchgalu@aol.com.

Prospective bidders may secure a copy of the complete bid package (Project Manual and Drawings), from the Town's website at <http://www.town.windermere.fl.us> or from Demand Star at <http://demandstar.com>. When downloading from the Town's website, please advise the Town as to who and when the plans and specifications were downloaded so the plan holder's list can be updated.

Bids shall be prepared from complete full-size contract documents. Addenda will be sent via e-mail to all holders of complete contract documents or can be downloaded from the Town's website or Demand Star. Addendums will be issued up to seventy-two (72) hours before bid time. No addenda will be issued within 72-hours of the Bid date.

Bid Bond: A certified check or bid bond shall accompany each bid. The certified check or bid bond shall be for an amount not less than five percent (5 percent) of the bid price and shall be made payable to the Town of Windermere as a guarantee that the Bidder will not withdraw for a period of sixty (60) days after bid closing time.

Bid Submittal: Each bidder shall submit only one (1) bid for the Work. Each bidder shall submit an original and one (1) copy of its bid. The award will be made in accordance with the requirements of applicable state and federal laws and regulations and pursuant to the provisions of the Bid Documents and/or any applicable Town of Windermere purchasing rules and procedures. Each Bidder shall submit the Bid Form provided in the Project Manual in a sealed envelope with the words "**BID FOR BID #2019-02, MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS, TOWN OF WINDERMERE, WINDERMERE, FLORIDA**" and the Bidder's name, address and Florida Contractor's License Number clearly shown on the outside thereof. Each Bidder must acknowledge receipt of all addenda in the prescribed Bid Form. An authorized representative of the Bidder must sign the Bid Form. Failure to comply with these conditions or the conditions contained in the Instructions to Bidders may be cause for bid disqualification. **Mailed bids shall be sent to the attention of Town Clerk, Dorothy Burkhalter, Town of Windermere, 614 Main Street, Windermere, FL 34786 and shall be received before the deadline for the bid opening.**

Award of Contract to Lowest Qualified, Responsive, and Responsible Bidder: The Town intends to award the Contract to the Bidder which, in the sole discretion of the Town, is the lowest qualified, responsive and responsible Bidder. The Town of Windermere may waive technicalities or irregularities, reject any or all bids. The Town will advertise the project at a minimum of three (3) weeks and will make plans and specifications available to bidders during that time.

TOWN OF WINDERMERE, FLORIDA

END OF SECTION

SECTION 00200

INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

<u>ARTICLE</u>	<u>DESCRIPTION</u>
1	Defined Terms
2	Copies of Bidding Documents
3	Qualifications of Bidders
4	Examination of Contract Documents and Site
5	Availability of Lands for Work, Etc.
6	Addenda and Interpretations
7	Bid Security
8	Contract Time
9	Liquidated Damages and Indemnity
10	Substitute Material and Equipment
11	Subcontractors, Etc.
12	Bid Form
13	Submission of Bids
14	Modification and Withdrawal of Bids
15	Opening of Bids
16	Bids to Remain Subject to Acceptance
17	Award of Contract
18	Taxes
19	Organization of Drawings and Specifications
20	Required Disclosure
21	Qualifications of Surety Companies
22	Qualifications Submittals
23	Interpretation of Quantities
24	Unit Prices Information
25	Construction Safety
26	Special Warranty, Performance Bond, Insurance and Correction Period Requirements
27	Signing of Agreement
28	Protests
29	Apprentices
30	Drug-Free Workplace
31	Licenses and Permits
32	Contingency Allowances
33	Retainage
34	Pre-bid Conference

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SECTION 00200

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - DEFINED TERMS

- 1.1 Terms used in these Instructions to Bidders which are defined in the General Conditions have the meanings assigned to them in the General Conditions, as supplemented. The term "Apparent Low Bidder" means the Bidder submitting the lowest Bid at the Bid opening without correction of numerical discrepancies, consideration of alternates or determination of responsiveness and responsibility. The term "Successful Bidder" means the Bidder to whom Owner awards or expects to award the contract. Bidding Documents consist of the Project Manual dated May 2019 and Drawings dated May 2019, both as may be modified by Addenda.
- 1.2 The Work, as defined in the General and Supplemental Conditions, is described in Article 1 of the Agreement.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

- 2.1 Complete sets of Bidding Documents in the number and for the sum stated in the Advertisement for Bids may be obtained from the Town's website at <http://www.town.windermere.fl.us> or from Demand Star at <http://demandstar.com>.
- 2.2 Complete sets of full-size 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.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

Each Bidder shall complete the Questionnaire (Section 00401) included in the Bid Form. To demonstrate qualifications to perform the Work, each Bidder must be prepared to submit, within seven (7) days of Owner's request, the additional qualifications submittals set forth in Article 22 of the Instructions to Bidders.

ARTICLE 4 - EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- 4.1 It is the responsibility of each Bidder before submitting a Bid to: (a) examine thoroughly the Contract Documents and other related data identified in the Bidding Documents (including "technical data" referred to below); (b) visit the site to become familiar with and satisfy Bidder as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work; (c) consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work; (d) study and carefully correlate Bidder's knowledge and observations with the Contract Documents and such other related data; and (e) promptly notify Engineer of all conflicts, errors, ambiguities or discrepancies which Bidder has discovered in or between the Contract Documents and such other related documents.
- 4.2 Information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner and

Engineer do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

- 4.3 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Contract Documents due to differing or unanticipated conditions appear in Paragraphs 4.2 and 4.3 of the General Conditions.
- 4.4 Before submitting a Bid each Bidder will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.
- 4.5 On request, with advanced notice, Owner will provide each Bidder access to the site to conduct such examinations, investigations, explorations, tests and studies as each Bidder deems necessary for submission of a Bid, Bidder must fill all holes and clean up and restore the site to its former conditions upon completion of such explorations, investigations, tests and studies.
- 4.6 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Contract Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities and discrepancies that Bidder has discovered in the Contract Documents and the written resolutions thereof by Engineer is acceptable to Bidder, and that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.
- 4.7 The provisions above of 4.1 through 4.6, inclusive, do not apply to Asbestos, Polychlorinated Biphenyls (PCBs), Petroleum, Hazardous Waste or Radioactive Material covered by Paragraph 4.06 of the General Conditions.
- 4.8 The submission of the Bid shall be an indication that the Bidder has considered normal local weather conditions (daily and monthly variations) and accounted for these circumstances in the preparation of the bid and schedule of construction.

ARTICLE 5 - AVAILABILITY OF LANDS FOR WORK, ETC.

- 5.1 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 6 - ADDENDA AND INTERPRETATIONS

- 6.1 Bidders shall promptly notify Engineer of any ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents or the site.

All questions about the meaning or intent of the Bidding Documents shall be submitted to Engineer in writing. Replies considered necessary shall be issued through Addenda by registered mail to all parties recorded by Engineer as having received complete sets of Bidding Documents up to seventy-two (72) hours before bid time. Brief addenda which do not materially alter the scope of work may be issued between seventy-two (72) hours and twenty-four (24) hours before bid time by facsimile (fax) to all General Contractors only. Questions received less than seven (7) calendar days prior to the date for opening of Bids shall not be answered. Only questions answered by formal written Addenda shall be binding and prospective Bidders are warned that no other source than a formal written Addenda is authorized to give information concerning, or to explain or interpret the Bidding Documents. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from its terms and requirements.

ARTICLE 7 - BID SECURITY

- 7.1 Bid Security shall be submitted and shall be made payable to Owner, in an amount of not less than five percent of the Bidder's Contract Price and in the form of a cashier's check or a Bid Bond issued by a Surety meeting the requirements of Article 21 of this section and Article 5 of the General Conditions. The Bid Bond shall be issued by a company having a registered agent in the State of Florida. Personal checks are not acceptable.
- 7.2 The Bid Security of the Bidder shall be retained until such Bidder has executed the Agreement and furnished the required payment and performance bonds, whereupon the Bid Security shall be returned. If the Successful Bidder fails to furnish the qualifications submittals or fails to execute and deliver the Agreement and furnish the required Bonds within ten days of the Notice of Award, Owner may annul the Notice of Award and the Bid Security of that Bidder shall 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 ninety-first day after the Bid opening. Bid Security of other Bidders shall be returned approximately seven (7) days after the Bid opening.

ARTICLE 8 - CONTRACT TIME

The number of consecutive calendar days within which, or the date by which, the Work is to be completed (the Contract Time) is set forth in the Agreement (Section 00520).

ARTICLE 9 - LIQUIDATED DAMAGES AND INDEMNITY

- 9.1 Provisions for liquidated damages are set forth in the Agreement (Section 00520).
- 9.2 The Bidder must execute an Indemnification Agreement (Section 00540) with the signing of the Agreement as provided in Article 27 of this Section.

ARTICLE 10 - SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, shall be awarded on the basis of material and equipment described in the Drawings or specified in the Specifications with 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 shall 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, as may be supplemented in Division 1, General Requirements. If a substitution list is provided as part of the prescribed Base Bid Form, Bidders must identify proposed substitute materials. These substitute materials and equipment shall be evaluated after "Effective Date of the Agreement." Only the proposed alternatives, substitutions or "or equal" items listed on the Substitution List shall be evaluated by the Engineer in accordance with the General Conditions.

The cost of changes in related work, additional drawings which may be required to illustrate or define the alternate equipment and its relationship to the other parts or portions of the Work shall be paid by the Contractor. No change shall be made in the amount of time in which to complete the Work or in the liquidated damages. If the proposed substituted material or equipment is found to be unacceptable to the Engineer as an "or equal" item, then the Base Bid material or equipment named in the specification or the Bid Form (circled item) shall be furnished by the Contractor.

ARTICLE 11 - SUBCONTRACTORS, ETC.

- 11.1 Each Bid must identify the names and addresses of the subcontractors listed in the Bid Form "Questionnaire (Section 00401)." If requested by the Owner or Engineer, the Bidder, and any other Bidder so requested, shall, within seven (7) days after the date of the request, submit to Owner an experience statement with pertinent information as to similar projects and other evidence of qualification for each such subcontractor, person and organization. If Owner or Engineer after due investigation has reasonable objection to any proposed subcontractor, other person or organization, either may, before giving the Notice of Award, request the Bidder to submit an acceptable substitute without an increase in Contract Price nor Contract Time. If the Bidder declines to make any such substitution, the Owner may elect not to award the Contract to such Bidder. A Bidder's declining to make any such substitution shall not constitute grounds for sacrificing his Bid Security. No Bidder shall be required to employ any subcontractor, other person or organization against whom Bidder has reasonable objection.
- 11.2 Procedures for approval of other subcontractors after execution of the Agreement are described in the General and Supplementary Conditions.
- 11.3 Each Bidder must complete the Bid Form "Questionnaire" (Section 00401) listing each item of work to be subcontracted and the estimated not-to-exceed cost of these items. (Work in this respect does not include cost paid to suppliers for materials and equipment furnished for this project)

ARTICLE 12 - BID FORM

- 12.1 One (1) set of the Bid Form is included in the Contract Documents for the Bidder's use.
- 12.2 Bid Forms must be completed in duplicate in ink or typed. The Bid price of each item and lump sum "Total Bid" or "Total Base Bid" on the Bid Form must be stated in words and numerals; in case of a conflict, words shall take precedence.
- 12.3 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 must be shown below the signature. If requested, the person signing a Bid for a corporation or partnership must produce evidence satisfactory to the Owner of the person's authority to bind the corporation or partnership. If the Bidder is a corporation, and if the Bid is executed by someone other than the President or Vice President of the corporation, attach to the Bid a certified copy of corporate resolutions of the board of directors of the corporation authorizing the person to execute the Bid on behalf of the Corporation.
- 12.4 Bids by partnerships 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.
- 12.5 All names and titles must be typed or printed below the signature.

- 12.6 The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).
- 12.7 The address in which communications regarding the Bid are to be directed must be shown.
- 12.8 Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided in accordance with Paragraph 3 above. State contractor license number, if any, must also be shown.
- 12.9 Bids must be priced on a lump sum basis for the base contract and include a separate price for each alternate described in the Specifications as provided for in the Bid Form. The price of the Bid for each alternate will be the amount to be added to or deducted from the price of the base Bid if Owner selects the alternate.
- 12.10 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances named in the Contract Documents as provided in Section 00700 - Article 11 - 11.03.
- 12.11 Bids which are incomplete, conditional, or which contain additions not called for, alterations or irregularities of any kind may be rejected.

ARTICLE 13 - SUBMISSION OF BIDS

- 13.1 Bids shall be submitted before the time and at the place indicated in the Advertisement for Bids, and shall be submitted in an opaque sealed envelope. The envelope shall be marked on the exterior "**BID NO. #2019-02 • MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS**" with the name and address of the Bidder and accompanied by the Bid Security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "SEALED BID ENVELOPE ENCLOSED" on the face thereof. The Owner shall in no way be responsible for delays caused by the United States Postal Service or for delays caused by any other occurrence. Bids sent by e-mail, telegram or telecopy shall not be accepted by the Owner.
- 13.2 Each Bid must contain the following documents in completed form: (Two (2) copies each as provided herein):
 - A. Bid Forms (Bidding Documents, entire Section 00400, 00400A, 00401 and 00401A).
 - B. Bid Bond (surety bond or cashier's check). (Section 00430) (Original and one (1) copy).
 - C. Power of Attorney (for surety bond only).
 - D. Non-collusion Affidavit (Section 00450).
 - E. Certification of Non-segregated Facilities (Section 00451).
 - F. Sworn Statement on Public Entity Crimes (Section 00452).
 - G. Certification of Non-discriminatory Labor Practices (Section 00453).
 - H. Corporate Authority to Execute Documents (any corporate employee other than president or vice-president). (Section 00501).
- 13.3 More than one Bid received for the same work from an individual, firm or partnership, a corporation or association under the same or different names shall not be considered. Reasonable grounds for believing that any Bidder is interested in more than one Bid for the same work shall cause the rejection of all such Bids in which the Bidder is interested. If there are reasonable grounds for believing that collusion exists among the Bidders, the Bids of participants in such collusion shall not be considered.

ARTICLE 14 - MODIFICATION AND WITHDRAWAL OF BIDS

- 14.1 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 deadline for submitting Bids. A request for withdrawal or a modification must be in writing and signed by a person duly authorized to do so; and, in case signed by a deputy or subordinate, the principal's proper written authority to such deputy or subordinate must accompany the request for withdrawal or modifications. Withdrawal of a Bid shall not prejudice the rights of a Bidder to submit a new Bid prior to the Bid Date and Time. After expiration of the period for receiving Bids, no Bid may be withdrawn, modified, or explained.
- 14.2 If within 24 hours after bids are opened, any Bidder files a duly signed written notice with Owner and within 48 hours thereafter demonstrates to the reasonable satisfaction of the Owner that: a) there has been a material and substantial mistake in the preparation of the Bid; and that b) the mistake is of such great consequence that to enforce the Contract would be unconscionable; and that c) the mistake occurred notwithstanding the exercise of reasonable care in the preparation of the Bid; the Bidder may withdraw its Bid, and the Bid Security shall be returned provided that the Owner is not seriously prejudiced, except for the loss of its bargain.

ARTICLE 15 - OPENING OF BIDS

- 15.1 At the specified time and place as indicated in the "Invitation to Bid," Bids shall be opened publicly (unless obviously non-responsive) and read aloud.
- 15.2 An abstract of the amounts of the Total Bids and suppliers of major equipment or alternates, (if any), shall be prepared and made available to all Bidders within a reasonable time after the opening of Bids.

ARTICLE 16 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

- 16.1 All Bids shall remain open for delivery by the Owner of the Notice of Award for ninety (90) calendar days after the day of the Bid opening, but Owner may, at his sole discretion, release any Bid and return the Bid Security prior to that date.
- 16.2 Extensions of time when Bids shall remain open beyond the ninety (90) day period may be made only by mutual agreement between Owner, the Bidder, and the surety, if any, for the Bidder.

ARTICLE 17 - AWARD OF CONTRACT

- 17.1 To the extent permitted by applicable state and federal laws and regulations, Owner reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful skill or ability or fails to meet any other pertinent standard or criteria established by Owner. Bids may be considered irregular and subject to rejection if they show serious omission, unauthorized alterations of form, unauthorized alternate bids, incomplete or unbalanced unit prices or irregularities of any kind. Owner also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Bidder. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

- 17.2 If the Contract is to be awarded, it shall be awarded on the basis of the lowest "Total Bid" or "Total Base Bid". Additive or deductive alternates determined by the Owner, in its sole discretion, to be acceptable (if any) shall be considered in determining the lowest responsive, responsible Bidder. In evaluating Bids, Owner will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.
- 17.3 A Contract shall be awarded by the Owner pursuant to applicable law. The Owner, in its sole discretion, reserves the right to reject any and all Bids and to waive any informality concerning Bids whenever such rejection or waiver is in the best interest of the Owner. If Bids exceed the amount of funds estimated by the Owner as available to finance the Project, the Owner may reject all bids or may award the Contract in the best interest of the Owner. Award of this Contract is contingent upon the Town of Windermere securing adequate bond financing or funding for this Project. The Town of Windermere shall not be required to award this Contract if adequate funding is not available. The ability of a Bidder to obtain a performance and payment bond shall not be regarded as the sole test of such Bidder's competency or responsibility. Nothing contained herein shall place a duty upon the Owner to reject Bids or award the contract based upon anything other than its sole discretion as described herein. By submitting a Bid, Bidder recognizes and accepts that the Owner may reject the Bid based upon the exercise of its sole discretion and Bidder waives any claim it might have for damages or other relief resulting from the rejection of its Bid based on these grounds.
- 17.4 Owner may consider the qualifications and experience of subcontractors and other persons and organizations (including those who are to furnish the principal items of materials or equipment) proposed for those portions of the Work as to which the identity of Subcontractors and other persons and organizations must be submitted as provided in Articles 11 and 22 of these Instructions to Bidders.
- 17.5 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and ability of the Bidders, proposed subcontractors and other persons and organizations to perform the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time. Owner reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.
- 17.6 One contract for the Work shall be awarded, if award is made, to the lowest responsive, responsive Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project. The Successful Bidder who is awarded the Contract shall be required to perform the Work as a prime Contractor. No assignment of the Contract shall be allowed without written permission of the Owner.
- 17.7 If the Contract is to be awarded, the Owner will give the Successful Bidder a Notice of (Intent to) Award within Sixty (60) days after the day of the Bid opening.

ARTICLE 18 - TAXES

- 18.1 The Contractor shall pay all applicable sales, consumer, use and other similar taxes required by law. The Contractor is responsible for reviewing the pertinent State statutes involving the sales tax and complying with all requirements.

ARTICLE 19 - ORGANIZATION OF DRAWINGS AND SPECIFICATIONS

- 19.1 Drawings and Specifications for the Work are incorporated as follows:

- A. The Project Manual, consisting of Division 0 - Bidding and Contract Requirements, Division 1 - General Requirements, Division 2 - Site Construction, and Division 3 - Concrete.
- B. The Drawings have been separately bound together within a single document.

ARTICLE 20 - REQUIRED DISCLOSURE

- 20.1 Any person submitting a Bid in response to this invitation must execute form PUR. 7068, SWORN STATEMENT UNDER SECTION 287.133(3)(A), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES, including proper check(s), in the space(s) provided, and enclose it with his Bid. The required disclosure form (provided in Section 00452 of these Specifications) must be completed by the appropriate individual within the organization, notarized and provided with the Bid proposal. Corrections to the form will not be allowed after the Bid opening time and date. Failure to complete this form in every detail and submit it with Bidder's Bid may result in disqualification.
- 20.2 At its sole discretion, the Owner, may reject any Bidder the Owner finds to lack, or whose present or former executive employees, officers, directors, stockholders, partners or owners are found by the Owner to lack honesty, integrity, or moral responsibility. The discretion of the Owner may be exercised based on the disclosure required herein, the Owner's own investigation, public records, or any other reliable sources of information. The Owner may also reject any Bidder failing to make the disclosure required herein. By submitting a Bid, Bidder recognizes and accepts that the Owner may reject the Bid based upon the exercise of its sole discretion and Bidder waives any claim it might have for damages or other relief resulting from the rejection of its Bid based on these grounds.

ARTICLE 21 - QUALIFICATIONS OF SURETY COMPANIES

In order to be acceptable to the Owner, a surety company issuing Bid Guaranty Bonds, or 100 percent Performance/ Payment Bonds or 25 percent Maintenance Bond, called for in these Specifications, shall meet and comply with the following minimum standards:

- A. Surety must be admitted to do business in the State of Florida and shall comply with the provision of Florida Statute 255.05.
- B. Surety companies executing bonds must appear on the United States Treasury Department's most current list (Circular 570 as amended).
- C. Attorneys-in-fact who sign Bid Bonds or Performance/Payment Bonds must file with such bond a certified copy of their power of attorney to sign such bond.
- D. Agents of surety companies must list their name, address and telephone number on all bonds.
- E. Surety shall have at least the following minimum ratings;

<u>CONTRACT AMOUNT</u>	<u>BEST'S RATINGS</u>	
to 50,000	Class IV	B+ or better
50,000 to 500,000	Class V	A or better
500,000 to 2,500,000	Class VI	A or better
2,500,000 and over	Class VII	A or better

RATINGS SCHEDULE (net worth of Bonding Company)

Class IV	3,750,000 to 5,000,000
Class V	500,000 to 12,500,000
Class VI	25,000,000 to 50,000,000
Class VII	75,000,000 to 100,000,000

- F. All bonds must be provided on the forms contained in the Bid Documents. Failure to provide bonds on the Owner's forms may result in the rejection of the bid and the forfeiture of the Bid Security.

ARTICLE 22 - QUALIFICATIONS SUBMITTALS

- 22.1 It is the intention of the Owner to award this contract to a Bidder competent to perform and complete the Work in a satisfactory manner. Accordingly, Owner shall require the Bidder to submit, within seven (7) days of written request by the Owner and prior to award of Contract, 1) evidence of Bidder's certification and license to perform the Work and services, 2) experience statement, 3) Preliminary Progress Schedule, and 4) Preliminary Schedule of Values all as set forth below, to allow Owner to conduct qualifications investigations.
- 22.2 The experience statement shall provide data additional to that information provided in the Bid Form pertaining to Contractor's adequacy of organization, equipment and prior experience.
- 22.3 The Successful Bidder and his surety, if any, hereby agree that any delays within Bidder's control in the delivery of these Qualifications Submittals shall constitute a request by Bidder for an extension of the time during which the Bid shall remain open for the Owner's acceptance. Should Owner agree to such extension, Bidder shall be required to comply with this submittal requirement within five (5) additional days. At the Owner's option, failure by the Successful Bidder to deliver these qualifications submittals within the extended period shall void evaluation of the Bid and shall constitute proof that the Successful Bidder has abandoned his Bid; his Bid Security may be declared forfeited to the Owner as liquidated damages, and the Work may be awarded to another Bidder.
- 22.6 If upon receipt and evaluation of the submittals the Successful Bidder does not pass the evaluations to Owner's satisfaction, Owner reserves the right to reject the Bid.

ARTICLE 23 - INTERPRETATION OF QUANTITIES

In the case of unit price items, the quantities of work to be done and materials to be furnished under this Contract, as given in the Proposal, are to be considered as approximate only and are to be used solely for the comparison of Bids received. The OWNER and/or his ENGINEER do not expressly or by implication represent that the actual quantities involved shall correspond exactly therewith; nor shall the Bidder plead misunderstanding or deception because of such estimate or quantities or of the character, location or other conditions pertaining to the work. Payment to the CONTRACTOR shall be made only for the actual quantities of Work performed or material furnished in accordance with the Drawings and other Contract Documents, and it is understood that the quantities may be increased or diminished as provided in the General Conditions without in any way invalidating any of the unit or lump sum prices bid.

ARTICLE 24 - UNIT PRICES INFORMATION

N/A

ARTICLE 25 - CONSTRUCTION SAFETY

- 25.1 In instances where such is applicable due to the nature of the Work matter with which this Bid is concerned; all materials, equipment, etc., as proposed and offered by Bidders must meet and conform to all Occupational Safety and Health Act (OSHA) requirements. The Bidders' signature upon the Bid Form (Section 00400) is considered certification of conformance to such requirements.
- 25.2 In the event this contract requires trench excavation, the requirement of Florida Statutes 553.60, et seq., shall be adhered to by all Bidders.

ARTICLE 26 - SPECIAL WARRANTY, PERFORMANCE BOND, INSURANCE AND CORRECTION PERIOD REQUIREMENTS

There are special requirements pertaining to Warranty, Performance Bond, Insurance, and the Correction Period which are described in the Bidding Documents. The Bidder must include in his Bid the consideration to be paid by the Owner for the Special Warranty, Performance Bond, Insurance and Correction Period requirements as set forth in the Contract Documents.

ARTICLE 27 - SIGNING OF AGREEMENT

- 27.1 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by at least six (6) unsigned counterparts of the Agreement (Section 00520) and all other Contract Documents. Within ten (10) days of receipt thereafter, Successful Bidder shall sign and deliver four (4) counterparts of the Agreement to the Owner together with the required Bonds, Insurance Certificates and Endorsements. Within ten (10) days after receipt of the properly executed and completed submittals, Owner shall deliver a fully signed counterpart to Successful Bidder.
- 27.2 A Successful Bidder who is awarded the Contract and fails to execute the Agreement or furnish the required Bonds or insurance certificates and endorsements within the period specified in **27.1** above, shall have its Notice of Award rescinded and shall forfeit its Bid Security to Owner as liquidated damages for its failure to enter into a contract with the Owner.

ARTICLE 28 - PROTESTS

The Owner is responsible for the resolution of protests by Bidders for contract award, claims, disputes, alleged patent infringements, alleged license fee(s) and other related procurement matters. The following procedures SHALL be used for all such protests.

- 28.1 Any party with a direct financial interest adversely affected by Owner's procurement decision SHALL file a protest under this Article, or be barred further relief.
- 28.2 A protest: (a) must be in writing (oral protests shall NOT be acknowledged); (b) adequately state the basis of the protest and the relief requested; and (c) be received by Owner within seven (7) calendar days from the date the basis of the protest was, or should have been, known.
- 28.3 After a protest has been properly filed with the Owner, the Owner shall make a determination on the merits of the protest within thirty (30) calendar days of receipt of the protest. If the Owner denies the protest, the Owner may proceed with award of the Contract unless enjoined by order of a Court of competent jurisdiction.
- 28.4 A protest SHALL be limited to: (a) issues arising from the procurement provisions of the Project Manual; and (b) state or local law. No protest may be filed with respect to basic project design.

28.5 The Owner's legal counsel shall establish procedures to resolve the protest based on Florida law. If the Florida law is not clearly established, the Owner shall rely on decisions issued by other states, Federal courts, the U.S. Comptroller General or other Federal agencies with related procurement experience.

ARTICLE 29 - APPRENTICES

In the event this Contract is in excess of \$25,000.00, the apprentice employment requirements of Chapter 446.011(3), Florida statutes are hereby incorporated:

29.1 The CONTRACTOR agrees:

29.1.1 That he will make a diligent effort to hire for the performance of the Contract a number of apprentices in each occupation which bears to the average number of the journeyman in that occupation to be employed in the performance of the Contract, the ratio of at least one apprentice to every five journeymen.

29.1.2 That he will, when feasible, assure that twenty-five (25) percent of such apprentices are in their first year of training, except when the number of apprentices to be hired is fewer than four. Feasibility here involves a consideration of the availability of training opportunities for first-year apprentices, the hazardous nature of the work for beginning workers and excessive unemployment of the apprentices in their second and subsequent years of training.

29.1.3 That during the performance of the Contract, he will make diligent efforts to employ the number of apprentices necessary to meet requirements of subparagraphs 1 and 2.

29.2 The CONTRACTOR agrees to return records of employment by trade of the number of apprentices and apprentices by first year of training and of journeymen and the wages paid and hours of work of such apprentices and journeymen, on a form as prescribed by the Bureau of Apprenticeship of the Division of Labor and Employment Opportunities at three-month intervals. Submission of duplicate copies of forms submitted to the United States Department of Labor shall be sufficient compliance with the provisions of this section.

29.3 The CONTRACTOR agrees to supply to the Bureau of Apprenticeship of the Division of Labor and Employment Opportunities, at three-month intervals, a statement describing steps taken toward making a diligent effort and containing a breakdown by craft of hours worked and wages paid for first-year apprentices, other apprentices and journeymen.

29.4 The CONTRACTOR agrees to insert in any subcontract under this Contract the requirements contained in this section. The term "Contractor," as used in such clauses and any subcontract, shall mean the subcontractor."

ARTICLE 30 - DRUG-FREE WORKPLACE

Every Bidder shall provide a certification on the form provided (Section 00401A) indicating whether the Bidder has implemented a drug-free workplace program pursuant to the requirements of Florida Statute Section 287.087. Preference in the award process shall be given, according to the statutory requirements, to a business that certifies it has implemented a drug-free workplace program.

ARTICLE 31 - LICENSES AND PERMITS

31.1 Permits for this Construction Project obtained by the Owner are limited to those permits listed in Division 1 of the Contract Documents. The Contractor shall be required to comply with all

provisions of such permits regarding workmanship, schedules, notification of starting construction, and any other conditions under which the permits are issued.

31.2 The Town of Windermere, Orange County, Florida will waive all permit fees, however, the Contractor shall obtain all necessary building permits, if required, from the Town.

31.3 The Contractor shall obtain and pay for all other federal, state, and county permits, licenses, and other authorizations required for the prosecution of the Work, including the cost of all Work performed in compliance with the terms and conditions of such permits, licenses, and authorizations, whether by himself or others.

ARTICLE 32 - CONTINGENCY ALLOWANCES

A contingency allowance may be included as part of the Schedule of Bid Prices. This allowance is included to cover Contract items identified in Section 01025 - Measurement and Payment. Prior to the initiation of any expenditure of any contingency allowance, an executed formal Change Order is necessary for the utilization of contingency funds. The method for computing Change Order dollar amounts shall be as specified in the General Conditions.

ARTICLE 33 - RETAINAGE

Provisions concerning retainage and Contractors' rights to deposit securities in lieu of retainage are set forth in the Agreement.

ARTICLE 34 - PRE-BID CONFERENCE

A non-mandatory pre-bid conference will be held at the time and place indicated in the "Invitation to Bid." Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

END OF SECTION

SECTION 00300

INFORMATION AVAILABLE TO BIDDERS

1. The Engineer has relied upon the following information. This information is for general information only and shall not be considered a part of the Bidding or Contract Documents.

LISTING OF INFORMATION AVAILABLE TO BIDDERS

- A. Reports and Investigations
 1. N/A
- B. Drawings and Data
 1. Construction Plans *for MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS*
2. Utilities: It is the Contractor's responsibility to preserve all existing utilities whether shown on the Drawings or not. If utility conflicts are encountered by the Contractor during construction, the Contractor shall give sufficient notice to the Owners so that they may make the necessary adjustments. Damage to any utilities which, in the opinion of the Owner and Engineer, is caused by carelessness on the part of the Contractor shall be repaired at the Contractor's expense. Any delays ensuing from this damage will be considered as inexcusable.
3. Permits: SFWMD Environmental Resource Permit Exemption

END OF SECTION

DATE SUBMITTED: _____

NAME OF BIDDER: _____

SECTION 00400

BID FORM

SUBMITTED: _____
(Date)

PROJECT IDENTIFICATION: **TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA
BID #2019-02
MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____ PHONE NO.: _____

CONTRACTOR'S FLORIDA LICENSE NO.: _____

THIS BID IS SUBMITTED TO: Town of Windermere, Orange County, Florida (hereinafter called Owner).

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Contract Documents, to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid Form and the Agreement, and in accordance with the other terms and conditions of the Contract Documents.
2. Bidder accepts all of the terms and conditions of the Bidding Documents including without limitation those dealing with the disposition of Bid Bond. This Bid will remain open for sixty (60) calendar days after the day of Bid opening. BIDDER will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within ten (10) days after the date of OWNER'S Notice of Intent to Award.
3. In submitting this Bid, Bidder makes all representations required by the Instructions to Bidders and the Agreement and further warrants and represents that:

A. Bidder has examined copies of all the Bidding Documents and of the following Addenda:

No. _____ Dated _____ No. _____ Dated _____

No. _____ Dated _____ No. _____ Dated _____

(Receipt of all which is hereby acknowledged) and also copies of the Invitation to Bid and the Instructions to Bidders.

DATE SUBMITTED: _____

NAME OF BIDDER: _____

- B. Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing the Work.
- C. BIDDER has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface of subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.2.1 of the General Conditions. BIDDER accepts the determination set forth in paragraph SC-4.2 of the Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which BIDDER is entitled to rely as provided in paragraph 4.2 of the General Conditions. BIDDER acknowledges that such reports and drawings are not Contract Documents and may not be complete for BIDDER's purposes. BIDDER acknowledges that OWNER and Engineer do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Bidding Documents with respect to Underground Facilities at or contiguous to the site.
- D. BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto. BIDDER does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.
- E. BIDDER is aware of the general nature of Work to be performed by OWNER and others at the site that relates to Work for which this Bid is submitted as indicated in the Contract Documents.
- F. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and date with the Contract Documents.

DATE SUBMITTED: _____

NAME OF BIDDER: _____

- G. BIDDER has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that BIDDER has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.
- H. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other Bidder to submit a farce or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.
- I. BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete all work of the PROJECT within the Contract Time specified in the Agreement (Section 00520). BIDDER further accepts the provisions of the Agreement as to liquidated damages and agrees to pay as liquidated damages the amount stated in the Agreement (Section 00520), for each consecutive calendar day completion of the Work is delayed.

Completion Schedule:

- 1) The project will be completed within **sixty (60)** consecutive calendar days of the date of the official Notice to Proceed in accordance with provisions contained in "Article 3 Contract Time" of "Section 00520 Agreement between Owner and Contractor."
- 4. All bid items shall include all materials, equipment, labor, permit fees, taxes, tests, miscellaneous costs of all types, overhead, and profit for the item to be complete, in place, and ready for operation in the manner contemplated by the Contract Documents. Bidder submits the following **TOTAL BID** to perform all the Work as required by the Drawings and Specifications.
- 5. In accordance with Article 17 of the Instructions to Bidders, if the Contract is awarded, it will be awarded after adjustments for additive or deductive alternates (if any). Additive or deductive alternates (if any) will be considered in determining the lowest qualified, responsive, and responsible Bidder. The Owner reserves the right to accept any or all additive or deductive alternates, in his sole discretion, prior to the award of the Contract. The Owner also reserves the right to delete any portion of the Work as shown in the bid schedule prior to award and adjust each bidder's "Total Bid" accordingly.

DATE SUBMITTED: _____

NAME OF BIDDER: _____

6. The following documents are attached to and made a condition of this Bid:
- A. Bid Form (Sections 00400, 00400A, 00401, and 00401A).
 - B. Bid Bond (surety bond or cashier's check). (Section 00430). (Original and one (1) copy).
 - C. Power of Attorney (for surety bond only).
 - D. Non-collusion Affidavit (Bidding Documents) (Section 00450).
 - E. Certification of Non-segregated Facilities (Section 00451).
 - F. Sworn Statement on Public Entity Crimes (Section 00452).
 - G. Certification of Non-discriminatory Labor Practices (Section 00453).
 - H. Corporate Authority to Execute Bid (required only when documents are executed by a corporate employee other than President or Vice-President) (Section 00501).

(Remainder of This Page Left Blank Intentionally.)

DATE SUBMITTED: _____
NAME OF BIDDER: _____

(This Page Left Blank Intentionally.)

DATE SUBMITTED: _____
 NAME OF BIDDER: _____

**SCHEDULE OF BID ITEMS
 TOWN OF WINDERMERE
 ORANGE COUNTY, FLORIDA**

BID #2019-02

MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS

Base Bid Item No.	Description	Estimated Quantity	Unit	Unit Price (in Words)	Unit Price (in Numbers)	Extended Summary Total Price (in Numbers)
BASE BID						
101-1	MOBILIZATION (5% OF STORMWATER IMPROVEMENTS)	1	LS			
101-2	SURVEY, CONSTRUCTION LAYOUT AND CERTIFIED AS-BUILT	1	LS			
102-1	MAINTENANCE OF TRAFFIC	1	LS			
104-14	PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION	1	LS			
110-1-1	CLEARING AND GRUBBING	1	LS			
120-1	EXCAVATION AND GRADING	1	LS			

DATE SUBMITTED: _____
 NAME OF BIDDER: _____

**SCHEDULE OF BID ITEMS
 TOWN OF WINDERMERE
 ORANGE COUNTY, FLORIDA**

BID #2019-02

MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS

Base Bid Item No.	Description	Estimated Quantity	Unit	Unit Price (in Words)	Unit Price (in Numbers)	Extended Summary Total Price (in Numbers)
400-0-10	CLASS NS CONCRETE (MISCELLANEOUS)	2	CY			
440-1-06	UNDERDRAIN, 6" (COMPLETE)	665	LF			
440-70	UNDERDRAIN CLEANOUT, COMPLETE	16	EA			
440-73-5	UNDERDRAIN OUTLET PIPE, 12" (COMPLETE)	136	LF			
570-1-2	PERFORMANCE TURF, SOD	2,000	SY			

DATE SUBMITTED: _____
NAME OF BIDDER: _____

**SCHEDULE OF BID ITEMS
TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID #2019-02

MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS

BASE AND TOTAL BID COMPUTATION

	\$		
BASE BID		(Figures)	(Words)
	\$		
TOTAL BID		(Figures)	(Words)

DATE SUBMITTED: _____
NAME OF BIDDER: _____

(This Page Left Blank Intentionally.)

DATE SUBMITTED: _____

NAME OF BIDDER: _____

7. The terms used in this Bid, which are defined in the General Conditions or Instructions of the Construction Contract, included as part of the Contract Documents have the meanings assigned to them in the General Conditions or Instructions.
8. The work shall be performed under a Florida Contractor's License. Contract shall not be awarded unless proof of valid license(s) is provided.
9. It is understood that where quantities for unit price work have been presented in the foregoing Schedule of Bid Items, they are approximate only and are solely for purpose of facilitating the comparison of bids, and that the Contractor's compensation will be computed upon the basis as described in the measurement and payment clauses in the specifications contained herein.

10. BASE BID - SCHEDULE OF MANUFACTURERS/SUPPLIERS

The undersigned as Bidder agrees that the Contract, if awarded, will be on the basis of the materials and equipment named in the Contract Documents in accordance with Article 9 of the Instructions to Bidders. The undersigned as Bidder also agrees that the Bidder will provide one of the listed manufacturers/suppliers. If the Bidder desires to propose an alternate manufacturer/supplier, he may write in the name of such alternate in the substitution list included within this Bid Form. If the proposed alternate manufacturer/supplier is determined "not equivalent" by the Engineer, the Bidder must furnish the specified equipment.

11. SUBSTITUTIONS AND "OR EQUAL"

The undersigned as Bidder agrees that substitutions or "or-equal" items will not be considered until after the "Effective Date of the Agreement" and will be evaluated in accordance with paragraphs 6.7.1, 6.7.2, and 6.7.3 of the General Conditions. In addition to the reimbursement required under the General Conditions, the Contractor shall also reimburse the Owner for any engineering costs directly attributable to the change in manufacturers/suppliers, caused by the acceptance of proposed alternates, such as; additional field trips for the Engineer, additional redesign costs, and additional review costs, etc. Other costs directly attributable to the change in manufacturers/suppliers caused by the acceptance of proposed alternates, such as; increased electrical requirements, larger building, additional pumps or tankage, etc., shall be borne by others and not the Owner. The Owner may request, and the undersigned Bidder shall supply, complete information on proposed substitutions. Such information shall be the manufacturer's current published or preprinted information for the specific substitution.

(Remainder of This Page Left Blank Intentionally.)

DATE SUBMITTED: _____

NAME OF BIDDER: _____

Instructions: Strike out (X) non-applicable signature block and complete applicable block. (ALL SIGNATORIES MUST HAVE THEIR NAMES PRINTED OR TYPED BELOW THEIR SIGNATURES.)

If Bidder is:

A CORPORATION

(Corporation Name)

(State of Incorporation)

By _____
(Name of person authorized to sign)

(Title)

(Authorized Signature)

(Corporate Seal)

Attest _____
(Secretary)

Business Address: _____

Phone No.: _____

Corporation President: _____

Florida License No.: _____

DATE SUBMITTED: _____

NAME OF BIDDER: _____

Instructions: Strike out (X) non-applicable signature block and complete applicable block. (ALL SIGNATORIES MUST HAVE THEIR NAMES PRINTED OR TYPED BELOW THEIR SIGNATURES.)

If Bidder is:

A JOINT VENTURE

By _____
(Name)

(Address)

By _____
(Name)

(Address)

Business Address: _____

Phone No.: _____

Florida License No.: _____

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

Florida License No.: _____

DATE SUBMITTED: _____

NAME OF BIDDER: _____

12. As BIDDER, I hereby certify that I am aware and understand that the Town of Windermere at its sole discretion reserves the right to waive technicalities or irregularities, to reject any or all Bids, and/or to accept the lowest qualified, responsive and responsible Bid.

13. List the following in connection with the Surety which is providing the Bid Bond:

Surety's Name: _____

Surety's Address: _____

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

END OF SECTION

SECTION 00401A

DRUG-FREE WORKPLACE CERTIFICATION

IDENTICAL TIE BIDS: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quantity, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program (Florida Statutes Section 287.037). In order to have a drug-free workplace program, a business shall:

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

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

Bidder: _____

Signed: _____

By: _____
(Print or Type Name)

Title: _____

Date: _____

END OF SECTION

SECTION 00401

QUESTIONNAIRE

DATE: _____

PROJECT IDENTIFICATION: **TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA
BID #2019-02
MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____

_____ Phone No.: _____

CONTRACTOR'S FLORIDA LICENSE NO.: _____

The undersigned warrants the truth and accuracy of all statements and answers herein contained. Include additional sheets if necessary.

1. How many years has your organization been in business as a (circle one) General Contractor/Subcontractor?

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

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

4. Have you personally inspected the site of the proposed Work? Describe any anticipated problems with the site and your proposed solutions.

5. Will you Subcontract any part of this Work? If so, describe which portions and approximate dollar value.

6. Disclosure (Section 00200, Article 20). Complete and attach "Sworn Statement on Public Entity Crimes" (Section 00452).

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

8. Complete the following Table regarding experience with projects similar to the work proposed under this Contract.

Date of Contract	Name of Project & Location	Client's Name & Address (Include Contact Name and Phone #)	Amount of Contract

Date of Contract	Name of Project & Location	Client's Name & Address (Include Contact Name and Phone #)	Amount of Contract

END OF SECTION

SECTION 00430

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____
as Principal, and _____
as Surety, are hereby held and firmly bound unto the Town of Windermere, Orange County, Florida as
Owner in the penal sum of, (5 percent of the Contract Bid) _____

(written amount in dollars and cents)

(\$ _____)
(figures)

for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves,
successors and assigns.

Signed, this _____ day of _____, 2019. The Condition of the
above obligation is such that whereas the Principal has submitted to the Town of Windermere, Orange
County, Florida a certain Bid, attached hereto and hereby made a part hereof to enter into a contract in
writing, for **BID #2019-02, MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS, TOWN OF
WINDERMERE, ORANGE COUNTY, FLORIDA.**

NOW THEREFORE

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators,
successors and assigns to pay to Owner upon default of Bidder any difference between the total
amount of Bidder's bid and the total amount of the bid of the next lowest, responsible and
responsive bidder as determined by Owner for the Work required by the Contract Documents,
provided that:
 - 1.1 If there is no such next lowest, responsible and responsive bidder, and Owner does not
abandon the Project, then Bidder and Surety shall pay to Owner the penal sum set forth
on the face of this Bond, and
 - 1.2 In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set
forth on the face of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the
Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed
Amendment to the Agreement required by the Bidding Documents and any performance and
payment bonds required by the Bidding Documents and Contract Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's bid and Bidder delivers within the time required by the Bidding
Documents (or any extension thereof agreed to in writing by Owner) the executed
Amendment to the Agreement required by the Bidding Documents and any performance
and payment bonds required by the Bidding Documents and Contract Documents, or
 - 3.2 All bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Intent to Award to Bidder within ninety (90) days from the
time and date fixed for the opening of Bids (or any extension thereof agreed to in writing

by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue notice of award agreed to in writing by Owner and Bidder, provided that the total time for issuing notice of award including extensions shall not in the aggregate exceed 120 days from Bid Due Date without Surety's written consent.
6. No suit or action shall be commenced under this bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid Due Date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond, a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable provision of any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "bid" as used herein includes a bid, offer or proposal as applicable.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

BIDDER:	Strike out (X) non-applicable signature block and complete applicable block. All signatures must have their names printed or type below their signature.
---------	--

If Bidder is SOLE PROPRIETORSHIP , complete this signature block.	
<p>_____</p> <p style="text-align: center;">(Individual's Signature)</p> <p>_____</p> <p style="text-align: center;">(Individual's Signature)</p> <p>doing business as _____</p> <p>_____</p> <p style="text-align: center;">(Business Address)</p> <p>_____ _____</p> <p style="text-align: center;">(Telephone No.) (Florida License No.)</p>	<p>(1) _____</p> <p style="text-align: center;">(Witness)</p> <p>(2) _____</p> <p style="text-align: center;">(Witness)</p> <p style="text-align: center;">(SEAL)</p>

If Bidder is **PARTNERSHIP**, complete this signature block.

_____	(1) _____
(Partnership Name)	(Witness)
_____	(2) _____
(General Partner's Signature)	(Witness)

(General Partner's Name)	(SEAL)

(Business Address)	

(Telephone No.)	(Florida License No.)

If Bidder is **CORPORATION**, complete this signature block.

<p>_____</p> <p>(Corporation Name)</p> <p>_____</p> <p>(State of Incorporation)</p> <p>By: _____</p> <p>(Name of Person Authorized to Sign - See Note 1)</p> <p>_____</p> <p>(Title)</p> <p>_____</p> <p>(Authorized Signature)</p> <p>_____</p> <p>(Corporation President)</p> <p>_____</p> <p>(Business Address)</p> <p>_____</p> <p>(Telephone No.) _____</p> <p>(Florida License No.)</p>	<p>(1) _____</p> <p>(Witness)</p> <p>(2) _____</p> <p>(Witness)</p> <p>(SEAL)</p>
--	--

SURETY

<p>_____</p> <p style="text-align: center;">(Surety Business Name)</p> <p>_____</p> <p style="text-align: center;">(Principal Place of Business)</p> <p>By: _____</p> <p style="text-align: center;">(Surety Agent's Signature - See Note 2)</p> <p>_____</p> <p style="text-align: center;">(Surety Agent's Name)</p> <p>_____</p> <p style="text-align: center;">(Surety Agent's Title)</p> <p>_____</p> <p style="text-align: center;">(Business Name of Local Agent for Surety)</p> <p>_____</p> <p style="text-align: center;">(Business Address)</p> <p>_____</p> <p style="text-align: center;">(Telephone No.) _____</p> <p style="text-align: center;">(Bond No.)</p>	<p>Witness: (If agency is not a Corporation)</p> <p>(1) _____</p> <p style="text-align: center;">(Witness)</p> <p>(2) _____</p> <p style="text-align: center;">(Witness)</p> <p>Attest: (If Agency is a Corporation)</p> <p>_____</p> <p style="text-align: center;">(Corporate Secretary Signature)</p> <p>_____</p> <p style="text-align: center;">(Corporate Secretary Name)</p> <p style="text-align: center;">(Corporate Seal)</p>
---	---

NOTES:

- (1) Complete and attach "Corporate Authority to Execute Documents" if executed by any corporate employee other than president or vice-president.
- (2) Complete and attach a certified copy of "Power-of-Attorney" prepared by Surety appointing individual "Attorney-in-Fact" for execution of Bid Bond on behalf of Surety and corresponding notarized "Attorney-in-Fact".
- (3) Above addresses are to be used for giving required notice.
- (4) Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.
- (5) Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

ATTORNEY-IN-FACT AFFIDAVIT

STATE OR COMMONWEALTH OF _____)
COUNTY OR TOWN OF _____) **SS**

Before me, a Notary Public, personally came _____ known to me, and known to be the Attorney-in-Fact of _____,

(Surety Company)

a _____ Corporation, which executed the attached bond as surety, who (State)

deposed and said that his signature and the corporate seal of said _____

(Surety Company)

were affixed by order and authority of said Company's Board of Directors, and that the execution of the attached bond is the free act and deed of _____.

(Surety Company)

Given under my hand and seal this _____ day of _____, 2019.

(Notary Public)

My Commission Expires _____

END OF SECTION

SECTION 00450

NON-COLLUSION AFFIDAVIT

STATE OF _____)

ss

COUNTY OF _____)

_____, being first duly sworn deposes and says that:

1. He (it) is the _____
(Owner, Partner, Office, Representative or Agent)
of _____, the Bidder that has submitted the attached Bid;
2. He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such Bid is genuine and is not a collusive or sham Bid;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affidavit, have in any way, colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted; or to refrain from bidding in connection with such Contract; or have in any manner, directly or indirectly, sought by agreement or collusion, or communication, or conference with any Bidder, firm, or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit, or cost elements of the Bid price or the Bid price in any other Bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Contract; and
5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any other of its agents, representatives, owners, employees or parties in interest, including this affidavit.

By: _____

Title: _____

Sworn and subscribed to before me
this ___ day of _____, 2019,
in the State of _____,
County of _____.

(Notary Public)

My Commission Expires: _____

END OF SECTION

SECTION 00451

CERTIFICATION OF NONSEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under this control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this Bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage and dressing areas, parking lots, drinking fountains, recreation or entertainment area, transportation, and housing facilities provided for employees on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he 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 files.

The nondiscriminatory guidelines as promulgated in Section 202, Executive Order 11246, and as amended by Executive Order 11375 and as amended, relative to Equal Opportunity for all persons and implementations of rules and regulations prescribed by the United States Secretary of Labor are incorporated herein.

Note:

The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Date _____, 2019.

Official Address
(including Zip Code):

By: _____

(Title)

ATTACH AND INCLUDE AS PART OF PROPOSAL FORM; FAILURE TO DO SO MAY BE CAUSE FOR DISQUALIFICATION OF YOUR BID.

END OF SECTION

SECTION 00452
(Page 1 of 2)

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

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

1. This sworn statement is submitted to the Town of Windermere, Orange County, Florida by _____

(Print individual's Name & Title)

whose business address is _____

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 with 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 representation.
3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.
4. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means:
- a. A predecessor or successor of a person convicted of a public entity crime; or
 - b. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The 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. (Please indicate which statement applies).

_____ Neither 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 management of the entity, nor any affiliate of the entity have 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 the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of this 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 the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of this entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding concerning the conviction before a Hearing Officer of the State of Florida, Division of Administrative Hearings. The final order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (Please 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 _____. 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 CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

(Signature)

Date: _____

Name of Bidder (Contractor)

STATE OF _____

COUNTY OF _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority, _____

(Name of Individual Signing)

who, after first being sworn by me, affixed his/her signature in the place provided above on this _____

_____ day of _____, 2019.

Notary Public _____

My Commission Expires: _____

END OF SECTION

SECTION 00453

CERTIFICATION OF NONDISCRIMINATORY LABOR PRACTICES

This certification relates to a construction contract proposed by the Town of Windermere, Orange County, Florida.

Equal Opportunity Employment: The Contractor shall not discriminate on the basis of race, color, national origin, gender, age, handicapped status, veteran status, and/or religion in performing the work governed by this contract. The Town is an Equal Opportunity Employer (EOE) and as such encourages all contractors to comply with EOE regulations. Any subcontract the Contractor may enter into shall include this clause with the same degree of application being encouraged.

I am the undersigned prospective construction contractor or subcontractor. I certify that...

- (1) I _____ have/ _____ have not participated in a previous contract or subcontract subject to the Equal Opportunity Clause and
- (2) If I have participated in a previous contract or subcontract subject to the Equal Opportunity Clause, I _____ have/ _____ have not filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs, or the Equal Employment Opportunity Commission all reports due under the applicable filing requirements.

I understand that, if I have participated in a previous contract or subcontract subject to the Equal Opportunity Clause and have failed to file all reports due under the applicable filing requirements, I am not eligible, and will not be eligible, to have my bid or offer considered, or to enter into the proposed contract or subcontract, unless and until I make an arrangement regarding such reports that is satisfactory to the office where the reports are required to be filed.

I agree that I will obtain identical certifications from prospective lower-tier construction subcontractors when I receive bids or offers or initiate negotiations for any lower-tier construction subcontracts with a price exceeding \$10,000. I also agree that I will retain such certifications in my files.

Date: _____, 2019

By: _____
(Signature of Authorized Official)

(Name of Prospective Construction Contractor or Subcontractor)

(Address of Prospective Construction Contractor or Subcontractor)

(Telephone Number) _____
(Employer Identification Number)

END OF SECTION

SECTION 00501

CORPORATE AUTHORITY
TO EXECUTE DOCUMENTS
REQUIRED ONLY WHEN DOCUMENTS ARE EXECUTED BY A CORPORATE EMPLOYEE OTHER
THAN A PRESIDENT OR VICE-PRESIDENT

I HEREBY CERTIFY that a meeting of the Board of Directors of _____
(Contractor's Corporate Name)

a corporation under the laws of the State of _____, held on the _____ day of
_____, 2019, the following resolution was duly passed and adopted:

"RESOLVED, that _____
(signature of individual) (typed name of individual)

as _____ of the corporation, is hereby authorized to execute
(title)

all documents required to be signed by an officer of the Corporation in order to submit a valid bid,
contract and bond for _____
(Project Name) (Bid No.)

between the Town of Windermere, Orange County, Florida, a municipal corporation, and this corporation,
and that his execution thereof, attested by the Secretary of the corporation and with corporate seal affixed
shall be the official act and deed of this corporation."

I FURTHER CERTIFY that said resolution is now in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the corporation this,
_____ day of _____, 2019.

(CORPORATE SEAL)

(Corporate Secretary)

STATE OF _____

TOWN OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 2019

by _____ (name of officer or agent, title of officer or
agent), of _____ (name of corporation
acknowledging), a _____ (state or place of incorporation) corporation, on
behalf of the corporation. He/She is personally known to me or has produced identification _____
_____ (type of identification) as identification and did/did not take an oath.

(Notary Public)

My Commission Expires: _____



Town of
Windermere
Among the Lakes

TOWN OF WINDERMERE

614 Main Street
Windermere, FL 34786
(407) 876-2563 (407) 876-0103 (Fax)

NOTICE OF (INTENT TO) AWARD

Project: **TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA
BID #2019-02
MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

Date: _____, 2019

Date of Bid Opening: _____ You are notified that your bid dated _____ 2019 for the above Contract has been considered and the OWNER, Town of Windermere, Orange County, Florida, expects to award you a contract for the above listed project.

The Contract Price of your contract is _____

(in words)

(in numbers)

Six (6) copies of each of the following proposed Contract Documents (except Project Manual and Drawings) accompany this Notice of Intent to Award:

- Amendment to the Agreement Between Owner and Contractor
- Performance Bond
- Payment Bond
- Certificate of Insurance and Endorsement - Workman's Compensation
- Certificate of Insurance and Endorsement - Comprehensive General Liability
- Notice of Intent to Award
- Indemnification Agreement

You must comply with the following conditions precedent to the award of the contract within ten (10) days of the date of this Notice of Intent to Award, that is by _____, 2019

1. You must deliver to the OWNER four (4) fully executed counterparts of the Amendment Agreement.
2. You must deliver with the executed Agreement, as Amended, the Payment and Performance Bonds in the form specified in the Bidding Documents.
3. You must provide in writing the correct name and address of the surety which is providing the Payment and Performance Bonds and the correct name and address of the surety's resident agent for service of process in Florida.
4. You must deliver with the executed Agreement completed Certificates and Endorsements of Insurance in the forms specified in the Bidding Documents.

Failure to comply with these conditions within the time specified will entitle the OWNER to consider your Bid abandoned, to annul this Notice of Intent to Award, and to declare our Bid Security forfeited.

Within ten (10) days after you comply with these conditions, the OWNER will return to you one fully signed counterpart of the Agreement with the Contract Documents attached.

<p>OWNER: TOWN OF WINDERMERE</p> <p>_____</p> <p>(Authorized Signature)</p> <p>Robert Smith _____ Town Manager _____ (title)</p>	<p style="text-align: center;"><u>Acknowledge Receipt of Notice</u></p> <p>CONTRACTOR: _____</p> <p>By: _____</p> <p style="text-align: center;">(Signature)</p> <p>_____</p> <p style="text-align: center;">(Print or Type Name)</p> <p>_____</p> <p style="text-align: center;">(Title)</p> <p>_____</p> <p style="text-align: center;">(Date)</p>
---	---

END OF SECTION

SECTION 00520

AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2019 by and between the Town of Windermere, Orange County, Florida, a municipal corporation, hereinafter called the OWNER, and _____, hereinafter called the 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:

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID # 2019-02

**MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

The project includes the construction of underdrains, as described in the bid form and other contract documents.

ARTICLE 2. ENGINEER

The Project has been designed by Michael Galura Engineering Consultants, LLC (PE) who is hereinafter called ENGINEER and who is to act as Owner's representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

ARTICLE 3. CONTRACT TIME

- 3.1 The Work shall be Finally Completed and ready for final payment in accordance with paragraph 14.07 of the General Conditions within **one-hundred twenty (120)** consecutive calendar days from the effective date of the Notice to Proceed as provided in paragraph 2.3 of the General Conditions (Commencement of Contract Time; Notice to Proceed). However, the Contractor will only be allowed seventy (70) on-site construction work days (from 7:00 am to 7:00 pm) during a continuous 10-week period in order to minimize traffic congestion along this key collector roadway. A mobilization period is being provided within the above ninety (90) day time of completion to provide advance time for materials (i.e., inlets, manholes, pipe, etc.) ordering and shipment.
- 3.2 As provided in paragraphs 3.1 and 3.2 above, the Work will be substantially completed on or before _____, 2019, and completed and ready for final payment on or before _____, 2019.
- 3.3 OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.3 above, plus any extensions thereof allowed in accordance with Article 12 of the

General Conditions (Final Payment and Acceptance). 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 completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER Five Hundred dollars (\$500.00) for each day that expires beyond the time specified in paragraph 3.3 above for final completion (readiness for final payment).

- 3.4 In addition to the liquidated damages, there shall be additional damages paid by the Contractor to the Owner for inexcusable delays by Contractor. These actual delay damages will include, but not be limited to, delay damage settlements or awards owed by Owner to others, inspection and engineering services, delay penalties, fines or penalties imposed by regulatory agencies, contract damages, and professional fees (including attorneys' fees) incurred by Owner in connection with such settlements, awards, delay penalties, regulatory fines or penalties, and contract damages.

ARTICLE 4. CONTRACT PRICE

- 4.1 OWNER shall pay CONTRACTOR for performance of the Work in accordance with the Contract Documents in current funds at the unit prices and lump sum prices (if any) presented on the Bid Form, Schedule of Bid Items attached to this Agreement.
- 4.2 The CONTRACTOR agrees that the Contract Price is a stipulated sum except with regard to those items in the Bid which are subject to unit prices and agrees to perform all of the WORK as described in the CONTRACT DOCUMENTS, subject to additions and deductions by Change Order, and comply with the terms therein for the prices stated in the attached Bid Schedule of the Bid Form.

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 tenth day after the end of each month for which payment is requested as provided in paragraphs 5.1.1 and 5.1.2 below. All such progress payments will be on the basis of the progress of the Work measured by the Schedule of Values established in paragraph 2.9 of the General Conditions (Finalizing Schedules) (and in the case of Unit Price, Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.
- 5.1.1 Prior to Substantial Completion (paragraph 3.3 above), progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 14.7 of the General Conditions (Review of Application for Progress Payments).

Ninety percent (90%) of the value of Work completed, and ninety percent (90%) of the value of materials and equipment not incorporated into the Work but delivered and suitably stored and accompanied by documentation satisfactory to OWNER as provided in paragraph 14.2 of the General Conditions; with the balance of the value of the Work being retainage. At the sole discretion of the Owner, after fifty percent (50%) of the Work is completed, further monthly

progress payments may be made in full, with no additional retainage, provided that: (a) Contractor is making satisfactory progress, and (b) Contractor is in full compliance with the currently accepted progress schedule, and (c) there is no specific cause for greater withholding. However, the Owner may subsequently resume retaining a percentage (not-to-exceed the amount allowed by Florida Statutes) of the value of Work completed and materials delivered if, in the sole determination of the Owner, the Contractor is not performing according to the Contract Documents or not complying with the current progress schedule.

- 5.2 Final Payment - Upon final completion and acceptance of the Work in accordance with Paragraph 14.13 of the General Conditions (Final Payment and Acceptance), as supplemented, OWNER shall pay Contractor an amount sufficient to increase total payments to 100 percent of the Contract Price. However, not less than two percent (2%) of the contract price shall be retained until Record Drawings, specifications, addenda, modifications and shop drawings, including any required manufacturers instructional and parts manuals, are delivered to and accepted by the ENGINEER.

ARTICLE 6. INTEREST

All monies not paid when due as provided in Article 14 of the General conditions shall bear interest at the maximum rate allowed by law at the place of the Project.

ARTICLE 7. CONTRACTOR'S REPRESENTATIONS

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

- 7.1 CONTRACTOR has examined and carefully studied the Contract Documents (including the Addenda listed in paragraph 8) and the other related data identified in the Bidding Documents including "technical data."
- 7.2 CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance and furnishings of the Work.
- 7.3 CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.
- 7.4 CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in Section 00300 "Information Available to Bidders". CONTRACTOR accepts the determination set forth in paragraph SC-4.2 of the Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in paragraph 4.2 of the General Conditions. CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes. CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.
- 7.5 CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect costs, progress, performance or furnishing of the Work or

which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto. CONTRACTOR does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

- 7.6 CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.
- 7.7 CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- 7.8 CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies that CONTRACTOR has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- 7.9 CONTRACTOR shall perform work with a value of not less than fifty percent (50%) of the Contract Price with his own forces.

ARTICLE 8. CONTRACT DOCUMENTS

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

- 8.1 This Amended Agreement (Section 00520) (pages 1 to 7, inclusive).
- 8.2 Exhibits to this Amended Agreement (sheets to , inclusive).
- 8.3 Performance Bond, Payment Bonds and Certificate of Liability Insurance (Sections 00610, 00611 and 00620, respectively).
- 8.4 Notice to Award and Notice to Proceed (Sections 00510 and 00550, respectively).
- 8.5 General Conditions (Section 00700 – EJCDC - ASCE - ACEC Document STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT (2013 Edition) as modified and supplemented.
- 8.6 Supplementary Conditions (Section 00800).
- 8.7 Project Manual bearing the general title "**TOWN OF WINDERMERE, ORANGE COUNTY, FLORIDA, BID # 2019-02, MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS**, and dated March 2019" and consisting of Divisions listed in the Table of Contents thereof.
- 8.8 Drawings consisting of a cover sheet and the sheets bearing the following general title:
TOWN OF WINDERMERE, ORANGE COUNTY, FLORIDA
BID #2019-02
MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS
- 8.9 Addenda numbers ___ to ___, inclusive.

- 8.10 CONTRACTOR's Bid Documents
- 8.11 Documentation submitted by CONTRACTOR prior to Notice of Award.
- 8.12 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All applicable provisions of State and Federal Law, all Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to paragraphs and the General Conditions.

The documents listed in paragraphs 8.2 et seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Article 3 of the Standard General Conditions.

ARTICLE 9. MISCELLANEOUS

- 9.1 Terms used in this Amended Agreement which are defined in Article 1 (Definitions) of the General Conditions shall have the meanings indicated in the General Conditions, as modified in the Supplementary 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 not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents. Notwithstanding the foregoing, the Owner may assign this contract to the State of Florida or any political subdivision, municipality, special district or authority thereof without Contractor's consent and without recourse.
- 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.
- 9.4 Waiver of Jury Trial; Legal Costs. It is mutually agreed by and between the Contract and Owner that each of the parties do hereby waive trial by jury in any action, proceeding or claim which may be brought by either of the parties hereto against the other on any matters concerning or arising out of this Agreement.
- 9.5 Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, the parties hereto have signed this Amended Agreement. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or by ENGINEER on his behalf.

This Agreement will be effective on _____, 2019.

OWNER:

CONTRACTOR:

**THE TOWN OF WINDERMERE
IN ORANGE COUNTY, FLORIDA**

By: _____
(Authorized Signature)

By: _____

(Title)

Name: _____
(Type)

Title: _____
(SEAL)

Attest: _____

Attest: _____

Title: _____

Title: _____

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

FOR USE AND RELIANCE ONLY BY THE TOWN OF WINDERMERE, ORANGE COUNTY, FL	
Address for giving notices: (Owner) _____ _____ _____ (Phone) _____	Address for giving notices: (Contractor) _____ _____ _____ _____
Approved as to form and legality _____, 2019. _____ Town Attorney Town of Windermere	Florida State Contractor's License No. _____ Agent for Service of Process: _____ _____

SECTION 00540

INDEMNIFICATION AGREEMENT

Town: **TOWN OF WINDERMERE, ORANGE COUNTY, FLORIDA**

Engineer: **MICHAEL GALURA ENGINEERING CONSULTANTS, LLC
ORLANDO, FLORIDA**

Contract Description: **TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA
BID #2019-02
MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

Hold Harmless/Indemnification: The Contractor hereby agrees that 5 percent of its total bid price for this contract represents the consideration which is being paid to the Contractor for this Hold Harmless / Indemnification of the Town and Town's Engineer. To the fullest extent permitted by laws and regulations, for the above referenced consideration included in Contractor's total bid price, the Contractor shall defend, indemnify, and hold harmless the Town and Town's Engineer (Michael Galura Engineering Consultants, LLC), its officers, directors, agents, guests, invitees, and employees 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 professionals and court and arbitration costs) arising out of or resulting from any acts of commission, omission or negligence in the performance of the Work by the Contractor, any subcontractor, or 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.

In any and all claims against the Town or Engineer, or any of their officers, directors, agents, or employees by any employee of the 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, this indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the 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, nor shall this indemnification obligation be limited in any way by any limitation on the amount or type of insurance coverage provided by the Town or Engineer, the Contractor, or any of his subcontractors.

Subrogation: The Contractor and his subcontractors shall require their insurance carriers, with respect to all insurance policies, to waive all rights of subrogation against the Town and the Town's Engineer.

Nothing in this Indemnification Agreement shall be deemed to affect the rights, privileges and immunities of the Town as set forth in Florida Statutes 768.28.

The Indemnifications contained herein shall survive the expiration or earlier termination of the Contract Agreement.

Name of Organization (Contractor)

By: _____
Owner or Officer

Date

END OF SECTION

SECTION 00550

NOTICE TO PROCEED

(Contractor)

DATE: _____

RE: Notice to Proceed on Project:

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA
BID #2019-02
MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

You are notified that the Contract Time under the above contract will commence to run on _____, 2019. On that date you are to start performing the Work and your other obligations under the Contract Documents. Based on the Contract Time stated in the Agreement, we calculate that the dates of Substantial Completion and Final Completion are _____, 2019 and _____, 2019, respectively.

Work at the site must be started by _____, 2019 as indicated in the Contract Documents.

Enclosed is one (1) set of Conformed Drawings and one (1) bound copy of the Conformed Project Manual.

<p>OWNER: TOWN OF WINDERMERE, ORANGE COUNTY, FL</p> <p>_____ (Authorized Signature)</p> <p>Robert Smith (print or type name) Town Manager (Title)</p> <p>Acct. No.: _____</p>	<p><u>Acknowledge Receipt of Notice</u></p> <p>CONTRACTOR: _____</p> <p>By: _____ (Signature)</p> <p>_____ (print or type name)</p> <p>_____ (Title)</p> <p>_____ (Date)</p>
---	--

Copy to Engineer (Use Certified Mail, Return Receipt Requested)

END OF SECTION

SECTION 00611

CONSTRUCTION PAYMENT BOND

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID #2019-02

**MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

I, _____, certify that I am the Secretary of the corporation named as Principal in the foregoing Performance and Payment Bond; that _____ who signed the said Bond on behalf of the Principal was then _____ of said corporation; that I know (his, her) signature, and (his, her) signature thereto is genuine, and that said Bond were duly signed, sealed and attested for and in behalf of said corporation by authority of its governing body.

Secretary

(Corporate Seal)

Attach a Certificate of Insurance and/or Policy Binder indicating that Contractor has obtained Comprehensive General Liability, Automobile Liability, Worker's Compensation Insurance and all other required insurance.

(SURETY COMPANY LETTERHEAD)

_____, 2019

RE: Authority to Date Bond and Power of Attorney

Bond No.: _____

Project Name:

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID # 2019-02

**MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

Dear Sir/Madam:

Please be advised that as Surety, on the above referenced bond, executed in your behalf, for the captioned project, you are hereby authorized, to date the bonds and the powers of attorney concurrent with the date of the contract.

Best Regards,

(Surety Company's Name)

Attorney-in-Fact and
Florida Resident Agent

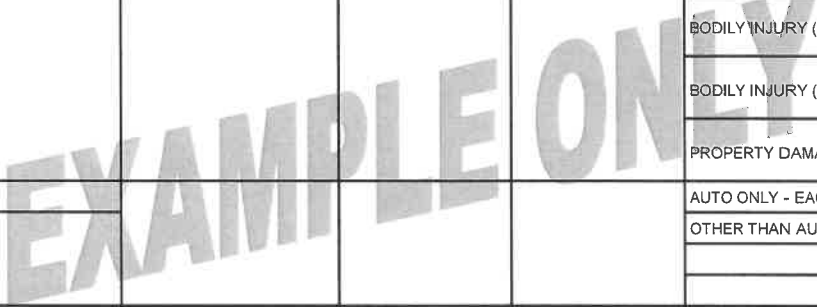
END OF SECTION

CERTIFICATE OF LIABILITY INSURANCE **DATE (MM/DD/YY):**

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

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

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EFFECTIVE DATE (MM/DD/YY)	LIMITS				
	GENERAL LIABILITY				GENERAL AGGREGATE \$ 2,000,000				
	<input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> ~ CLAIMS MADE ~ OCCUR <input type="checkbox"/> OWNER'S & CONTRACTORS PROT				PRODUCTS - COMP/OP AGG \$ 1,000,000 PERSONAL & ADVERT. INJURY \$ 1,000,000 EACH OCCURRENCE \$ 1,000,000 FIRE DAMAGE (Any one fire) \$ 500,000 MED EXP (Any one person) \$ 10,000				
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT \$ 1,000,000				
	<input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS				BODILY INJURY (Per person) \$ 1,000,000 BODILY INJURY (Per accident) \$ 1,000,000 PROPERTY DAMAGE \$ 1,000,000				
	GARAGE LIABILITY				AUTO ONLY - EACH ACCIDENT \$				
	<input type="checkbox"/> ANY AUTO				OTHER THAN AUTO ONLY: EACH ACCIDENT \$ AGGREGATE \$				
	EXCESS LIABILITY				EACH OCCURRENCE \$ 1,000,000				
	<input type="checkbox"/> UMBRELLA FORM <input type="checkbox"/> OTHER THAN UMBRELLA FORM				AGGREGATE \$ 2,000,000 \$				
	WORKERS COMPENSATION & EMPLOYERS LIABILITY				<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER				
	THE PROPRIETOR / PARTNERS / EXECUTIVE OFFICERS ARE: <table style="display: inline-table; vertical-align: middle;"> <tr> <td style="padding: 0 5px;">INCL</td> <td><input type="checkbox"/></td> </tr> <tr> <td style="padding: 0 5px;">EXCL</td> <td><input type="checkbox"/></td> </tr> </table>	INCL	<input type="checkbox"/>	EXCL	<input type="checkbox"/>				EL EACH ACCIDENT \$ 100,000 EL DISEASE - POLICY LIMIT \$ 500,000 EL DISEASE - EACH EMPLOYEE \$ 100,000 EMPLOYERS LIABILITY \$ 1,000,000
INCL	<input type="checkbox"/>								
EXCL	<input type="checkbox"/>								
	OTHER								
	<input type="checkbox"/> BUILDERS RISK COVERAGE <input type="checkbox"/> EXPLOSION, COLLAPSE, & UNDERGROUND COVERAGES				AT ANY ONE LOCATION \$ 25,000 AT ANY ONE LOCATION \$ 1,000,000				



DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / SPECIAL TERMS:
 CERTIFICATE HOLDER, OFFICERS, EMPLOYEES, ENGINEERS & CONSULTANTS ARE LISTED AS AN ADDITIONAL INSURED AS RESPECTS TO GENERAL LIABILITY, AUTOMOBILE, AUTOMOBILE LIABILITY AND BUILDERS RISK.

ADDITIONAL INSURED:

PROFESSIONAL ENGINEERING CONSULTANTS, INC		
---	--	--

CERTIFICATE HOLDER:	CANCELLATION: SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 5 (CALENDAR) DAYS WRITTEN NOTICE OF THE CERTIFICATE HOLDER NAMED TO THE LEFT. BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE:
---------------------	--

SECTION 00621

CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER's Project No. _____

ENGINEER's Project No. _____

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID # 2019-02

**MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS**

CONTRACTOR _____

Contract For _____

Contract Date _____

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

To _____
Owner

And To _____
Contractor

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

Date of Substantial Completion

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

The date of Substantial Completion is the date upon which all guarantees and warranties begin, except as follows:

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

RESPONSIBILITIES:

OWNER _____

CONTRACTOR _____

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

Executed by ENGINEER on _____, 2019.

(Engineer)

By: _____

The CONTRACTOR accepts this Certificate of Substantial Completion on:

_____, 2019.

(Contractor)

By: _____

END OF SECTION

* Adjustment as of
Change Order No. _____

(Short title of Change Order)

SECTION 00622
CHANGE ORDER FORM
TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA
BID # 2019-02

MARINA BAY ESTATES
UNDERDRAIN IMPROVEMENTS

DATE: _____

CHANGE ORDER NO.: _____
CONTRACTOR: _____

OWNER: TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA

AGREEMENT DATE: _____

The following changes are hereby made to the CONTRACT DOCUMENTS:

Original CONTRACT PRICE	\$ _____
Current CONTRACT PRICE ADJUSTED by previous CHANGE ORDER*	\$ _____
Net (Increase)(Decrease) Resulting from this CHANGE ORDER	\$ _____
The current CONTRACT PRICE including this CHANGE ORDER	\$ _____
ORIGINAL CONTRACT TIME: _____ Date _____	
Current CONTRACT TIME adjusted by previous CHANGE ORDERS*	Date _____
Net (Increase)(Decrease) Resulting from this CHANGE ORDER	Days _____
Current CONTRACT TIME Including this CHANGE ORDER	Date _____

CHANGES ORDERED:

I. GENERAL

This Change Order is necessary to cover changes in the Work to be performed under this Contract. The GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, SPECIFICATIONS and all parts of the Project Manual listed in Article 1, Definitions, of the GENERAL CONDITIONS apply to and govern all Work under this Change Order.

Change Order No. _____

II. REQUIRED CHANGES

III. JUSTIFICATION

IV. PAYMENT

V. NARRATIVE OF NEGOTIATIONS

VI. APPROVAL AND CHANGE AUTHORIZATION

Acknowledgements:

The aforementioned change, and work affected thereby, is subject to all provisions of the original contract not specifically changed by this Change Order; and,

It is expressly understood and agreed that the approval of the Change Order shall have no effect on the original contract other than matters expressly provided herein.

CONTRACTOR acknowledges, by its execution and acceptance of this Change Order, that the adjustments in Contract Price and Time shown hereon constitute full and complete compensation and satisfaction for all costs and modifications of performance time incurred by the CONTRACTOR as a result of this Change Order. No other claim for increased costs of performance or modifications of time will be granted by the OWNER for the Work covered by this Change Order. The CONTRACTOR hereby waives and releases any further claims for cost or time against the OWNER arising from or relating to the matters or Work set forth or contemplated by this Change Order.

Change Order Request by: Town of Windermere, Orange County, Florida

Change(s) Ordered by: _____

RECOMMENDED BY: _____

ACCEPTED BY: _____

Michael Galura Engineering Consultants, LLC
Engineer

By: _____
Signature

Date: _____

Title: _____

APPROVED BY:

Town of Windermere, Orange County, Florida
Owner

By: _____
Signature

Contractor

By: _____
Signature

Date: _____

Title: _____

Date

Change Order No. _____

END OF SECTION

PERIODIC ESTIMATE FOR PARTIAL PAYMENT

Owner: <u>Town of Windermere - Bid #2019-02</u> Project Name: <u>Marina Bay Estates Underdrain Improvements</u> Project No.: <u>TOW-053/1.0</u>	Name of Contractor: _____ Address: _____ Contractor's Project No.: _____	FOR PAY PERIOD _____ to _____	PERIODIC ESTIMATE NO. _____
--	---	---	---------------------------------------

2. Schedule of Contract Change Orders				Additions to Original Contract Price		Deductions From Cont. Price As Shown On Change Orders (7)
Contract Change Order		Related Item	Description (4)	Cost of Items Added By C.O. (5)	Cost of C.O. Items Completed to Date (6)	
No.	Date (2)					
TOTALS						

3.	ANALYSIS OF ADJUSTED Contract AMOUNT TO DATE	
A.	Original Contract Amount (Subtotal Col. 5 PART 1)	\$
B.	Plus: Additions Scheduled in Column 5 Above.	+
C.	Less: Deductions Scheduled in Column 7 Above.	-
D.	Adjusted Contract Amount to Date.	\$
4.	ANALYSIS OF Work PERFORMED	
A.	Cost of Original Contract Work Performed to Date (Subtotal Col. 7 PART 1)	\$
B.	Extra Work Performed to Date (Total Col. 6 above)	\$
C.	Total Cost of Work Performed to Date.	\$
D.	Less: Amount Retained: <input type="checkbox"/> % Cost of Work Performed to Date (Line 4c) <input type="checkbox"/> Fixed Amount	-
	Net Amount Earned on Contract Work to Date.	\$
F.	Add: Material Stored at Close of this Period (90% of _____)	+
G.	Subtotal of E. and F.	\$
H.	Less: Amount of Previous Certificates for Payment.	-
I.	Balance Due this Payment.	\$

5. CERTIFICATE OF CONTRACTOR

According to the best of my knowledge and belief, I certify that all items and amount shown on the face of the Periodic Estimate for partial Payment are correct; that all Work has been performed and/or material supplied in full accordance with the requirements of the referenced Contract, and/or duly authorized deviations, substitutions, alternations, and/or additions; that are foregoing is a true and correct statement of the Contract account up to and including the last day of the period covered by this Periodic Estimate that no part of the "Balance Due This Payment" has been received, and that the undersigned and his Sub Contractors have - (check applicable line).

Complied with all the labor provisions of said Contract.

Complied with all the labor provisions of said Contract except in those instances where an honest dispute exists with respect to said labor provisions.

Contractor: _____ **By:** _____ **Date:** _____

6. CERTIFICATION OF ARCHITECT OR ENGINEER

I certify that I have checked and verified the above and foregoing Periodic Estimate for Partial Payment; that to the best of my knowledge and believe it is a true and correct statement of Work performed and/or material supplied by the Contractor;

that all Work and/or material included in this Periodic Estimate has been inspected by me and/or duly authorized representative or assistants and that is has been performed and/or supplied in full accordance with requirements of the referenced Contract;

all Work and/or material included in this Periodic Estimate has been inspected and verified by the Town's Field Representative.

And that partial payment claimed and requested by the Contractor is correctly computed on the basis of Work performed and/or material supplied to date.

Company Name: _____ **Signed:** _____ **Date:** _____
(Architect or Engineer)

7. PREPAYMENT CERTIFICATION BY FIELD ENGINEER

I certify that to the best of my knowledge and belief that all Work and/or materials under the Contract has been inspected by me and that it has been performed and or supplied in full accordance with the requirements of the Contract. Further, I have checked this estimated against the notes and reports of my inspections of the project, and the periodic reports submitted by the Architect/Engineer. It is my opinion that the statement of Work performed and/or materials supplied is accurate, that the Contractor is observing the requirements of the Contract, and that the Contractor should be paid the amount requested above.

Town's Field Representative: _____ **Date:** _____

8. APPROVED FOR PAYMENT

By: _____ **Date:** _____
 Town of Windermere

PERIODIC ESTIMATE FOR PARTIAL PAYMENT

Owner: Town of Windermere - Bid #2019-02
 Project Name: Marina Bay Estates Underdrain
Improvements

Name of Contractor: _____
 Address: _____
 Contractor's Project No.: _____

FOR PAY PERIOD

 to

PERIODIC
 ESTIMATE
 NO.

Project No: TOW-053/1.0

1. COST OF Work COMPLETED TO DATE UNDER ORIGINAL Contract ONLY.

Entries must be limited to Work and costs under the original Contract only.
 (Work and cost data under change orders is to be shown in Part 2 of this form.)

Columns (6) and (7). Show all Work completed to date under original Contract.
 Column (8). Enter the difference between entries in columns (5) and (7).
 Column (9). Show percent ratio of column (7) to column (5).

Item No. (1)	Description of Item (2)	Contract			Complete to Date		Cost of Uncompleted Work (8)	% Comp (9)
		Quantity (3)	Cost Per Unit (4)	Total Cost of Item (5)	Quantity (6)	Total Cost (7)		
SUBTOTAL								
CHANGE ORDER ADJUSTMENTS TO DATE								
Change Order No. 1								
Change Order No. 2								
Change Order No. 3								
TOTAL:								

NOTE: FORM (00623) WILL BE PROVIDED TO CONTRACTOR AT THE PRECONSTRUCTION CONFERENCE MICROSOFT WORD FORMAT.

SECTION 00640A

**RELEASE OF LIEN
(PROGRESS PAYMENT)**

**WAIVER OF RIGHT TO CLAIM AGAINST
THE PAYMENT BOND (PROGRESS PAYMENT)
(Section 255.05)**

The undersigned, in consideration of the sum of \$ _____, hereby waives its right to claim against the payment bond for labor, services, or materials furnished through (insert date) to _____ (insert the name of your customer) on the job of _____ (insert name of the owner), for improvements to the following described project:

(Description of project)

This waiver does not cover any retention or any labor, services, or materials furnished after the date specified.

DATED on _____, 2019.

(Claimant)

By: _____

END OF SECTION

SECTION 00640B

**RELEASE OF LIEN
(FINAL PAYMENT)**

**WAIVER OF RIGHT TO CLAIM AGAINST
THE PAYMENT BOND (FINAL PAYMENT)
(Section 255.05)**

The undersigned, in consideration of the final payment in the amount of \$ _____ hereby waives its right to claim against the payment bond for labor, services, or materials furnished to _____
_____ (insert the name of your customer) on the job of _____
_____ (insert name of the owner), for improvements to the following described project:

(Description of Project)

DATED on _____, 2019.

(Claimant)

By: _____

END OF SECTION

SECTION 00650

FINAL CONTRACTOR'S AFFIDAVIT

STATE OF _____

COUNTY OF _____

Before me, the undersigned authority, personally appeared _____ who, after being duly sworn, deposes and says that:

- 1. Affiant is the _____ of _____ hereinafter called "Contractor" and as such makes this affidavit upon personal knowledge.
- 2. This affidavit is made pursuant to Section 713.06(3)(d)(1) Florida Statutes for the purpose of inducing final payment from to Contractor for work done at (legal description):

pursuant to the contract or invoice dated _____.

- 3. All laborers, material, men and subcontractors who worked for Contractor under said contract have been paid in full, except for those listed below:

_____ Contractor

By: _____

Print Name: _____

Print Title _____

Address: _____

SWORN TO and subscribed before me this _____ day of _____, 2019, by _____ (name), as _____ (title) of _____ (name of corporation), a (State) corporation, on behalf of the corporation. He/She [please check as applicable] /_____/ is personally known to me, or has produced /_____/ his/her _____ (state) driver's license, or /_____/ his/her _____ (type of identification) as identification.

_____ (Signature)

_____ (Printed Name)

NOTARY PUBLIC, STATE OF _____

_____ (Commission Expiration Date)

END OF SECTION

SECTION 00670

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of the Town of Windermere in Orange County, Florida do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

Signed: _____(SEAL)

Date: _____

END OF SECTION

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



Issued and Published Jointly by



Endorsed by



These General Conditions have been prepared for use with the Agreement Between Owner and Contractor for Construction Contract (EJCDC® C-520, Stipulated Sum, or C-525, Cost-Plus, 2013 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other.

To prepare supplementary conditions that are coordinated with the General Conditions, use EJCDC's Guide to the Preparation of Supplementary Conditions (EJCDC® C-800, 2013 Edition). The full EJCDC Construction series of documents is discussed in the Commentary on the 2013 EJCDC Construction Documents (EJCDC® C-001, 2013 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

TABLE OF CONTENTS

	Page
Article 1 – Definitions and Terminology.....	1
1.1 Defined Terms	1
1.2 Terminology.....	5
Article 2 – Preliminary Matters	6
2.1 Delivery of Bonds and Evidence of Insurance.....	6
2.2 Copies of Documents.....	6
2.3 Before Starting Construction	6
2.4 Preconstruction Conference; Designation of Authorized Representatives	7
2.5 Initial Acceptance of Schedules	7
2.6 Electronic Transmittals	7
Article 3 – Documents: Intent, Requirements, Reuse	8
3.1 Intent	8
3.2 Reference Standards	8
3.3 Reporting and Resolving Discrepancies	8
3.4 Requirements of the Contract Documents.....	9
3.5 Reuse of Documents	10
Article 4 – Commencement and Progress of the Work	10
4.1 Commencement of Contract Times; Notice to Proceed	10
4.2 Starting the Work	10
4.3 Reference Points	10
4.4 Progress Schedule	10
4.5 Delays in Contractor’s Progress	11
Article 5 – Availability of Lands; Subsurface and Physical Conditions; Hazardous Environmental Conditions	12
5.1 Availability of Lands	12
5.2 Use of Site and Other Areas	12
5.3 Subsurface and Physical Conditions	13
5.4 Differing Subsurface or Physical Conditions	14
5.5 Underground Facilities	15

5.6	Hazardous Environmental Conditions at Site	17
Article 6 – Bonds and Insurance		19
6.1	Performance, Payment, and Other Bonds	19
6.2	Insurance—General Provisions	19
6.3	Contractor’s Insurance	20
6.4	Owner’s Liability Insurance	23
6.5	Property Insurance	23
6.6	Waiver of Rights	25
6.7	Receipt and Application of Property Insurance Proceeds	25
Article 7 – Contractor’s Responsibilities		26
7.1	Supervision and Superintendence	26
7.2	Labor; Working Hours	26
7.3	Services, Materials, and Equipment	26
7.4	“Or Equals”	27
7.5	Substitutes	28
7.6	Concerning Subcontractors, Suppliers, and Others	29
7.7	Patent Fees and Royalties	31
7.8	Permits	31
7.9	Taxes	32
7.10	Laws and Regulations	32
7.11	Record Documents	32
7.12	Safety and Protection	32
7.13	Safety Representative	33
7.14	Hazard Communication Programs	33
7.15	Emergencies	34
7.16	Shop Drawings, Samples, and Other Submittals	34
7.17	Contractor’s General Warranty and Guarantee	36
7.18	Indemnification	37
7.19	Delegation of Professional Design Services	37
Article 8 – Other Work at the Site		38
8.1	Other Work	38
8.2	Coordination	39
8.3	Legal Relationships	39

Article 9 – Owner’s Responsibilities	40
9.1 Communications to Contractor	40
9.2 Replacement of Engineer	40
9.3 Furnish Data	40
9.4 Pay When Due	40
9.5 Lands and Easements; Reports, Tests, and Drawings	40
9.6 Insurance	40
9.7 Change Orders	40
9.8 Inspections, Tests, and Approvals	41
9.9 Limitations on Owner’s Responsibilities	41
9.10 Undisclosed Hazardous Environmental Condition	41
9.11 Evidence of Financial Arrangements	41
9.12 Safety Programs	41
Article 10 – Engineer’s Status During Construction	41
10.1 Owner’s Representative	41
10.2 Visits to Site	41
10.3 Project Representative	42
10.4 Rejecting Defective Work	42
10.5 Shop Drawings, Change Orders and Payments	42
10.6 Determinations for Unit Price Work	42
10.7 Decisions on Requirements of Contract Documents and Acceptability of Work	42
10.8 Limitations on Engineer’s Authority and Responsibilities	42
10.9 Compliance with Safety Program	43
Article 11 – Amending the Contract Documents; Changes in the Work	43
11.1 Amending and Supplementing Contract Documents	43
11.2 Owner-Authorized Changes in the Work	44
11.3 Unauthorized Changes in the Work	44
11.4 Change of Contract Price	44
11.5 Change of Contract Times	45
11.6 Change Proposals	45
11.7 Execution of Change Orders	46
11.8 Notification to Surety	47
Article 12 – Claims	47

12.01	Claims	47
Article 13 –	Cost of the Work; Allowances; Unit Price Work	48
13.1	Cost of the Work	48
13.2	Allowances	50
13.3	Unit Price Work	51
Article 14 –	Tests and Inspections; Correction, Removal or Acceptance of Defective Work	52
14.1	Access to Work	52
14.2	Tests, Inspections, and Approvals	52
14.3	Defective Work	53
14.4	Acceptance of Defective Work	53
14.5	Uncovering Work	53
14.6	Owner May Stop the Work	54
14.7	Owner May Correct Defective Work	54
Article 15 –	Payments to Contractor; Set-Offs; Completion; Correction Period	55
15.1	Progress Payments	55
15.2	Contractor’s Warranty of Title	58
15.3	Substantial Completion	58
15.4	Partial Use or Occupancy	59
15.5	Final Inspection	59
15.6	Final Payment	59
15.7	Waiver of Claims	61
15.8	Correction Period	61
Article 16 –	Suspension of Work and Termination	62
16.1	Owner May Suspend Work	62
16.2	Owner May Terminate for Cause	62
16.3	Owner May Terminate For Convenience	63
16.4	Contractor May Stop Work or Terminate	63
Article 17 –	Final Resolution of Disputes	64
17.01	Methods and Procedures	64
Article 18 –	Miscellaneous	64
18.1	Giving Notice	64
18.2	Computation of Times	64
18.3	Cumulative Remedies	64

18.4	Limitation of Damages	65
18.5	No Waiver	65
18.6	Survival of Obligations	65
18.7	Controlling Law	65
18.8	Headings	65

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.1 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 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. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*—(a) A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein: seeking an adjustment of Contract Price or Contract Times, or both; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract; or (b) a demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal; or seeking resolution of a contractual issue that Engineer

has declined to address. A demand for money or services by a third party is not a Claim.

11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. (“CERCLA”); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§5101 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. (“RCRA”); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; or (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
12. *Contract*—The entire and integrated written contract between the Owner and Contractor concerning the Work.
13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents. .
15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
17. *Cost of the Work*—See Paragraph 13.01 for definition.
18. *Drawings*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
20. *Engineer*—The individual or entity named as such in the Agreement.
21. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
22. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated in the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, does not establish a Hazardous Environmental Condition.
23. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

24. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
25. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date or by a time prior to Substantial Completion of all the Work.
26. *Notice of Award*—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.
27. *Notice to Proceed*—A written notice 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.
28. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
29. *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.
30. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
31. *Project Manual*—The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
32. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative or “RPR” includes any assistants or field staff of Resident Project Representative.
33. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
34. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals and the performance of related construction activities.
35. *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.
36. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

37. *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, and such other lands furnished by Owner which are designated for the use of Contractor.
38. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
39. *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.
40. *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.
41. *Successful Bidder*—The Bidder whose Bid the Owner accepts, and to which the Owner makes an award of contract, subject to stated conditions.
42. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
43. *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 a Subcontractor.
44. *Technical Data*—Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (a) subsurface conditions at the Site, or physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) or (b) Hazardous Environmental Conditions at the Site. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then the data contained in boring logs, recorded measurements of subsurface water levels, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical or environmental report prepared for the Project and made available to Contractor are hereby defined as Technical Data with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06.
45. *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 but not limited to those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, fiber optic transmissions, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
46. *Unit Price Work*—Work to be paid for on the basis of unit prices.
47. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

48. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.2 *Terminology*

- A. The words and terms discussed in the following paragraphs 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 Article 10 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 15.03 or 15.04).
- 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. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
- F. Unless stated otherwise in the Contract Documents, words or phrases that 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

2.1 *Delivery of Bonds and Evidence of Insurance*

- A. *Bonds*: 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 Contractor’s Insurance*: When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract), the certificates and other evidence of insurance required to be provided by Contractor in accordance with Article 6.
- C. *Evidence of Owner’s Insurance*: After receipt of the executed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each named insured and additional insured (as identified in the Supplementary Conditions or otherwise), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.2 *Copies of Documents*

- A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully executed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.
- B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.3 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise specifically required by the Contract Documents), 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;
 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.

2.4 *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 2.03.A, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.5 *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 2.03.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 the component parts of the Work.

2.6 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may transmit, and shall accept, Project-related correspondence, text, data, documents, drawings, information, and graphics, including but not limited to Shop Drawings and other submittals, in electronic media or digital format, either directly, or through access to a secure Project website.
- B. If the Contract does not establish protocols for electronic or digital transmittals, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. When transmitting items in electronic media or digital format, the transmitting party makes no representations as to long term compatibility, usability, or readability of the items resulting from the recipient's use of software application packages, operating systems, or

computer hardware differing from those used in the drafting or transmittal of the items, or from those established in applicable transmittal protocols.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.1 *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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic or digital versions of the Contract Documents (including any printed copies derived from such electronic or digital versions) and the printed record version, the printed record version shall govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.

3.2 *Reference Standards*

- A. Standards Specifications, Codes, Laws and Regulations
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, 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, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, 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 part of the Contract Documents prepared by or for Engineer. 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 part of the Contract Documents prepared by or for Engineer.

3.3 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*
 - 1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict,

error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.

2. *Contractor's Review of Contract Documents:* If, before or 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) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract Documents issued pursuant to Paragraph 11.01.
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 part of the Contract Documents prepared by or for Engineer shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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).

3.4 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work thereunder.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer's written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly give written notice to Owner and Contractor that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.5 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers 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 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; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner's express written consent, or violate any copyrights pertaining to such Contract Documents.
- 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.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.1 *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 Contract 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 Contract. 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 Contract, whichever date is earlier.

4.2 *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 such date.

4.3 *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.

4.4 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 11.
- B. 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, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.5 *Delays in Contractor's Progress*

- A. If Owner, Engineer, 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 Times and Contract Price. 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.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. 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. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:
1. severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. abnormal weather conditions;
 3. acts or failures to act of utility owners (other than those performing other work at or adjacent to the Site by arrangement with the Owner, as contemplated in Article 8); and
 4. acts of war or terrorism.
- D. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5.
- E. Paragraph 8.03 governs delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- F. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor.

- G. Contractor must submit any Change Proposal seeking an adjustment in Contract Price or Contract Times under this paragraph within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.1 *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.
- 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 permanent improvements are to be made 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.

5.2 *Use of Site and Other Areas*

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

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.12, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or at law; and (c) to the fullest extent permitted by Laws and Regulations, 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 any such claim, and against all 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 directly or indirectly, in whole or in part

by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent 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 and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.3 *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 adjacent to the Site;
 - 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities); and
 - 3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on 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.

5.4 *Differing Subsurface or Physical Conditions*

- A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site 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 5.03 is materially inaccurate; or
 2. is of such a nature as to require a change in the Drawings or Specifications; 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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

- B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine the necessity of Owner's obtaining additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A above; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.
- D. *Possible Price and Times Adjustments:*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, or both, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, 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 fall within any one or more of the categories described in Paragraph 5.04.A;
 - 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 Paragraph 13.03; and,

- c. 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.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise; or
 - b. the existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 5.04.A.
3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.

5.5 *Underground Facilities*

- A. *Contractor's Responsibilities:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or adjacent 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 do not warrant or guarantee 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 information and data regarding existing Underground Facilities at the Site;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents as being at the Site;
 - c. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 - d. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, then Contractor shall, promptly after

becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer.

- C. *Engineer's Review:* Engineer will promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the Underground Facility in question; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and advise Owner in writing of Engineer's findings, conclusions, and recommendations. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question, addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.
- E. *Possible Price and Times Adjustments:*
 - 1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, or both, to the extent that any existing Underground Facility at the Site that was not shown or indicated in the Contract Documents, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question;
 - 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 Paragraph 13.03;
 - c. 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; and
 - d. Contractor gave the notice required in Paragraph 5.05.B.
 - 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, or both, then any such adjustment shall be set forth in a Change Order.
 - 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, or both, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.

5.6 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and
 2. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized*: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data (as defined in Article 1) contained in any geotechnical or environmental report prepared for the Project and made available to Contractor. Except for such reliance on 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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. 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, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off.
- H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
- I. 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 (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- J. 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6 – BONDS AND INSURANCE

6.1 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, 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. 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 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond 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 the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then 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 bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.2 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.
- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is

maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.

- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, 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.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.3 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.
 - 2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 - 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees (by stop-gap endorsement in monopolist worker's compensation states).

4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. 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.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained for three years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance at final payment and three years thereafter.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.
- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result

of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.

- G. *Additional insureds*: The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; 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 (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance*: If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of two years after Substantial Completion. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions*: The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until final payment (and longer if expressly required in this Article) and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that 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.
- J. The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.

6.4 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, 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.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.5 *Property Insurance*

- A. *Builder's Risk*: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable 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 Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 - 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; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; 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. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 - 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.
 - 4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).

5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.
- F. *Insurance of Other Property:* If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item will be responsible for deciding whether to insure it, and if so in what amount.

6.6 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, 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 insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the 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 Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, 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 or Contractor as trustee or fiduciary, 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 occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.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, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, 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 builder's risk insurance and any other property insurance applicable to the Work.

6.7 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the

policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.1 *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.
- 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.

7.2 *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, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent, which will not be unreasonably withheld.

7.3 *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, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work 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.

7.4 "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 Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment, or items from other proposed suppliers under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that 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, Engineer shall deem it an "or equal" item. For the purposes of this paragraph, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
 - 3) it has a proven record of performance and availability of responsive service; and
 - 4) it is not objectionable to Owner.
 - 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.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal", which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request shall result in any change in Contract Price. The Engineer's denial of an "or-equal" request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer considered the proposed item as a substitute pursuant to Paragraph 7.05.

7.5 *Substitutes*

- A. Unless the specification or description of an item of material or equipment required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of material or equipment under the circumstances described below. To the extent possible such requests shall be made before commencement of related construction at the Site.
 - 1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of material or equipment from anyone other than Contractor.
 - 2. The requirements for review by Engineer will be as set forth in Paragraph 7.05.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 - 3. 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:
 - a. shall certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design,
 - 2) be similar in substance to that specified, and
 - 3) be suited to the same use as that specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times,
 - 2) 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
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from that specified, and

- 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
 - C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
 - D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. 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.
 - E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
 - F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request shall be final and binding, and may not be reversed through an appeal under any provision of the Contract Documents. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.05.D, by timely submittal of a Change Proposal.

7.6 Concerning Subcontractors, Suppliers, and Others

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner.
- B. Contractor shall retain specific Subcontractors, Suppliers, or other individuals or entities for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable, during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within five days.

- E. Owner may require the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors, Suppliers, or other individuals or entities for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor, Supplier, or other individual or entity so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity.
- F. If Owner requires the replacement of any Subcontractor, Supplier, or other individual or entity retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, or both, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.
- G. 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 the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. 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.
- J. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors, Suppliers, and all other individuals or entities performing or furnishing any of the Work.
- K. Contractor shall restrict all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed herein.
- L. 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.
- M. All Work performed for Contractor by a Subcontractor or Supplier shall be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer.
- N. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by the particular Subcontractor or Supplier.

O. 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 money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.7 *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.

7.8 *Permits*

- A. Unless otherwise provided in the Contract Documents, 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work

7.9 *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.

7.10 *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 or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and 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 such Work or other action. It shall not be Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Owner or Contractor may give notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.11 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.12 *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, other work in progress, 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 Owner; the owners of adjacent property, Underground Facilities, and other utilities; and other contractors and utility owners performing work at or adjacent to the Site, when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
 - 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 7.12.A.2 or 7.12.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 at its expense (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 protection 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 15.06.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).
 - G. Contractor's duties and responsibilities for safety and protection shall resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.13 *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.

7.14 *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.

7.15 *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.

7.16 *Shop Drawings, Samples, and Other Submittals*

A. *Shop Drawing and Sample Submittal Requirements:*

1. Before submitting a Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated the 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 and equipment 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 of that submittal, and that Contractor approves the 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 set forth in a written communication separate from the Shop Drawings or Sample submittal; and, in addition, in the case of Shop Drawings by a specific notation made on each Shop Drawing submitted to Engineer for review and approval of each such variation.

- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals. Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*

- a. Contractor shall submit the number of copies required in the Specifications.
- 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 7.16.D.

2. *Samples:*

- a. Contractor shall submit the number of Samples required in the Specifications.
- b. Contractor shall 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 7.16.D.

3. 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. *Other Submittals:* Contractor shall submit other submittals to Engineer in accordance with the accepted Schedule of Submittals, and pursuant to the applicable terms of the Specifications.

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 or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample 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 7.16.A.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 will document any such approved variation from the requirements of the Contract Documents in a Field Order.
5. Engineer's review and approval of a Shop Drawing or Sample shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, shall not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance or approval of a Shop Drawing, Sample, or other submittal shall result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.D.4.

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.
2. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved submittal item, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

7.17 *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 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;
 6. the issuance of a notice of acceptability by Engineer;
 7. any inspection, test, or approval by others; or
 8. any correction of defective Work by Owner.

- D. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract shall govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, 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 7.18.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 7.18.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.

7.19 *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 Laws and Regulations.
- 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, 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, 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 7.16.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria specified by Owner or Engineer.

ARTICLE 8 – OTHER WORK AT THE SITE

8.1 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.
- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any utility work at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford each other contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work. 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 such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- D. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 8, 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.

8.2 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:
 - 1. the identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. an itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. the extent of such authority and responsibilities.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.3 *Legal Relationships*

- A. If, in the course of performing other work at or adjacent to the Site for Owner, the Owner's employees, any other contractor working for Owner, or any utility owner for whom the Owner is responsible causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment shall take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract. When applicable, any such equitable adjustment in Contract Price shall be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. 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.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due to Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this paragraph.
- C. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due to Contractor.

- D. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) 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 any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9 – OWNER'S RESPONSIBILITIES

9.1 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.2 *Replacement of Engineer*

- A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer's status under the Contract Documents shall be that of the former Engineer.

9.3 *Furnish Data*

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

9.4 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in the Agreement.

9.5 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner's duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner's duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.6 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.7 *Change Orders*

- A. Owner's responsibilities with respect to Change Orders are set forth in Article 11.

9.8 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.9 *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.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *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 (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- 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.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.1 *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.

10.2 *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 10.08. 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.

10.3 *Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 10.08. 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.

10.4 *Rejecting Defective Work*

- A. Engineer has the authority to reject Work in accordance with Article 14.

10.5 *Shop Drawings, Change Orders and Payments*

- A. Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, are set forth in Paragraph 7.16.
- B. 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, are set forth in Paragraph 7.19.
- C. Engineer's authority as to Change Orders is set forth in Article 11.
- D. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.6 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

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

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.8 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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 15.06.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 10.08 shall also apply to the Resident Project Representative, if any.

10.9 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs (if any) of which Engineer has been informed.

ARTICLE 11 – AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

11.1 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
 - 1. *Change Orders:*
 - a. If an amendment or supplement to the Contract Documents includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order. A Change Order also may be used to establish amendments and supplements of the Contract Documents that do not affect the Contract Price or Contract Times.
 - b. Owner and Contractor may amend those terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, without the recommendation of the Engineer. Such an amendment shall be set forth in a Change Order.
 - 2. *Work Change Directives:* A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding change of Contract Price. Contractor must submit any Change Proposal seeking an

adjustment of the Contract Price or the Contract Times, or both, no later than 30 days after the completion of the Work set out in the Work Change Directive. Owner must submit any Claim seeking an adjustment of the Contract Price or the Contract Times, or both, no later than 60 days after issuance of the Work Change Directive.

3. *Field Orders:* Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.2 *Owner-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. Such changes shall be supported by Engineer's recommendation, to the extent the change involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters. Such changes may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work shall be performed under the applicable conditions of the Contract Documents. Nothing in this paragraph shall obligate Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.3 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.

11.4 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment of Contract Price shall comply with the provisions of Article 12.
- B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.04.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on

the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.04.C).

- C. *Contractor's Fee*: When applicable, 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 13.01.B.1 and 13.01.B.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 13.01.B.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 11.04.C.2.a and 11.04.C.2.b is that the Contractor's fee shall be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.A.1 and 13.01.A.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of five percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted work the maximum total fee to be paid by Owner shall be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the work;
 - d. no fee shall be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
 - 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 11.04.C.2.a through 11.04.C.2.e, inclusive.

11.5 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times shall comply with the provisions of Paragraph 11.06. Any Claim for an adjustment in the Contract Times shall comply with the provisions of Article 12.
- B. An adjustment of the Contract Times shall be subject to the limitations set forth in Paragraph 4.05, concerning delays in Contractor's progress.

11.6 *Change Proposals*

- A. Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; appeal an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; contest a set-off against payment due; or seek other relief under

the Contract. The Change Proposal shall specify any proposed change in Contract Times or Contract Price, or both, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents.

1. *Procedures:* Contractor shall submit each Change Proposal to Engineer promptly (but in no event later than 30 days) after the start of the event giving rise thereto, or after such initial decision. The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal. The supporting data shall be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event. Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal.
 2. *Engineer's Action:* Engineer will review each Change Proposal and, within 30 days after receipt of the Contractor's supporting data, either deny the Change Proposal in whole, approve it in whole, or deny it in part and approve it in part. Such actions shall be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 3. *Binding Decision:* Engineer's decision will be final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- B. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice shall be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

11.7 Execution of Change Orders

- A. Owner and Contractor shall execute appropriate Change Orders covering:
1. 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;
 2. changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 3. changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.02, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise), or other engineering or technical matters; and
 4. changes in the Contract Price or Contract Times, or other changes, which embody the substance of any final and binding results under Paragraph 11.06, or Article 12.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of this Paragraph 11.07, it shall be deemed to be of full force and effect, as if fully executed.

11.8 *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.

ARTICLE 12 – CLAIMS

12.1 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor shall be submitted to the Claims process set forth in this Article:
 - 1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;
 - 2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents; and
 - 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim shall rest with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, or both, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim shall be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation:*
 - 1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate shall stay the Claim submittal and response process.
 - 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process shall resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim

submittal and decision process shall resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval*: If the party receiving a Claim approves the Claim in part and denies it in part, such action shall be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim*: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim shall be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.
- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim shall be incorporated in a Change Order to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.1 Cost of the Work

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
 1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. To determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 13.01.C, 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, and 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 13.01.
 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 6.05), 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 communication 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 that Contractor is required by the Contract Documents to purchase and maintain.

C. *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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here 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 Paragraph 13.01.B.

D. *Contractor's Fee:* When the Work as a whole 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, Change Proposal, Claim, set-off, or other 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 11.04.C.

E. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, 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.

13.2 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*: Contractor agrees that:
 - 1. 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
 - 2. 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*: 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.

13.3 *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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- 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. 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 the following paragraph.
- E. Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price 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;
 - 2. there is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that it 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 14 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

14.1 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction 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.

14.2 Tests, Inspections, and Approvals

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work shall be governed by the provisions of Paragraph 14.05.
- 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, obtaining, and paying for all inspections and tests required:
 - 1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;
 - 2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
 - 3. by manufacturers of equipment furnished under the Contract Documents;
 - 4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
 - 5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests shall be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. 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. Such uncovering shall be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to

cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.3 *Defective Work*

- A. *Contractor's Obligation:* It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority:* Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects:* Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement:* Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties:* When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages:* In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.4 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work shall be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.5 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.6 *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, then 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.

14.7 *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, 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, then 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 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.1 Progress Payments

- A. *Basis for Progress Payments:* The Schedule of Values established as provided in Article 2 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 during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *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, a warehouse bond, 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.
- C. *Review of Applications:*
 - 1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 13.03, 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; 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 money 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 15.01.C.2.
6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or

- e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. *Payment Becomes Due:*

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. *Reductions in Payment by Owner:*

- 1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. claims have been made against Owner on account of Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages on account of Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;
 - c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. the Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. the Contract Price has been reduced by Change Orders;
 - i. an event that would constitute a default by Contractor and therefore justify a termination for cause has occurred;
 - j. liquidated damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. 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;
 - l. there are other items entitling Owner to a set off against the amount recommended.
- 2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed shall be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.

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 15.01.C.1 and subject to interest as provided in the Agreement.

15.2 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than seven days after the time of payment by Owner.

15.3 *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 and request that Engineer issue a certificate of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.
- 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 preliminary certificate of Substantial Completion which shall fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.

- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. 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 punch list.

15.4 *Partial Use or Occupancy*

- 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. At any time Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be 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 15.03.A through E for that part of the Work.
 - 2. At any time Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work 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 15.03 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 6.05 regarding builder's risk or other property insurance.

15.5 *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, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.6 *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, annotated record documents (as provided in Paragraph 7.11), and other documents, Contractor may make application for final payment.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
 - d. a list of all disputes that Contractor believes are unsettled; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

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 have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the Application for Payment to Owner for payment. Such recommendation shall account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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 15.07. 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. *Completion of Work:* The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.

D. *Payment Becomes Due:* Thirty days after the presentation to Owner of the final Application for Payment and accompanying documentation, the amount recommended by Engineer (less any further sum Owner is entitled to set off against Engineer's recommendation,

including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions above with respect to progress payments) will become due and shall be paid by Owner to Contractor.

15.7 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted or appealed under the provisions of Article 17.

15.8 *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 Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas used by Contractor as permitted by Laws and Regulations, is found to be defective, then Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such other adjacent areas;
 - 2. correct such defective Work;
 - 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 to 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. 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 repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others).
- 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, 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 are in addition to all other obligations and warranties. The provisions of this paragraph shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.1 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension. Any Change Proposal seeking such adjustments shall be submitted no later than 30 days after the date fixed for resumption of Work.

16.2 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.
- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) ten days written notice that Owner is considering a declaration that Contractor is in default and termination of the contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within seven days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses,

and damages exceeds 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.

- F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond shall govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.3 *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; and
 - 3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid on account of loss of anticipated overhead, profits, or revenue, or other economic loss arising out of or resulting from such termination.

16.4 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (2) 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 16.03.
- 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17 – FINAL RESOLUTION OF DISPUTES

17.1 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this Article:
 - 1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full; and
 - 2. Disputes between Owner and Contractor concerning the Work or obligations under the Contract Documents, and arising after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this Article, Owner or Contractor may:
 - 1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agree with the other party to submit the dispute to another dispute resolution process; or
 - 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18 – MISCELLANEOUS

18.1 *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, by a commercial courier service or otherwise, to the individual or to a member of the firm or to an officer of the corporation for which it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the sender of the notice.

18.2 *Computation of Times*

- A. When any period of time is referred to in the Contract 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.

18.3 *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. 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.

18.4 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.5 *No Waiver*

- A. A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Contract.

18.6 *Survival of Obligations*

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

18.7 *Controlling Law*

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

18.8 *Headings*

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

SECTION 00800A

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC, ACEC, ASCE, NSPE, 2013 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

ARTICLE 1. DEFINITIONS AND TERMINOLOGY

- SC-1.101.A Add the following sentence at the end of Paragraph 1.01.A of the General Conditions:
- "The terms used in these Supplementary Conditions will have the meanings indicated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings indicated below, which are applicable to both the singular and plural thereof."
- SC-1.101.A.12 Add the following language at the end of the first sentence of Paragraph 1.101.A.12.
- ", including the Invitation To Bid and the Instructions to Bidders."
- SC-1.01.A.40 Insert the following at the end of the definition:
- "For the purposes of this Work, Substantial Completion shall mean the successful completion of Demonstration Testing."
- Add the following new paragraphs at the end of Article 1.01.A of the General Conditions:
- SC-1.01.A.49 Apparent Successful Bidder - The Bidder submitting the lowest Bid at the Bid Opening without correction of numerical discrepancies or determination of responsiveness or responsibility.
- SC-1.01.A.50 Approve, Approval, Approved - A limited, conditional or qualified permission to use material, equipment or methods and which interprets the work depicted on a submittal (i.e. shop drawings) from the Contractor to be in general conformance with the design concept and in general compliance with the contract document requirements.
- SC-1.01.A.51 Bidder - An individual, firm or corporation submitting a proposal and bid for the Work contemplated, acting directly or through a duly authorized representative.
- SC-1.01.A.52 Town - Same as OWNER
- SC-1.01.A.53 Compensable Delay - Any delay beyond the control and without the fault or negligence of the Contractor resulting from Owner-caused changes in the Work, differing site conditions, suspensions of the Work, or termination for convenience by Owner.
- SC-1.01.A.54 Conditions of the Contract - The combined General Conditions and Supplementary Conditions.

- SC-1.01.A.55 Correction Period - The time during which the CONTRACTOR must correct defective Work or remove defective Work from the site and replace it with nondefective Work, all at no cost to the OWNER, pursuant to Paragraph 13.07 of the General Conditions, as supplemented.
- SC-1.01.A.56 Demonstration Testing - A predefined trial period required as a condition and prerequisite of substantial completion during which CONTRACTOR is to operate the entire Work (or any part thereof agreed to by the OWNER) under actual and simulated operating conditions for the purpose (i) of making such minor adjustments and changes to the Work as may be necessary for the Work to comply with the Contract Documents and (ii) of complying with the field test requirements in the Contract Documents.
- SC-1.01.A.57 Excusable Delay - Any delay beyond the control and without the fault or negligence of the Contractor, the Owner, or any other contractor caused by events or circumstances such as, but not limited to, acts of God or of the public enemy, acts of intervenors, acts of government other than the Owner, fires, floods, epidemics, quarantine restrictions, freight embargoes, and hurricanes, tornadoes, or new sink holes. Labor disputes and above average rainfall shall give rise only to inexcusable delays.
- SC-1.01.A.58 Final Completion - Acceptance of the Work by the Owner as evidenced by its signature upon final Certificate of Completion. The final Certificate of Completion shall be signed only after the OWNER has assured itself by tests, inspection or otherwise that all of the provisions of the Contract Documents have been completely satisfied.
- SC-1.01.A.59 Float or Slack Time - The time available in the progress schedule during which an unexpected activity can be completed without delaying the substantial completion of the Work.
- SC-1.01.A.60 Inexcusable Delay - Any delay caused either (i) by events or circumstances within the control of the Contractor, such as inadequate crewing, slow submittals, etc., which might have been avoided by the exercise of care, prudence, foresight, or diligence on the part of the Contractor, or (ii) by weather conditions (other than hurricanes and tornadoes) or labor disputes.
- SC-1.01.A.61 Low Bidder - Bidder who has submitted the lowest bid proposal for the Work contemplated.
- SC-1.01.A.62 Nonprejudicial Delay - Any delay impacting a portion of the Work within the available total float or slack time in the progress schedule, and not necessarily preventing completion of the Work within the Contract Time.
- SC-1.01.A.63 Prejudicial Delay - Any excusable or compensable delay impacting the Work and exceeding the total float available in the progress schedule, thus preventing completion of the Work within the Contract Time unless the Work is accelerated.
- SC-1.01.A.64 Project Manual - The Invitation for Bids, Instructions to Bidders, Bid Form, Agreement, Amendment to Agreement, Bonds, General Conditions, Supplementary Conditions, Local Agency Program/Federal-Aid Contract Requirements, Specifications, Addendum and Appendix.
- SC-1.01.A.65 Start-Up Testing - All field inspections, installation checks, water tests, performance tests, and necessary corrections required of Contractor to demonstrate that individual components of the Work have been properly constructed and do operate in accordance with the Contract Documents for their intended purposes.

- SC-1.01.A.66 Successful Bidder - The Bidder submitting the lowest Bid at the Bid Opening corrected for numerical discrepancies and determined by Owner to be qualified responsive and responsible, and to whom the Owner expects to award the Bid.
- SC-1.01.A.67 Unfavorable Weather Conditions - Local weather conditions which directly prevent the Contractor from performing critical path work for a period of more than four (4) hours on each specific work day.
- SC-1.01.A.68 Utility Coordination Day - A contract day in which the coordination of utilities prevents the Contractor from performing critical path work for a period of more than four (4) hours on each specific work day.

ARTICLE 2. PRELIMINARY MATTERS

- SC-2.01.C Delete paragraph 2.05.C of the General Conditions in its entirety and insert the following in its place:
- "C. Evidence of Insurance: Before any Work at the site is started, the Contractor shall deliver to the Owner, with a copy to the Engineer, certificates (and other evidence of insurance requested by the Owner) which the Contractor is required to purchase and maintain in accordance with Article 5 of these General Conditions."
- SC-2.02.A Delete Paragraph 2.02.A of the General Conditions in its entirety and insert the following in its place:
- "A. After the Contract has been executed, the Contractor will be furnished one (1) complete set of reproducible Drawings and one (1) complete set of the Project Manual (Contract Requirements and Specifications) and all addenda. The Contractor shall furnish each of the subcontractors, manufacturers, and material men such copies of the Contract Documents as may be required for their work. All copies of the Contract Documents shall be printed from the reproducible sets furnished to the Contractor. All costs of reproduction and printing shall be borne by the Contractor.
- SC-2.03.A Insert Paragraph 2.03. of the General Conditions in its entirety and insert the following in its place:
- " A notice to proceed may be given at any time within thirty (30) days after the Effective Date of the Agreement. The Contract Time will commence at the time specified in such notice or if no notice is given, thirty (30) days following the Effective Date of Agreement, provided that the Notice to Proceed may not specify a time of commencement later than sixty (60) days after the Effective Date of the Agreement."
- SC-2.03.A Amend the first sentence of Paragraph 2.03.A of the General Conditions to read as follows:
- "A. Preliminary Schedules: Within ten (10) working days or twenty (20) calendar days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:"

SC-2.05.A.1 Add the following at the end of Paragraph 2.05.B.1 of the General Conditions:
 "The CONTRACTOR expressly acknowledges that unfavorable working conditions will exist at the site of the Work as a result of normal local weather and the anticipated number of unfavorable weather days per respective month are as follows:"

ANTICIPATED UNFAVORABLE WEATHER DAYS									
Month	No. Days in Normal Work Week				Month	No. Days in Normal Work Week			
	7-Day	6-Day	5-Day	4-Day		7-Day	6-Day	5-Day	4-Day
Jan	2	2	1	1	July	6	5	4	3
Feb	3	3	2	2	Aug	6	5	4	3
March	3	3	2	2	Sept	5	4	4	3
Apr	2	2	1	1	Oct	3	3	2	2
May	3	3	2	2	Nov	2	2	1	1
June	5	4	4	3	Dec	2	2	1	1

Contract "Unfavorable Weather Days" shall be determined from the above "Anticipated Unfavorable Weather Days" table and shall be counted from the date of Contract Notice to Proceed through the date of Contract Final Completion. To-be-anticipated unfavorable weather days shall be prorated through partial months and shall be rounded up or down as per standard practice (i.e., 0.1 through 0.4 days shall be rounded down to the next whole number and 0.5 through 0.9 shall be rounded up to the next whole number).

As a direct result of unfavorable local weather conditions, the CONTRACTOR will not be able to perform critical path work for a period of more than four (4) hours on each specific day.

The CONTRACTOR shall take reasonable precautions to mitigate the impact of such unfavorable weather conditions and shall diligently attempt to perform the Work."

ARTICLE 3. CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01.F Add the following new paragraph immediately after Paragraph 3.01.E of the General Conditions which is to read as follows:

"F. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein, and if through mistake or otherwise, any such provision is not inserted, or if not correctly inserted, then upon the application of either party, the Contract Documents shall forthwith be physically amended to make such insertion."

SC-3.05.C Add the following new paragraphs after Paragraph 3.05.B of the General Conditions which are to read as follows;

"C. Correlation of Contract Documents. In resolving such conflicts, errors, and discrepancies, the documents shall be given precedence in the following order:

- a. Agreement Modifications
 - b. Agreement
 - c. Change Orders
 - d. Addenda
 - e. Local Agency Program / Federal-Aid Contract Requirements
 - f. Supplementary Conditions
 - g. Instruction to Bidders
 - h. General Conditions
 - i. Specifications
 - j. Drawings
 - 1. Dimensions
 - 2. Full-size Drawing
 - 3. Large-scale Drawing
 - 4. Small-scale Drawing
 - k. Invitation to Bid
 - l. Bid
 - m. Bonds
 - n. Insurance Certificates
 - o. Insurance Endorsements
 - p. Affidavits
- C. Field Verification. When measurements are affected by conditions already established or where items are to be fitted into constructed conditions, it shall be the CONTRACTOR's responsibility to verify all such dimensions at the site and the actual job dimensions shall take precedence over scale and figure dimensions on the Drawings."

ARTICLE 5. AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

- SC-5.01.D Add a new paragraph immediately after Paragraph 5.01.C of the General Conditions which is to read as follows:
- "D. If all lands and rights-of-way are not obtained as herein contemplated before construction begins, CONTRACTOR shall begin the Work upon such land and rights-of-way as OWNER has previously acquired and no claim for damages whatsoever will be allowed by reason of the delay in obtaining the remaining lands and rights-of-way. Should OWNER be prevented or enjoined from proceeding with the Work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the Work, CONTRACTOR shall not be entitled to make or assert claim for damage by reason of said delay, or to withdraw from the Agreement except by consent of OWNER. Time for completion of the Work will be extended as provided in Article 11, to such time as OWNER determines will compensate for the time lost by such delay."
- SC-5.04 The investigations, reports and drawings upon which the Engineer has relied upon are identified in Section 00300.
- SC-5.05.A.3 Add a new paragraph after Paragraph 5.05.A.2 of the General Conditions which is to read as follows:

"3. No claim of the CONTRACTOR under Paragraphs 5.03 and 5.04 shall be allowed unless (1) CONTRACTOR has given the notice required in subparagraph above, and (2) within forty-five (45) days after CONTRACTOR has given the written notice, CONTRACTOR submits to OWNER a detailed claim setting forth CONTRACTOR'S right to an increase in Contract Price or extension of Contract Time as provided in Articles 11 and 12 of the General Conditions. No claim by the CONTRACTOR hereunder shall be allowed if asserted after final payment under this Contract."

SC-5.07.A Add a new paragraph entitled "5.07 A – Reference Points" immediately after paragraph 5.06.K of the General Conditions which is to read as follows:

"A. ENGINEER may check the lines, elevations, reference marks, batter boards, etc., set by Contractor, and Contractor shall correct any errors disclosed by such check. Such a check shall not be considered as approval of Contractor's work and shall not relieve Contractor of the responsibility for accurate construction of the entire Work. Contractor shall furnish personnel to assist Engineer in checking lines and grades."

ARTICLE 6. BONDS AND INSURANCE

SC-6.03.K Add the following new paragraph immediately after Paragraph 6.03.K of the General Conditions:

"C. The limits of liability for the insurance required by paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under paragraphs 6.03.A.1 and A3 of the General Conditions:

a. State:	Statutory
b. Applicable Federal (e.g., Longshoreman's):	Statutory
c. Employer's Liability:	\$1,000,000

2. Contractor's General Liability under paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:

a. General Aggregate	\$2,000,000
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b. Products - Completed Operations Aggregate	\$2,000,000
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c. Personal and Advertising Injury	\$1,000,000
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d. Each Occurrence (Bodily Injury and Property Damage)	\$1,000,000
--	-------------

e. Property Injury Liability Coverage will include Claims arising out of Employment.

f. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.

g. Excess or Umbrella Liability

- | | |
|--|-------------|
| 1) General Aggregate | \$2,000,000 |
| 2) Each Occurrence | \$1,000,000 |
| 3. Automobile Liability under paragraph 5.04.A.6 of the General Conditions: | |
| a. Bodily Injury: | |
| Each Person | \$1,000,000 |
| Each Accident | \$1,000,000 |
| b. Property Damage: | |
| Each Accident | \$1,000,000 |
| OR | |
| c. Combined Single Limit of | \$1,000,000 |
| 4. The Contractual Liability coverage required by paragraph 5.04.B.4 of the General Conditions shall provide coverage for not less than the following amounts: | |
| a. Bodily Injury: | |
| Each Accident | \$1,000,000 |
| Annual Aggregate | \$2,000,000 |
| b. Property Damage: | |
| Each Accident | \$1,000,000 |
| Annual Aggregate | \$2,000,000 |

5. Additional Insureds:

Town of Windermere
614 Main Street
Windermere, FL 34786

MICHAEL GALURA ENGINEERING CONSULTANTS, LLC
3222 Corrine Drive, Suite H
Orlando, FL 32803

Additional insured shall be issued on Separate Certificates of Insured.

SC-6.04 Delete Paragraph 6.04 of the General Condition in its entirety.

SC-6.05.A Delete paragraph 6.05.A of the General Conditions in its entirety and insert the following in its place:

"A. The CONTRACTOR shall purchase and maintain until final payment property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by Laws and Regulations). This insurance shall include the interests of the OWNER the CONTRACTOR, subcontractors, the ENGINEER, and the ENGINEER's consultants in the Work (all of whom shall be listed as insured's or additional insured parties), shall insure against the perils of fire and extended

coverage, shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in these Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys, and other professionals). If not covered under the "all risk" insurance, the CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment. The policies of insurance required to be purchased and maintained by the CONTRACTOR in accordance with this paragraph 5.06 shall comply with the requirements of paragraph 5.04 of the General Conditions concerning prior written notice to OWNER and ENGINEER of cancellation, material change, or renewal refusal."

SC-6.05.B Delete Paragraph 6.05.B of the General Conditions in its entirety and insert the following in its place:

"B. The CONTRACTOR shall provide to the OWNER within thirty (30) days after the Effective Date of the Agreement, copies of all insurance policies entered into by the CONTRACTOR to achieve compliance with the insurance requirements of these Contract Documents. Should any policy expire within the Contract Time, or any extension thereof, the CONTRACTOR shall provide to the OWNER not later than thirty (30) days prior to the expiration date of such policy, a copy of an acceptable replacement policy providing the types and limits of coverage not less than that provided in the expiring policy."

ARTICLE 7. CONTRACTOR'S RESPONSIBILITIES

SC-7.03.C Add the following new paragraphs immediately after paragraph 7.03.C in the General Conditions

SC-7.03.D which are to read as follows.

SC-7.03.E

SC-7.03.F

SC-7.03.G

SC-7.03.H

"C. Except in the event of an emergency, no work shall be performed (1) before sunrise and after sunset, (2) nor between the hours of 9:00 p.m. and 7:00 a.m. (3) nor on Saturday and Sunday and (4) nor on any holiday of the OWNER. "Regular Working Hours" shall be between 7:00 a.m. and 9:00 p.m. and shall be established by the CONTRACTOR at the Preconstruction Meeting. If construction or maintenance work requires operations during other than Regular Working Hours, the CONTRACTOR shall obtain written permission of the OWNER at least forty-eight (48) hours in advance of starting such work, and shall set forth the proposed schedule for overtime to give OWNER ample time to arrange for his personnel to be at the site of the work. CONTRACTOR shall pay for the additional charges to the OWNER on account of such overtime work. Such additional charges shall be a subsidiary obligation of CONTRACTOR and no extra payment shall be made by OWNER on account of such overtime work.

D. This Agreement is subject to the applicable provisions of the Contract Work Hours and Safety Standards Act, Public Law 87-581, 87th Congress. No Contractor or Subcontractor contracting for any part of the Work shall require or

permit any laborer or mechanic to be employed on the Work in excess of forty hours in any work week unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours worked in excess of forty hours in such work week, as the case may be.

- E. Except as may be otherwise required by law, all claims and disputes pertaining to the classification of labor employed on the project under this Contract shall be decided by Owner's governing body or other duly designated official.
- F. Contractor shall employ only competent persons to do the work and whenever Owner shall notify Contractor, in writing, that any person on the Work appears to be incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such person shall be removed from the Project and shall not again be employed on it except with the consent of Owner.
- G. Contractor shall reimburse the Owner for any additional engineering and/or inspection costs incurred as a result of overtime work in excess of the regular working hours stipulated in Article SC-7.03.B. At Owner's option, overtime costs may either be deducted from the Contractor's monthly payment request or deducted from the Contractor's retention prior to release of final payment. Overtime costs for the Owner's personnel shall be based on the individual's current overtime wage rate. Overtime costs for personnel employed by the Engineer or Owner's independent testing laboratory shall be calculated in accordance with the terms of their respective contracts with the Owner. The hourly overtime rate for the Owner's RPR will be a maximum of \$100.00 per hour.
- H. No work shall be performed on legal holidays of the OWNER, which for the Work are defined as follows:

<u>Holiday</u>	<u>Calendar Date</u>
New Year's Day	January 1
Martin Luther King Day	3rd Monday in January
President's Day	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4
Labor Day	First Monday in September
Thanksgiving Day	4th Thursday in November
Day after Thanksgiving	4th Friday in November
Christmas Eve	December 24
Christmas	December 25

If Christmas and Christmas Eve fall on a weekend, the preceding Friday and following Monday will be observed as holidays. If Christmas falls on a Monday, the preceding Friday will be observed as a holiday. If Christmas falls on a Saturday, the preceding Thursday will be observed as a holiday."

SC-7.05.A.4.e Add the following new Paragraph 7.05.A.4.e of the General Conditions to read as follows:

"The application will also contain an itemized estimate of all costs and delays or schedule impacts that will result directly or indirectly from reviews, acceptance and provisions of such substitute, including cost of redesign and claims of other contractors

affect by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item."

SC-7.05.D Add the following to the end of the last sentence of Paragraph 7.05.D of the General Conditions:

"...and all costs resulting from any delays in the Work while the substitution was undergoing reviews."

SC-7.06.A Delete Paragraphs 7.06.A of the General Conditions and insert the following in its place:

"A. CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those who are to furnish the principal items of materials and equipment), whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection and shall not be required to employ as a Subcontractor, supplier or any person or organization against whom CONTRACTOR has reasonable objection. A Subcontractor or other person or organization identified in the CONTRACTOR's Bid and not objected to in writing by OWNER or ENGINEER prior to the execution of the Agreement will be deemed acceptable to OWNER and ENGINEER. All other Subcontractors shall be deemed to have been accepted if OWNER or ENGINEER deliver no written objection thereto within forty-five (45) days after CONTRACTOR's written identification of such Subcontractors. However, if within said forty-five (45) day period, OWNER or ENGINEER has reasonable objection to any Subcontractor whether identified in the Bid or subsequently, CONTRACTOR shall submit an acceptable substitute without entitlement to any change in Contract Price. If OWNER or ENGINEER demands the substitution of a Subcontractor at any time without having reasonable objection to such Subcontractor, the CONTRACTOR shall comply and shall be entitled to change in Contract Price (by appropriate Change order or Written Amendment) for the difference in cost occasioned by such substitution. After acceptance by the OWNER or ENGINEER of any particular Subcontractor, the CONTRACTOR shall make no substitution without written approval of the OWNER, which may be granted or withheld at OWNER's sole discretion. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier or any other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject defective work."

SC-7.06.K.1. Add a new paragraph after paragraph 7.06.K of the General Conditions which is to read as follows:

"1. Owner or Engineer may furnish to any such Subcontractor, Supplier or other person or organization, to the extent practicable, evidence of amounts paid on their behalf to Contractor in accordance with Contractor's Applications for Payment."

SC-7.08 Reference is made to the General Requirements of the Contract Documents (Division 1) for a listing of permits and licenses obtained by the OWNER before the bid advertisement.

SC-7.12.A.4 Add a new paragraph immediately after Paragraph 7.12.A.3 of the General Conditions which is to read as follows:

"4. in the event of temporary suspension of the Work, or during inclement weather, or whenever Engineer may direct; Contractor shall, and shall cause Subcontractors, to protect carefully the Work and materials against damage or injury from the weather. If, in the opinion of Engineer, any portion of Work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any Subcontractors to so protect the Work, such Work and materials shall be removed and replaced at the expense of Contractor."

SC-7.12.B Add the following sentence to the end of the first sentence of Paragraph 7.12.B in the General Conditions:

"Contractor shall comply with the Trench Safety Act, Florida Law, Chapter 90-96 (CS/SB2626); OSHA (P.L. 91-596); the Contract Work Hours and Safety Standards Act (P.L. 91-54); and the Federal Register 29 CFR part 1926, OSHA Subpart P as well as all other local, state and federal ordinances, laws, and regulations regarding safety."

SC-7.16.E.1 Add the following sentence to the end of Paragraph 7.16.E.1 of the General Conditions:

"Shop drawings and submittal data shall be reviewed by the ENGINEER for each original submittal and first and second resubmittal; thereafter review time for subsequent resubmittals shall be charged to the CONTRACTOR in accordance with the terms of ENGINEER's Agreement with OWNER."

SC-7.18.A.1 Add the following paragraph immediately after Paragraph 7.18.A. of the General Conditions which is to read as follows:

"1. If, through acts of neglect on the part of Contractor, any other contractor or any subcontractor shall suffer loss or damage on the Work, Contractor shall settle with such other contractor or subcontractor by agreement or arbitration if such other contractor or subcontractor will so settle. If such other contractor or subcontractor shall assert any claim against Owner on such account of any damage alleged to have been sustained, Owner shall notify Contractor, who shall indemnify and save harmless Owner against any such claim."

ARTICLE 11. AMENDING THE CONTRACT DOCUMENTS; CHANGES IN THE WORK

SC-11.02.A.1 &
SC-11.02.A.2 Add the following new paragraphs after Paragraph 10.01.A of the General Conditions which are to read as follows:

"1. At anytime, ENGINEER may request a quotation from CONTRACTOR for a proposed change in the Work. Within three (3) calendar days after receipt of a request for a quotation for a proposed change, CONTRACTOR shall submit a written and detailed proposal for an increase or decrease in the Contract Price or Contract Time for the proposed change. ENGINEER shall have three (3) calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in accordance with Articles 11 and 12 and in sufficient detail reasonably to permit an analysis by ENGINEER of all material, labor, equipment, subcontract, and overhead costs and fees and shall cover all Work involved in the change, whether such Work was deleted, added, changed, or impacted. Any amount claimed for subcontracts shall be similarly supported. Itemized schedule adjustments shall be in sufficient detail to permit an analysis of impact as required in Division 1. Notwithstanding the request for quotation, CONTRACTOR shall carry on the Work and maintain the progress schedule.

Delays in the submittal of the written and detailed quotation will be considered non-prejudicial."

2. The adjustment in Contract Price and/or Contract Time stated in a Change Order shall comprise the total price and/or time adjustment due or owed the CONTRACTOR for the work or changes defined in the Change Order. By executing the Change Order, the CONTRACTOR acknowledges and agrees that the stipulated price and/or time adjustments include the costs and delays for all work contained in the Change Order, including costs and delays associated with the interruption of schedules, extended overheads, delay, and cumulative impacts or ripple effect on all other non-affected work under this contract. Signing of the Change Order constitutes full and mutual accord and satisfaction for the adjustment in contract price or time as a result of increases or decreases in costs and time of performance caused directly and indirectly from the change, subject to the current scope of the entire work as set forth in the Contract Documents. Acceptance of the waiver constitutes an agreement between OWNER and CONTRACTOR that the Change Order represents an equitable adjustment to the Contract, and that CONTRACTOR will waive all rights to file a claim on this Change Order after it is properly executed."

ARTICLE 15. PAYMENTS TO THE CONTRACTOR AND COMPLETION

SC-15.01.A.1 Add the following language to the end of Paragraph 15.02.A.1 of the General Conditions:

"The Contractor shall furnish evidence that payment received on the basis of materials and equipment not incorporated and suitably stored, has in fact been paid to the respective supplier(s) within sixty days of payment by Owner. Failure to provide such evidence of payment shall result in the withdrawal of previous approval(s) and removal of the related equipment from the next submitted Application for Payment."

SC-15.01.D.1 Amend the first sentence of Paragraph 14.02.C.1 of the General Conditions to read as follows:

"Twenty (20) days after presentation of the Application for Payment ..."

SC-15.01.D.2 Add four new paragraphs immediately after paragraph 14.02.C.1 of the General Conditions

SC-15.01.D.3 which are to read as follows:

SC-15.01.D.4

SC-15.01.D.5

- "2. Should Contractor neglect to pay any undisputed claims, made in writing to Owner within thirty (30) days after completion of the Work, but continuing unsatisfied for a period of ninety (90) days, Owner may pay such undisputed claim and deduct the amount thereof from the balance due Contractor. Owner may also, with the written consent of Contractor, use any monies retained, due, or to become due under this Contract for the purpose of paying for both labor and materials for the Work, for disputed claims or claims have not been filed.
3. Security is provided both by the Payment Bond and the power of Owner to retain any monies for claims, but payment by one shall in no way impair or discharge the liability of the other.
4. Any and all liens for work and materials may be paid off by Owner within a reasonable time after filing for record in accordance with State and local laws, a notice of such liens except where the claim on which the lien is filed is being litigated by Contractor, and in such case Owner may pay the amount of any final

judgment or decree or any such claim within a reasonable time after such final judgment or decree shall be rendered.

5. All monies paid by Owner in settlement of liens as aforesaid, with the costs and expenses incurred by Owner in connection therewith, shall be charged to Contractor, shall bear interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank, and shall be deducted from the next payment due Contractor under the terms of this Contract."

SC-15.01.E.1.m Add a new paragraph after Paragraph 15.01.E.1.I of the General Conditions which is to read as follows:

"m. Liability for liquidated damages has been incurred by the Contractor."

SC-15.02.B Add two new paragraphs immediately after paragraph 15.02.A of the General Conditions which are

SC-15.02.C to read as follows:

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

C. Contractor shall indemnify and save Owner and Owner's Engineer harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in the furtherance of the performance of this Contract. Contractor shall at Owner's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If Contractor fails to do so, then Owner may, after having served written notice on the said Contractor either pay unpaid bills, of which Owner has written notice, direct, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to Contractor shall be resumed, in accordance with the terms of this Contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon Owner to either Contractor or his Surety. In paying any unpaid bills of the Contractor, Owner shall be deemed the agent of Contractor and any payment so made by Owner, shall be considered as payment made under the Contract by Owner to Contractor and Owner shall not be liable to Contractor for any such payment made in good faith."

SC-15.06.A.4 Add a new paragraph after Paragraph 15.06.A.3 of the General Conditions which is to read as follows:

"4. Notwithstanding any other provision of these Contract Documents to the contrary, OWNER and ENGINEER are under no duty or obligation whatsoever to any Subcontractor, laborer or other party to ensure that payments due and owing by the CONTRACTOR to any of them are or will be made. Such parties shall rely only on the CONTRACTOR'S surety bonds for remedy of nonpayment by him."

SC-15.06.D Amend Paragraph 15.06.D of the General Conditions to read as follows:

"Sixty (60) days after the presentation to OWNER of the final application for Payment and ..."

ARTICLE 16. SUSPENSION OF WORK AND TERMINATION

SC-16.01.B Add a new paragraph after Paragraph 16.01.A of the General Conditions which is to read as follows:

"B. If the OWNER stops Work under Paragraph 14.06 or suspends the CONTRACTOR's services under Paragraph 14.07, or suspends the Work or any portion thereof because of the CONTRACTOR's failure to prosecute the Work without endangering persons and property, the CONTRACTOR shall be entitled to no extension of Contract Time or increase in Contract Price."

SC-16.02.A.5 Add a new paragraph immediately after paragraph 16.02.A.4 of the General Conditions which is to read as follows:

"5. If the Work to be done under this Contract shall be abandoned, or if this Contract or any part thereof shall be sublet without the previous written consent of Owner, or if the Contract or any claim thereunder shall be assigned by Contractor otherwise than as herein specified, or at any time Engineer shall certify in writing to OWNER that the rate of progress of the Work or any part thereof is unsatisfactory or that the work or any part thereof is unnecessarily or unreasonably delayed."

SC-16.02.B.3 Add new paragraph immediately after Paragraph 16.02.B.2 of the General Conditions beginning with the second sentence which is to read as follows:

"In such case, CONTRACTOR shall not be entitled to receive any further payment beyond an amount equal to the value of the Work actually completed and the value of materials and equipment not incorporated in the Work but delivered and suitably stored, less the aggregate of payments previously made. If the direct and indirect costs of completing the Work, including, but not limited to, fee and charges of engineers, architects, attorneys and other professionals, exceed the unpaid balance of the Contract Price, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER shall be verified by ENGINEER and incorporated in a Change Order, but in finishing the Work, OWNER shall not be required to obtain the lowest price for the Work performed. CONTRACTOR's obligations to pay the difference between such costs and such unpaid balance shall survive termination of the Agreement."

ARTICLE 17. DISPUTE RESOLUTION

SC-17.01.A Delete Paragraph 17.01.A of the General Conditions in its entirety and insert the following in its place:

"A. Disputes between OWNER and CONTRACTOR shall be arbitrated only if and to the extent agreed to by the parties at the time each dispute arises. The CONTRACTOR will carry on the Work and maintain the progress schedule during any dispute, regardless of how resolved, unless otherwise mutually agreed in writing. Venue for any litigation, at law or equity or arbitration, shall lie exclusively in Orange County, Florida. This Contract, or any provision hereof, shall be construed and interpreted, and any litigation arising therefrom, shall be governed by the laws of the State of Florida. The CONTRACTOR and OWNER waive trial by jury in any action, proceeding or claim which may be brought by either of the parties hereto against the other on any matters concerning or arising out of this Contract. In any such action, out of this Contract either party shall bear it's own attorney fees at the trial and appellate level, engineers, architects and other professionals and court costs, including those incurred in appellate proceedings.

ARTICLE 18. MISCELLANEOUS

SC-18.09 Add the following new paragraphs after Paragraph 18.08 of the General Conditions:

SC-18.10

SC-18.11

SC-18.12

SC-18.13

"18.09 Both the address given in the Bid Form upon which this Agreement is founded, and Contractor's office at or near the site of the Work are hereby designated as places to either of which notices, letters, and other communications to Contractor shall be certified, mailed, or delivered. The delivering at the above named place, or depositing in a postpaid wrapper directed to the first-named place, in any post office box regularly maintained by the U.S. Postal Department, of any notice, letter or other communication to Contractor shall be deemed sufficient service thereof upon Contractor; and the date of said service shall be the date of such delivery or mailing. The first-named address may be changed at any time by an instrument in writing, executed and acknowledged by Contractor, and delivered to Owner and Engineer. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter, or other communication upon Contractor personally.

18.10 The form of all submittals, notices, change orders, and other documents permitted or required to be used or transmitted under the Contract Documents shall be determined by the ENGINEER. During the preconstruction meeting, the ENGINEER shall provide to the CONTRACTOR one set of such project administration forms to be utilized during the construction of this project. These forms are referenced as follows:

Forms Used by the Engineer

00844 Non-Compliance Notice

00845 Field Order

00846 Work Directive

00847 Request for Proposal for Proposed Change (RFP)

00848 Daily Construction Report
00849 Weekly Construction Progress Report
00856 Shop Drawing Log
00858 Shop Drawing Review
00859 O&M Manual Review

Forms Used by the Contractor

00861 Periodic Estimate for Partial Payment
00862 Schedule of Values
00863 Materials Stored On-Site
00864 Shop Drawing Transmittal
00865 Change Proposal Summary
00866 Overtime Authorization
00867 Stop Work Order
00868 Contractor Request for Information
00875 Certificate of Completed Demonstration
00876 Check-Out Form
00878 Contractor Proposed Change
00879 Final Release of Lien

Forms Used by All Parties during Construction

00850 Construction Accident Report
00860 Project Action Report

- 18.11 The CONTRACTOR shall comply with Florida's Archives and Historical Act (Florida Statutes Chapter 267) and the regulations of the local historic preservation board as applicable and protect against the potential loss or destruction of significant, historical or archaeological data, sites, and properties in connection with the project.
- 18.12 If apprentices are required or utilized on this project, then the provisions of Chapter 446, Florida Statutes, shall govern.
- 18.13 If the price of this Agreement/Contract equals or exceeds \$50,000 and if the Contractor has 50 or more employees, the Contractor shall file with the Owner, within 30 calendar days after the award of this Agreement/Contract, a report on Standard Form 100 (EEO-1), which has been promulgated jointly by the Office of Federal Contract Compliance Programs, the Equal Employment Opportunity Commission, and Plans for Progress, 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 files with the Owner, within 30 calendar days after the award to it of the lower-tier construction subcontract, a report on Standard Form 100 (EEO-1) unless the construction subcontractor has submitted such a report within 12 months preceding the date of award of the lower-tier construction subcontract. (Subsequent reports are to be submitted annually in accordance with 41 CFR 60-1.7(a) or at such other intervals as the Director of the Office of Federal Contract Compliance Programs may require.)"

END OF SECTION

DIVISION 1
GENERAL REQUIREMENTS

**SECTION 01001
GENERAL REQUIREMENTS**

<p>1.01 WORK UNDER THIS CONTRACT 1</p> <p> A. Work To Be Done 1</p> <p> B. Drawings and Specifications 1</p> <p> C. Adjacent Lands and Improvements 3</p> <p> D. Weather 3</p> <p> E. Protection and Restoration 3</p> <p>1.02 LABOR 4</p> <p> A. Supervision 4</p> <p> B. Jurisdictional Disputes 4</p> <p> C. Apprenticeship 4</p> <p>1.03 MATERIALS AND EQUIPMENT 5</p> <p> A. Manufacturer 5</p> <p> B. Substitutions 6</p> <p> C. Delivery and Storage 6</p> <p> D. Manufacturer's Instructions for Installation 8</p> <p> E. Operating and Maintenance Data 9</p> <p> F. Manufacturer's Service 9</p> <p> G. Inspection and Testing 9</p> <p> H. Warranties and Bonds 11</p> <p> I. Tools and Accessories 11</p> <p> J. Hauling and Construction Operations 12</p> <p> K. Use of Chemicals 12</p> <p>1.04 PROJECT SITE AND ACCESS 12</p> <p> A. Right-of-Way and Easements 12</p> <p> B. Access 12</p> <p>1.05 PERMITS 12</p> <p>1.06 UTILITIES 12</p> <p> A. Utility Construction 12</p> <p> B. Existing Utilities 13</p> <p> C. Notices 13</p> <p> D. Relocations 13</p> <p>1.07 RELATED CONSTRUCTION REQUIREMENTS 14</p> <p> A. Traffic Maintenance 14</p> <p> B. Barrier and Lights 15</p> <p> C. Dust, Noise and Erosion Control 15</p> <p> D. Lines and Grades 16</p> <p> E. Cutting and Patching 16</p> <p> F. Daily Reports 16</p> <p> G. Cleaning 17</p> <p> H. Project Signs 17</p> <p>1.08 PROJECT MEETINGS 18</p> <p> A. General 18</p> <p> B. Pre-Construction Meeting 18</p> <p> C. Progress Meetings 18</p>	<p>1.10 CONSTRUCTION PROGRESS SCHEDULE 19</p> <p> A. Submit for Approval 19</p> <p> B. Contractor's Responsibility 19</p> <p>1.11 SHOP DRAWINGS, WORKING DRAWINGS AND SAMPLES 19</p> <p> A. General 19</p> <p> B. Contractor's Responsibility 19</p> <p> C. Engineer's Responsibility 20</p> <p> D. Submittal Procedures 20</p> <p> E. Shop Drawings 22</p> <p> F. Samples 22</p> <p>1.12 PROJECT RECORD DOCUMENTS 22</p> <p>1.13 START-UP 23</p> <p> A. Start-up DEMONSTRATION & TESTING Certification 23</p> <p>1.14 CONTRACT CLOSEOUT 23</p> <p> A. Substantial Completion 23</p> <p> B. Final Inspection 23</p> <p> C. Contractor's Close-out Submittals to Engineer 23</p> <p>1.15 SPECIAL PROJECT PROCEDURES 24</p>
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SECTION 01001

GENERAL REQUIREMENTS

1.01 WORK UNDER THIS CONTRACT

In conformance with the requirements of Notice and Service of the General Conditions, all notices or other papers required to be delivered by the Contractor to the Owner shall be delivered to the office of the Owner's Engineer, Michael Galura Engineering Consultants, LLC, 3222 Corrine Drive, Suite H, Orlando, Florida 32803.

A. WORK TO BE DONE

1. The Contractor shall furnish all labor, materials, equipment, tools services and incidentals to complete all work required by these specifications and as shown on the Drawings, at a rate of progress which will ensure completion of the Work within the Contract Time stipulated.
2. All materials, equipment, skills, tools and labor which is reasonably and properly inferable and necessary for the proper completion of the Work in a substantial manner and in compliance with the requirements stated or implied by these Specifications or Drawings shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not.
3. The Contractor shall perform the work complete, in place, and ready for continuous service, and shall include repairs, testing, permits, clean-up, replacements, and restoration required as a result of damages caused during this construction.
4. The Contractor shall comply with all Town, City, County, State, Federal, and other codes which are applicable to the proposed construction work.
5. All newly constructed work shall be carefully protected from injury in any way. No wheeling or walking or placing of heavy loads on it shall be allowed and all portions damaged shall be reconstructed by the Contractor at his own expense.

B. DRAWINGS AND SPECIFICATIONS

1. The Work shall be performed in accordance with the Drawings and Specifications prepared by Michael Galura Engineering Consultants, LLC, 3222 Corrine Drive, Suite H, Orlando, Florida 32803.
2. All work items in the plans and Contract Specifications shall be furnished and installed in accordance with the technical portions of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (Latest Edition), including Supplemental Specifications and Revisions thereto.
3. Where shown, the Contract Specifications and Plans Reference Index Sheets and Standards refer to FDOT Roadway and Traffic Design Standards (latest edition).
4. The Contractor shall verify all dimensions, quantities and details shown on the Drawings, Supplementary Drawings, Schedules, Specifications or other data received from the Engineer, and shall notify same, in writing, of all errors, omissions, conflicts and discrepancies found therein. Failure to discover or correct errors, conflicts or discrepancies shall not relieve the Contractor of full responsibility for unsatisfactory Work, faulty construction or improper operation resulting therefrom, nor from rectifying such conditions at his own expense.
5. All schedules are given for the convenience of the Engineer and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quantity of materials and equipment included in the Work to be done under this Contract.

6. Intent

- a. All Work called for in the Specifications applicable to this Contract, but not shown on the Drawings in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Drawings or in the Specifications, but involved in carrying out their implied intent, or in the complete and proper execution of the Work, is required and shall be performed by the Contractor as though it were specifically delineated or described.
- b. Items of material, equipment, machinery, and the like may be specified on the Drawings and not in the Specifications. Such items shall be provided by the Contractor in accordance with the specification on the Drawings.
- c. The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any Work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, and interpretation of these Specifications shall be made upon that basis.
- d. Reference to the following standards of any technical society, organization or body shall be construed to mean the latest standard, code or specification or tentative specification adopted and published at the date of advertisement for bids, even though reference has been made to an earlier standard. Such reference is hereby made a part of the Contract the same as if herein repeated in full and in the event of any conflict between any of these specifications, standard codes or tentative specifications and the Contract Documents, the most stringent shall govern.

AA	Aluminum Association	APWA	American Public Works Association
AASHTO or AASHO	American Association of State Highway and Transportation Officials	AREA	American Railway Engineering Association
ABPA	Acoustical and Board Products Association	ASA	American Standards Association (now ANSI)
ACI	American Concrete Institute	ASCE	American Society of Civil Engineers
AFBMA	Anti-Friction Bearing Manufacturer's Association	ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
AGA	American Gas Association	ASME	American Society of Mechanical Engineers
AGMA	American Gear Manufacturer's Association	ASSCBC	American Standard Safety Code for Building Construction
AI	The Asphalt Institute	ASTM	American Society for Testing and Materials
AIA	American Institute of Architects	AWPA	American Wood Preservers Association
AIEE	American Institute of Electrical Engineers	AWBP	American Wood Preservers Board
AIMA	Acoustical and Insulating Materials Association	AWS	American Welding Society
AISC	American Institute of Steel Construction	AWWA	American Water Works Association
AISA	American Iron and Steel Institute	CRSI	Concrete Reinforcing Steel Institute
AMCA	American Moving and Conditioning Association	NPT	National Pipe Threads
ANSI	American National Standards Institute	NSF	National Science Foundation
API	American Petroleum Institute	OSHA	U.S. Department of Labor, Occupational Safety and Health Administration
CS	Commercial Standard	PCA	Portland Cement Association
DOT Spec	Standard Specification for Road and Bridge Construction Florida Department of Transportation	PCI	Prestressed Concrete Institute
FS	Federal Standard		
IEEE	Institute of Electrical and Electronic Engineers		

IPCEA	Insulated Power Cable Engineers Association	PS	United States Products Standards
NBFU	National Board of Fire Underwriters	SAE	Society of Automotive Engineers
NBS	National Bureau of Standards	SDI	Steel Decks Institute
NEC	National Electrical Code	SJI	Steel Joists Institute
NECA	National Electrical Contractor's Association	SMACNA	Sheet Metal and Air Conditioning Contractors National Association
NEMA	National Electrical Manufacturer's Association	SSPC	Structural Steel Painting Council
NFPA	National Fire Protection Association	UL	Underwriter's Laboratories, Inc.
		UASI	United States of America
		or	Standards Institute (now ANSI)
		USAS	

7. When obtaining data and information from the Drawings, conflicts, errors, and discrepancies shall be resolved from the documents given the following order of precedence:

- | | |
|--|---------------------------|
| a. Agreement Modifications | i. Drawings |
| b. Agreement | 1) Dimensions |
| c. Change Orders | 2) Full-size Drawing |
| d. Addenda | 3) Large-scale Drawing |
| e. Local Agency Provisions / Federal-Aid Contract Agreements | 4) Small-scale Drawing |
| Special Conditions | j. Invitation to Bid |
| Attachments | k. Bid |
| e. Supplementary Conditions | l. Bonds |
| f. Instruction to Bidders | m. Insurance Certificates |
| g. General Conditions | n. Insurance Endorsements |
| h. Specifications | o. Affidavits |

When measurements are affected by conditions already established or where items are to be fitted into constructed conditions, it shall be the CONTRACTOR'S responsibility to verify all such dimensions at the site and the actual job dimensions shall take precedence over scale and figure dimensions on the Drawings.

C. ADJACENT LANDS AND IMPROVEMENTS

1. Contractor shall be entirely responsible and liable for all damage or injury as a result of his operations to all other adjacent public and private property, landscaping, trees, fences, structures of any kind and appurtenances thereto met with during the progress of the Work.
2. The Contractor shall not enter or occupy private land outside of the project site or right-of-way, except by written permission of the appropriate owners. Contractor shall provide Owner a copy of such written permission.

D. WEATHER

During inclement weather, all work which might be damaged or rendered inferior by such weather conditions shall be suspended. The orders and decisions of the Engineer as to suspensions shall be final and binding. During suspension of the Work from any cause, the Work shall be suitably covered and protected so as to preserve it from injury by the weather or otherwise; and, if the Engineer will so direct, the rubbish and surplus materials shall be removed.

E. PROTECTION AND RESTORATION

1. The Contractor shall be responsible for the preservation of all public and private property, and shall use every means of protection necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the Work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or

equal to that existing before the damage was done, or he shall make good the damage in other manner acceptable to the Engineer.

2. Protection of Trees and Shrubs
 - a. Protect with boxes or other barricades.
 - b. Do not place excavated material so as to injure trees or shrubs
 - c. Install pipelines in short tunnels between and under root systems
 - d. Support trees to prevent root disturbance during nearby excavation.
3. Tree and Limb Removal
 - a. Tree limbs which interfere with equipment operation and are approved for pruning shall be neatly trimmed and the tree cut coated with a tree paint.
 - b. The Owner may order the Contractor, for the convenience of the Owner, to remove trees along the line or trench excavation. The Contractor shall obtain any permits required for removal of trees. Ordered tree removal shall be paid for under the appropriate Contract Items or, if not provided in the Bid Schedule, shall be paid under provisions of Article 11 of the General Conditions.
4. Trees or shrubs destroyed by negligence of the Contractor or his employees shall be replaced by him with new stock of similar size and age, at the proper season and at the sole expense of the Contractor.
5. Lawn Areas - All lawn areas disturbed by construction shall be replaced with like kind to a condition similar or equal to that existing before construction. Where sod is to be removed, it shall be carefully removed, and the same resodded, or the area where sod has been removed shall be restored with new sod in the manner described in the applicable section.
6. Fences - Any fence, or part thereof, that is damaged or removed during the course of the work shall be replaced or repaired by the Contractor, and shall be left in as good a condition as before the starting of the work.
7. Where fencing, walls, shrubbery, grass strips or area must be removed or destroyed incident to the construction operation, the Contractor shall, after completion of the work, replace or restore to the original condition all such destroyed or damaged landscaping and improvements.

The cost of all labor, materials, equipment, and work for restoration shall be deemed included in the appropriate Contract Item or items, or if no specific item is provided therefore, as part of the overhead cost of the Work, and no additional payment will be made therefore.

1.02 LABOR

- A. The Contractor shall keep the Contract under his own control and it shall be his responsibility to see that the Work is properly supervised and carried on faithfully and efficiently. The Contractor shall supervise the Work personally or shall have a competent, English speaking superintendent or representative, who shall be on the site of the project at all working hours, and who shall be clothed with full authority by the Contractor to direct the performance of the Work and make arrangements for all necessary materials, equipment, and labor without delay.
- B. Jurisdictional Disputes - It shall be the responsibility of the Contractor to pay all costs that may be required to perform any of the Work shown on the Drawings or specified herein to avoid any work stoppages due to jurisdictional disputes. The basis for subletting work in question, if any, shall conform to precedent agreements and decisions on record with the Building and Construction Trades Department, AFL-CIO, dated June, 1973, including any amendments thereto.
- C. Apprenticeship - The Contractor shall comply with all of the requirements of Section 446, Florida Statutes, for all contracts in excess of \$25,000 excluding roadway, highway or bridge contracts

and the Contractor agrees to insert in any subcontract under this Contract the requirements of this Article.

1.03 MATERIALS AND EQUIPMENT

A. MANUFACTURER

1. All transactions with the manufacturers or subcontractors shall be through the Contractor, unless the Contractor shall request and at the Engineer's option, that the manufacturer or subcontractor communicate directly with the Engineer. Any such transactions shall not in any way release the Contractor from his full responsibility under this Contract.
2. All workmanship and materials shall be of the highest quality. The equipment shall be the product of manufacturers who are experienced and skilled in the field with an established record of research and development. No equipment will be considered unless the manufacturer has designed and manufactured equipment of comparable type and size for at least five years.
3. All materials and equipment furnished by the Contractor shall be subject to the inspection and approval of the Engineer. No material shall be delivered to the work without prior approval of the Engineer.
4. All apparatus, mechanisms, equipment, machinery, and manufactured articles for incorporation into the Project shall be the new (most current production at time of bid) and unused standard products of recognized reputable manufacturers.
5. Manufactured and fabricated products:
 - a. Design, fabricate and assemble in accord with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Any two or more pieces of material or equipment of the same kind, type or classification, and being used for identical types of service, shall be made by the same manufacturer.
 - d. Products shall be suitable for service conditions as specified and as stated by manufacturer.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
 - f. Do not use material or equipment for any purpose other than that for which it is designed or is specified.
6. Product Standards: Equipment and appurtenances shall be designed in conformity with ANSI (formerly ASA), ASME, IEEE, NEMA, OSHA, AGMA, and other generally accepted applicable standards. They shall be of rugged construction and of sufficient strength to withstand all stresses which may occur during fabrication, testing, transportation, installation, and all conditions or operations. All bearings and moving parts shall be adequately protected against wear by bushings or other approved means. Provisions shall be made for adequate lubrication with readily accessible devices.
7. Safety Requirements
 - a. In addition to the components specified and shown on the Drawings and necessary for the specified performance, the Contractor shall incorporate in the design and show on the shop drawings all the safety features required by the current codes and regulations, including but not limited to those of the Occupational Safety and Health Act, and Amendments thereto.

B. SUBSTITUTIONS

1. The substitution requirements of this Section are in addition to the requirements of the General Conditions and Supplementary Conditions.
2. When a particular product is specified or called for, it is intended and shall be understood that the proposal tendered by the Bidder includes those products in his Bid. Should the Bidder desire to provide alternate products equal to those specified, the Bidder shall furnish information as described in the General Conditions or Bid Form. The alternate product or products submitted by the Bidder shall meet the requirements of the specifications and shall, in all respects, be equal to the products specified by name herein.
3. The intent of these specifications is to provide the Owner with a quality facility without discouraging competitive bidding. For products specified only by reference standards, performance and descriptive methods, without naming manufacturer's products, the Contractor may provide the products of any manufacturer complying with the Contract Documents, subject to the review of product data by the Engineer as specified herein. For products specified by naming a manufacturer's product followed by the words "or equal", the Contractor may provide any of the named products. He may substitute a product by another manufacturer as an equal only after review by the Engineer as specified herein. In all cases, any product provided must comply with all of the specified requirements.

C. DELIVERY AND STORAGE

1. General
 - a. The Contractor shall be responsible for all material, equipment and supplies sold and delivered to the Owner under this Contract until final inspection of the Work and acceptance thereof by the Owner.
 - b. All materials and equipment to be incorporated in the Work shall be handled and stored by the Contractor before, during and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft or damage or any kind whatsoever to the material or equipment.
 - c. All materials which, in the opinion of the Engineer, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the Work, and the Contractor shall receive no compensation for the damaged material or its removal.
 - d. In the event any such material, equipment and supplies are lost, stolen, damaged or destroyed prior to final inspection and acceptance, the Contractor shall replace same without additional cost to the Owner.
2. Delivery - the Contractor Shall:
 - a. Deliver materials in ample quantities to insure the most speedy and uninterrupted progress of the Work so as to complete the Work within the allotted time.
 - b. Coordinate deliveries in order to avoid delay in, or impediment of, the progress of the Work of any related Contractor.
 - c. Schedule deliveries to the site not more than one month prior to scheduled installation without written authorization from the Engineer.
 - d. Arrange deliveries of products in accordance with construction schedules coordinated to avoid conflict with work and conditions at the site.
 - e. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

- f. Immediately on delivery, inspect shipments with the Owner's field representative to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.
- g. Provide equipment and personnel to handle products by methods recommended by the manufacturer to prevent soiling or damage to products or packaging.
- h. Submit operation and maintenance data to the Engineer for review prior to shipment of equipment.

3. Storage

- a. The Contractor shall be responsible for securing a location for on-site storage of all material and equipment necessary for completion of this project. The location and storage layout shall be submitted to the Owner/Engineer at the preconstruction conference.
- b. All material delivered to the job site shall be protected from dirt, dust, dampness, water, and any other condition detrimental to the life of the material from the date of delivery to the time of installation of the material and acceptance by the Owner.
- c. Store products in accord with manufacturer's instructions, with seals and labels intact and legible.
- d. When required or recommended by the manufacturer, the Contractor shall furnish a covered, weather protected storage structure providing a clean, dry, noncorrosive environment for all mechanical equipment, valves, architectural items, electrical and instrumentation equipment, and special equipment to be incorporated into this project.
- e. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions and free from damage or deterioration.
- f. Manufacturer's storage instructions shall be carefully studied by the Contractor and reviewed with the Engineer by him. These instructions shall be carefully followed and a written record of this kept by the Contractor.
- g. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Electric motors provided with heaters shall be temporarily wired for continuous heating during storage. Upon installation of the equipment, the Contractor shall start the equipment, at least half load, once weekly for an adequate period of time to insure that the equipment does not deteriorate from lack of use.
- h. Mechanical equipment to be used in the Work, if stored for longer than ninety (90) days, shall have the bearings cleaned, flushed and lubricated prior to testing and start-up, at no extra cost to the Owner.
- i. Prior to acceptance of the equipment, the Contractor shall have the manufacturer inspect the equipment during start-up and certify that its condition has not been detrimentally affected by the long storage period. Such start-up certification by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed and tested. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor's expense.
- j. Specific Material Storage Requirements
 - 1) Loose Granular Materials: Store in a well-drained area on solid surfaces to prevent mixing with foreign matter.

- 2) Cement, sand and lime: Stored under a roof and off the ground and kept completely dry at all times.
 - 3) Brick, block and similar masonry products: Handle and store in a manner to reduce breakage, chipping, cracking and spilling to a minimum.
 - 4) Precast Concrete Beams: Handle and Store in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking.
 - 5) All structural and miscellaneous steel, and reinforcing steel: Store off the ground or otherwise to prevent accumulations of dirt or grease, and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical.
3. Should the Contractor fail to take proper action on storage and handling of equipment supplied under this Contract within seven days after written notice to do so has been given, the Owner retains the right to correct all deficiencies noted in previously transmitted written notice and deduct the cost associated with these corrections from the Contractor's Contract. These costs may be comprised of expenditures for labor, equipment usage, administrative, clerical, engineering, and any other costs associated with making the necessary corrections. In any event, equipment and materials not properly stored will not be included in a payment estimate.

D. MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION

1. Comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to all parties involved in the installation, including two copies for the Engineer's use. Maintain one set of complete instructions at the job site during installation and until completion.
2. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements. Should job conditions or specified requirements conflict with the manufacturer's instructions, consult with Engineer for further instructions. Do not proceed with Work without clear instructions.
3. Perform Work in strict accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.
4. The Contractor shall have on hand sufficient proper equipment and machinery of ample capacity to facilitate the installation of the Work and to handle all emergencies normally encountered in Work of this character.
5. Equipment shall be installed in a neat and workmanlike manner on the foundations at the locations and elevations shown on the Plans, unless directed otherwise by the Engineer during installation.
6. All equipment shall be correctly aligned, leveled and adjusted for satisfactory operation and shall be installed so that proper and necessary connections can be made readily between the various units.
7. The Contractor shall furnish, install and protect all necessary anchor and attachment bolts and all other appurtenances needed for the installation of the devices included in the equipment specified. Anchor bolts shall be as approved by the Engineer and made of ample size and strength for the purposes intended. Substantial templates and working drawings for installation shall be furnished by the manufacturer.

E. OPERATING AND MAINTENANCE DATA

1. The Contractor shall furnish one (1) set of preliminary manufacturers' operation and maintenance materials and manuals for review by the Engineer in the same manner as shop drawing submittals. The Contractor shall furnish one (1) set of final equipment manufacturer's operation and maintenance materials and manuals for use by the Owner, after incorporating Engineers' review comments.

F. MANUFACTURER'S SERVICE

1. Where service by the manufacturer is specified to be furnished as part of the cost of the item of equipment, the Work shall be at the Contractor's expense.
2. The services provided shall be by a qualified manufacturer's service representative to check the completed installation, place the equipment in operation, and instruct the Owner's operators in the operation and maintenance procedures. Such services are to be for period of time and for the number of trips specified. A working day is defined as a normal 8-hour working day on the job and does not include travel time.
3. The services shall further demonstrate to the Engineer's complete satisfaction that the equipment will satisfactorily perform the functions for which it has been installed. See also Article 1.13; Start-up.

G. INSPECTION AND TESTING

1. General

- a. If, in the testing of any material or equipment, it is ascertained by the Engineer that the material or equipment does not comply with the Contract, the Contractor shall be notified thereof, and he will be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the Work and replace it with acceptable material, without cost to the Owner.
- b. Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.

2. Cost

- a. Owner shall employ and pay for the services of an independent testing laboratory to perform testing specifically indicated on the Contract Documents or specified in the Specifications and may at any other time elect to have materials and equipment tested for conformity with the Contract Documents.
- b. The cost of any shop tests of materials and equipment specifically called for in the Contract Documents shall be borne by the Contractor, and such costs shall be deemed to be included in the Contract price.
- c. Notify Owner employed-laboratory sufficiently (a minimum of 48 hours) in advance of operations to allow for laboratory assignment of personnel and scheduling of tests. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred.
- d. Contractor shall employ and pay for the services of the same or a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required for the Contractor's convenience and as approved by the Owner.
- e. If the test results indicate the material or equipment complies with the Contract Documents, the Owner shall pay for the cost of the testing laboratory. If the tests and any subsequent retests indicate the materials and equipment fail to meet the requirements of the Contract Documents, the Contractor shall pay laboratory costs

of such failed tests. The total of such costs shall be deducted from any payments due to the Contractor.

- f. The Contractor shall pay for all Work required to uncover, remove, replace, retest, etc. any Work not tested due to the Contractor's failure to provide the minimum 48 hours advance notice or due to failed tests.

3. Field Testing

- a. The Owner shall employ and pay for services of an independent testing laboratory to perform testing specifically indicated in the Contract Documents. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.
- b. The Owner may at any time during the progress of the Work request additional testing beyond that which is specified in the Contract. This testing will be at the Owner's expense. The Contractor shall assist the testing laboratory personnel in all ways so as to facilitate access to the location of the material or equipment to be tested.
- c. Contractor shall:
 - 1) Cooperate with laboratory personnel, provide access to the Project.
 - 2) Secure and deliver to the laboratory adequate quantities of representative samples of materials proposed to be used and which require testing.
 - 3) Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
- d. The following schedule summarizes the responsibilities of various tests that may be required by the Contract Documents. Contractor shall notify Owner in advance of work so that arrangements can be made with the testing laboratory.

TEST	NOTES	PAID FOR
Soil Compaction	A. Structures: As a minimum one test per 2,000 SF of fill area per lift, or at least 2 tests per structure, per lift. As specified in material specifications sections.	Owner
Concrete	Slump test each delivery, cylinders every 20 CY	Owner
All Other Testing	As specified in various sections of the Project Manual	As Indicated

- 4. Demonstration Tests: Upon completion of the Work and prior to final payment, all equipment installed under this Contract shall be subjected to acceptance or demonstration tests as specified or required to provide compliance with the Contract Documents. The Contractor shall furnish all labor, fuel, energy, water and all other equipment necessary for the demonstration tests at no additional cost to the Owner. See Article 1.13 - Start-up.
- 5. Final Inspection: Prior to preparation of the final payment application, a final inspection will be performed by the Owner and the Engineer to determine if the Work is properly and satisfactorily constructed in accordance with the requirements of the Contract Documents. See Article 1.14 - Closeout.
- 6. Inspection by Other Agencies: The Florida Department of Transportation, the Florida Department of Environmental Protection, Water Management Districts, Orange County EPD, and other authorized governmental agencies shall have free access to the site for

inspecting materials and Work, and the Contractor shall afford them all necessary facilities and assistance for doing so. Any instructions to the Contractor resulting from these inspections shall be given through the Owner/Engineer. These rights of inspections shall not be construed to create any contractual relationship between the Contractor and these agencies.

H. WARRANTIES AND BONDS

1. The Contractor shall submit warranties and bonds as specified in the General Conditions and as specified herein. Co-execute submittals when so specified.
2. In the event that the equipment manufacturer or supplier is unwilling to provide a one-year warranty commencing at the time of the Owner acceptance, the Contractor shall obtain from the manufacturer a two (2) year warranty commencing at the time of equipment delivery to the job site. This two-year warranty from the manufacturer shall not relieve the Contractor of the one-year warranty starting at the time of Owner acceptance of the equipment.
3. If an individual specification section requires a particular warranty more stringent than that required by this Section or the General Conditions, the more stringent requirements shall govern for the applicable portion of the Work.
4. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors, and bind into a commercial quality standard three (3) ring binder; submit one (1) copy of the warranties and bonds to the Engineer for review and transmittal to the Owner.
5. The warranties and bonds shall include:
 - a. Equipment or product description
 - b. Manufacturer's name, principal, address and telephone number
 - c. Contractor, name of responsible principal, address and telephone number.
 - d. Local supplier's or representative's name and address
 - e. Scope of warranty or bond
 - f. Proper procedure in case of failure
 - g. Instances which might affect the validity of warranty or bond
 - h. Date of beginning of warranty, bond or service and maintenance contract
 - i. Duration of warranty, bond or service maintenance contract

I. TOOLS AND ACCESSORIES

1. The Contractor shall furnish with each type, kind or size of equipment, one complete set of suitably marked high grade special tools and accessories which may be needed to adjust, operate, maintain or repair the equipment (including special grease guns or other lubricating tools).
2. Such tools and accessories shall be furnished in approved painted steel tool cases, properly labeled and equipped with good grade cylinder locks and duplicate keys no later than upon start-up.
3. Each piece of equipment shall be provided with a substantial stainless steel nameplate, securely fastened in place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight and principal rating data.

- J. SPARE PARTS: May be specified for certain equipment in the pertinent sections of the Specifications. The Contractor shall collect and store all spare parts during construction and shall surrender such to the Owner in original boxes or containers upon final inspection. In addition, the Contractor shall furnish to the Owner an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each item. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost.

- K. HAULING AND CONSTRUCTION OPERATIONS: The Contractor shall conduct access, hauling, filling and storage operations on-site as specified herein and as shown on the Contract Drawings.
 - 1. Unsuitable Material: All unsuitable material shall become the property and responsibility of the Contractor. The Contractor shall properly dispose of all such unsuitable materials off-site in accordance with local, State and Federal Regulations.
- L. USE OF CHEMICALS: All chemicals used during the project construction furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or other classification, must show approval of either the Environmental Protection Agency or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

1.04 PROJECT SITE AND ACCESS

A. RIGHT-OF-WAY AND EASEMENTS

- 1. The use of public streets and alleys shall be such as to provide a minimum of inconvenience to the public and to other traffic. Any earth or other excavated material spilled from trucks shall be removed by the Contractor and the streets cleaned to the satisfaction of the Owner.
- 2. The Contractor shall not enter or occupy private land outside of easements, except by written permission of the property owner.
- 3. At the time of the preconstruction meetings, the Contractor shall fully acquaint himself with the status of all easements required for the Work and the possibility of parcels remaining to be acquired, if any. Should easements not be acquired by the Owner in specific areas of the Work, the Contractor shall sequence and reschedule his work therein so as not to interfere with the progress of work in other areas of the Project. Such rescheduling of Work shall be performed by the Contractor at no additional cost to the Owner. The Owner agrees that it will make every effort to acquire all remaining easements with all speed and diligence possible so as to allow the completion of the Work within the Contract time.

B. ACCESS

- 1. Neither the material excavated nor the materials or equipment used in the construction of the Work shall be so placed as to prevent free access to all fire hydrants, valves or manholes.
- 2. Contractor agrees that representatives of the Owner and any governmental agents will have access to the Work wherever it is in preparation or progress and that the Contractor shall provide facilities for such access and inspection.

1.05 PERMITS

- A. Upon Notice of Award, the Contractor shall immediately apply for all other applicable permits to construct the Work from the Town of Windermere, which will be provided at no cost to the Contractor. No Work shall commence until all applicable permits have been obtained.

1.06 UTILITIES

A. UTILITY CONSTRUCTION

- 1. All open excavations shall be adequately safeguarded by providing temporary barricades, caution signs, lights and other means to prevent accidents to persons, and damage to property. The Contractor shall, at his own expense, provide suitable and safe bridges and other crossings for accommodating travel by pedestrians and workmen. Bridges provided for access to private property during construction shall be removed when no longer required.

B. EXISTING UTILITIES

1. The locations of all existing underground piping, structures and utilities have been taken from information received from the respective owner. The locations are shown without express or implied representation, assurance, or guarantee that they are complete or correct or that they represent a true picture of underground piping to be encountered.
2. The Contractor shall, at all times in performance of the Work, employ approved methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage or destruction of existing public utility installations and structures; and shall, at all times in the performance of the Work, avoid unnecessary interference with, or interruption of, public utility services; and shall cooperate fully with the owners thereof to that end.
3. The Contractor shall exercise care in any excavation to locate all existing piping and utilities. All utilities which do not interfere with the completed Work shall be carefully protected against damage. Any existing utilities damaged in any way by the Contractor shall be restored or replaced by the Contractor at his expense as directed by the Owner/Engineer. Any existing facilities which require operation to facilitate repairs shall be performed only by the owner of the respective utility.
4. It is the responsibility of the Contractor to ensure that all utility or other poles, the stability of which may be endangered by the proximity of excavation, be temporarily stayed and/or shored in position while Work proceeds in the vicinity of the pole and that the utility or other companies concerned be given reasonable advance notice of any such excavation by the Contractor.

C. NOTICES

1. All governmental utility departments and other owners of public utilities which may be affected by the Work will be informed in writing by the Contractor within two weeks after the execution of the Contract or Contracts covering the Work. Such notice will be sent out in general, and directed to the attention of the governmental utility departments and other owners of public utilities for such installations and structures as may be affected by the Work.
2. The Contractor shall also comply with Florida Statute 553.851 regarding notification of existing gas and oil pipeline company owners. Evidence of such notice shall be furnished to the Owner within two weeks after the execution of the Contract.
3. It shall be the Contractor's responsibility to contact utility companies at least 48 hours in advance of breaking ground in any area or on any unit of the Work so maintenance personnel can locate and protect facilities, if required by the utility company.
4. The Contractor shall, prior to interrupting a utility service (water, sewer, etc.) for the purpose of making cut-ins to the existing lines or for any other purposes, contact the utility owner and make arrangements for the interruption which will be satisfactory to the utility owner.

D. RELOCATIONS

1. Relocations not shown on the Drawings
 - a. Where public utility installations or structures are encountered during the course of the Work, and are not indicated on the Drawings or in the Specifications, and when, in the opinion of the Owner/Engineer, removal, relocation, replacement or rebuilding is necessary to complete the Work under this contract, such Work shall be accomplished by the utility having jurisdiction, or such Work may be ordered, in writing by the Owner/Engineer, for the Contractor to accomplish.
 - b. If such Work is accomplished by the utility having jurisdiction, it will be carried out expeditiously and the Contractor shall give full cooperation to permit the utility to

complete the removal, relocation, replacement or rebuilding as required. If such Work is accomplished by the Contractor, it will be paid for as a Change Order.

2. All existing utility castings, including valve boxes, junction boxes, manholes, hand holes, pull boxes, inlets and similar structures in the areas of construction that are to remain in service and in areas of trench restoration and pavement replacement, shall be adjusted by the Contractor to bring them flush with the surface of the finished Work.

1.07 RELATED CONSTRUCTION REQUIREMENTS

A. TRAFFIC MAINTENANCE

1. Maintain public highway traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of Work. Work shall also include construction and maintenance of any necessary detour facilities; furnishing, installing and maintaining of traffic control and safety devices during construction, control of dust, or any other special requirements for safe and expeditious movement of vehicular and pedestrian traffic.
2. Traffic Control shall be provided at the Contractor's expense by the Contractor's personnel or off-duty uniformed police officer, depending on and as required by the applicable traffic control requirements jurisdictional to the construction or road.
3. The Contractor shall prepare a Traffic Control Plan prior to commencing any Work on the site. The Traffic Control Plan shall detail procedures and protective measures for protection and control of traffic affected by the Work consistent with the following applicable standards:
 - a. Standard Specifications for Road and Bridge Construction, (Latest Edition) including all subsequent supplements issued by the Florida Department of Transportation, (FDOT Spec.).
 - b. Manual of Traffic Control and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations, FDOT (Latest Edition).
 - c. Right-of-Way Utilization Regulations, Orange County, Florida, Latest Edition.

All references to the respective agency in the above referenced standards shall be construed to also include the Owner for this Work.

4. Before closing any thoroughfare, the Contractor shall give written notice to and, if necessary, obtain a permit or permits from the duly constituted public authority having jurisdiction over the thoroughfare. Notice shall be given no less than 72 hours in advance of the time when it may be necessary in the process of construction to close such thoroughfare, or as may be otherwise provided in the approved Traffic Control Plan.
5. The Contractor shall sequence and plan construction operations and shall generally conduct his Work in such a manner as not to unduly or unnecessarily restrict or impede existing normal traffic through the streets of the local community.
6. Insofar as it is practicable, excavated material and spoil banks shall not be located in such a manner as to obstruct traffic. The traveled way of all streets, roads and alleys shall be kept clear and unobstructed insofar as is possible and shall not be used for the storage of construction materials, equipment, supplies, or excavated earth, except when and where necessary.
7. If required by duly constituted public authority, the Contractor shall, at his own expense, construct bridges or other temporary crossing structures over trenches so as not to unduly restrict traffic. Such structures shall be of adequate strength and proper construction and shall be maintained by the Contractor in such a manner as not to constitute an undue traffic hazard. Private driveways shall not be closed except when and where necessary, and then only upon due advance notice to the Owner/Engineer and for the shortest practicable

period of time consistent with efficient and expeditious construction. The Contractor shall be liable for any damages to persons or property resulting from his work.

8. The Contractor shall make provisions at all "open cut" street crossings to allow a minimum of one lane to be open for vehicular traffic at all times. Lane closing shall be as permitted by the local governing authority and shall be repaired to a smooth, safe driving surface immediately following the installation of pipe or conduit. Flagmen shall be required, in addition to barricades, signs and other protective devices at all lane closings.
 9. The Contractor shall make provisions at cross streets for the free passage of vehicles and pedestrians, either by bridging or otherwise, and shall not obstruct the sidewalks, gutters, or streets, nor prevent in any manner the flow of water in the latter, but shall use all proper and necessary means to permit the free passage of surface water along the gutters.
 10. The Contractor shall immediately cart away all offensive matter, exercising such precaution as may be directed by the Owner/Engineer. All material excavated shall be so disposed of as to inconvenience the public and adjacent tenants as little as possible and to prevent injury to trees, sidewalks, fences and adjacent property of all kinds.
 11. All vehicles and equipment within 10 feet of any roadway shall have flashing strobe lights.
- B. **BARRIER AND LIGHTS:** The Contractor shall exercise extreme care in the conduct of the Work to protect health and safety of the workmen and the public. The Contractor shall provide all protective measures and devices necessary, in conformance with applicable local, state and federal regulations regarding their need and use. Protective measures shall include but are not limited to barricades, warning lights/flashers and safety ropes.
- C. **DUST, NOISE AND EROSION CONTROL**
1. The Contractor shall prevent dust nuisance from his operations or from traffic by the use of water and deliquescent salts.
 2. **Noise Suppression**
 - a. The Contractor shall eliminate noise to as great an extent as practical at all times. Air compressing plants shall be equipped with silencers and the exhaust of all gasoline motors or other power equipment shall be provided with mufflers. In the vicinity of hospitals and schools, special care shall be used to avoid noise or other nuisances. The Contractor shall strictly observe all local regulations and ordinances covering noise control.
 - b. Sound levels measured by the Owner/Engineer's personnel shall not exceed 45 dBA after 8 p.m. or 55 dBA 8 a.m. to 8 p.m. This sound level shall be measured at the exterior of the nearest exterior wall of the nearest residence or building. Levels at the equipment shall not exceed 85 dBA at any time. Sound levels in excess of these values are sufficient cause to have the Work halted until equipment can be quieted to these levels. Work stoppage by the Owner/Engineer for excessive noise shall not relieve the Contractor of other contractual responsibilities stipulated in the Contract Documents including, but not limited to Contract Price and time.
 3. **Erosion and Sedimentation Control**
 - a. Temporary erosion controls include, but are not limited to, grassing, mulching, netting, watering and reseeding on-site surfaces and soil and borrow area surfaces and providing interceptor ditches at ends of berms and at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the Owner, FDEP and any other agency having jurisdiction.
 - b. Temporary sedimentation controls include, but are not limited to, silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which will ensure that

sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the Owner, FDEP and any other agency having jurisdiction.

- c. The construction of temporary erosion and sedimentation control facilities shall be in accordance with the technical provision of section 104-6.4 of the (Latest Edition), FDOT Standard Specifications for Road and Bridge Construction.
- d. Contractor is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective.

D. LINES AND GRADES

1. All Work under this Contract shall be constructed in accordance with the lines and grades shown on the Drawings, or as given by the Engineer. The full responsibility for keeping alignment and grade shall rest upon the Contractor.
2. The Contractor shall, at his own expense, establish all working or construction lines and grades as required from the project control points set by the Owner/Engineer, and shall be solely responsible for the accuracy thereof.

E. CUTTING AND PATCHING

1. The Contractor shall do all cutting, fitting or patching of his portion of the Work that may be required to make the several parts thereof join and coordinate in a manner satisfactory to the Engineer and in accordance with the Drawings and Specifications.
2. Preparation
 - a. Inspect the existing conditions of the project, including elements subject to damage and/or movement during cutting and patching.
 - b. Provide adequate temporary support to assure the structural integrity of all facilities during completion of the Work.
3. Performance
 - a. Execute cutting and demolition by methods which will prevent damage to other existing facilities and will provide proper surfaces to receive installation of equipment and repair.
 - b. Excavation and backfilling shall be performed in a manner which will prevent settlement and/or damage to existing facilities.
 - c. All pipes, sleeves, ducts, conduits and other penetration through surfaces shall be made airtight.
 - d. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes.

F. DAILY REPORTS

1. The Contractor shall submit to the Owner's Representative daily reports of construction activities including non-work days. The reports shall be complete in detail and shall include the following information:
 - a. Days from Notice to Proceed; Days remaining to substantial and final completion
 - b. Weather Information;
 - c. Work activities with reference to the CPM schedule activity numbers (including manpower, equipment and daily production quantities for each individual activity);
 - d. Major deliveries;
 - e. Visitors to site;
 - f. Test records;

- g. New problems, and;
- h. Other pertinent information.

For each day, the CONTRACTOR shall prepare a "DAILY CONSTRUCTION REPORT" (Form F-00848) or an alternate form approved by Owner/Engineer.

- 2. A similar report shall be submitted for/by each Subcontractor.
- 3. The report(s) shall be submitted to the Resident Project Representative's Field Office within two (2) days of the respective report date. Each report shall be signed by the CONTRACTOR's Superintendent or Project Manager.

If a report is incomplete, in error, or contains misinformation, a copy of the report shall be returned by the Resident Project Representative to the CONTRACTOR's Superintendent or Project Manager with corrections noted. When chronic errors or omissions occur, the CONTRACTOR shall correct the procedures by which the reports are produced.

G. CLEANING

- 1. During Construction
 - a. During construction of the Work, the Contractor shall, at all times, keep the site of the Work and adjacent premises as free from material, debris and rubbish as is practicable and shall remove the same from any portion of the site if, in the opinion of the Owner/Engineer, such material, debris, or rubbish constitutes a nuisance or is objectionable.
 - b. Provide on-site containers for the collection of waste materials, debris and rubbish and remove such from the site periodically by disposal at a legal disposal area away from the site.
 - c. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces. Use only those cleaning materials and methods recommended by the manufacturer of the surface material to be cleaned. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.
 - d. The Contractor shall remove from the site all surplus materials and temporary structures when no longer necessary to the Work at the direction of the Owner/Engineer.
- 2. Final Cleaning
 - a. At the conclusion of the Work, all equipment, tools, temporary structures and materials belonging to the Contractor shall be promptly taken away, and he shall remove and promptly dispose of all water, dirt, rubbish or any other foreign substances. Employ skilled workmen for final cleaning. Thoroughly clean all installed equipment and materials to a bright, clean, polished and new appearing condition. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces. Broom clean exterior paved surfaces; rake clean other surfaces of the grounds.
 - b. The Work shall be left in a condition as shown on the Drawings and the remainder of the site shall be restored to a condition equal or better than what existed before the Work.

- H. PROJECT SIGNS: One project sign shall be furnished and installed on the project site by the Contractor at locations determined by the Owner/Engineer. The utilities project information shall be shown on the project sign. The Contractor may be required to relocate these identifying project signs during the progress of the Work. Each sign shall be approximately 4 x 4 feet in size,

and shall contain the project name, construction cost and names of the Owner or governing council, Engineer and Contractor. Wood shall be pressure treated and fasteners galvanized.

1.08 PROJECT MEETINGS

A. GENERAL

1. The Contractor shall attend all meetings to ascertain that work is expedited consistent with the Contract Documents and construction schedules.
2. Representatives of the Owner, Engineer, contractors, subcontractors, suppliers and utility owners attending meeting shall be qualified and authorized to act on behalf of the entity each represents.
3. The Engineer will schedule and administer the preconstruction meeting, periodic progress meetings, and specially called meetings throughout the progress of the work (i.e., prepare agenda for meetings, make physical arrangements for meetings and, preside at meetings, prepare meeting minutes). A copy of the minutes of each progress meeting will be available forty-eight (48) hours before the next scheduled meeting.
4. Contractor shall record the Preconstruction Meeting and each progress meeting in their entirety, and shall provide the Engineer a regular cassette copy of such recording, having good quality and clarity.

B. PRECONSTRUCTION MEETING

1. A preconstruction meeting shall be held after date of Notice of Award and before the date of Notice to Proceed at a central site, convenient for all parties, designated by the Owner/Engineer.
2. Attendance
 - a. Owner's Representative
 - b. Engineer and his professional consultants
 - c. Contractor and his superintendent
 - d. Contractor and his superintendent
 - d. Major subcontractors
 - e. Utilities, if applicable
 - f. Others as appropriate
 - h. Others as appropriate

C. PROGRESS MEETINGS

1. Progress meetings will be held every thirty (30) days or less with the first meeting thirty (30) days after the Preconstruction Meeting or thirty (30) days or less after the date of Notice to Proceed.
2. Progress meeting dates and time shall be scheduled at the Preconstruction Meeting for the entire duration of the Work on a monthly calendar basis. All progress meetings shall be held at a place to be determined by the Owner.
3. Attendance:
 - a. Owner's Representative
 - b. Engineer/prof. consultants as needed
 - c. Contractor
 - d. Subcontractors as appropriate to agenda
 - e. Suppliers as appropriate to agenda
 - g. Others as appropriate

1.10 CONSTRUCTION PROGRESS SCHEDULE

- A. Within thirty (30) days after Award of the Contract or before the Preconstruction Meeting, prepare and submit to the Owner/Engineer estimated construction progress schedules for the Work with subschedules of related activities which are essential to its progress. The construction schedule shall be developed by the Critical Path Method (CPM) utilizing Primavera (Primavera Systems, Inc., Bala Cynwyd, PA) computer software, or equal compatible with computers using Windows® operating systems.
- B. Contractor's Responsibility; Contractor shall:
1. Determine the sequence of activities for the orderly progression of the Work.
 2. Determine appropriate time estimates of the detailed construction activities.
 3. Determine the means, methods, techniques and procedures to be employed in the prosecution of the Work in compliance with the Contract Documents.
 4. Monitor the Construction Schedule in a timely manner.
 5. Accurately update and revise the Construction Schedule as project conditions and the Contract Documents may require.
 6. Consult with his Subconsultant(s) in the preparation and submittal process of the Construction Schedule.
 7. Allow for his cooperation with the operation of the Owner and the work of other separate contractors, as applicable.
 8. Use the schedule to report progress and for determining delays in achieving the project completion date(s).

1.11 SHOP DRAWINGS, WORKING DRAWINGS AND SAMPLES

- A. GENERAL: The Contractor shall submit to the Engineer for review and approval, if any, such working drawings, shop drawings, test reports and data on materials and equipment, and material samples as are specified elsewhere in the specifications and in the Contract Drawings.
- B. CONTRACTOR'S RESPONSIBILITY - The Contractor shall:
1. Check all drawings, data and samples prepared by or for him before submitting them to the Engineer for review;
 2. Stamp each data submittal with "Contractor's Stamp" indicating that they have been checked. Shop drawings submitted to the Engineer without the "Contractor's Stamp" will be returned for non-conformance with this requirement;
 3. Determine and verify field measurements and construction criteria;
 4. Determine and verify specific catalog numbers and similar data (other catalog or manufacturer's data not pertinent to the submittal shall be crossed or marked out).
 5. Determine and verify general conformance with Contract Documents.
 6. Not begin any work covered by a shop drawing returned for correction until a revision or correction thereof has been reviewed, approved and returned to the Contractor by the Engineer. The Contractor shall be responsible for and bear all costs for damages which may result from the ordering of any material or from proceeding with any part of the work prior to the review and approval by the Engineer of the necessary shop drawings;
 7. Carry out the construction in accordance with the Engineer approved shop drawings and shall make no further changes therein except upon written instruction from the Engineer;

8. Submit to the Engineer all shop drawings, samples and schedules sufficiently in advance of construction requirements to provide no less than thirty (30) calendar days for checking, and appropriate action;
9. List exceptions to the specifications taken by the Contractor in the letter of Shop Drawing Transmittal to the Engineer.

C. ENGINEER'S RESPONSIBILITY - the Engineer will:

1. Review shop drawings, data, and samples submitted by the Contractor to interpret the work depicted on such submittal to be in general conformance with the design concept and in general compliance with the Contract Document requirements. The Engineer's review and approval, if any, constitutes a limited, conditional or qualified permission to use such materials, equipment or methods and does not constitute an approval of dimensions, quantities, details of the material, equipment, device or item submitted.
2. Review and return shop drawing submittals within 30 calendar days of receipt.
3. Reject and return shop drawings to the Contractor without action or review with the following applicable notation:
 - a. "Contractor's Stamp required - Incomplete Review by Contractor", or
 - b. "Submittal Not Required by Contract Documents", or
 - c. "Submittal Incomplete - See Section _____", or
 - d. "Contract Variation Not Noted in Transmittal".

D. SUBMITTAL PROCEDURES

1. Preliminary Shop Drawing Data: Within 30 days after the Award of the Contract or before the Preconstruction Meeting, the Contractor shall submit to the Engineer a complete listing of manufacturers for all items for which shop drawings are to be submitted.
2. Shop Drawing Submittal Schedule: Within 30 days after the Notice to Proceed, the Contractor shall submit to the Engineer a complete schedule of shop drawing submittals fixing the respective dates for submission, the beginning of manufacture, testing, and installation of materials, supplies and equipment, noting those submittals critical to the progress schedule.
3. Submittal Log: An accurate updated log of submittals maintained by the Contractor and subject to review by the Owner/Engineer at each scheduled progress meeting.
4. When reviewed by the Engineer, each of the shop drawings will be identified as having received such review, being so stamped and dated. Shop drawings stamped "REJECTED" will be returned to the Contractor for correction and resubmittal with the required correction indicated on the shop drawing or listed on a "Shop Drawing Review Comment Sheet".
5. If submitted drawings or schedules show a departure or variation from the Contract Requirements which the Engineer finds to be in the interest of the Owner and to be so minor as not to involve a change in Contract Price or time for performance, the Engineer may return the reviewed drawings without noting an exception.
6. If the Contractor considers any correction indicated on the drawings to constitute a change to the Contract Drawings or specifications, the Contractor shall give written notice thereof to the Engineer. This does not constitute a change order until approved by the Owner.
7. Resubmittals will be handled in the same manner as first submittals. On resubmittals, the Contractor shall direct specific attention on the transmittal and on resubmitted shop drawings to revisions other than the corrections requested by the Engineer on previous submissions. The Contractor shall make any corrections required by the Engineer.
8. The Engineer will review a submittal/resubmittal a maximum of two (2) times after which the cost of review will be borne by the Contractor at the Engineer's standard hourly rate.

9. No partial submittals will be reviewed. Submittals not complete will be returned to the Contractor, and will be considered "Rejected" until properly resubmitted
10. Contractor shall submit a minimum of five (5) sets, plus additional sets as required by his subcontractors, of each shop drawing submittal for review. The Engineer will distribute shop drawings as follows for the indicated action taken:

SHOP DRAWING SUBMITTAL DISTRIBUTION						
Representative Party	Approved (A) Approved as Noted (AN)			Not Approved (NA)		
	Submittal Transmittal	Shop Drawing	Review Comment Sheet	Submittal Transmittal	Shop Drawing	Review Comment Sheet
Engineer	Original	File Copy	1 Copy	Original	File Copy	1 Copy
Contractor (see Note 1)	1 Copy	1 Copy Each Submittal	1 Copy	1 Copy	All Copies Except Engrs. File Copy	1 Copy
Owner	1 Copy	1 Copy Each Submittal	1 Copy	1 Copy	None	1 Copy
Structural Engineer Subconsultant (see Note 3)	1 Copy	1 Copy Each Submittal	1 Copy	1 Copy	None	1 Copy

NOTES:

1. Contractor shall distribute additional copies to subcontractors as required.
2. Stored by Contractor to be furnished to Owner/Engineer upon closeout.
3. Provide Shop Drawing Submittal set for Division 3 through Division 8.
4. Provide Shop Drawing Submittal set for Division 13 and Division 16, Section 15400 and Section 15800.

11. All shop drawing submittals shall be accompanied with a transmittal letter (PEC Form 00864 - Shop Drawing Transmittal) providing the following information:
 - a. Project Title and Contract Number
 - b. Date
 - c. Contractor's name and address
 - d. The number of each shop drawing, project data, and sample submitted.
 - e. Notification of Deviations from Contract Documents
 - f. Submittal Log Number conforming to specification section numbers
 - 1) Submit each specification section separately.
 - 2) Identify each shop drawing item required under respective specification section.
 - 3) Identify resubmittals using specification section followed by A (first resubmittal), B (second resubmittal) ... etc.

- E. **SHOP DRAWINGS:** The term "Shop Drawings" shall be construed to mean Contractor's plans for material and equipment which become an integral part of the Project. Shop drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawings, wiring and control diagrams, material and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material.
1. Shop drawings shall be prepared in a manner and sufficient detail to enable the Engineer to determine compliance with all stated specification requirements.
 2. 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.
 3. If drawings show variation from Contract requirements because of standard shop practice or for other reasons, the Contractor shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the Contract shall be implemented where appropriate. If the Contractor fails to describe such variations, he shall not be relieved of the responsibility for executing the Work in accordance with the Contract, even though such drawings have been reviewed.
- F. **SAMPLES:** The Contractor shall furnish, for the approval of the Engineer, samples required by the Contract Documents or requested by the Engineer.
1. Samples shall be delivered to the Engineer as specified or directed. The Contractor shall prepay all shipping charges on samples.
 2. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Contract requirements. Materials or equipment for which samples are required shall not be used in work until approved by the Engineer. Materials and equipment incorporated in Work shall match the approved samples.
 3. Approved samples not destroyed in testing shall be sent to the site of the Work. Approved samples of the hardware in good condition will be marked for identification and may be used in the Work. Samples which failed testing or were not approved will be returned to the Contractor at his expense, if so requested at the time of submission.

1.12 PROJECT RECORD DOCUMENTS

- A. The Contractor shall maintain at the site, for the Owner, one record copy of the following to be submitted to the Engineer for the Owner at Project Closeout:
- | | |
|--|---|
| 1. Conformed Drawings | 7. Field Orders |
| 2. Conformed Specifications | 8. Contractor's Requests for Additional Information |
| 3. Addenda | 9. Approved Shop Drawings |
| 4. Change Orders and other modifications to the Contract | 10. Field Test Records |
| 5. Progress Photographs | |
| 6. Construction Progress Schedules | |
- B. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.

1.13 START-UP

- A. **Start-Up DEMONSTRATION AND TESTING Certification**
1. After all Work components have been constructed, field tested and the start-up CHECK-OUT completed in accordance with the manufacturer requirements, perform Start-up DEMONSTRATION AND TESTING in the presence of the Engineer and the Owner.

2. The intent of the start-up demonstration and testing is for the Contractor to demonstrate to the Owner and Engineer that the Work will function as a complete and operable system under normal as well as emergency operating conditions and is ready for acceptance. The demonstration shall be conducted upon completion of all systems at a date to be agreed upon in writing by the Owner or his representative.

1.14 CONTRACT CLOSEOUT

A. SUBSTANTIAL COMPLETION

1. When the Contractor considers the Work as substantially complete, he shall submit to the Engineer a written notice stating so and requesting the Engineer to make an inspection to determine the status of completion. This request shall be accompanied by a list of items to be completed or corrected.
2. Should the Engineer determine that the work is not substantially complete, the Engineer will promptly notify the Contractor in writing, given the reasons therefore the Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer for reinspection.

B. FINAL INSPECTION

1. When the Contractor considers the Work complete, he shall submit written certification that:
 - a. Contract Documents have been reviewed.
 - b. Work has been inspected for compliance with Contract Documents.
 - c. Work has been completed in accordance with Contract Documents.
 - d. Equipment and systems have been tested in the presence of the Owner's Representative and are operational.
 - e. Work is completed and ready for final inspection.
2. The Engineer will make a final inspection to verify the status of completion after receipt of such certification.
3. Should the Engineer consider that the Work is incomplete or defective, he will promptly notify the Contractor in writing, listing the incomplete and defective work, to the best of his knowledge at that time. If the Engineer has inadvertently omitted any items from the list it shall not relieve the Contractor from his obligations shown on the Drawings and specified in the Project Manual. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the Engineer that the Work is complete.
4. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.
5. Should the Engineer perform reinspection due to failure of the work to comply with the claims of status of completion made by the Contractor, the Owner will deduct the amount of any compensation or costs paid for additional inspections or tests from the final payment to the Contractor.

C. CONTRACTOR'S CLOSE-OUT SUBMITTALS TO ENGINEER

1. Evidence of compliance with requirement of governing authorities.
2. Project Record Documents.
3. Operating and Maintenance Data.
4. Evidence of Payment and Release of Liens
5. Certificate of Insurance for Products and Completed Operations
6. Warranties and Bonds (required for the Correctional Period and Maintenance Period).
7. Spare Parts and Maintenance Materials.
8. *Supplier and Subcontractor Final Waiver and Release of Lien(s), and Contractor's, Supplier's and Subcontractor's Final Affidavit(s). (Required information shall conform to Chapter 713 of the Florida Statutes, Supplement 1996.)*

9. Final Application for Payment, including "Consent of Surety to Final Payment", "Final Statement of Accounting" and final Change Order, if required. The final Statement of Accounts shall reflect the following adjustments to the Contract Price:

- | | |
|------------------------------------|---|
| a. Previous Change Orders | e. Penalties and bonuses |
| b. Allowances | f. Deductions for liquidated damages |
| c. Unit prices | g. Deductions for reinspection payments |
| d. Deductions for uncorrected work | h. Other adjustments |

The Engineer will prepare a final Change Order, reflecting approved adjustments to the Contract Price which were not previously made by Change Orders.

1.15 SPECIAL PROJECT PROCEDURES

If construction work requires operations other than Regular Working Hours, the CONTRACTOR shall obtain written permission of the OWNER at least seventy-two (72) hours in advance of starting such work, and shall set forth the proposed schedule for overtime to give OWNER ample time to arrange for his/her personnel to be at the site of the Work. Work outside the Regular Working hours requiring presence of the OWNER's Resident Project Representative (RPR) shall require the CONTRACTOR to reimburse the OWNER for the salary and overtime cost for the RPR.

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Work under this Contract is described as:

**TOWN OF WINDERMERE
ORANGE COUNTY, FLORIDA**

BID #2019-02

MARINA BAY ESTATES UNDERDRAIN IMPROVEMENTS

This bid includes a drainage improvement project as follows:

The project involves the clearing of vegetation of the existing stormwater pond bottom and the construction of 6-inch underdrains with cleanouts and a 12-inch header pipe connected to the existing pond outfall control structure. The underdrain trench will be backfilled with clean sand and the pond bottom sodded.

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 Drawings sheets.

The Specifications and Drawings 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.

The CONTRACTOR is advised that the equipment arrangements as shown on the drawings may vary with different manufacturers and the CONTRACTOR is responsible at no cost to the OWNER for making the changes necessary to accommodate the specific equipment installed.

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 the OWNER.

- B. Contracts

Construct work under a single, unit price contract.

1.02 QUALITY ASSURANCE

- A. Laws and Regulations

The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the work. If the CONTRACTOR observes that the Specifications or Drawings are at variance therewith, the CONTRACTOR shall give the ENGINEER prompt written notice thereof, and any necessary changes shall be adjusted by an

appropriate modification. If the 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, the CONTRACTOR shall bear all costs arising therefrom; however, it shall not be the CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with such laws, ordinances, rules and regulations.

1.03 JOB CONDITIONS

A. Taxes

The CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by him in accordance with the law of the place of the project.

B. Labor, Materials and Equipment

The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the work and perform construction as required by the Contract Documents. The CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the work or property at the site or adjacent thereto, and except as otherwise indicated in the Supplementary Conditions, all work at the site shall be performed during regular working hours, and the CONTRACTOR will not permit overtime work or the performance of work on Saturday, Sunday or any legal holiday without the OWNER's written consent given after prior written notice to the ENGINEER.

Unless otherwise shown, the CONTRACTOR shall furnish all materials, equipment, labor transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of the work.

The CONTRACTOR shall be responsible for all materials furnished by him and shall replace at his own expense all such material found to be defective in manufacture or damaged in handling. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective prior to the final acceptance of the work.

C. Contractor Use of Premises

The CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workmen to areas permitted by law, ordinances, permits or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment.

The CONTRACTOR shall not enter upon private property for any purpose without first securing the permission of the property owner in writing and furnishing the ENGINEER with a copy of said permission. This requirement will be strictly enforced, particularly with regard to such vacant properties as may be utilized for material storage.

The CONTRACTOR shall conduct his work in such a manner as to avoid damage to adjacent private or public property. Any damage to existing structures or work of any kind, including permanent reference markers or property corner markers, or the interruption of utility service, shall be repaired or restored promptly at no additional expense to the OWNER.

The CONTRACTOR shall preserve and protect all existing vegetation such as trees, shrubs and grass on or adjacent to the site which do not reasonably interfere with the construction, as determined by the ENGINEER. The CONTRACTOR will be responsible for all unauthorized cutting or damaging of trees and shrubs, including damage due to careless operation of equipment, stockpiling of materials or tracking of grass by equipment. The CONTRACTOR will be liable for, or will be required to replace or restore at no additional expense to the OWNER, all vegetation not protected or preserved as required herein that may be destroyed or damaged.

The CONTRACTOR will not be required to move or remove any utilities except as specifically required by the Drawings and Specifications.

During the progress of the work, the CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from work. At the completion of the work, the CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by the OWNER. The CONTRACTOR shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents.

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

D. Notification of Construction

The CONTRACTOR shall notify, in writing, all residents and businesses adjacent to the project work area of pending construction no later than 48 hours prior to commencement of actual construction. Copies of the written Notice shall be provided to the ENGINEER for approval of wording prior to public distribution.

E. Notification of Street Closure

The CONTRACTOR is required to obtain permission from the Town prior to initiating street closures.

In the event a street closure is required, the CONTRACTOR shall notify, in writing, all emergency services and agencies, residents and businesses directly affected by any partial or full street closure caused by the construction no later than 48 hours prior to actual closure.

If the closure will last longer than 5 days, the CONTRACTOR shall also notify the general public of such closures by placing an advertisement in the "Area" section of the local newspaper no later than 48 hours prior to the closure. The advertisement shall include information describing the extent of the closure (i.e. between which streets; detour routes, etc.), the date the closure will begin, and estimated date the road will be reopened. Provide a copy of the proposed notification, for approval by the ENGINEER, before placing the advertisement.

The CONTRACTOR shall maintain full compliance with the traffic regulations found in Paragraph 1.06, Section 01500 of this Contract.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

A. Sequence of Operation

The Contractor shall submit a written sequence of operation to the Town of Windermere prior to beginning construction. This sequence of operation shall address the need for adequate restoration of disturbed areas prior to proceeding on to other areas of work and will require approval by the Town before initiation of construction. The Contractor will be required to submit his phasing plan that will include but is not limited to the following:

- Staging (as required per phase)
- Roadway Improvements (as needed)
- Drainage Improvements
- Utility Relocations (as needed)
- Utility Installations (not applicable)
- Restorations
- Punch List/Acceptance

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. **General:** All schedules and Schedules of Values are given for the convenience of the Engineer, Owner and the Contractor and are not guaranteed to be complete. The Contractor shall assume all responsibility for the making of estimates of the size, kind, and quantity of materials and equipment to be included in Work performed under this Contract.
- B. **Unit Price Contracts:** The quantities of work to be performed and materials to be furnished under a Unit Price Contract, as given in the Bid Form or Schedule, are to be considered as approximate only and are to be used solely for the comparison of Bids received and determining an initial Contract Price. The Owner/Engineer do not expressly or by implication represent that the actual quantities involved will correspond exactly therewith; nor shall the Contractor plead misunderstanding or deception because of such estimate or quantities or of the character, location or other conditions pertaining to the Work. Payment to the Contractor will be made only for the actual quantities of work performed or material furnished in accordance with the Drawings and other Contract Documents, and it is understood that the quantities may be increased or diminished as provided in the General Conditions without in any way invalidating any of the unit prices bid.
- C. **Lump Sum Work:** The quantities of work to be performed and materials to be furnished, including all labor, equipment and incidentals required to complete any lump sum work items are shown and/or specified for such lump sum work items in the Contract Drawings and specifications. Payment to the Contractor will be made and shall fully compensate the Contractor for the construction of the Work, completed and ready for continuous operation and use, in the manner contemplated by the Contract Documents.

1.02 SCHEDULE OF VALUES

- A. **Unit Price Work:** For Unit Price Contracts, the Bid Schedule shall be used as the basis for the Schedule of Values. The Contractor shall resubmit the Bid Schedule in the format described herein, and if requested by the Owner/Engineer, shall sub-divide the bid items in the Bid Schedule into sub-items to provide a more detailed basis of payment. Lump sum bid items included within the Bid Schedule shall be separated into major work/activity items and sub-items in a format as required for Lump Sum Contracts.
 - 1. **Removal and Replacement of Unsuitable Material:** For areas designated on the Drawings, or in Geotechnical Investigations for this project (Section 00200), remove unsuitable material and replace with compacted suitable material in performance of the Work. Measurement shall be made based on actual "in-place" quantities of unsuitable materials for volumes over 1,000 CY or "in-truck" quantities of unsuitable materials for volumes less than 1,000 CY without consideration of a swell factor. Unit Prices for this category are segmented into various excavation depths (i.e., 0 to 6 feet, 6 feet to 8 feet, 8 feet to 10 feet, ... etc.) to allocate cost in proportion to increased construction difficulty. The stage depth of excavation will be measured from the existing ground or pavement surface.

2. Pavement Restoration: Measurement and payment for pavement restoration shall include the temporary patch, subsequent milling and asphaltic overlay for a maximum 10 ft. pay width for single pipe installations (or maximum pay limits indicated on the Drawings). Asphaltic overlay beyond these pay limits for the utility installation shall be measured and paid under the corresponding bid item for Asphaltic Overlay.
- B. Alternate Bid Items: When Additive Alternates have been accepted by the Owner and are included in the Contract Amount indicated in the Notice of Award and the Agreement, each Additive Alternate shall be individually scheduled with the corresponding Unit Price information or Lump Sum Price and sub-item breakdown.

1.03 APPLICATIONS FOR PAYMENT

- A. Applications for Payment shall be submitted by the Engineer in accordance with the schedule established by the General Conditions and Agreement between the Owner and the Contractor.
1. The Contractor shall certify *by affidavit*, for each current pay request, that all previous payments received from the Owner, under his Contract, have been applied by the Contractor to discharge in full all obligations of the Contractor in connection with Work covered by prior applications for payment, and all materials and equipment incorporated into the Work are free and clear of all liens, claims, security interest and encumbrances. Contractor shall attach to each application for payment like affidavits by all Subcontractors and Suppliers. Contractor shall also attach a "Consent of Surety" to each application for payment. Additionally, a "*Waiver and Release of Lien Upon Progress Payment*" from each subcontractor and supplier shall be attached to each application for payment.
 2. Submit three (3) copies of each application to the Engineer. Each copy shall include original signatures. The Engineer shall review the application and verify quantities of installed work and stored materials. When the Engineer finds the application properly completed and correct, he will transmit recommendation of payment to Owner, with copy to Contractor.
- B. The Engineer's recommendation of any payment requested constitutes a representation to the Owner that the Quality of Work is generally in accordance with the Contract Documents subject to the results of any subsequent inspections or tests required by the Contract Documents. Should subsequent inspections or tests indicate that portions of the Work is not installed in accordance with the Contract Documents, the Engineer may nullify any such payment previously recommended to such extent as may be necessary in the Engineer's opinion to protect the Owner from loss because of Defective Work. In this regard, partial payment requests for the installation of materials and equipment shall be supported by acceptable field tests as required by each respective specification section. The supporting test or inspection results shall be submitted with the next scheduled partial payment request.
1. If the test or inspection results indicate Defective Work, the respective partial payment request shall be adjusted to nullify payment for the installation of the defective portion or segment of the Work.
 2. If supporting test or inspection results are not provided for the payment of installed materials or equipment in the subsequent partial payment request, then additional retainage shall be recommended by the Engineer for the Owner's

consideration. The additional retainage shall be equivalent to the value of the tests required to be performed by the Contractor but not provided, or an amount, in the opinion of the Engineer, that maybe necessary to protect the Owner from loss.

- C. The Application for Final Payment shall be prepared in accordance with Article 1.14 of the Section 01001 - General Requirements - Contract Closeout.

1.04 MEASUREMENT AND PAYMENT

A. Methods of Payment

1. Unit Price Contracts: Payment will be made for actual quantities of work properly installed as approved by the **Owner/Engineer**.
2. Lump Sum Work: Payment will be made for each individual item on a percentage of completion basis as estimated by the Contractor and approved by the **Owner/Engineer**.

B. Methods of Measurement

1. Units of measurement shall be defined in general terms as follows:

a. Linear Feet (LF)	e. Each (EA)
b. Square Feet (SF)	f. Tons (TN)
c. Square Yards (SY)	g. Lump Sum (LS)
d. Cubic Yards (CY)	h. Assembly (AS)
2. Unit Price Contracts
 - a. Linear Feet (LF) shall be measured along the horizontal length of the centerline of the installed material, unless otherwise specified.
 - b. Square Feet (SF), Square Yards (SY), Cubic Yards (CY), Each (EA) and Ton (TN) shall be measured as the amount of the unit of measure installed within the limits specified and shown in the Specifications and Drawings. Slope angles and elevations shall be measured using land surveying equipment. Contractor shall provide supporting documentation (i.e. drawings, truck tickets, invoices, etc.) to verify actual installed quantities.
 - c. No measurement is required for Lump Sum (LS) items.
3. Lump Sum Contracts: The Measurement of Work for lump sum work shall be based on the information provided in the Contract Documents and compiled through the Contractor's own field verifications, investigations and testing prior to Bidding.

1.05 COSTS INCLUDED IN PAYMENT ITEMS

- A. No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work.
- Clearing and grubbing (including disposal of material).

- Trench excavation, including necessary pavement removal and removal of vegetative surfaces.
- Maintenance of Traffic
- Dewatering and disposal of surplus water.
- Structural fill, backfill, and grading.
- Replacement of unpaved roadways, grass and shrubbery plots.
- Cleanup.
- Foundation and borrow materials, except as hereinafter specified.
- Testing and placing system in operation.
- Any material and equipment required to be installed and utilized for tests.
- Pipe, structures, pavement replacement, restoration and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
- Appurtenant work as required for a complete and operable system.
- Surface restoration including removal and replacement of trees (under 4-inch diameter), shrubs, and sod disturbed by construction activities.
- Relocation and/or replacement of irrigation systems disturbed by construction.
- Furnishing adequate sanitary facilities for workers.
- Adjustment of valve boxes.
- Supporting of existing utilities during construction

B. Cleanup

CONTRACTOR's attention is called to the fact that cleanup is considered a part of the work of construction. No payment will be made until cleanup is essentially complete.

At the end of each week of construction, the CONTRACTOR shall perform cleaning of the work site, to the satisfaction of the Owner, before proceeding to the next week's scheduled work.

C. Work Outside Authorized Limits

No payment will be made for work constructed outside the authorized limits of work.

1.06 APPLICATIONS FOR PAYMENT

Applications for payment shall be prepared by the CONTRACTOR and submitted to the ENGINEER in accordance with the schedule established by the Conditions of the Contract and the Agreement. The applications for payment shall be submitted in the number and form established by the ENGINEER at the Preconstruction Conference. The form shall be completely filled out and executed by an authorized representative of the CONTRACTOR. Supporting data such as schedules of stored materials shall be attached to each copy of the application.

1.07 CHANGE ORDER PROCEDURE

A. As defined in the General Conditions, a Change Order is a written order to the CONTRACTOR signed by the OWNER authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time which is issued after the execution of the Agreement.

B. The following procedure shall be used in processing Change Orders:

1. For Additions to the Work

The OWNER shall issue a written order to the CONTRACTOR directing him to accomplish the additional work. The CONTRACTOR shall review the order and if he feels that the additional work entitles him to additional payment or additional time, he may submit a claim as prescribed in the Conditions of the Contract.

2. For Deletions From the Work

The OWNER shall issue a written order to the CONTRACTOR directing him to make the change. If the OWNER feels that the Contract price should be reduced as a result of the change, the OWNER shall make a claim for the reduction as provided in the Conditions of the Contract.

Cost of the changes in the work shall be determined in accordance with the requirements spelled out in the Conditions of the Contract. Modifications to incorporate the changes in cost will be made as the amount of any change is determined.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 BID ITEMS – BASE BID

A. Bid Item No. 1. - Mobilization/Demobilization (5% of items below)

Definition. Mobilization shall be the preparatory work and operations in mobilizing for beginning work on the project, including, but not limited to, those operations necessary for the movement of personnel, equipment, supplies and incidentals to the project site, and for the establishment of temporary offices, buildings, safety equipment and first aid supplies, sanitary and other facilities, as required by the Contract Documents and applicable laws and regulations. The cost of bonds, required insurance, permits and any other preconstruction expense necessary for the start of work, excluding the cost of construction materials, shall also be included in this item. Demobilization shall be the work of removing temporary facilities from the site.

Payment. Partial payments for this item will be made in accordance with the following schedule:

<u>Percent of Original Contract Amount Earned</u>	<u>Allowable Percent of the Lump Sum Price for the Item</u>
Contract Approval	25
10	50
25	75
50	100

These payments will be subject to the standard retainage provided in the agreement. Payment of the retainage will be made after successful completion of the work and demobilization.

If the total area to be cleared is equal to or exceeds one (1) acre, then the Contractor will be responsible for preparing a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the U.S. EPA's NPDES regulations for *Stormwater Discharge from*

Construction Activities under this pay item. This SWPPP document is not required to be submitted to Florida Department of Environmental Protection (FDEP), but will be required to be retained on the project site. The Contractor will also be responsible for submitting an executed Notice of Intent (NOI) form to the FDEP, along with an application fee of \$150, forty-eight (48) hours prior to beginning construction. Upon substantial completion of the project, the Contractor will be responsible for submitting a Notice of Termination (NOT) to the FDEP, signifying termination of permit coverage for stormwater discharge from construction activities.

B. Bid Item No. 2. - Survey, Construction Layout and Certified As-Built

Payment for this item shall be made at the Contract lump sum (LS) price and shall be full compensation for all surveying and layout necessary for the establishment of construction references for this project. This includes the establishment, as necessary, of any temporary and/or permanent horizontal and vertical control. Should any existing permanent control be disturbed during the construction of this project, then the replacement of the permanent control is to be established by a licensed surveyor in the State of Florida. This pay item also includes conducting and preparing certified As-Builts upon completion of the project construction.

C. Bid Item No. 3. - Maintenance of Traffic

Payment for this item shall be made at the Contract lump sum (LS) price and shall be full compensation for all labor, materials and equipment necessary to provide the Maintenance of Traffic (MOT) required as part of the permit and to provide all other maintenance of traffic required as shown in the Contract Documents, Plans and as required by the Town of Windermere. All Maintenance of Traffic work shall conform to the requirements of Section 102 of the Florida Department of Transportation *Standard Specifications for Road and Bridge Construction* (2010). The Contractor will not be permitted to isolate residences or places of business. Access shall be provided to all residences and places of business whenever construction interferes with the existing means of access. The Contractor shall furnish, erect and maintain all necessary traffic control devices, including flagmen, in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) for Streets and Highways, published by the U.S. Department of Transportation, Federal Highway Administration. The Contractor shall provide and maintain in a safe condition temporary approaches, crossings, and intersections with trails, roads, streets, business parking lots, residences and garages. The Contractor shall take all necessary precautions for the protection of work and the safety of the public. Maintenance of Traffic shall conform to the Florida Department of Transportation *Design Standards for Design, Construction, Maintenance and Utility Operations on State Highway Systems*, latest edition, Index No. 600 through 660.

D. Bid Item No. 4. - Prevention, Control and Abatement of Erosion and Water Pollution

Payment for Prevention, Control and Abatement of Erosion and Water Pollution shall be made at the Contract lump sum (LS) price and shall conform to the requirements of Section of the FDEP *Stormwater Erosion and Sedimentation Control (Inspector's Manual)*. The Contractor shall present his/her schedules for constructing the project at the pre-construction conference and shall include a complete outline for the proposed construction of all pollution control and erosion abatement items required in the project as detailed in the FDEP *Stormwater Erosion and Sedimentation Control (Inspector's Manual)*. The Contractor shall be responsible for implementing the schedule after the Engineer's acceptance.

E. Bid Item No. 5. - Clearing and Grubbing

Measurement: The quantity for payment shall include all labor, materials, and equipment to clear the rights-of-way and easements for construction operations.

Payment: Payment of the applicable lump sum price shall be full compensation for furnishing all labor, materials, and equipment necessary to remove and dispose of all trees, snags, stumps, shrubs, brush, limbs, other vegetative growth, underdrain pipes, within the rights-of-way and drainage easements including hauling and disposal costs.

F. Bid Item No. 6. - Excavation, Embankment and Grading

Payment for Excavation, Embankment and Grading shall be made at the Contract lump sum (LS) price and shall be full compensation for grading of shoulders, graded road connections, slopes, compaction, final dressing, subsoil excavation (except in surcharge areas), select and replacement material, and all work required for completing the project that is not paid for under other pay items. Also included is removal and off-site disposal or on-site utilization of all materials, structures, abandoned utilities and obstructions as directed by the Engineer.

G. Bid Item No. 7. - Class NS Concrete (Miscellaneous)

Payment for the construction of Class NS (non-structural) concrete shall be made at the Contract unit price per cubic yard (CY), and shall include full compensation for all labor, material and equipment required to complete the work. Payment includes full compensation for all materials required, excavation, pouring of concrete and furnishing all equipment, labor and other incidentals as may be necessary to complete the concrete work as specified. The measurement for payment under this item shall be the actual number of cubic yards of concrete poured satisfactorily constructed and accepted.

H. Bid Item No. 8. - Underdrain, 6" (Complete)

Payment for Underdrain, 6" (Complete) shall be made at the Contract unit price per linear foot (LF), and shall include full compensation for all labor, material and equipment required to complete the work. Payment includes full compensation for all materials required, excavation, form work, concrete, fittings, appurtenances and furnishing all equipment, labor and other incidentals as may be necessary to construct and finish the underdrains as specified. The measurement for payment under this item shall be the actual number of linear feet of Underdrain, 6" constructed.

I. Bid Item No. 9. - Underdrain Cleanout, Complete

Payment for Underdrain Cleanout, Complete, shall be made at the Contract unit price per each (EA), and shall include full compensation for all labor, material and equipment required to complete the work. Payment includes full compensation for all materials required, excavation, form work, concrete, fittings, appurtenances and furnishing all equipment, labor and other incidentals as may be necessary to construct and finish the underdrain cleanouts as specified. The measurement for payment under this item shall be the actual number of each Underdrain Cleanout, Complete, constructed.

J. Bid Item No. 10. - Underdrain Outlet Pipe, 12" (Complete)

Payment for Underdrain Outlet Pipe, 12", Complete, shall be made at the Contract unit price per linear feet (LF), and shall include full compensation for all labor, material and equipment required to complete the work. Payment includes full compensation for all materials required, excavation, form work, concrete, fittings, appurtenances and furnishing all equipment, labor and other incidentals as may be necessary to construct and finish the underdrain cleanouts as specified. The measurement for payment under this item shall be the actual number of each Underdrain Outlet Pipe, 12" (Complete) constructed.

K. Bid Item Nos. 11. - Performance Turf, Sod

Payment for Performance Turf, Sod will be made at the Contract unit price per square yard (SY) and shall be full compensation for furnishing all plant, labor and materials and equipment that is necessary to grade the right-of-way, pond area, swales, restore lawn areas, disturbed areas and other areas affected by the proposed work (roadway, drainage and utility improvements). Any costs to match existing sod type shall also be paid for under this pay item.

END OF SECTION

SECTION 01027

APPLICATION FOR PAYMENT

PART 1 - GENERAL

- A. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submit Schedule, and List of Subcontractors.

1.01 SCHEDULE OF VALUES

- A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
- B. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
- Contractor's Construction Schedule.
 - Application for Payment forms, including Continuation Sheets.
 - List of Subcontractors.
 - List of Products.
 - List of Principal Suppliers and Fabricators.
 - Schedule of submittals.
- C. Submit the Schedule of Values at the earliest possible date, but no later than seven (7) calendar days after the date of the pre-construction conference.

1.02 FORMAT AND CONTENT

- A. Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one (1) line item for each Specification Section.
- Include the following Project identification.
- Project Name and Location.
 - Name of Engineer.
 - Project Number.
 - Contractor's name and address.
 - Date of Submittal.
- B. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed.
- Related Specification Section or Division.
 - Description of Work.
 - Name of Subcontractor.
 - Change Orders (numbers) that affect the value.
 - Dollar value.
 - Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
- C. Provide a breakdown of the Contract Sum in sufficient detail to facilitate evaluation of Applications for Payment. Break subcontract amounts down into several line items. Round amounts to nearest whole dollar; the total shall equal the Contract sum.

- D. Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives change the Contract sum.
- E. Applications for Payment shall be consistent with previous applications and payments as certified by the Engineer and paid for by the Owner.

1.03 PAYMENT – APPLICATION TIMES

- A. Payment dates are indicated in the Agreement. The period covered by each application is the period indicated in the Agreement.

1.04 APPLICATION PREPARATION

- A. Complete every entry, including notarization and execution by a person authorized to sign on behalf of the Contractor. The Engineer will return incomplete applications without action.
- B. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
- C. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

1.05 TRANSMITTAL

- A. Submit seven (7) executed original copies of each Application for Payment to the Engineer within twenty-four (24) hours. All copies shall be complete, including waivers of lien and similar attachments.
- B. Transmit each copy with a transmittal listing attachments and recording appropriate information related to the application.

1.06 INITIAL APPLICATION FOR PAYMENT

- A. Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include:
 - List of Subcontractors.
 - List of Principal Suppliers and Fabricators.
 - Schedule of Values.
 - Contractor's Construction Schedule (preliminary, if not final).
 - Submittal Schedule (preliminary, if not final).
 - Copies of building permits.
 - Copies of licenses from governing authorities.
 - Certificate of insurance and insurance policies.
 - Performance and payment bonds.

1.07 APPLICATION FOR PAYMENT AT SUBSTANTIAL COMPLETION

- A. Following issuance of the Certificate of Substantial Completion, submit an Application for Payment. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designation portions of the Work.

B. Administrative actions and submittals that shall precede or coincide with this application include the following:

- Occupancy permits (if applicable).
- Warranties and maintenance agreements.
- Test/Adjust/Balance records.
- Maintenance instructions.

1.08 FINAL PAYMENT APPLICATION

A. Administrative actions and submittals that must precede or coincide with the submittal of the final Application for Payment include the following:

- Completion of Project closeout requirements – see Section 01700.
- Completion of items specified for completion after Substantial Completion.
- Transmittal of Project construction records to the Owner.
- Proof that taxes, fees and similar obligations were paid.
- Removal of temporary facilities and services.

PART 2 – PRODUCTS

(Not applicable)

PART 3 – EXECUTION

(Not applicable)

END OF SECTION

SECTION 01040

COORDINATION

PART 1 - GENERAL

1.01 PROJECT COORDINATION

- A. The Contractor shall provide for the complete coordination of the construction efforts. This shall include, but not necessarily be limited to, coordination of the following:
1. The work of subcontractors;
 2. The flow of material and equipment from suppliers;
 3. The interrelated work with public utilities companies;
 4. The interrelated work with the Owner where tie-ins to existing facilities are required; and
 5. The effort of independent testing agencies.
- B. The Contractor will be allowed the widest practicable latitude in establishing his work plan. Contractor shall submit a plan of work to Owner and Engineer.

1.02 CUTTING AND PATCHING

- A. The Contractor shall do all cutting, fitting and patching of his work that may be required to make its several parts come together properly and integrate with such other work. The 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 the Engineer and the others whose work will be affected.

PART 2 - MATERIALS AND EQUIPMENT

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01050

FIELD ENGINEERING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The Contractor shall provide and pay for field engineering service required for the project. Such work shall include survey work to establish lines and levels and to locate and lay out site improvements, structures, and controlling lines and levels required for the construction of the work. Also included are such Engineering services as are specified or required to execute the Contractor's construction methods. Engineers and Surveyors shall be licensed professionals under the laws of the state where the project is located.

1.02 GRADES, LINES AND LEVELS

- A. Existing basic horizontal and vertical control points for the project are those designated on the Drawings. The Contractor shall locate and protect control points prior to starting site work and shall preserve all permanent reference points prior to starting site work and shall preserve all permanent reference points during construction. In working near any permanent property corners or reference markers, the Contractor shall use care not to remove or disturb any such markers. In the event that markers must be removed or are disturbed due to the proximity of the construction work, the Contractor shall have them referenced and reset by a Land Surveyor qualified under the laws of the state of the project.

1.03 LAYOUT DATA

- A. The Contractor shall lay out the work at the location and to the lines and grades shown on the Drawings. Survey notes indicating the information and measurements used in establishing locations and grades shall be kept and furnished with the record drawings for the project.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01200
PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Project meetings shall be scheduled as needed throughout the progress of the work. Those responsible for scheduling the meetings shall prepare the agenda, distribute written notice of each meeting not less than four days in advance of the meeting date, make physical arrangements for the meeting, preside at the meeting, record the minutes (include all significant proceedings and decisions), and reproduce and distribute copies of the minutes to all participants, all parties affected by decisions made, and the Engineer.
- B. Representatives attending the meetings shall be qualified and authorized to act on behalf of the entities they represent.

1.02 PRE-CONSTRUCTION CONFERENCE

- A. Before the Contractor starts the work at the site, the Engineer will schedule a preconstruction conference which will be held for review and acceptance of the schedules referred to in Section 01300, to establish procedures for handling shop drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the work.
- B. The date for the start of construction shall be established at this conference.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The type of submittal requirements specified in this section include the following:
- Progress Schedules and Reports
 - Product Data
 - Shop Drawings
 - Manufacturer's Data
 - Miscellaneous
- B. Submittals shall be clear and legible, printed or typed. Submittals received that are not so, shall be returned to be resubmitted when in legible form.

1.02 PROGRESS SCHEDULES AND REPORTS

- A. Within ten (10) days after the effective date of the Agreement, the Contractor shall submit to the Engineer for review and acceptance an estimated progress schedule indicating the starting and completion dates of the various stages of the work, a preliminary schedule of shop drawing submissions, and a preliminary schedule of values of the work. Include sub-schedules of related activities which are essential to its progress.
- B. Revised schedules shall be submitted periodically as changes become apparent.
- C. Unless other format or use of a network analysis system is required, schedules shall be prepared in the required format specified in 1.10 of Section 01001 - General Requirements. A separate horizontal bar shall be provided for each trade or operation. The first work day of each week shall be identified on the horizontal time scale. Scale and spacing will be such as to allow space for notations and revisions.
- D. Schedules shall show the complete sequence of construction by activity with dates for the beginning and completion of each major element of construction. Projected percentage of completion for each item as of the first day of each month shall be shown.
- E. Progress Reports

The Contractor shall prepare and submit a monthly progress report. The report shall indicate the progress at the date of submission of each activity shown on his progress schedule. It shall show changes occurring since previous submissions, activities modified since previous submissions, and revised projections of progress and completion. The submittal shall include a narrative report to define: problem areas, anticipated delays, and the impact on the schedule, and corrective action recommended and its effect.

1.03 PRODUCT DATA (Shop Drawings and Manufacturer's Data)

- A. The Contractor shall prepare and submit to the Engineer a schedule of the shop drawings, product data and samples which are required for the work together with anticipated submittal time. Any drawings which require critical timing for maintaining delivery or construction schedules shall be so noted. Shop drawing submittal schedule shall be coordinated with the requirements of construction progress schedules.

- B. Those submittals required under various sections of the specifications, but not listed on the Contract Submittal List shall be submitted as "RECORD SUBMITTALS" and given to the Engineer along with the Record Drawings as specified in Section 01700 - Contract Closeout.
- C. Product data submitted for substitutions shall be handled as specified in Section 01630 - Substitutions and Product Options.
- D. Definitions
 - 1. Work-related submittals of this section are categorized for convenience as follows:
 - a. Shop drawings include specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to several projects.
 - b. Product data include standard printed information on materials, products and systems; not specially-prepared for this project, other than the designation of selections from among available choices printed in the information.
 - c. Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standard, record drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

1.04 GENERAL SUBMITTAL REQUIREMENTS

- A. After checking and verifying all field measurements, the Contractor shall submit to the Engineer for review and approval, in accordance with the accepted schedule of shop drawing submissions, five (5) copies of all shop drawings, which shall have been checked by and stamped with the approval of the Contractor and identified as the Engineer may require. The data shown on the shop drawings will be complete with respect to dimensions, design criteria, materials of construction and like information to enable the Engineer to review the information as required.
- B. The Contractor shall also submit to the Engineer for review and approval with such promptness as to cause no delay in work, all samples required by the Contract Documents. All samples will have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, and pertinent catalog numbers and the use for which intended. At the time of each submission, the Contractor shall, in writing, call the Engineer's attention to any deviations that the shop drawings or samples may have from the requirements of the Contract Documents.

- C. The Engineer will review and approve with reasonable promptness shop drawings and samples, but the Engineer's review and approval shall be only for conformance with the design concept of the project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs incident to the work. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. The Contractor shall make any corrections required by the Engineer and shall return the required number of corrected copies of shop drawings and resubmit new samples for review and approval. The Contractor shall direct specific attention, in writing, to revisions other than the corrections called for by the Engineer on previous submittals. The Contractor's stamp of approval on any shop drawing or sample shall constitute a representation to the Owner and the Engineer that the Contractor has either determined and verified all quantities, dimension, field construction criteria, materials, catalog numbers, and similar data or assumes full responsibility for doing so, and that the Contractor has reviewed or coordinated each shop drawing or sample with the requirements of the work and the Contract Documents.
- D. Where a shop drawing or sample is required by the Specifications, no related work shall be commenced until the submittal has been reviewed and approved by the Engineer.
- E. The Engineer's review and approval of shop drawings or samples shall not relieve the Contractor from responsibility for any deviations from the Contract Documents unless the Contractor has in writing called the Engineer's attention to such deviations at the time of submission and the Engineer has given written concurrence and approval to the specific deviation, nor shall any concurrence or approval by the Engineer relieve the Contractor from responsibility for errors or omissions in the shop drawings.
- F. Systems to be submitted in the shop drawing submittal shall include but not necessarily be limited to:
 - a. Each item of equipment and/or materials listed in the project equipment and material schedules.
- G. Certifications
 - a. Whenever a standard of quality is established by a reference specification, the Contractor shall submit a certificate by the manufacturer that the material supplied meets the requirements of both the project and reference specification.

H. Schedule of Values

- a. At least ten (10) days prior to submitting the first Application for a progress payment, the Contractor shall submit to the Engineer a schedule of values of the work. This schedule shall be satisfactory in form and substance to the Engineer. The schedule of values shall include quantities and unit prices aggregating the contract price, and shall subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction. Upon acceptance of the schedule of values by the Engineer, it shall be incorporated into a form of Application for Payment acceptable to the Engineer.
- b. Where estimated quantities and unit prices are shown in the Bid Form as the basis of payment, the quantities shown in the Bid Form are approximate and are given only as a basis of calculation upon which the award of the contract is to be made. The Owner or Engineer do not assume any responsibility that the final quantities will remain in accordance with estimated quantities, nor shall the Contractor claim misunderstanding or deception because of such estimate of quantities. Final payment will be made on the basis of the actual completed quantities of each item.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.01 TESTING LABORATORY SERVICES

- A. Arrangements for testing laboratory services will be made by the OWNER. Payment for testing to show compliance with specified requirements will be paid for by the OWNER. The cost of retesting when materials and workmanship fail to meet specified requirements will be deducted from monies due the Contractor or billed directly to the Contractor by the soils testing laboratory.

1.02 INSPECTION SERVICES

- A. The authorized representative of all applicable Federal and/or State agencies, including the United States Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USACE), the Florida Department of Environmental Protection (FDEP) and the South Florida Water Management District (SFWMD), shall be permitted to inspect all work, materials, payrolls, records of personnel, invoice of materials, and other relevant data and records. The Owner and his authorized representatives shall be permitted free access and every reasonable facility for the inspection of all work and materials, including the removal or uncovering of such portions of the finished work as may be directed. The Owner and his authorized representative shall also be permitted to inspect payrolls, invoices of materials and other relevant data and records.

1.03 INSPECTION OF WORK AWAY FROM SITE

- A. If work to be done away from the construction site is to be inspected on behalf of the Owner during its fabrication, manufacture or testing or before shipment, the Contractor shall give notice to the Engineer of the time and place where such fabrication, manufacturing, testing or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time so that the necessary arrangements for the inspection can be made.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01490

CONTRACTOR SAMPLING AND TESTING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Scope of Work: This work consists of obtaining samples for testing for all items. The costs of the tests will be borne by the Owner.

PART 2 - SAMPLING AND TESTING

2.01 SAMPLING

- A. Sample material to be tested. Contractor shall sample any material that appears defective or inconsistent with similar material being produced, unless such material is voluntarily removed and replaced or corrected.

2.02 TESTING: Allow the Owner and/or Owner's Engineer the opportunity to witness all testing.

2.03 RECORDS: Contractor shall record test results on acceptable forms. Furnish all test results in the minimum time reasonably necessary to perform the tests and transmit the results. When tests are on material being incorporated in the work, report test results within twenty-four (24) hours. Payment for work may be delayed or the work suspended until test results are provided.

2.04 ACCEPTANCE: Contractor sampling and testing will be evaluated under the following subsections based on Owner verification testing.

- A. Visual Inspection: Acceptance is based on visual inspection of the work for compliance with the contract and prevailing industry standards.

- B. Measured or Tested Conformance

- 1. Provide all necessary production, processing, and control performance of the work so as to comply with the contract requirements.
- 2. Results from inspection or testing shall have values within the specified tolerances or specification limits. When no tolerance values are identified in the contract, the work will be accepted based on customary manufacturing and construction tolerances.

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END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. This section specifies the minimum requirements for temporary facilities, utilities to be brought to the site, refuse/waste collection and control required to enable the construction of the project to progress adequately. The providing of adequate facilities at every stage of performing the work is the Contractor's sole responsibility, and is not limited by the requirement of this section.
- B. Except as otherwise indicated, the Contractor may, at his option, provide stand-alone utility plants to provide needed services, in lieu of connected services from available public utilities, provided such stand-alone plant facilities comply with governing regulations. Prior to availability of temporary utility services, provide trucked-in/trucked-out containerized or unitized services for startup of construction operations at the site.
- C. Except as otherwise indicated, the costs of providing and using temporary utility services are included in the Contract Sum.

1.02 TEMPORARY FACILITIES

- A. The types of utility services required for general temporary use at the project site include the following (other specific services may be required for specific construction methods or operations):
 - Electrical Power Service
 - Water Service (potable for certain uses)
 - Sanitary
 - Storm Sewer or Open Drainage/Run-off Control
 - Refuse/Waste Collection
- B. Temporary Electricity
 1. The Contractor shall make necessary applications and arrangements and pay all fees and charges for electrical energy for power and light necessary for proper completion of the work and during its entire progress up to time of final acceptance by the Owner. The Contractor shall provide and pay for all temporary switches, connections and meters.
- C. Temporary Water
 1. The Contractor shall make all necessary application and arrangements, and pay all fees and charges for water necessary for the proper completion of the project up to the time of final acceptance. The Contractor shall provide and pay for any temporary piping and connections.
- D. Temporary Sanitary Facilities
 1. The Contractor shall provide adequate sanitary facilities for the use of those employed on the work. Such facilities shall be made available when the first employees arrive on the site of the work, shall be properly secluded from public

observation, and shall be constructed and maintained during the progress of the work in suitable numbers and at such points and in such manner as may be required or approved.

2. The Contractor shall provide these portable sanitary facilities "on-site" for use by workers. Transporting workers to the nearest "public" sanitary facility will not be considered an acceptable alternative to these requirements.
3. The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. He shall rigorously prohibit the committing of nuisances on the site of the work, on the lands of the Owner, or on adjacent property. The cost of providing these sanitary facilities shall be included in the Contractor's applicable pay items of work and no separate payment shall be made thereof.

E. Temporary Refuse/Waste Collection

1. The Contractor shall provide for adequate refuse/waste collection and disposal.
2. It will be the Contractor's responsibility to make all necessary arrangements for refuse/waste collection and disposal. The cost of providing for such refuse/waste collection and disposal shall be included in the Contractor's applicable pay items of work and no separate payment shall be made thereof.

F. Termination and Removal

1. At the time the need for temporary utility service or a substantial portion thereof has ended, or when its service has been replaced by use of permanent services, or not later than the time of substantial completion, promptly remove the installation unless requested by the Engineer to retain it for a longer period. Complete and restore work which may have been delayed or affected by the installation and use of the temporary utility, including repairs to construction and grades and restoration and cleaning of exposed surfaces. Replace work damaged beyond acceptable restoration.

1.03 TEMPORARY CONTROLS

A. Noise Control

1. The Contractor shall provide adequate protection against objectionable noise levels caused by the operation of construction equipment.

B. Dust Control

1. The Contractor shall provide for adequate protection against raising objectionable dust clouds caused by moving construction equipment, high winds or any other cause.

C. Water Control

1. The Contractor shall provide for satisfactory disposal of surplus water and shall submit a plan to the Engineer for his review prior to initiation and implementation of the plan. Prior approval shall be obtained from the proper authorities for the use of public or private lands or facilities for such disposal.

D. Pollution Control

1. The Contractor shall provide for adequate protection against polluting any public or private lands, lakes, ponds, rivers, streams, creeks, and other such areas, by the disposal of surplus material in the form of solids, liquids, or gases or from any other cause. The Contractor shall provide for adequate refuse/waste collection and disposal as described in Part 1, paragraph 1.02 of this Section.
2. The Contractor shall evaluate and assess the impact of any adverse effects on the natural environment which may result from construction operations and shall operate to minimize pollution of air, ground or surface waters vegetation, and afford the neighboring community the maximum protection during and up to completion of the construction project.
3. The Contractor shall take sufficient precautions to prevent pollution of streams, lakes and reservoirs with fuels, oils, bitumens, calcium chloride or other harmful materials. He shall conduct and schedule his operations so as to avoid or otherwise prevent pollution of siltation of streams, lakes and reservoirs and to avoid interference with movement of migratory fish.
4. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

E. Erosion Control

1. The Contractor shall not expose, by construction operations, a larger area of erosive land at any one time than the minimum necessary for efficient construction operations, and the duration of exposure of the uncompleted construction to the elements shall be as short as practicable.
2. Erosion control features shall be constructed concurrently with other work and at the earliest practicable time.

1.04 STORAGE FACILITIES

- A. All products, materials and equipment shall be stored in accordance with the manufacturer's instructions, with seals and labels intact and legible. Products subject to damage by the elements shall be stored in weathertight enclosures. Temperature and humidity shall be maintained within the ranges required by the manufacturer's instructions. Fabricated products shall be stored above the ground on blocking or skids. Products which are subject to deterioration shall be covered with impervious coatings with adequate ventilation to avoid condensation. Loose granular materials shall be stored in a well-drained area on solid surfaces to prevent mixing with foreign matter. Any products which will come in contact with potable water shall be stored off the ground so as to prevent contamination.
- B. Storage shall be arranged in such a manner to provide easy access for inspection. Periodic inspections shall be made of all stored products to assure that they are maintained under specified conditions, and free from damage or deterioration.
- C. After installation, Contractor shall provide substantial coverings as necessary to installed products to protect from damage from traffic and subsequent construction operations. Coverings shall be removed when no longer needed.

1.05 PRESERVATION OF PROPERTY

- A. Preserve from damage all property along the line of the work, or which is in the vicinity of or in any wise affected by the work, the removal or destruction of which is not called for by the plans. Wherever such property is damaged due to the activities of the Contractor, it shall be immediately restored to its original condition by the Contractor at no cost to the Owner.
- B. In case of failure on the part of the Contractor to restore such property, or make good such damage or injury, the Owner may, after 48 hours notice to the Contractor, proceed to repair, rebuild or otherwise restore such property as may be deemed necessary and the cost thereof will be deducted from any monies due or which may become due the Contractor under this Contract.
- C. The Contractor shall be responsible for the protection of property, in the areas in the vicinity of the project; and for the protection of his equipment, supplies, materials and work, against any damage resulting from the elements, such as flooding, by rainstorm, wind damage, or other elemental cause resulting from the project configuration. The Contractor shall take all precautions against any such damage occurrence, and shall be responsible for damage resulting from same. The Contractor shall provide adequate drainage facilities, tie-downs, or other protection, throughout the Contract period, for the protection of his, the Owner's, and other properties from such damage.

1.06 TRAFFIC REGULATION

- A. Signs, marking barricades and procedures shall conform to the requirements of the Florida Department of Transportation Manual on Traffic Controls and Safe Practices for Street and Highway Construction, Maintenance and Utility Operations.
- B. The Contractor shall maintain one-lane, two-way traffic at all times and maintain customer access to local businesses at all times throughout the course of the work.
- C. The Contractor shall provide and maintain adequate barricades, construction signs, torches, flashers, guards and flagmen as required in pedestrian and vehicular traffic areas. Regulations of local authorities shall be complied with.
- D. The contractor shall provide suitable crossings at street intersections and driveways, and supply such aid as may be required for pedestrians and motorists, including delivery vehicles, to safely negotiate the construction areas.
- E. The Contractor shall carry on the work in a manner that will cause the least interruption in traffic. Closing to through travel of more than two consecutive blocks, including the cross streets intersected will not be permitted without specific authorization from the local authorities. Where traffic must cross open trenches, the Contractor shall provide suitable bridges at street intersections and driveways and provide adequate ingress and egress to dwellings, business facilities, utilities and services. At any time the streets are required to be closed, the Contractor shall notify, in writing, law enforcement agencies, fire departments, and parties operating emergency vehicles before the street is closed and again as soon as it is opened. Access to fire hydrants and other fire extinguishing equipment shall be provided and maintained at all times. Refer to Section 01010 of these Specifications for "Notification of Construction" and "Notification of Street Closure" requirements.

- F. On completion of work, the Contractor shall remove all debris, excess materials, barricades and temporary work leaving walkways and road clear of obstructions.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01558

TRAFFIC CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION: (Contractor shall)

- A. Maintain traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. Construct and maintain any necessary detour facilities. Provide necessary facilities for access to residences, businesses, etc., along the project. Furnish, install, and maintain traffic control and safety devices during construction. Furnish and install work zone pavement markings for maintenance of traffic in construction areas. Furnish and apply calcium chloride on the subgrade, unsurfaced base, or other unsurfaced traveled ways in order to control dust during construction operations. Provide any other special requirements for safe and expeditious movement of traffic as may be specified on the plans. Develop Maintenance of Traffic Plans if required. The term, Maintenance of Traffic, includes all of such facilities, devices and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance.

1.02 CONTRACTOR'S RESPONSIBILITY: (Contractor shall)

- A. Maintain traffic starting the day work begins on the project or on the first day Contract time is charged, whichever is earlier.
- B. Continually and adequately review traffic control devices to ensure proper installation and working order, including monitoring of lights. Provide an individual responsible for this review who is certified as an American Traffic Safety Services Association Certified Work Site Supervisor.

PART 2 - SPECIFIC REQUIREMENTS

2.01 MAINTENANCE OF ROADWAY SURFACES: (Contractor shall)

- A. Maintain all lanes that are being used for the maintenance of traffic, including those on detours and temporary facilities, under all weather conditions. Keep the lanes reasonable free of dust, and, when necessary to accomplish this, sprinkle them with water, or apply some other dust palliative. Provide the lanes with the drainage facilities necessary to maintain a smooth riding surface under all weather conditions. Refer to the Contract Documents to see if they require a paved surface for lanes being used for the maintenance of traffic.

2.02 STANDARDS

- A. Contractor's traffic control Work and if required, the Contractor prepared Work Zone Traffic Control Plan shall conform to detailed procedures and protective measures for protection and control of traffic affected by the Work consistent with the following applicable standards.
 - 1. Florida Department of Transportation (FDOT) *Standard Specifications for Road and Bridge Construction*, Latest Edition including all subsequent supplements issued thereto.
 - 2. Manual of Traffic Control and Safe Practices for Street and Highway construction. Maintenance and Utility Operations, FDOT.

3. FDOT Roadway and Traffic Design Standards, Latest Edition.
 4. Manual on Uniform Traffic Control Devices (MUCTD), Latest Edition.
- B. All references to the respective agency in the above referenced standards shall be construed to also include the Owner of this work.

2.03 NOTICE REQUIREMENT AND PERMITS

- A. Before closing any thoroughfare, the Contractor shall give written notice to and, if necessary, obtain a permit or permits from the duly constituted public authority having jurisdiction over the thoroughfare. Notice shall be given no less than 72 hours in advance of the time when it may be necessary in the process of construction to close such thoroughfare, or as may be otherwise provided in the approved Traffic Control Plan.

2.04 WORK ZONE TRAFFIC CONTROL PLAN

- A. If Maintenance of Traffic (MOT) Plans is not provided as part of the Contract Documents, the Contractor shall be responsible for development of project MOT Plan. If a MOT Plan is provided as part of the Contract Documents and the Contractor requests modification(s) to same, the Contractor shall be responsible for development of such modification(s) to Project MOT Plan.
- B. Contractor shall provide three (3) complete copies of signed and sealed MOT Plan(s) for review by Owner and/or Owner's Engineer. MOT Plan must be provided to scale in plan view as a Contract Plan overlay. Drop-offs in work zones must also be addressed in profile and cross section as required. The Contractor shall provide additional MOT Plans as required to other jurisdictional agencies for separate review and approval. List of other jurisdictional agencies to be provided with MOT Plans as follows:
- C. The MOT Plan developed by the Contractor shall be submitted to Owner and/or Owner's Engineer for review/approval twenty-eight (28) calendar days prior to the implementation of the contemplated MOT Plan. Owner and/or Owner's Engineer shall be allotted fourteen (14) calendar days to review the MOT Plan from date of receipt of same. If the MOT Plan is not approved or if additional information is required for re-submittal, the referenced twenty-eight (28) calendar day implementation period shall re-start as of the date of the Owner and/or Owner's Engineers receipt date of the MOT Plan re-submittal. MOT Plan to be submitted to other jurisdictional agencies shall be provided within time limits as established by the individual agencies. The Contractor shall directly contact individual agencies to determine such time limits.
- D. Contractor shall submit names of individuals to serve as Engineer, Professional Engineer and Work Zone Traffic Control Supervisor (WTS). Provide copies of required certifications and resumes listing previous experience for these individuals at the Project Pre-construction Conference or with the initial MOT Plan submittal, whichever is earlier.

END OF SECTION

SECTION 01600

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. Materials and equipment furnished by CONTRACTOR shall be new and shall not have been in service at any other installation unless otherwise provided. Materials and equipment shall conform to applicable specifications and standards and comply with the size, make, type and quality specified, or as specifically approved in writing by ENGINEER.
- B. Manufactured and fabricated items shall be designed, fabricated and assembled in accordance with the best engineering and shop practices. Like parts of duplicate units shall be manufactured to standard sizes and gauges to be interchangeable.
- C. Two or more things of the same kind shall be identical, by the same manufacturer.
- D. Materials and equipment shall be suitable for service conditions shown or specified.
- E. Equipment which requires auxiliary devices or equipment in order to operate properly shall have such auxiliary devices or equipment included as a part of its system.
- F. Equipment sizes, capacities and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
- G. Materials and equipment shall not be used for any purpose other than that for which it is designed or is specified.
- H. Where existing materials or equipment is specifically shown or specified to be reused in the work, special care shall be used in removal, handling, storage, and reinstallation, to assure proper function in the completed work.
- I. CONTRACTOR shall arrange for transportation, storage and handling of products which require off-site storage, restoration or renovation.
- J. Salvaged Materials
 - 1. In the absence of special provisions to the contrary, salvaged materials, equipment or supplies are the property of OWNER and shall be cleaned and stored as directed by ENGINEER.
- K. Manufacturer's Instructions
 - 1. The installation of all work shall comply with manufacturer's written instructions. CONTRACTOR shall obtain and distribute copies of such instructions to parties involved in the installation including two copies to ENGINEER. One complete set of instructions shall be maintained at the job site during installation and until completion All products and equipment shall be handled, installed, connected, cleaned, conditioned and adjusted in accordance with the manufacturer's instructions and specified requirements. Should job conditions or specified requirements conflict with manufacturers instructions, such conflicts shall be called to ENGINEER'S attention for resolution and revised instructions.

L. Equipment Guarantee

1. All mechanical and electrical equipment, together with devices of whatever nature and all components, which are furnished and/or installed by CONTRACTOR shall be guaranteed. The guarantee shall be against manufacturing and/or design inadequacies, materials and workmanship, improper assembly, hidden damage, failure of devices and/or components, excessive leakage or other circumstances which would cause the equipment to fail under normal design and/or specific operating conditions for a period of one year or such longer period as may be shown and/or specified from and after the date of acceptance of the equipment by OWNER. Each piece of equipment, device or component which shall fail within the above specified term shall be replaced with reasonable promptness by CONTRACTOR without cost to OWNER.

M. Operating Characteristics

1. Rotating machinery shall be designed and fabricated to provide satisfactory operation without excessive wear and without excessive maintenance during its operating life. Rotating parts shall be statically and dynamically balanced and shall operate without excessive vibration.

N. Lubrication System

1. The minimum design criteria for lubrication of moving parts of the equipment shall include one week of continuous operation during which no lubricants shall be added to the system. The system shall also be designed to receive lubricants whether in operation or shut down, and shall not leak or waste lubricants under either condition. The manufacturer's recommendations of grade and quality and a supply of the lubricants so recommended in quantities sufficient to conduct startup and testing operations shall be furnished with the equipment.

O. Safety Requirements

1. Screens, guards or cages shall be provided for all exposed, rotating or moving parts in accordance with accepted practices of applicable governmental agencies.

P. Nameplates

1. Each major component of equipment shall have the manufacturers name, catalog and/or model number, serial number and applicable performance requirements and characteristics embossed, stamped, or engraved on a stainless steel plate securely attached to the item of equipment.

Q. Anchor Bolts

1. The manufacturer shall provide stainless steel anchor bolts for each piece of equipment furnished.

1.02 TRANSPORTATION AND HANDLING

- A. Materials and equipment shall be loaded and unloaded by methods affording adequate protection against damage. Every precaution shall be taken to prevent injury to the materials or equipment during transportation and handling. Suitable power equipment will be used and the materials or equipment shall be under control at all times. Under no

condition shall the materials or equipment be dropped, bumped or dragged. When a crane is used, a suitable hook or lift sling shall be used. The crane shall be so placed that all lifting is done in a vertical plane. Materials or equipment skid loaded, palletized or handled on skidways shall not be skidded or rolled against materials or equipment already unloaded.

- B. Materials and equipment shall be delivered to the job site by means that will adequately support it and not subject it to undue stresses. Contractor shall promptly inspect the products for damage and defects and conformance with the specification. Materials and equipment damaged or injured in the process of transportation, unloading or handling will be rejected and shall be immediately removed from the site.

1.03 STORAGE AND PROTECTION

- A. All materials and equipment shall be stored in accordance with the manufacturer's instructions, with seals and labels intact and legible. Items subject to damage by the elements shall be stored in weathertight enclosures. Temperature and humidity shall be maintained within the ranges required by the manufacturer's instructions. Fabricated items shall be stored above the ground on blocking or skids. Items which are subject to deterioration shall be covered with impervious coatings with adequate ventilation to avoid condensation. Loose granular materials shall be stored in a well-drained area on solid surfaces to prevent mixing with foreign matter. Any items which will come in contact with potable water shall be stored off the ground so as to prevent contamination.
- B. Storage shall be arranged in such a manner to provide easy access for inspection. Periodic inspections shall be made of all stored items to assure that they are maintained under specified conditions, and free from damage or deterioration.
- C. After installation, CONTRACTOR shall provide substantial coverings as necessary to protect installed items from damage, from traffic, and subsequent construction operations. Coverings shall be removed when no longer needed.

PART 2 - MATERIALS AND EQUIPMENT

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01630

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.01 REQUESTS FOR REVIEW

- A. Requests to review substitute items of material and equipment will not be accepted by the Engineer from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute or equivalent item of material or equipment, the Contractor shall make written application to the Engineer for acceptance, certifying that the proposed substitute will perform adequately the functions called for by the general design, be similar and of equivalent substance to that specified and be suited to the same use and capable of performing the same function as that specified. The application will state whether or not acceptance of the substitute for use in the work will require a change in Drawings or Specifications to adapt the design to the substitute and whether or not incorporation or use of the substitute in connection with the work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified shall be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the Engineer in evaluating the proposed substitute. The Engineer may require the Contractor to furnish at the Contractor's expense additional data about the proposed substitute. The Engineer will be the sole judge of acceptability, and no substitute will be ordered or installed without the Engineer's prior written acceptance. The Owner may require the Contractor to furnish at the Contractor's expense, a special performance guarantee or other surety with respect to any substitute.

1.02 SUBSTITUTION AFTER EXECUTION OF AGREEMENT

- A. After execution of the Agreement, substitution of materials or equipment supplied by manufacturers or suppliers other than those listed, will be considered only if it is demonstrated by the Contractor that:
1. The material or equipment proposed for substitution is superior in design, construction and/or efficiency to that of the listed manufacturer or supplier;
 2. The material proposed for substitution is in every way equal to that of the listed supplier, and that availability and/or delivery of listed materials within the time frame scheduled cannot be met; or
 3. The material proposed for substitution is in every way equal to that of the listed supplier and is available at a lower cost. In the event such a substitution is allowed, the Contractor shall accept and execute a Change Order reducing the Contract Price by an amount equal to the cost differential.

1.03 EQUIVALENT MATERIALS AND EQUIPMENT

- A. Whenever materials or equipment are specified or described in the Drawings or fabricator, supplier or distributor, the naming of the item is intended to establish the type, function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other manufacturers, fabricators, suppliers or distributors may be accepted by the Engineer to determine that the material or equipment proposed is equivalent to that named.
- B. It is not the intent of the Contract Documents to function as proprietary specifications. Where a particular manufacturer make and model are cited and specifically required for interchangeability of parts and/or match existing equipment, this has been so stated in the Specifications.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Definition

Closeout is defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by OWNER and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Division 2 through 16. Time of closeout is directly related to "Substantial Completion", and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section.

1.02 PREREQUISITES TO SUBSTANTIAL COMPLETION

- A. When the CONTRACTOR considers the work to be substantially complete, he shall submit to the ENGINEER: a written notice that the work, or designated portion thereof, is substantially complete; and a list of items to be completed or corrected.
- B. Within a reasonable time after receipt of such notice, the ENGINEER will make an inspection to determine the status of completion.
- C. Should the ENGINEER determine that the work is not substantially complete, the ENGINEER will promptly notify the CONTRACTOR, in writing, giving the reasons. The CONTRACTOR shall remedy the deficiencies in the work and send a second written notice of substantial completion to the ENGINEER. The ENGINEER will reinspect the work.
- D. When the ENGINEER finds that the work is substantially complete, he will prepare and deliver to the OWNER a tentative Certificate of Substantial Completion with a tentative list of items to be completed or corrected before final payment. After consideration of any objections made by the OWNER as provided in Conditions of the objections made by the OWNER as provided in Conditions of the Contract, and when the 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.
- E. When the CONTRACTOR considers the work complete, he shall submit written certification that the Contract Documents have been reviewed, the work has been inspected for compliance with the Contract Documents, the work has been completed in accordance with the Contract Documents, equipment and systems have been tested in the presence of the OWNER's representative and are operational, and the work is completed and ready for final inspection.
- F. With reasonable promptness after receipt of such certification, the ENGINEER will make an inspection to verify the status of completion. Should the ENGINEER consider that the work is incomplete or defective, he will promptly notify the CONTRACTOR, in writing, listing the incomplete or defective work. The CONTRACTOR shall take immediate steps to remedy the stated deficiencies and send a second written certification to the ENGINEER that the work is complete. The ENGINEER will reinspect the work.

- G. Should the ENGINEER perform reinspections due to failure of the Work to comply with the claims of status of completion made by the CONTRACTOR, the OWNER will compensate the ENGINEER for such additional services and the OWNER will deduct the amount of such compensation from the final payment to the CONTRACTOR.

1.03 CLOSEOUT SUBMITTALS

- A. When the ENGINEER finds that the work is acceptable under the Contract Documents, he shall request the CONTRACTOR to make closeout submittals.

The CONTRACTOR's closeout submittals shall include:

1. Evidence of compliance with requirements of governing authorities.
2. Project Record Documents.
3. Operating and Maintenance Data
4. Evidence of Payment and Release of Liens.
5. Certificate of Insurance for Products and Completed Operations.
6. Warranties and Bonds (required for the Correctional Period and Maintenance Period)
7. Spare parts and maintenance materials.

1.04 ADDITIONAL CLOSEOUT REQUIREMENTS

- A. Project Record Documents
 1. The CONTRACTOR shall keep one (1) Record copy of all specifications, drawings, addenda, modifications, shop drawings, field test records, and samples at the site in good order and annotated in red to show all changes made during the construction process. These shall be available to the ENGINEER for examination and shall be delivered to the ENGINEER for the OWNER upon completion of the work.
 2. Documents and samples shall be stored in the CONTRACTOR's field office apart from documents used for construction. The CONTRACTOR shall provide files and racks for storage of documents, and a locked cabinet or secure storage space for storage of samples. Documents shall be maintained in a clean, dry, legible condition and in good order.
 3. Record Documents shall not be used for construction purposes.
 4. Each Document shall be labeled "PROJECT RECORD" in neat, large printed letters.
 5. Information shall be recorded by the CONTRACTOR, on a daily basis, concurrently with construction progress. No work shall be concealed until required information is recorded on the CONTRACTOR's Record Drawings.
 6. Drawings shall be legibly marked to record actual construction information on: depths of various elements of foundation in relation to finish first floor datum;

horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements; location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure; field changes of dimension and detail; changes made by Field Order or by Change Order; and details not on original contract drawings.

7. Specifications and Addenda shall have each section legibly marked to record: manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed; and changes made by Field Order or by Change Order.
8. At contract closeout Record Documents shall be delivered to the ENGINEER for the OWNER. The submittal shall be accompanied with a 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

B. As-Built Survey Requirements

1. The CONTRACTOR shall provide the ENGINEER with an as-built survey as follows:
2. After completion of the construction, the as-built configuration (both horizontally and vertically) of all the facilities shall be determined and a complete set of as-built drawings prepared.
3. The survey drawing shall be prepared in AutoCAD (2008 or earlier version) format showing all the as-built improvements and elevations where proposed work is shown on the construction drawings. The CONTRACTOR shall submit three (3) sets of check prints to the ENGINEER for approval prior to the request for final inspection. After the check prints are approved, the CONTRACTOR shall submit four (4) sets of certified prints and a copy of the AutoCAD drawings on a compact disc (CD).
4. The as-built survey shall be performed and certified by a registered Florida Land Surveyor meeting the Florida minimum technical standards for surveys and the Surveyor shall provide to the ENGINEER a copy of the Surveyor's professional liability insurance coverage in the amount of one million dollars (\$1,000,000.00). The survey shall be certified to the OWNER.

1.05 WARRANTIES AND BONDS

- A. The CONTRACTOR shall compile and submit to the ENGINEER in duplicate, for review and transmittal to the OWNER, warranties, bonds, service and maintenance contracts as specified in the respective sections of Specifications. Submittal shall be made within ten days after Substantial Completion and prior to final request for payment.

1.06 FINAL STATEMENT OF ACCOUNTING

- A. The CONTRACTOR shall submit a final statement of accounting to the ENGINEER. The 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. Deductions for uncorrected work
 - c. Deductions for liquidated damages
 - d. Deductions for reinspection payments
 - e. Other adjustments
 - f. Allowance
 - g. Unit Prices
 - h. Penalties and Bonuses
 3. Total Contract Sum, as adjusted
 4. Previous payments
 5. Sum remaining due

1.07 FINAL CHANGE ORDER

- A. The ENGINEER will prepare a final Change Order, if required, reflecting approved adjustments to the Contract Price which were not previously made by Change Orders.

1.08 FINAL APPLICATION FOR PAYMENT

- A. The 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 Applicable)

PART 3 - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01710

FINAL CLEANING

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. The CONTRACTOR shall execute cleaning, during progress of the work, and at the completion of the work, as required by General Conditions.
- B. Cleaning and disposal operations shall comply with all applicable codes, ordinances, regulations, and anti-pollution laws.
- C. Refer to Section 01500 - *Temporary Facilities and Controls* for additional requirements.

PART 2 - MATERIALS

- A. The CONTRACTOR shall:
 - 1. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
 - 2. Use only those cleaning materials and methods recommended by manufacturer of the surfaces to be cleaned.
 - 3. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 CLEANING DURING CONSTRUCTION

- A. The CONTRACTOR shall:
 - 1. Execute periodic cleaning to keep the work, the site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.
 - 2. Provide on-site containers for the collection of waste materials, debris and rubbish. Rental of refuse/waste containers must fully comply with the requirements of Section 01500 - *Temporary Facilities and Controls*.
 - 3. Remove waste materials, debris and rubbish from the site at least once a week and dispose of at legal disposal areas away from the site.
 - 4. Prior to final completion, CONTRACTOR shall conduct an inspection of work areas, to verify that the entire work is clean.

3.02 FINAL CLEANING

A. The CONTRACTOR shall:

1. Employ skilled workmen for final cleaning.
2. Remove grease, mastic, adhesives, dust, dirt, stains, and other foreign materials from sight-exposed surfaces.
3. Broom clean exterior paved surface; rake clean other surfaces of the grounds.
4. Except as otherwise indicated or requested by the ENGINEER, remove temporary protection devices and facilities which were installed during the course of the work to protect previously completed work during the remainder of the construction project.
5. Prior to final completion, CONTRACTOR shall conduct an inspection of work areas, to verify that the entire work is clean.
6. Where extra materials of value remaining after completion of the associated work have become the OWNER's property, dispose or store at the site, as directed by the ENGINEER.

END OF SECTION

DIVISION 2
SITE CONSTRUCTION

SECTION 02140

DEWATERING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. **Scope:** In general, the work specified in this section of the specifications shall consist of supplying labor, materials, and plant, and performing all work necessary to lower and control the groundwater levels and hydrostatic pressures to permit all excavations and construction specified under this Contract to be performed in the dry. Dewatering activities shall conform to the conditions of the SFWMD dewatering general water use permit conditions (Chapter 40E-20.302) including short term dewatering operations.
- B. **Examination of Site:** The Contractor shall take all steps that he considers necessary to familiarize himself with the site conditions, the ground conditions and the groundwater conditions. It is expressly understood that neither the Owner nor the Engineer will be held responsible for any interpretations or conclusions drawn by the Contractor.

PART 2 - PRODUCT

2.01 METHOD AND EQUIPMENT

- A. The Contractor may use any dewatering method he deems feasible so long as it results in working in the dry and in stable soil conditions. It is the intent of these specifications that an adequate dewatering system be installed to lower and control the groundwater in order to permit excavation, construction of the structures, construction of pipelines, and the placement of the fill materials, all to be performed under dry conditions. The dewatering system shall be adequate to pre-drain the water-bearing strata above and below the bottom of the foundations, the drains, the sewers and all other excavations. An adequate weight of fill material shall be in place prior to discontinuing operation of dewatering to prevent buoyancy of the structure.

PART 3 - EXECUTION

3.01 GENERAL

- A. The Contractor shall be solely responsible for the arrangement, location and depths of the dewatering system necessary to accomplish the work described under this section of the specifications. The dewatering shall be accomplished in a manner that will reduce the hydrostatic head below any excavation to the extent that the water level and piezometric water levels in the construction area are below the prevailing excavation surface; will prevent the loss of fines, seepage, boils, quick conditions, or softening of the foundation strata; will maintain stability of the sides and bottom of the excavation; and will result in all construction operations being performed in the dry.
- B. **Disposal of Water:** The Contractor shall promptly dispose of all water removed from the excavation in such a manner as will not endanger public health, damage public or private property, or affect adversely any portion of the work under construction or completed by him or any other Contractor. Contractor shall obtain written permission from the Owner of any property involved before digging ditches or constructing water courses for the removal of water.

C. Siltation and Erosion

1. The Contractor shall take steps and make suitable provisions to minimize siltation and erosion which may result from, or as a result of, his operations during the course of construction of this project.
2. The methods and provisions utilized by the Contractor to minimize siltation and erosion shall be approved by the Engineer and shall be in conformance with current Florida Department of Environmental Protection and South Florida River Water Management District practices and regulations.

D. Inadequate System: If the dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, then loosening of the foundation strata, or instability of the slopes, or damage to the foundations or structures may occur. The supply of all labor, materials, and plant, and the performance of all work necessary to carry out additional work for reinstatement of the structures of foundation soil resulting from such inadequacy or failure shall be undertaken by the Contractor to the approval of the Engineer, and at no additional expense to the Owner.

END OF SECTION

SECTION 02200

EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of earthwork is shown on the drawings.
- B. Related Work Specified Elsewhere
Section 02222 - Trenching, Backfilling and Compacting.

1.02 QUALITY ASSURANCE

- A. Codes and Standards
 - 1. Perform earthwork in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Testing and Inspection Service
 - 1. The Owner will engage a testing and inspection service, to include testing soil materials proposed for use in the work and field facilities for quality control testing during earthwork operations.
 - 2. Soil survey for satisfactory soil materials and samples of soil materials shall be furnished to the testing service by the Contractor.
 - 3. All test reports must be signed by a licensed engineer.

1.03 JOB CONDITIONS

- A. Existing Utilities
 - 1. Locate existing underground utilities in the areas of work before starting earthwork operations. Where utilities are to remain in place, provide adequate means of protection during earthwork operations.
 - 2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the utility owner immediately for directions. Cooperate with the Owner and public and private utility companies in keeping their respective services and facilities in operation. Repair damaged utilities to the satisfaction of the utility owner.
 - 3. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided.
 - 4. Demolish and completely remove from the site underground utilities indicated to be removed. Coordinate with local utility companies for shut-off of services if lines are active.

B. Use of Explosives

1. The use of explosives is not permitted.

C. Temporary Protection

1. Barricade open excavations made as a part of earthwork operations and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction.
2. Protect structures, utilities, sidewalks, pavements, and other facilities from damages caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. Backfill and Fill Materials

1. Soil materials for use as backfill and fill shall be free of rock or gravel larger than 2-inches in any dimension, debris, waste, vegetable, and other deleterious matter.
2. Use excavated or borrow material that has been sampled, tested and certified as satisfactory soil material.

B. Subbase Material

1. Properly graded mixture of natural and crushed gravel, crushed stone, crushed slag, natural or processed sand that will readily compact to the required density.
2. Use material complying with AASHTO M147, Grade A, unless otherwise indicated or acceptable to the Engineer.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine the areas and conditions under which earthwork is to be performed and notify the Engineer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.

3.02 EXCAVATION

- A. Excavation consists of the removal and disposal of materials encountered when establishing the required grade elevations.
1. Where it is necessary to cut roots projecting into an excavation or to trim branches for equipment clearance, all severed root ends or cuts to branches over 1/2-inch diameter shall be treated with an asphalt base pruning paint. Backfill over exposed roots as soon as possible.

B. Excavation Classifications

1. The following classifications of excavation will be made when unanticipated rock excavation is encountered in the work. Do not perform such work until material to be excavated has been cross-sectioned and classified by the Engineer. Such excavation will be paid for under the appropriate bid item in the Bid Proposal.
 - a. Earth excavation includes the removal and disposal of pavements and other obstructions visible on the ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and all other materials encountered that are not classified as rock excavation or unauthorized excavation.
 - b. Rock excavation consists of the removal and disposal of materials encountered that cannot be excavated with a 3/4 cubic yard capacity power shovel without drilling and blasting, or continuous use of a ripper or other special equipment, except such materials that are classified as earth excavation. Typical of materials classified as rock are boulders 1/2 cu. yard or more in volume, solid rock, rock in ledges, and rock-hard cementitious aggregate deposits.
 - c. Intermittent drilling that may be performed to increase production and is not necessary to permit excavation of the material encountered will be classified as earth excavation.

C. Rock shall be removed to the following limits:

1. Two (2) feet outside of concrete work for which forms are required, except footings. One foot outside the perimeters of footings.
2. In pipe trenches, a minimum of 4-inches below invert elevation of pipe and 2-feet wider than the inside diameter of pipe, but not less than 3-foot minimum trench width.
3. Neat outside dimensions of concrete work where no forms are required.
4. Under slabs on grade, 6-inches below bottoms of concrete slab.

D. Unauthorized excavation consists of removal of materials beyond indicated elevations without the specific direction of the Engineer. Replace unauthorized excavation by backfilling and compacting as specified for authorized excavations of the same classification, unless otherwise directed by the Engineer.

E. Additional Excavation

1. When excavation has reached required subgrade elevations, notify the Engineer who will make an inspection of conditions.
2. If unsuitable materials are encountered at the required subgrade elevations, carry excavations deeper and replace the excavated material as directed by the Engineer.
3. Removal of unsuitable material and its replacement as directed will be paid for under the appropriate bid item in the Bid Proposal.

F. Dewatering

1. Prevent surface water and subsurface or groundwater from flowing into excavations, and flooding the project site and surrounding area.
2. Do not allow water to accumulate in excavations. Remove water from excavations to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey the water away from the site.
3. Convey water removed from excavations and rainwater to collecting or run-off areas. Do not use trench excavations for site utilities as temporary drainage ditches.
4. Contractor shall be required to obtain any demolition permits as may be required due to dewatering volume requirements set by local and state agencies.

G. Material Storage

1. Stockpile excavated materials classified as satisfactory soil material where directed, until required for fill. Place, grade, and shape stockpiles for proper drainage.
2. Dispose of excess unsatisfactory soil material, trash and debris, as specified.

3.03 BACKFILL AND FILL

A. Ground Surface Preparation

1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.
2. When the existing ground surface has a density less than that specified under "Compaction" for the particular area classification, break-up the ground surface, pulverize, moisture-condition to the optimum moisture content, and compact to the required depth and percentage of maximum density.

B. Placement and Compaction

1. Place backfill and fill materials in layers not more than 8-inches in loose depth for material compacted by heavy compaction equipment, and not more than 4-inches loose depth for material compacted by hand-operated equipment.
2. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content of the soil material. Compact each layer to the required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
 - a. Backfill excavations as promptly as the work permits, but not until completion of inspection, testing, approval, and recording location of underground utilities, as required.

3.04 COMPACTION

A. General

1. Control soil compaction during construction, providing the minimum percentage of density specified for each area classification.
2. Percentage of Maximum Density Requirement:
 - a. Lawn Areas: Compact each layer of backfill or fill material at 85% maximum density (optimum moisture).
 - b. Walkways: Compact top 6-inches of subgrade and each layer of backfill or fill material at 95% maximum density (optimum moisture).

B. Moisture Control

1. Where the subgrade or layer of soil materials must be moisture conditioned before compaction, uniformly apply water to the surface of subgrade, or layer of soil material, to prevent free water appearing on the surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
2. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing or pulverizing, until the moisture content is reduced to a satisfactory value.

3.05 FIELD QUALITY CONTROL

A. Quality Control Testing During Construction:

1. Testing service must inspect and approve subgrades and fill layers before further construction work is performed thereon.
2. Secure representative samples of the fill material and determine the Standard Density and required moisture content to be maintained by the Moisture-Density Relation Test ASTM D-1557.
3. Make in-place soil density tests during compaction operations in accordance with ASTM D-1556.
4. If, in the opinion of the Engineer, based on reports of the testing service and inspection, the subgrade or fills which have been placed are below the specified density, additional compaction and testing will be required until satisfactory results are obtained.
 - a. The results of density tests of soil-in-place will be considered satisfactory if the average of any four consecutive density tests which may be selected are in each instance equal to or greater than the specified density, and if not more than one density test out of five has a value more than 2% below the required density.

3. 06 MAINTENANCE

A. Reconditioning Compacted Areas

1. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify the surface, re-shape, and compact to the required density prior to further construction.

3. 07 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Removal from Owner's Property

1. Remove waste materials, including excavated material classified as unsatisfactory soil material, trash and debris, and dispose of it off the Owner's property in a lawful manner.

END OF SECTION

SECTION 02222

TRENCHING, BACKFILLING AND COMPACTING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of trenching, backfilling and compacting is shown on the drawings.
- B. This section includes furnishing equipment, labor and materials, and performing all operations necessary and incidental to perform the required work.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 CLEARING OF THE SITE

- A. The site of the work shall be cleared of all trees, shrubs, paving and objectionable material which interfere with the prosecution of the proposed work. Trees and shrubs which will not interfere with construction shall be protected from damage. Clearing shall be considered as an incidental item of excavation.

3.02 EXCAVATION

A. General

- 1. Perform excavation described of whatever substance encountered to the dimensions and depths specified or shown on the drawings. Undercutting will not be permitted, except when ordered by the ENGINEER. Material suitable for backfill shall be stockpiled near the site. Rock or other material undesirable for backfill shall be spoiled outside the area in a neat manner, as directed by the ENGINEER. Where it is necessary to cut roots projecting into an excavation or where it is necessary to trim branches for equipment clearance, all severed root ends or cuts to branches over 1/2-inch diameter shall be treated with an asphalt base pruning paint. Backfill over exposed roots as soon as possible.

B. Rock

- 1. Where encountered in the trench bed, rock shall be excavated to a depth of 1/4 of the pipe diameter below the bottom of the pipe but in no case less than 4-inches. All undercut trench excavation shall be backfilled and tamped with materials as specified in the following paragraphs under Unstable Subgrade.

C. Unstable Subgrade

- 1. In the event that unsuitable material is encountered at or below the excavation depth specified or shown on the drawings, the ENGINEER shall be notified. Such material shall be removed and replaced with suitable material. Methods and materials used for replacement shall be one of the following as directed by the ENGINEER in writing.

- a. Suitable earth or sand, compacted in the trench. Materials shall be furnished as a part of the Bid Proposal item covering excavation and backfill.
 - b. Gravel or crushed limerock, compacted in the trench and paid for under the appropriate item.
 - c. Existing materials, stabilized after removal and then replaced and compacted in the trench at no additional cost to the OWNER.
2. The ENGINEER shall determine the methods and materials to be used, based upon the condition of the excavation, the pipe structure to be supported, and the availability and character of stabilizing materials.

D. Trenches

1. Keep pipe laying operation as close to the excavation operation as possible during the prosecution of the work. The ENGINEER reserves the right to stop the excavation at any time when, in his opinion, the excavation is opened too far in advance of the pipe laying.
2. Pipe trenches shall be only of sufficient width to provide a free working space on each side of the pipe. To prevent excess pressure on the pipe, the maximum width of trench at the top of the pipe and at the bottom of the trench shall not be greater than 2-feet more than the greatest exterior diameter of the pipe. If this maximum width is exceeded, it shall be the CONTRACTOR's responsibility to provide, at no additional cost to the OWNER, such additional bedding or select backfill materials as the ENGINEER may require. The excavation below the spring line shall be made to conform as near as possible to the shape of the lower third of the pipe. To protect the pipe lines from unusual stresses, all work shall be done in open trenches. Excavation shall be made for bells of all pipes and of sufficient depth to permit access to the joint for construction and inspections. In no case will the bells be used to support the body of the pipe.
3. In order to avoid existing utilities, at times it may be necessary for the pipe to be laid deeper than the minimum cover specified in the preceding paragraph. At such time the CONTRACTOR will not be allowed extra compensation for additional excavation involved.
4. In case excavation has been made deeper than necessary, a layer of concrete, fine gravel or other material satisfactory to the ENGINEER shall be placed, at no extra cost, to secure a firm foundation for the lower third of each pipe. Where possible, excavated material shall be placed so as not to interfere with public travel. Bridging shall be provided to afford necessary access to public or private premises. Bridging shall be considered as part of the excavation operation and shall be supplied at no additional cost to the OWNER.

E. Structural: (For inlets, manholes, and similar structures)

1. Remove sufficient material to allow proper space for erecting and removing forms. The elevations of the bottoms of footings, if shown on the drawings, shall be considered as approximate only, and the ENGINEER may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary to secure a satisfactory foundation. Excavation for structures shall be sufficient to leave at least 12-inches in the clear between their outer surfaces and the embankment or timber that may be used to protect them. Backfill of earth

under structures will not be permitted. Excess excavation for structures shall be filled with thoroughly compacted sand, gravel, or concrete at the expense of the CONTRACTOR.

2. After excavation for a structure is completed, the CONTRACTOR shall notify the ENGINEER to that effect. No concrete or reinforcing steel shall be placed until the ENGINEER has approved the depth of the excavation and the character of the foundation material.

F. Sheeting and Shoring

1. The CONTRACTOR shall provide all trench and structural bracing, sheeting or shoring necessary to construct and protect the excavation, existing utilities, structures and private property of all types and as required for the safety of the employees. Sheeting shall be removed or cut off by the CONTRACTOR during backfilling operations as directed by the ENGINEER. Removal of shoring for structures shall be done in such a manner as not to disturb or mar finished masonry or concrete surfaces.

3.03 DRAINAGE

- A. Grading shall be controlled in the vicinity of excavations so that the surface of the ground will be properly sloped to prevent water from running into trenches or other excavated areas. Any water which accumulates in the excavations shall be removed promptly by well point or by other means satisfactory to the ENGINEER in such a manner as to not create a nuisance to adjacent property or public thoroughfare. Trenches shall be kept dry while pipe is being laid. Bridging of dewatering pipe shall be provided where necessary. Pumps and engines for well point systems shall be operated with mufflers, and at a minimum noise level suitable to a residential area. The CONTRACTOR will not be allowed to discharge water into the OWNER's storm drainage system without the written approval of the ENGINEER. Approval will be subject to the condition that the storm sewer be returned to its original condition.
- B. The CONTRACTOR is responsible for carrying the water to the nearest ditch or body of water and for obtaining the necessary permission to use same. The CONTRACTOR shall be financially responsible for any nuisance created due to carrying off water from his drainage system.

3.04 BACKFILL

A. Trenches

1. Trenches shall be backfilled immediately after the pipe is laid unless other protection for the pipe line is provided. Clean earth, sand, crushed limerock or other material approved by the ENGINEER shall be used for backfill. Backfill material shall be selected, deposited and compacted (simultaneously on both sides of the pipe) so as to eliminate the possibility of lateral displacement of the pipe. Backfill material shall be solidly tamped around the pipes in layers to a level at least 1-foot above the top of the pipe. Each layer shall be compacted to a maximum thickness of 6-inches.
2. In unpaved areas, the remainder of the backfill shall be deposited and then compacted by puddling, water flooding or mechanical tampers. Mechanical tamping of layers in unpaved areas shall be to a maximum thickness of 12-inches. In areas to be paved or repaved, the entire depth of backfill shall be deposited in layers and compacted by hand or mechanical tampers to a

maximum thickness of 6-inches. Compaction shall be carried out to achieve a density of at least 98% of the maximum density as determined by AASHTO, Method T-180. Under areas to be paved, puddling may be used for backfill consolidation after tamping to 1-foot over the pipe, as specified, provided the method is first approved by the ENGINEER and the density requirements are met.

3. In areas to be paved, density tests for determination of the specified compaction shall be made by a testing laboratory and spaced one in every 300-feet of trench cut. It is the intent of this specification to secure a condition where no further settlement of trenches will occur. When backfilling is completed, the roadway base for pavement replacement may be placed immediately. It will be the responsibility of the CONTRACTOR to restore the surface to the original grade wherever settlement occurs.

B. Structural

1. After completion of foundation footings and walls and other construction below the elevation of the final grades, and prior to backfilling, forms shall be removed and the excavation shall be cleared of all trash and debris. Material for backfilling shall consist of the excavation, borrow sand or other approved materials, and shall be free of trash, lumber or other debris. Backfill shall be placed in horizontal layers not in excess of 9-inches in thickness, and have a moisture content such that a density may be obtained to prevent excessive settlement or shrinkage. Each layer shall be compacted by hand or approved machine tampers with extreme care being exerted not to damage pipe or structures. Backfill shall be placed and compacted evenly against the exposed surfaces to prevent undue stress on any surface.

3.05 RESTORATION OF SURFACE IMPROVEMENTS

- A. Roadways, including shoulders, alleys and driveways of shell, limerock, stabilized soil or gravel, grass plots, sod, shrubbery, ornamental trees, signs, fences, or other surface improvements on public or private property which have been damaged or removed in excavating, shall be restored to conditions equal to or better than conditions existing prior to beginning work. Restoration of shoulders shall consist of sodding, seeding and mulching, or stabilizing with limerock as selected by the ENGINEER. The cost of doing this work shall be included in the cost of the various applicable items.
- B. Materials for unpaved roadways, road shoulders, alleys, or drive-ways, shall be compacted to a minimum of 98% of the maximum density as determined by AASHTO, Method T-180. The cost of this work and furnishing new materials shall be included in the cost of the applicable items of work as no separate payment will be made, unless a separate bid item is provided.

3.06 FINE GRADING

- A. Finished areas around structures shall be graded smooth and hand raked and shall meet the elevations and contours shown on the drawings. Lumber, earth clods, rocks and other undesirable materials shall be removed from the site.

3.07 DISPOSAL OF MATERIAL

- A. Such portions of the excavated materials as needed and as suitable, shall be used for backfilling and grading about the completed work to the elevations as shown on the drawings or as directed. Excavated material in excess of the quantity required for this

purpose shall be disposed of by the CONTRACTOR. The CONTRACTOR shall leave the earth over the trenches or other excavations in a neat and uniform condition acceptable to the OWNER.

3.08 TESTS

- A. The CONTRACTOR shall furnish facilities for making all density tests and make such restorations as may be necessary due to test operations. All density tests on backfill or base replacement will be made by a commercial testing laboratory employed by the OWNER and at such locations as may be recommended by the ENGINEER. If the densities as determined by the specified tests fall below the required minimums, the CONTRACTOR shall pay for all retests.

END OF SECTION

SECTION 02605

PRECAST CONCRETE MANHOLES AND STRUCTURES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials and equipment required and install precast concrete stormwater manholes, stormwater structures, frames and covers, access hatches, manhole rungs, ladders and appurtenances as shown on the Drawings and as specified herein.

1.02 RELATED WORK

- A. Excavation and backfill is included in Section 02220.
- B. Drainage structures and piping are included in Section 02720.

1.03 SUBMITTALS

- A. Submit to the ENGINEER, in accordance with Section 01300, shop drawings, product data, materials of construction, and details of installation. Submittals shall include at least the following:
 - 1. Base sections, riser sections, eccentric and concentric conical top sections, flat slab tops, grade rings with notarized certificate indicating compliance with ASTM C478.
 - 2. Pipe connection to manhole.
 - 3. Manhole rungs, including method of installation and notarized certificate indicating compliance with pull-out resistance test specified herein.
 - 4. Manhole frame and cover with notarized certificate indicating compliance with ASTM A48, Class 30.
 - 5. Method of repair for minor damage to precast concrete sections.
 - 6. Building brick with notarized certificate indicating compliance with ASTM C62.
- B. Samples
- C. Design Data
 - 1. Precast concrete structures:
 - a. Six copies of sectional plan(s) and elevations showing dimensions and reinforcing-steel placement.
 - b. Six copies of structural calculations including assumptions.
 - c. Six copies of concrete design mix.

- D. Test Reports
 - 1. Precast concrete structures
 - a. Six copies of concrete test cylinder reports from an approved testing laboratory certifying conformance with this Section.
- E. Certificates
- F. Manufacturers Installation (or Application) Instructions
- G. Statement of Qualifications
- H. Manufacturer's Field Report
- I. Project Record Documents
- J. Operation and Maintenance Data
- K. Warranties

1.04 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM A48 - Standard Specification for Gray Iron Castings.
 - 2. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 3. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
 - 4. ASTM C33 - Standard Specification for Concrete Aggregates.
 - 5. ASTM C62 - Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)
 - 6. ASTM C 150 - Standard Specification for Portland Cement
 - 7. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes
 - 8. ASTM C443 - Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets
 - 9. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections
 - 10. ASTM D4101 - Standard Specification for Propylene Plastic Injection and Extrusion Materials.
- B. American Concrete Institute (ACI)
 - 1. ACI 318 - Building Code Requirements for Reinforced Concrete
 - 2. ACI 350R - Environmental Engineering Concrete Structures

- C. American Association of State Highway and Transportation Officials (AASHTO)
 - 1. Standard Specifications for Highway Bridges
- D. Occupational Safety and Health Administration (OSHA)
- E. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. All material shall be new and unused.
- B. Materials' quality, manufacturing process and finished sections are subject to inspection and approval by ENGINEER or other OWNER representative. Inspection may be made at place of manufacture, at work site following delivery, or both.
- C. Materials will be examined for compliance with ASTM standards, this Section and approved manufacturer's drawings. Additional inspection criteria shall include, appearance, dimensions(s), blisters, cracks and soundness.
- D. Materials shall be rejected for failure to meet any requirements specified herein. Rejection may occur at place of manufacture, at work site, or following installation. Mark for identification rejected materials and remove from work site immediately. Rejected materials shall be replaced at no cost to OWNER.
- E. Repair minor damage to precast concrete sections by approved method, if repair is authorized by ENGINEER.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Reference to a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.
- B. Like items of materials/equipment shall be the end products of one manufacturer in order to provide standardization for appearance, operation, maintenance, spare parts and manufacturer's service.
- C. Provide lifting lugs or holes in each precast section for proper handling.

2.02 PRECAST CONCRETE MANHOLE SECTIONS

- A. Precast concrete base sections, riser sections, transition top sections, flat slab tops and grade rings shall conform to ASTM C478 and shall be in accordance with FDOT standards.
 - 1. Top section shall be eccentric cone where cover over pipe exceeds 4-ft. Top section shall be a flat slab where cover over top of pipe is 4-ft or less. Top section shall be a plastic lined flat slab where manhole riser sections are to be plastic lined.
 - 2. Base, riser and transition top sections shall have tongue and groove joints.
 - 3. Sections shall be cured by an approved method.

2.02 ELLIPTICAL PIPE

- A. Pipe shall be cast vibrated, machine made or flat bed elliptically shaped concrete pipe designed, manufactured, cured, tested and marked in accordance with ASTM C507.
- B. Pipe shall be of the proper strength for the depth of cover involved and shall be manufactured in lengths not longer than 16-feet nor shorter than 8-feet, except that shorter lengths as required at closures or junctions with structures will be permitted.
- C. Pipe designed for placement with the major axis horizontal shall be designated as "Vertical Elliptical" and shall be so marked.
- D. Joints for elliptical pipe shall be cold adhesive, pre-formed plastic gaskets conforming to Standard Specifications for Road and Bridge Construction of Florida Department of Transportation, Section 942, paragraph 942-2.

2.03 EXTERNAL CONCRETE JOINT WRAP

- A. All concrete pipe joints and pipe connections to structures shall be wrapped with an approved filter fabric joint wrap product. Joint material and installation shall be in accordance with Section 440 of the FDOT Standard Specifications, latest edition.

PART 3 - EXECUTION

3.01 UNDERGROUND STRUCTURES AND CONFLICTS

- A. Prior to excavation, investigation shall be made to the extent necessary to determine the location of existing underground structures and conflicts. Care shall be exercised to avoid damage to existing structures. When obstructions that are not shown on the drawings are encountered during the progress of work and interfere so that an alteration of the plans is required, the Engineer will alter the drawings or order a deviation in line and grade or arrange for removal, relocation, or reconstruction of the obstructions. When crossing existing pipelines or other structure, alignment and grade shall be adjusted as necessary, with the approval of the Engineer to provide clearance as required by federal, state or local regulations or as deemed necessary by the Engineer to prevent future damage or contamination of either structure.

3.02 ALIGNMENT AND GRADE

- A. The pipelines shall be laid and maintained to the lines and grades established by the drawings and specifications, with manholes, service connections, fittings, and appurtenances at the required locations unless otherwise approved by the Engineer.

3.03 TRENCH CONSTRUCTION

- A. The trench shall be excavated to the required alignment, depth, and width. Trench preparation shall proceed in advance of pipe installation for only as far as necessary to allow proper pipe installation. The width of the trench at the top of the pipe shall be ample to permit the pipe to be laid and joined properly and allow the backfill to be placed as specified. Trenches shall be of such extra width, when required, to permit the placement of timber supports, sheeting, bracing and appurtenances.
- B. Holes for the bells shall be provided at each joint but shall not be larger than necessary for joint assembly and assurance that the pipe barrel will lie flat on the trench bottom. Other than noted previously, the trench bottom shall be true and even in order to provide

support for the full length of the pipe barrel, except that slight depression may be provided to allow withdrawal of pipe slings or other lifting tackle.

- C. When excavation of rock is encountered, all rock shall be removed to provide a clearance of at least 6-inches below and on each side of all pipe for pipe sizes 24-inches or smaller, and 9-inches for pipe sizes 30-inches and larger. When excavation is completed, a bed of sand, crushed stone, or earth that is free from stones, large clods, or frozen earth, shall be placed on the bottom of the trench to the previously mentioned depths, leveled, and tamped. These clearances and bedding procedures shall also be observed for pieces of concrete or masonry and other debris or subterranean structures, such as masonry walls, piers, or foundations that may be encountered during excavation. This installation procedure shall be followed when gravel formation containing loose boulders greater than 8-inches in diameter are encountered. In all cases, the specified clearances shall be maintained between the bottom of all pipe and appurtenances and any part, projection, or point or rock, boulder, or stones of sufficient size and placement which, in the opinion of the Engineer could cause a fulcrum point.
- D. Should the trench pass over a sewer or other previous excavation, the trench bottom shall be sufficiently compacted to provide support equal to that of the native soil or conform to other regulatory requirements in a manner that will prevent damage to the existing installation.
- E. When the subgrade is found to be unstable or to include ashes, cinders, refuse, organic material, or other unsuitable material, such material shall be removed, to a minimum of at least 3-inches, or to the depth ordered by the Engineer and replaced under the directions of the Engineer with clean, stable backfill material. The bedding shall be consolidated and leveled in order that the pipe may be installed as specified.
- F. When the bottom of the trench or the subgrade is found to consist of material that is unstable to such a degree that, in the judgment of the Engineer, it cannot be removed, a foundation for the pipe and/or appurtenance shall be constructed using piling, timber, concrete, or other materials at the direction of the Engineer.
- G. Pipe cutting for the insertion of fittings, or closure pieces shall be done in neat, workmanlike manner without creating damage to the pipe or lining.

3.04 TESTING

- A. After completion of installation, perform testing for gravity sewers in accordance with requirements of Section 430 – Pipe Culverts and Storm Sewers in the *FDOT Standard Specifications for Road and Bridge Construction*, latest edition.

END OF SECTION

SECTION 02720

DRAINAGE STRUCTURES AND PIPING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of drainage structures and piping is shown on the drawings.
- B. Related Work Specified Elsewhere

Section 02200 - *Earthwork*.
Section 02222 - *Trenching, Backfilling and Compacting*.
Section 02611 - *Reinforced Concrete Pipe for Gravity Service*

1.02 SUBMITTALS

- A. Submit shop drawings of precast manholes, inlets, grating, frames and lids, and pipe.
- B. Submit cut sheets 24-hours in advance of pipe excavation for ENGINEER approval.

1.03 QUALITY ASSURANCE

- A. All material shall be new and unused.
- B. Materials' quality, manufacturing process and finished sections are subject to inspection and approval by ENGINEER or other OWNER representative. Inspection may be made at place of manufacture, at work site following delivery, or both.
- C. Materials will be examined for compliance with ASTM standards, this Section and approved manufacturer's drawings. Additional inspection criteria shall include, appearance, dimensions(s), blisters, cracks and soundness.
- D. Materials shall be rejected for failure to meet any requirements specified herein. Rejection may occur at place of manufacture, at work site, or following installation. Mark for identification rejected materials and remove from work site immediately. Rejected materials shall be replaced at no cost to OWNER.
- E. Repair minor damage to precast concrete sections by approved method, if repair is authorized by ENGINEER.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Reference to a manufacturer's name and model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.
- B. Like items of materials/equipment shall be the end products of one manufacturer in order to provide standardization for appearance, operation, maintenance, spare parts and manufacturer's service.
- C. Provide lifting lugs or holes in each precast section for proper handling.

2.02 PRECAST CONCRETE MANHOLE SECTIONS

- A. Precast concrete base sections, riser sections, transition top sections, flat slab tops and grade rings shall conform to ASTM C478 and shall be in accordance with FDOT standards.
 - 1. Top section shall be eccentric cone where cover over pipe exceeds 4-ft. Top section shall be a flat slab where cover over top of pipe is 4-ft or less. Top section shall be a plastic lined flat slab where manhole riser sections are to be plastic lined.
 - 2. Base, riser and transition top sections shall have tongue and groove joints.
 - 3. Sections shall be cured by an approved method.
 - 4. Precast concrete sections shall be shipped after concrete has attained 3000 psi compressive strength.
 - 5. Design precast concrete base, riser, transition top, flat slab top and grade ring for a minimum H-20 loading plus earth load. Calculate earth load with a unit weight of 130 pcf.
 - 6. Mark date of manufacture, name and trademark of manufacturer on the inside of each precast section.
 - 7. Construct and install precast concrete base as shown on the Drawings and specified in FDOT standards.
 - 8. Provide integrally cast knock-out panels in precast concrete manhole sections at locations, and with sizes shown on Drawings. Knock-out panels shall have no steel reinforcing.

2.03 PRECAST CONCRETE STRUCTURES

- A. Refer to FDOT Standards for inside dimensions, headroom requirements and minimum thickness of concrete.
- B. Manufacturer shall notify ENGINEER at least 5 working days prior to placing concrete during manufacturing process. ENGINEER may inspect reinforcing steel placement prior to placing concrete.
- C. Structural design calculations and Drawings shall be prepared and stamped by a Professional Engineer registered in Florida.
- D. Design Criteria
 - 1. Precast concrete
 - a. Minimum compressive strength shall be 5,000 psi at 28 days.
 - b. Maximum water-to-cement ratio shall be 0.40 by weight.
 - c. Minimum cement content shall be 600 lbs of cement per cubic yard of concrete.

2. Manufactured products
 - a. Conform to ACI 318 and ACI 350R.
 - b. Analyze walls and slabs using accepted engineering principals.
 - c. When "fy" exceeds 40,000 psi, "z" (ACI 318) shall not exceed 95,000 psi. "fs" shall not exceed 50 percent of "fy".
 - d. Design products to support their own weight, weight of soil at 120 pcf, and a live load equal to AASHTO HS-20 applied to top slab.
 - e. Cast base slab and walls together to form a monolithic base section.
 - f. Design structure walls for a water pressure of 90 psf. Originate pressure diagram at finished ground surface. Include lateral pressure from vehicles in accordance with AASHTO.
 - g. Consider discontinuities in structure produced by openings and joints. Provide additional reinforcing around openings. Frame openings to carry full design loads to support walls.
 - h. Prevent flotation, with ground water level at finished ground surface, by dead weight of structure and soil load above structure. Do not consider skin friction, soil friction, or weight of equipment in structure.
 - i. Locate horizontal wall joints 18-in minimum from horizontal centerline of wall openings.
 - j. Design structure with a minimum number of joints. Maximum number of structure sections, including top slab, shall be four.
 - k. Provide lifting hooks for top slab.
 - l. Locate access openings, wall sleeves and pipe penetrations as shown on Drawings.
 - m. Wall sleeves shall be provided by the precast concrete manufacturer.

2.04 BRICK MASONRY

- A. Bricks shall be sound, hard, uniformly burned, regular and uniform in shape and size. Underburned or salmon brick shall not be acceptable. Only whole brick shall be used.
 1. Bricks for channels and shelves shall conform to ASTM C32, Grade SS except that the mean of five tests for absorption shall not exceed 8 percent and no individual brick exceed 11 percent.
 2. Bricks for raising manhole frames to finished grade shall conform to ASTM C62.
- B. Mortar shall be composed of 1 part Portland cement, 2 parts sand, and hydrated lime not to exceed 10-lbs to each bag of cement. Portland cement shall be ASTM C150, Type II; hydrated lime shall conform to ASTM C207.
- C. Sand shall be washed, cleaned, screened, well graded with all particles passing a No.4 sieve and conform to ASTM C33.

2.05 JOINTING PRECAST MANHOLE SECTIONS AND STRUCTURES

- A. Seal tongue and groove joints of precast manhole and structure sections with either rubber O-ring gasket or preformed flexible joint sealant. O-ring gasket shall conform to ASTM C443. Preformed flexible joint sealant shall be Kent Seal No.2 by Hamilton-Kent; Ram-Nek by K. T. Snyder Company or equal.
- B. Completed joint shall withstand 15 psi internal water pressure without leakage or displacement of gasket or sealant.

2.06 MANHOLE FRAMES AND COVERS

- A. Manhole frames and covers shall be in accordance with FDOT Standard Index No. 201 for the type of manhole or inlet required. Covers shall have 2" raised letter identification: "Storm Sewer" cast into top.

2.07 PIPE CONNECTIONS TO MANHOLE

- A. Connect pipe to manhole in the following ways:
 - 1. Grout in place - Precast manhole section shall have a formed, tapered circular opening larger than the pipe outside diameter. Grout shall be non-shrink and waterproof equal to Hallemite, Waterplug or Embeco. Plastic pipe shall have a waterstop gasket secured to pipe with a stainless steel clamp.
 - 2. Flexible sleeve - Integrally cast sleeve in precast manhole section or install sleeve in a formed or cored opening. Fasten pipe in sleeve with stainless steel clamp(s). Coat stainless steel clamp(s) with bituminous material to protect from corrosion. Flexible sleeve shall be Lock Joint Flexible Manhole Sleeve; Kor-N-Seal connector; PSX Press-Seal Gasket or equal.
 - 3. Compression gasket - Integrally cast compression gasket in precast manhole section. Insert pipe into compression gasket. Compression gasket shall be A-Lok or equal.

2.08 DAMPPROOFING

- A. Dampproofing shall be Hydrocide 648 by Sonneborn Building Products; Dehydratine 4 by A. C. Horn Inc; RIW Marine Liquid by Toch Brothers or equal.

2.09 PIPING

- A. Reinforced Concrete Pipe (RCP)
 - 1. RCP pipe shall comply with the requirements of ASTM Designation C-76, as specified in Section 02611, Reinforced Concrete Pipe for Gravity Service.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Manhole and Structure Installation
 - 1. Manhole and structure shall be constructed to the dimensions shown on the Drawings and as specified in FDOT standards. Protect all work against flooding

and flotation. Construct cast-in-place bases in accordance with the requirements of Division 3 and the details shown on the Drawings.

2. Place manhole base on a bed of 12-in screened gravel as shown on the Drawings. Set manhole base grade so that a maximum grade adjustment of 8-in is required to bring the manhole frame and cover to final grade.
 - a. Use precast concrete grade rings or brick and non-shrink mortar to adjust manhole frame and cover to final grade.
3. Set precast concrete barrel sections and structures plumb with a 1/4-in maximum out of plumb tolerance allowed. Seal joints of precast barrel sections with either a rubber O-ring set in a recess or preformed flexible joint sealant in sufficient quantity to fill 75 percent of the joint cavity. Fill the outside and inside joint with non-shrink mortar and finished flush with the adjoining surfaces. Caulk the inside of any leaking barrel section joint with lead wool or non-shrink grout to the satisfaction of the ENGINEER.
4. Allow joints to set for 14 hours before backfilling unless a shorter period is specifically approved by the ENGINEER.
5. Plug holes in the concrete barrel sections required for handling with a non-shrinking grout or non-shrinking grout in combination with concrete plugs. Finish flush on the inside.
6. Cut holes in precast sections to accommodate pipes prior to setting manhole sections in place to prevent jarring which may loosen the mortar joints.
7. Backfill carefully and evenly around manhole sections.

B. Manhole Pipe Connections

1. Construct manhole pipe connections, including pipe stubs, as specified above. Close or seal pipe stubs for future connections with a gasketed watertight plug.

C. Brickwork

1. Mix mortar only in such quantity as may be required for immediate use. Use mortar before initial set has taken place. Mortar shall be used within 1-1/2 hours and shall be constantly worked with hoe or shovel until used. Anti-freeze mixtures shall not be included in the mortar. Install masonry when the outside temperature is above 40 degrees F unless provisions are made to protect the mortar, bricks and finished work from frost by heating and enclosing the work with tarpaulins or other suitable material. ENGINEER's decision regarding the adequacy of protection against freezing shall be final.
2. Construct channels and shelves of brick and concrete as shown on the Drawings and as specified in FDOT standards. Brick lined channels shall correspond in shape with the lower half of the pipe. Set shelf elevation at crown of highest pipe and slope 1-in/ft to drain toward the flow through channel. Construct brick surfaces exposed to sewage flow with nominal 2-in by 8-in face exposed (i.e. bricks on edge).

D. Setting Manhole Frame and Cover

1. Set manhole covers and frames in a full mortar bed. Utilize bricks or precast concrete grade rings, a maximum of 8-in thick, to assure frame and cover are set to the finished grade. Set manhole frame and cover to final grade prior to placement of permanent paving.

E. Dampproofing

1. Paint outer surfaces of precast and cast-in-place manholes and structures with two coats of bituminous dampproofing at the rate of 30 to 60 sq ft per gallon, in accordance with manufacturer's instructions.

3.02 LEAKAGE TESTS

- A. Test each manhole for leakage. ENGINEER shall observe each test. Perform exfiltration test as described below:
- B. Assemble manhole in place; fill and point all lifting holes and exterior joints within 6-ft of the ground surface with an approved non-shrinking mortar. Test prior to placing the shelf and invert and before filling and pointing the horizontal joints below 6-ft of depth. Lower ground water table below bottom of the manhole for the duration of the test. Plug all pipes and other openings into the manhole and brace to prevent blow out.
- C. Fill manhole with water to the top of the cone section. If the excavation has not been backfilled and no water is observed moving down the surface of the manhole, the manhole is satisfactorily water-tight. If the test, as described above is unsatisfactory as determined by the ENGINEER, or if the manhole excavation has been backfilled, continue the test. A period of time may be permitted to allow for absorption. Following this period, refill manhole to the top of the cone, if necessary and allow at least 8 hours to pass. At the end of the test period, refill the manhole to the top of the cone again, measuring the volume of water added. Extrapolate the refill amount to a 24-hour leakage rate. The leakage for each manhole shall not exceed one gallon per vertical foot for a 24-hour period. If the manhole fails this requirement, but the leakage does not exceed three gallons per vertical foot per day, repairs by approved methods may be made as directed by the ENGINEER. If leakage due to a defective section of joint exceeds three gallons per vertical foot per day, the manhole shall be rejected. Uncover the rejected manhole as necessary and to disassemble, reconstruct or replace it as directed by the ENGINEER. Retest the manhole and, if satisfactory, fill and paint the interior joints.
- D. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorptions, etc. It will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete.
- E. An infiltration test may be substituted for an exfiltration test if the ground water table is above the highest joint in the manhole. If there is no leakage into the manhole as determined by the ENGINEER, the manhole will be considered water-tight. If the ENGINEER is not satisfied, testing shall be performed as described hereinbefore.

F. Leakage Tests for Structures

1. The ENGINEER will visually inspect structure(s) for possible leaks before backfilling of structures is allowed. Seal all joints to the satisfaction of the ENGINEER.
2. The ENGINEER may require an exfiltration test as described for manholes on any structure for which he/she deems the test appropriate.

3.03 CLEANING

- A. Thoroughly clean all new manholes of all silt, debris and foreign matter of any kind, prior to final inspections.

END OF SECTION

SECTION 02801

RESTORATION OF SURFACE IMPROVEMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The work includes the restoration of driveways, lawn areas, trees and plants, roadways, sprinkler systems, walks and any other existing improvement affected by the proposed work.
- B. This section includes furnishing equipment, labor and materials, and performing all necessary and incidental operations to perform the required work.

1.02 QUALITY ASSURANCE

- A. Standards
 - 1. Florida Grades and Standards for Nursery Plants, Part 1:
- B. Irrigation Contractor Qualifications
 - 1. Irrigation Competency Card is required for contractor or sub-contractor doing any irrigation repair, including relocation of heads, lines or valves, or any new irrigation work.

PART 2 - MATERIALS AND EQUIPMENT

2.01 SOD

- A. Sod used for restoration shall match the existing sod in the area. St. Augustine sod shall be replaced with St. Augustine Floratam. In areas without irrigation, Argentina Bahia sod shall be used, unless otherwise directed by the Engineer/Landscape Architect.
- B. Sod shall have well matted roots.
- C. 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.
- D. The sod shall be commercial size rectangles measuring 12-inches by 24-inches or larger, except where 6-inch strip sodding is called for on the drawings.
- E. Sod shall be planted as soon as possible after being harvested and shall be shaded and kept moist from the time of harvesting until it is planted.
- F. The source of the sod may be inspected and approved by the Engineer/Architect prior to construction.

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, disfiguring, bark abrasions, plant diseases, insect pests, their eggs or larvae. The new plants shall be approved by the Engineer/Landscape Architect before placing.
- B. Existing plants may be removed, preserved, and replaced at the Contractors option, in which case, the plants shall be handled and maintained by approved nursery staff.
- C. Plants shall be watered and cared for until new growth appears. Dead and dying plants shall be immediately replaced.
- D. Plants used shall be in accordance with the standards for Florida No. 1 or better, as given in the current "Grades and Standards for Nursery Plants," State of Florida, Department of Agriculture, or their equal as approved by the Engineer/Landscape Architect.
- E. Plants shall conform to the sizes indicated by the Owner.

2.03 MULCH

- A. Mulch for all planter areas shall be shredded cypress or eucalyptus, clean, bright and free from weeds, moss, sticks, and other debris.

2.04 WATER

- A. The water used in the performance of this Contract shall be of drinking water quality, clean and free from injurious amounts of oil, acid, alkali, organic matter, or any substance which might be harmful to plant growth or obnoxious to traffic.

2.05 PLANTING MIXTURE

- A. The planting mixture, when required, shall consist of a thorough mixture of 40% peat and 60% sand. The peat shall be Florihome peat or equivalent and the sand shall be clean and free from debris of any kind.

2.06 FERTILIZER

- A. Fertilizer shall be granular 8-8-8, or equivalent.
- B. Commercial fertilizers shall comply with the State fertilizer laws.
- C. Fertilizer may, at the discretion of the Engineer/Architect, upon satisfactory evidence of its feasibility from the manufacturer, be applied in liquid form.

2.07 ASPHALTIC CONCRETE

- A. Asphaltic concrete for surface and base course applications shall be Type I as specified in the Florida Department of Transportation's Standard Specifications for Road and Bridge Construction, 2015 Edition, and shall be in accordance with the project specifications and plans.

2.08 PORTLAND CEMENT CONCRETE

- A. Portland cement concrete used in the performance of this Contract shall have a compressive strength of 3000 psi at 28 days and shall conform to the requirements of Section 03300.

PART 3 - EXECUTION

3.01 LANDSCAPING RESTORATION

- A. All grass areas disturbed by construction shall be restored with the same type of sod as was existing prior to disturbance.
- B. Lawn Areas
 - 1. Any lawn area affected by the required work shall be restored to a condition equal or better than the conditions existing before the commencement of work.
- C. Balled Plants
 - 1. Plants where required 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.
- D. Option
 - 1. Plants may be furnished as container grown instead of balled if all other requirements are met.
- E. Preparation of Plant Pits
 - 1. All plant pits shall be circular in outline and have vertical sides. Tree pits shall be two feet wider than the width of the ball and one foot deeper than the depth of the ball. Shrubs that are either B&B or in 3 gallon and under containers shall have pits that are one foot wider than the width of the plant ball and 6-inches deeper than the depth of the ball.
- F. Setting Plants
 - 1. All plants except as otherwise specified, shall be centered in pits. Deep planting shall be avoided and unless otherwise specified, plants shall be set at such a level that after settlement they will bear the same relation to the required grade as they have to the natural grade before being transplanted.
- G. Balled and burlapped plants and palms shall be placed on 6-inches to 12-inches of tamped planting mixture and adjusted so as to be at the proper level. The rope and burlap shall be cut away and the burlap folded down to the bottom of the pit. Very large B&B plants shall remain wrapped until fully backfilled and then just the upper portion of the burlap shall be removed. Backfill of planting mix shall be placed halfway up the pit and then water tamped. After this water has drained away, backfill around the edge of the pit to form a saucer and fill area three times with water.

H. Water

1. Water to be used initially during plant installation shall be furnished by the Contractor. The existing irrigation system, where damaged, shall be promptly repaired after the installation of the plants.

I. Sod Placement

1. The provisions for the preparation of the area to be sodded shall include scarifying and loosening the soil and application of fertilizer.
2. Sodding shall not be performed when weather and soil conditions are, in the Engineer's opinion, unsuitable for proper results.
3. The sod shall be placed on the prepared surface with edges in close contact, and shall be firmly and smoothly embedded by light tamping with appropriate tools.
4. Where sodding is used in drainage ditches or ponds, the setting of the pieces shall be staggered, such as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas, the offsets of individual strips shall not exceed 6-inches.
5. In order to prevent erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped so as to produce a featheredge effect.
6. On areas where the sod may slide, due to height and slopes, it shall be pegged, with pegs driven through the sod blocks into firm soil and at intervals as shown on the drawings or as directed by the Engineer/Architect.
7. Any pieces of sod which, after placing, show appearance of extreme dryness shall be removed from the work.
8. The sod shall be kept in a moist condition after planting and for the duration of the Contract.

J. Maintenance

1. Contractor shall maintain the planted areas in a satisfactory condition until final acceptance of the project. Such maintenance shall include mowing, edging, weed control, watering, filling, leveling and repairing of any washed or eroded areas as may be necessary.

3.02 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 vertically as possible.
- B. Prior to replacing concrete or asphalt pavement replacement, a limerock base shall be laid. The base for concrete pavement shall be six (6) inches of compacted thickness, and that for asphalt pavement shall be eight (8) inches of compacted thickness for City driveways. For State or County roads the thickness shall be as required by that agency's permit. The base course for each shall be compacted in two equal layers to a minimum of 98% of the maximum density as determined by AASHTO, Method T-180. The Owner will have tests made by an independent testing laboratory to verify compaction results.

- C. Non-asphalt pavement replacement shall be replaced of like material and thickness. Asphalt or built-up asphalt pavement replacement shall be replaced with like material or concrete as directed by the Engineer/Architect. Where asphalt or built-up asphalt pavement is replaced by concrete, the concrete shall have a minimum of six (6) inches in thickness and be reinforced with 6 by 6 No. 6 gage welded wire fabric. Where the pavement replacement is of like material, it shall be replaced in thickness equal to or better than that existing at the time of removal.
- D. Unless the base is sealed or other temporary paving applied over driveway areas to be repaved, pavement shall be replaced not later than three weeks after completion of backfill.

3.03 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/Architect. 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 Department of Transportation specifications.

3.04 TESTS

- A. The Contractor shall furnish facilities for making all density tests and make such restorations as may be necessary due to test operations. All density tests on backfill or base replacement will be made by a commercial testing laboratory employed by the Owner and at such locations as may be recommended by the Engineer/Architect. If the densities as determined by the specified tests fall below the required minimums, the Contractor shall pay for all retests.

END OF SECTION

SECTION 02930

GRASSING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of grassing consists of supplying and planting grass seed and/or sod in the locations shown on the drawings and in those areas where construction activity has damaged or destroyed the ground cover.
- B. The grassing work shall include, but not be limited to, supplying all labor, materials, and equipment necessary to perform seeding, sodding, fertilizing, liming when specified, mulching, watering, mowing, and clean-up.

1.02 QUALITY ASSURANCE

- A. Seeds shall meet the requirements of the State Department of Agriculture and Consumer Services and all applicable State laws.
- B. The Engineer/Architect reserves the right to test, reject or approve all materials before application.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed in original containers showing analysis of seed mixture, percentage of pure seed, year of production, net weight, date of packaging, and location of packaging. Damaged packages will not be accepted.
- B. Deliver fertilizer in water proof bags showing weight, chemical analysis, and name of manufacturer.
- C. The Contractor shall, at the time of delivery, furnish the Engineer/Architect invoices of all materials received in order that the minimum application rate of materials may be determined. Failure to supply invoices at the time of delivery will warrant that payment for those items be delayed until proper submittal of invoices are obtained and the minimum application rates of material can be verified.
- D. Mixtures of different types of seed called for in these specifications shall be mixed in the proper proportions at the site of the work in the presence of the Engineer/Architect or his representative.

PART 2 - PRODUCTS

2.01 SEED

- A. Unless otherwise provided for on the drawings, the Contractor shall conform to the following seed schedule. The total pounds of seed per acre shall be the sum total shown for all the varieties of seed opposite the schedule number.

SEEDING SCHEDULE

<u>SCHEDULE NUMBER</u>	<u>COMMON NAME OF SEED</u>	<u>LBS./ ACRE</u>	<u>PLANTING DATES</u>
1.	Pensacola Bahia (scarified) Bermuda Common (50% hulled)	90 25	March 15 - October 15
2.	Pensacola Bahia (scarified) Bermuda Common (50% hulled) Annual Rye Grass Rye Grain	100 35 10 30	October 16 - March 14

- B. The Bermuda seed shall be an equal mixture of hulled and unhulled seed.
- C. The Pensacola Bahia seed shall be scarified seed, having a minimum active germination of 40 percent and a total germination of 85 percent.
- D. Quick-growing type grass seed shall be a species approved by the Engineer/Architect which will provide an early ground cover during the particular season when planting is done and will not later compete with permanent grass.

2.02 SOD

- A. Sod shall be St. Augustine with well matted roots, unless otherwise noted or directed by the Engineer.
- B. The sod shall be commercial size rectangles measuring 12-inches by 24-inches or larger, except where 6-inch strip sodding is called for on the drawings.
- C. The sod shall be sufficiently thick to secure a dense stand of live grass, with a minimum thickness of 2-inches. The sod shall be live, fresh, and uninjured at the time of planting. It shall have a soil mat of sufficient thickness adhering firmly to the roots to withstand all necessary handling. It shall be reasonably free of weeds and other grasses.
- D. Sod shall be planted as soon as possible after being harvested and shall be shaded and kept moist from the time of harvesting until it is planted.
- E. The source of the sod may be inspected and approved by the Engineer/Architect prior to construction.

2.03 MULCH

- A. Dry Mulch
 - 1. Dry mulch shall be straw or hay, consisting of oat, rye, or wheat straw, or of Pangola, Peanut, Coastal Bermuda or Bahia grass hay. Only undeteriorated mulch which can readily be cut into the soil shall be used.
- B. Manufactured Mulch
 - 1. Manufactured mulches may consist of jute, cotton, or other fiber materials, plastic sheeting, netting, chemical adhesive soil stabilizers, or other approved coverings.

- Manufactured mulch shall only be used when specifically called for on the drawings and shall be as approved by the Engineer/ Architect.
2. The Contractor shall, if requested, submit appropriate certification from the manufacturer that the material meets all of the above requirements, based on laboratory and field tests of the product.
 3. The air-dry weight (as defined by the Technical Association of the Pulp and Paper Industry for wood cellulose) shall be marked on each package by the manufacturer.

2.04 FERTILIZER

- A. The fertilizer shall be a commercial granular type with a chemical designation of 16-4-8 or 20-5-10.
- B. The numerical designations for fertilizer indicate the minimum percentages (respectively) of (1) total nitrogen, (2) available phosphoric acid, and (3) water-soluble potash, contained in the fertilizer.
 1. At least 50 percent of the phosphoric acid shall be from a normal super phosphate or an equivalent source which will provide a minimum of two units of sulfur.
 2. The amount of sulfur shall be indicated on the quantitative analysis card attached to each bag or container.
- C. Commercial fertilizers shall comply with the State fertilizer laws.
- D. Fertilizer may, at the discretion of the Engineer/Architect, upon satisfactory evidence of its feasibility from the manufacturer, be applied in liquid form.

2.05 LIME

- A. Lime shall be agricultural grade, ground limestone minimum 80 percent passing No. 8 sieve, calcium carbonate equivalent minimum 80 percent and shall conform to the requirements of the State Department of Agriculture and Consumer Affairs.

2.06 WATER

- A. The water used in the grassing operations may be obtained from any approved spring, pond, lake, stream, or municipal water system.
- B. The water shall be free of excess and harmful chemicals, acids, alkalis, or any substance which might be harmful to plant growth or obnoxious to traffic.
- C. Salt water shall not be used.

2.07 GRAVEL BED

- A. In the locations shown on the drawings, provide a 3-inch deep bed of river-run gravel of rounded particles ranging in size from 1/2-inch to 2-inches. Gravel shall be as obtained from the vicinity of Montgomery, Alabama, or Chattahoochee, Florida, or equal.
- B. Where gravel is not kept in place by walls or sidewalk, an edging strip shall be used. The edging strip shall be of 1" x 6" cypress, and extend 1/2-inch above the gravel surface.

PART 3 - EXECUTION

3.01 GENERAL

- A. Grassing operations will not be permitted when wind velocities exceed 15 miles per hour. Grassing will be accomplished only when the soil is moist and in proper condition to induce growth. No grassing shall be done when the ground is frozen, unduly wet, or otherwise not in a tillable condition.
- B. Before acceptance of the seeding performed for the establishment of permanent vegetation, the Contractor will be required to produce a satisfactory stand of perennial grass whose root system shall be developed sufficiently to survive dry periods and winter weather and be capable of reestablishment in the spring.

3.02 GRASSING BY SEEDING

A. Sequence of Operations

- 1. The several operations involved in the work shall proceed in the following sequence: grading, fertilizing (and/or application of lime) and preparation of the ground, spreading of the mulch, seeding, cutting in mulch, and rolling.

B. Preparation of Area to be Seeded

- 1. The ground over which the seed is to be sown shall be prepared by disk-harrowing and thoroughly pulverizing the soil to a depth of 4-inches. The prepared soil shall be loose and reasonably smooth. The area shall be reasonably free of large clods, roots, and other material which will interfere with the work or subsequent mowing and maintenance operations.

C. Application of Fertilizer

- 1. The fertilizer (and/or lime) shall be spread uniformly in one or more applications as specified below.
 - a. An initial application of 275 lbs. per acre.
- 2. Unless otherwise directed, a second application of 275 lbs. per acre shall be applied within 90 calendar days after the initial application on projects which have not been accepted prior to this time.
- 3. Unless otherwise directed, a third application of 500 lbs. per acre shall be applied within 270 to 360 calendar days after the initial application on projects which have not been accepted prior to this time.
- 4. Lime shall be spread at a minimum uniform rate of 250 lbs. per acre and thoroughly mixed with the soil to a depth of 4-inches.

D. Dry Mulching

- 1. Approximately 2-inches, loose thickness, of the dry mulch material shall be applied uniformly over the area to be seeded. After the area has been seeded, the mulch material shall be cut into the soil so as to produce a loose mulched thickness of 3- to 4-inches. Care shall be exercised that the materials are not cut too deeply into the soil.

- E. While the soil is still loose and moist, the seed shall be scattered uniformly over the area to be grassed. The application rates of the various types of seed shall be as described in Paragraph 2.01.
- F. Rolling
 - 1. Immediately after completion of the seeding, the entire grassed or mulched area shall be rolled with a cultipacker, traffic roller, or other suitable equipment. At least two trips over the entire area will be required.
- G. Watering
 - 1. The seeded areas shall be watered so as to provide optimum growth conditions for the establishment of the grass. The period for maintaining such moisture conditions shall not be less than two weeks after planting.

3.03 GRASSING BY HYDRO-SEEDING

- A. General
 - 1. This method of grassing generally consists of distributing materials over the area to be grassed by spraying a slurry composed of water, seed, fertilizer, and mulch (wood cellulose fiber mulch for hydro-seeding applications).
- B. Ground Preparation
 - 1. The provisions for the preparation of the seeding areas and for the subsequent maintaining of the moisture condition shall be as specified in Paragraphs 3.02 B, C and G.
- C. Equipment
 - 1. Equipment used in hydro-seeding shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry of the specified amount of fiber, fertilizer, seed, and water. The slurry distribution lines shall be large enough to prevent stoppage. The discharge line shall be equipped with a set of hydraulic spray nozzles which will provide even distribution of the slurry on the various areas to be grassed. The slurry tank shall have a minimum capacity of 1,000 gallons.
- D. Application
 - 1. Wood cellulose fiber mulch shall be applied at the rate of 1,500 lbs. per acre in a mixture of seed, fertilizer, and water. The seed, fertilizer, mulch, and water shall be combined into the slurry tank for distribution of all ingredients in one operation. The materials shall be combined in a manner recommended by the mulch manufacturer. The slurry mixture shall be so regulated that the amounts and rates of application shall result in a uniform application of all materials at rates not less than the amounts specified herein. Using the color of the mulch as a guide, the equipment operator shall spray the prepared seed-bed with a uniform visible coat. The slurry shall be applied in a sweeping motion, in an arched stream, so as to fall like rain, allowing the mulch fibers to build upon each other until an even coat is achieved.

3.04 SODDING

A. Ground Preparation

1. The provisions for the preparation of the area to be sodded shall include scarifying and loosening the soil and application of fertilizer as described in Paragraphs 3.02 B. and C.

B. Inclement Weather and Unsuitable Conditions

1. Sodding shall not be performed when weather and soil conditions are, in the Engineer/Architect's opinion, unsuitable for proper results.

C. Sod Placement

1. The sod shall be placed on the prepared surface with edges in close contact, and shall be firmly and smoothly embedded by light tamping with appropriate tools.
2. Where sodding is used in drainage ditches or ponds, the setting of the pieces shall be staggered, such as to avoid a continuous seam along the line of flow. Along the edges of such staggered areas, the offsets of individual strips shall not exceed 6-inches.
3. In order to prevent erosion caused by vertical edges at the outer limits, the outer pieces of sod shall be tamped so as to produce a featheredge effect.
4. On areas where the sod may slide, due to height and slopes, it shall be pegged, with pegs driven through the sod blocks into firm soil and at intervals as shown on the drawings or as directed by the Engineer/Architect.
5. Any pieces of sod which, after placing, show appearance of extreme dryness shall be removed from the work.

D. Watering

1. The sod shall be kept in a moist condition after planting and for the duration of the Contract. Water shall not be applied between the hours of 8:00 A.M. and 4:00 P.M.

3.05 MAINTENANCE

- A. The Contractor shall, at his expense, maintain the planted areas in a satisfactory condition until final acceptance. Such maintenance shall include watering, filling, leveling, and repairing of any washed or eroded areas and additional seed, fertilizer, and mulch or sod applied to areas where a satisfactory stand of grass has not been achieved.
- B. Immediately prior to final inspection, the Contractor shall mow and remove clippings from the areas grassed under this Contract.

END OF SECTION

DIVISION 3
CONCRETE

SECTION 03100

CAST-IN-PLACE AND POURED CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. The work included under this section consists of furnishing all materials, forms, transportation and equipment, and performing all necessary labor to do all the plain and reinforced concrete work shown on the Drawings, or incidental to the proper execution of the work, or as herein specified.
- B. Composition: Concrete shall be composed of cement, fine aggregate, coarse aggregate, and water so proportioned and mixed as to produce a plastic workable mixture in accordance with all requirements under this section suitable to the specific conditions of placement.

1.02 SUBMITTALS

- A. All materials specified shall be certified by the producer or manufacturer that the furnished material meets the specific requirements of the specifications. Concrete mix designs shall be submitted for approval prior to placement.

PART 2 - MATERIALS AND EQUIPMENT

2.01 PORTLAND CEMENT

- A. Shall comply with the standard specifications for Portland Cement, A.S.T.M. designation C-150, Type II, or Type III (high-early), where indicated on drawings.

2.02 CONCRETE AGGREGATE

- A. Shall conform to standard specifications for concrete aggregate, A.S.T.M. Designation C-33. Maximum size of aggregate shall not exceed one-fifth of the narrowest dimension between reinforcing bars.
- B. Fine Aggregate. Fine aggregate shall be clean, hard, strong, durable, uncoated particles of natural sand known as Lake Wales, Interlachen, or approved equal. The source, composition, quality and gradation of the fine aggregate shall be subject to the approval of the Engineer. Samples of the sand shall be furnished, together with certified copies of the gradation and analysis from the recognized testing laboratory.

- 1. The weight of extraneous or deleterious substances shall not exceed the following percentages.

Loss by Decantation	3%
Shale	1%
Clay Lumps	1%
Coal and Lignite	1%

- 2. The fine aggregate shall be reasonably well graded from coarse to fine and when tested by means of laboratory sieves shall meet the following requirements in percent of total weight:

<u>Total Retained On</u>	<u>Percent Retained</u>
No. 4 Sieve	0 - 5
No. 10 Sieve	3 - 30
No. 30 Sieve	30 - 70
No. 50 Sieve	65 - 95
No. 100 Sieve	95 - 100

3. Deficiencies in the percentages of the fine aggregates passing the No. 50 and No. 100 Sieves may be remedied by the addition of pozzolanic or cementitious materials excepting Portland cement. Such materials must meet the approval of the Engineer.

C. Coarse Aggregate

1. Coarse aggregate shall consist of hard, tough, durable components, free from adherent coatings and vegetable matter, and shall not contain soft, friable, thin or elongated particles in quantities considered deleterious by the Engineer. Coarse aggregate shall be properly graded from fine to coarse to produce concrete of desired strength, density, and workability. The source, composition, quality and gradation of the coarse aggregate shall be subject to the approval of the Engineers. Samples of the coarse aggregate shall be furnished together with certified copies of the gradation and analysis from a recognized testing laboratory.

2. All coarse aggregate shall be washed and shall be free from disintegrated pieces, salt, alkali, vegetable matter and adherent coatings. The total percentage of all deleterious substances shall not exceed 5 percent by weight. The substances designated shall not be presented in excess of the following amounts.

Loss by Decantation	1%
Clay Lumps or Other Soluble Materials	1/4%
Soft Fragments	5%

3. Where the cover over reinforcing is two (2) inches or more, the maximum size of aggregate shall be 1 1/2 inches. Where the cover over reinforcing is less than 2 inches, the maximum size of aggregate shall be 3/4 inch. The maximum size of aggregate shall not exceed one-fifth of the narrowest dimension between forms nor three-fourths of the minimum clear spacing between reinforcing bars. The grading of the coarse aggregate in the concrete shall be within the following limits.

Percent Passing

Maximum Size Square Mesh Screen	97 - 100%
1/2 Maximum Size Square Mesh Screen	40 - 70%
No. 4 Sieve	0 - 6%

2.03 WATER

- A. Water shall be clean and free from oil, acids, alkalis, organic materials or other injurious substances.

2.04 REINFORCEMENT

- A. Reinforcing Bars: ASTM A615, Grade 60, deformed bars of USA manufacture.
- B. Welded Wire Fabric: ASTM A185, gauges, spacing and dimensions as indicated.
- C. Metal Bar Supports: CRSI MSP-1, Chapter 3, Class 2, Type B, Stainless Steel Protected Bar Supports, or otherwise approved by the Engineer. Use concrete supports for reinforcement in concrete placed on grade.
- D. Tie Wire: 16 gauge minimum, black, soft annealed.
- E. Coupler Splice Devices: Cadweld tensions couplers, capable of developing the ultimate strength of the bar as manufactured by Erico Products, Incorporated, Solon, Ohio, or equal.

2.05 FORM WORK

- A. Lumber: Douglas Fir or Larch, No. 2 grade, seasoned and surfaced on four sides.
- B. Plywood: Plyform, Class 1, BB-Exterior type, mill oiled and edge sealed, with thickness not less than 3/4 inch.
- C. Medium Density Overlay (MDO) Plywood Forms: PS-1, B-B High Density Concrete Form Overlay, Class I, unoiled.
 - 1. Butt form panels, make contact surface fully flush and seal butting holes with sponge form tape. Chamfer edges of beams and ceilings.
 - 2. Where MDO plywood is used to form beams, do not use MDO plywood that has been patched or damaged.
- D. Drip Forms: Varnished ponderosa pine or equally rigid non-staining plastic, 1/2 inch wide on each leg.

2.06 ADMIXTURES

- A. Air Entraining Admixture: ASTM C260.
- B. Water Reducing and Retarding Admixture:
 - 1. Concrete Without Superplasticizer:
 - a. Water Reducing Admixtures: ASTM C494, Type A, equal to Eucon WR-75 by the Euclid Company, Pozzolith 200 N by Master Builders, Plastocrete 161 by Sika Chemical Corporation, and containing no calcium chloride.
 - b. Water Reducing and Retarding Admixtures: ASTM C494, Type D, equal to Eucon Retarder-75 by the Euclid Company, Pozzolith 100 XR by Master Builders, Plastiment by Sika Chemical Corporation, and containing no calcium chloride.
 - c. Accelerating Admixtures: ASTM C494, Type C or E, equal to Accelguard 80 by the Euclid Company, Darex Set Accelerator by W.R. Grace, and containing no calcium chloride.

PART 3 - EXECUTION

3.01 PROPORTIONING

- A. The proportions of aggregate to cement shall be such as to produce a thoroughly plastic mixture, which will work readily into the corners and angles of the forms and around the reinforcement but without permitting the materials to segregate or excess free water to collect on the surface. The percentage of sand shall not be less than thirty (30) nor more than fifty (50) percent of the total weight of the aggregate.
- B. The total content, including the surface water contained in the aggregate, shall not exceed 5.7 gallons per sack of cement. The slump shall not exceed four (4) inches. Air-entraining admixture shall be Darex AEA as manufactured by the Dewey and Almy Chemical Company.
- C. The amount of air entrained in the freshly mixed concrete shall not be less than three (3) percent nor more than six (6) percent. The minimum cement content in sacks per cubic yard of concrete shall not be less than six (6) sacks per cubic yard for Class "A" concrete.
- D. Concrete materials shall be accurately measured by weight. Measurement of materials for ready-mixed concrete shall conform to the "Standard Specifications for Ready-Mixed Concrete", (A.S.T.M designation C-94).
 - 1. Class "A" concrete for all structures shall have minimum compressive Strength of 4000 psi at 28 days.
 - 2. Class "B" concrete for sidewalks shall have minimum compressive strength of 3000 psi at 28 days.
 - 3. All concrete shall be Class "A" unless otherwise shown on the drawings.

3.02 MIXING AND PLACING

- A. Concrete shall be mixed conveyed and deposited in accordance with the "A.C.I. Building Code" (A.C.I.318).
- B. Prior to placing any concrete, the Contractor shall submit for the Engineer's approval a design mix, calculated by a recognized testing laboratory, and using the approved aggregates to produce a workable mix of the desired strength, together with certified copies of 7 days and 28 day tests of cylinders taken from concrete made according to the design mix. The mixes shall be designed to secure concrete having a minimum compressive strength at age 28 days.
- C. Ready-mixed concrete delivered shall be accompanied by delivery tickets showing the following.

1.	Date and time leaving plant	Additives (if any)
2.	Type of cement and weight	Site arrival time
3.	Quantity of Water and time added	Site leaving time
- D. Concrete
 - 1. Ready-mixed concrete shall be used. All mixing requirements specified herein shall be enforced, and the Owner's laboratory representative and the Engineer shall have free access to the mixing plant at all times.

2. Except for materials and/or procedures otherwise specified herein, ready-mixed concrete shall be mixed and delivered in accordance with the requirements of ASTM C94.
3. No water shall be added to the concrete after it leaves the plant except where part of the design water was purposely omitted at the plant, and then only as approved by the Engineer.

E. Mixer Speed

1. Neither the speed of any mixer nor the quantity of material loaded into any mixer shall exceed the recommendations of the manufacturer.
2. Excessive over-mixing, required addition of water to preserve the required consistency, shall be cause of rejection of the batch.
3. Concrete shall not remain in a transit mixer or agitator truck more than 90 minutes after the water has been introduced, and not for more than 45 minutes if any approved retarding agent is not used.
4. Minimum mixing time shall be 50 revolutions of drum at rated speed.

F. Measurement

1. Equipment necessary to determine and control the actual amounts of all materials entering the concrete shall be provided by the concrete manufacturer.
2. All materials shall be measured by weight, except that water may be measured by volume calculated at 8-1/3 pounds per gallon. One bag of cement will be considered as 94 pounds in weight.

G. Mixes

1. Mix Design: Conform to ACI 318, Section 4.3. Submit data on consecutive tests and standard deviation.
2. Maximum Water-Cement Ratio:
 - .37 (lbs/lb) - Concrete with superplasticizer
 - .45 (lbs/lb) - Class A concrete without superplasticizer
 - .55 (lbs/lb) - Class B concrete without superplasticizer
 - .65 (lbs/lb) - Class C concrete without superplasticizer
3. Air Content: 5 percent plus or minus 1.5 percent (Class A and B).
4. Slump: 4 inches plus or minus 1 inch for Class A and B without superplasticizer. 7 inches plus or minus 1 inch for Class A and B with superplasticizer. 8 inches plus or minus 1 inch for tremie concrete or as specified by details.

H. Placing Concrete

1. All concrete shall be placed in clean, damp forms that are not hot to the touch.
2. To prevent segregation, concrete shall be deposited as nearly as practicable in final position and not allowed to drop freely more than necessary and in no case more than five feet, except in an approved funnel or tremie. All concrete shall be placed during daylight unless otherwise authorized at least four hours in advance. Where the reinforcing steel above the top of the concrete being placed becomes coated with laitance or partially set-up concrete, all such concrete shall be removed from the reinforcing steel prior to placing concrete around the bars.
3. Concrete shall be packed carefully and tightly around pipe and other items to secure maximum adhesion.
4. Concrete shall be placed in layers not over 12 inches deep before compacting. Concrete shall be compacted by internal vibrating equipment supplemented by spading and hand-rodding between reinforcing steel and form to eliminate air bubbles and honeycomb. Vibrators shall not be used to move the concrete laterally inside the forms. Duration of vibration shall be limited to the time necessary to provide satisfactory consolidation without causing segregation, not less than five and more than 15 seconds per square foot of exposed top surface. The vibrator shall be constantly relocated and shall be placed in each specific spot only once for each layer. The Contractor shall take steps to assure that sufficient personnel are available to devote full time to operating vibrator, spading and rodding.
5. Wall concrete shall be placed in layers as indicated above, with the first lift preceded by a 1-inch minimum layer of 1:2-1/2 cement-sand grout, with a 6-inch to 8-inch slump, placed on existing concrete not more than 20 minutes before concrete placement. The surface of previously placed hardened concrete shall be clean and wet before grouting, or shall be treated with a bonding agent as required. Puddles of water in horizontal recessed keys shall be avoided by the use of drain recesses to outside edge of concrete. Concrete in walls and deep beams shall be placed in lifts not to exceed three layers at 12 inches each for the full length of the pour before proceeding higher. The placing of concrete shall not be delayed more than 20 minutes between layers or lifts.

3.03 CURING AND PROTECTION

A. Curing

1. Immediately after surface defects have been repaired, apply a spray coat of curing compound to all exposed surfaces, including slabs, walls, beams and columns in accordance with the manufacturer's recommendations. Protect exposed steel keyways and other embedded items from the curing compound. Water cure, as specified in paragraph B hereunder, all concrete surfaces that is to be exposed to wastewater, surfaces that are to be coated with a coal tar epoxy system, and concrete floors requiring a bond for special finishes.
2. Do not apply compound during periods of rainfall. Should the film become damaged from any cause within the required curing period, immediately repair the damaged portions with additional compound. Upon removal of forms, immediately coat the newly exposed surfaces to provide a curing treatment equal to that provided for the surface.

3. Curing and Sealing Compound: Use clear compound conforming to Federal Specification TT-C-800A, 30% solids content minimum, having test data from an independent laboratory indicating a maximum moisture loss of 0.030 grams per sq. cm. when applied at a coverage rate of 300 sq. ft per gallon, and equal to Super Floor Coat or Super Pliocure by The Euclid Chemical Company or Masterseal 66 by Master Builders. Furnish manufacturer's certification as required.
 4. Apply specified clear curing and sealing compound to all horizontal areas so noted on the Drawings or in the Specifications. Apply immediately after final finishing. Apply this compound to non-structural construction joints of slabs on grade to act as a bond breaker prior to placement of adjacent concrete.
- B. Water Curing Method: Cure all concrete that is to be water cured by either the wet burlap method, by continuous fogging or by covering the waterproof sheet.
1. Wet Burlap Method: Cover concrete surface with a double thickness of burlap, cotton mats, or other approved materials, kept thoroughly saturated with water. Keep the forms wet until removed and upon removal, start the curing specified herein immediately. Cure the concrete for a period of 7 days for normal Portland cement or 4 days for high early strength cement. Do not submerge concrete poured in the dry until it has attained sufficient strength to adequately sustain the stress involved and do not subject it to flowing water across its surface until it has cured 4 days.
 2. Continuous Fogging: Perform continuous fogging by fogging with a nozzle, which so atomizes the flow of water that a mist, and not a spray, is formed. Fog the concrete surface regularly without allowing any part of the surface to become dry. Take all necessary precautions to prevent erosion of the concrete surface by water.
 3. Covering the Waterproof Sheets: Keep the entire area to be cured continuously wet by fogging, as specified in the fogging paragraph above, for at least 18 hours and then immediately cover the waterproof curing sheet conforming to ASTM C171, waterproof paper and polyethylene film, free of holes or tears. Keep sheet fully flat, without wrinkles or air bubbles, held down tautly at all edges. Do not use this method on slabs which will be exposed to view.

3.04 PLACING REINFORCEMENT

- A. All reinforcement shall be detailed, fabricated and erected in accordance with the A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structure", (A.C.I. 315), including bar supports and spacers. At splices all reinforcing bars shall be lapped a minimum of twenty-four (24) bar diameters but not less than twelve (12) inches.
- B. The reinforcing shall be fabricated to the shapes and dimensions shown and shall be placed where indicated on the drawing. Before placing, all reinforced steel shall be thoroughly cleaned of rust, mill scale or coatings, which would reduce or destroy the bond. Reinforcing bars shall conform to the requirements of the latest editions of the A.C.I. Code and the CRSI Manuals.
- C. Wire mesh, unless otherwise shown on the drawings or specified, shall be 6" x 6" No.10 woven or electrically welded wire fabric conforming to the requirements of ASTM Designation A185, latest revision.

- D. Space chairs and bolsters in accordance with ACI 315 and 318 using height to furnish cover over reinforcing required. Chairs with plastic feet or stainless steel shall be used in all beams and elevated slabs. Chairs for other concrete adjacent to or on the ground may be pieces of concrete block or concrete brick compressed into subgrade with the rebars bearing directly on the pointed edge of the masonry supports, or chairs set on precast concrete pads compressed into the subgrade.
- E. When placed in the forms, reinforcement shall be clean and free of all loose rust, scale, dust, dirt, paint, oil or other foreign material, and shall be accurately and securely positioned both laterally and vertically before placing concrete.
- F. The rebars shall be fastened together at every intersection or at intervals not greater than 24 bar diameters by wire ties or by some alternate method acceptable to the Engineer. In areas where large bars are closer together, the wire ties may be spaced not more than 30 bar diameter apart, rather than as specified above.

3.05 FORMS

- A. Installation and erection shall be in accordance with ACI 347 and specified hereinafter.
- B. Forms shall conform to shape, lines and dimensions of numbers indicated, and shall be sufficiently tight to prevent leakage of mortar. They shall not deflect under dead load weight of construction as a liquid or of construction load. Forms shall be properly braced or tied together so as to maintain position and shape within specified tolerances. Construct forms so that they can be removed steadily without hammering or prying against the concrete. Forms for exposed concrete shall be carefully made and accurately placed to obtain correct shape and line.
- C. Forms shall be of wood, metal, or other approved materials. Metal forms shall be of a type and manufacture acceptable to the Engineer. Plywood, fiberboard, or absorptive type form linings may be used where appropriate. Sectional forms shall produce a uniform surface and shall be assembled in a modular pattern. Pours will not be scheduled until all erection and bracing is complete. Walers, ties and braces shall be required for all forms. Chamfer strips made from nominal dimensional 1" x 1" lumber cut on the diagonal shall be installed at the top of the forms on all exposed edges of walls, slabs, beams and other structures above grade.
- D. Drip edge shall be made from wood quarter round and installed where shown. Extruded plastic fillets shall be used where detailed. Circular structures shall be formed with special care, and attention to the appearance of the finished structure. Random location of fillers, non-modular sections, and excessive deviations from true circular segments shall be cause for rejection of the forms.
- E. The Contractor shall be fully responsible for the adequacy of form work in its entirety. Forms shall support required loads and shall maintain their dimensional and surface correctness to produce members required drawings.
- F. Slots, chases, recesses or other openings as shown on the drawings or as needed for the work of any other trades shall be boxed out.
- G. Box out for all temporary openings and build forms to seal them up when and as required.
- H. After sealing and immediately before the placing of reinforcing, faces of all forms in contact with the concrete shall receive a thorough coating of the liquid form releasing agent, applied in compliance with the Manufacturer's instructions.

- I. Reused forms shall be thoroughly cleaned out of dirt, debris, concrete and foreign matter. Forms shall not be reused if they have developed defects, which would affect their tightness and strength or desired surface finish. Used forms shall not be used for architectural concrete.
- J. Forms shall be removed in a manner that will prevent injury to concrete. Supporting forms or shoring shall not be removed until the members have acquired sufficient strength to support their weight and any load thereon.
- K. Removal shall be in sequence as approved by the Engineer. Unless test cylinders warrant another procedure, the forms shall not be removed from members prior to the time listed in the schedule hereinafter unless otherwise directed.
- L. Bonding To Existing Surfaces: Clean existing concrete surfaces that are to have new concrete bonded thereto of all grease, oil, dust, dirt and loose particles and coat with an epoxy bonding agent just prior to placing of the new concrete. Apply the bonding agent as recommended by the manufacturer and allow the agent to become tacky before the new concrete is placed. Do not allow the bonding agent to overlap or be spilled on the surfaces to be exposed after the work is completed.

3.06 FORM REMOVAL

- A. Maintain formwork in place for the following structural conditions until the concrete has attained the minimum percentage of indicated design compressive strength or for the period of time specified in the following table.

Note: Time periods in the table include all days except those in which the temperature falls below 40 degrees F.

3.07 CONCRETE FINISHINGS

- A. Repair of Surface Defects
 - 1. General: Repair surface defects, including tie holes immediately after form removal. Dampen the area to be patched and an area at least 6 inches wide surrounding it to prevent absorption of water from the patching mortar. Notify the Engineer prior to commencing operations.
 - 2. Removal of Defective Concrete: Remove all honeycombed and other defective concrete down to sound concrete. Cut edges perpendicular to the surface or slightly under cut. Sand blast surfaces to receive repair.
 - 3. Bonding Grout: Thoroughly dampen surfaces to be patched and apply a coat of bonding grout consisting of one part cement to one part fine sand passing a No. 30 sieve and having the consistency of thick cream.
 - 4. Placing Patching Mortar: After the bonding grout begins to lose its water sheen, apply a premixed patching mortar, thoroughly consolidating it into place and striking it off so as to leave the patch slightly higher than the surrounding surface. Leave mortar undisturbed for one hour to permit initial shrinkage and then finally finish.
 - 5. Tie Holes: After being cleaned and thoroughly dampened, fill the tie holes solid with patching mortar.

- B. **Floated Finish:** After concrete has been placed, consolidated, struck off and leveled, do not work the surface further until water sheen has disappeared and the surface has hardened sufficiently to permit floating. During the first floating, check the planeness of the slab with a 10 foot straightedge applied at no less than two angles. Cut down all high spots and fill all low spots to produce a surface having the required tolerance. Then refloat the slab to a uniform sandy texture.
- C. **Light Broomed Finish:** After floating, power trowel slabs to receive a light broomed finish to produce a smooth surface, relatively free of defects. Before the surface sets, pass a soft broom drag over the surface to produce a surface uniform in texture and appearance.
- D. **Troweled Finish:** After floating, power trowel slabs to receive a troweled finish to produce a smooth surface, relatively free of defects. Hand trowel after the surface has hardened sufficiently. When a ringing sound is produced as the trowel is moved over the surfaces, perform final troweling by hand to produce a surface which is thoroughly consolidated, free from trowel marks, uniform in texture and appearance and plane to a tolerance of 1/8 inch of 10 feet as determined by a 10 foot straightedge placed anywhere on the slab in any direction.
- E. **Hardener Finish:** Where indicated to receive a troweled hardener finish, water cure slabs without application of curing and sealing agent. When slab is at least 20 days old and thoroughly dry, apply the hardener in accordance with the manufacturer's recommendations. Where dry-shake hardener or slip resistant finish is required, apply the hardener or slip-resistant product prior to complete curing and finishing, in accordance with the requirements and recommendations of the product manufacturer.
- F. **Saw Cut Joints:** Cut joints that are to be saw cut not sooner than 2 hours after the concrete is poured and not later than 8 hours after the pour.

3.07 TESTS

- A. Compressive strength tests shall be made by breaking standard 6-inch diameter by 12-inch high test specimens prepared, cured and broken in accordance with the American Society for Testing Materials Methods C-31 and C-39, latest revision. Four specimen test cylinders shall be taken from each pour of five (5) cubic yards or more. One additional test shall be taken from each thirty (30) cubic yards or fraction thereof in each pour in excess of thirty (30) cubic yards.
- B. Test specimens shall be taken from manhole bottom pours of less than five (5) cubic yards as directed by the Engineer. Test specimens shall be taken in the presence of the Engineer. One cylinder from each pour shall be broken at seven (7) days, the remainder at twenty-eight (28) days. Additional test cylinders may be ordered for determining the characteristics of a new design mix or changes in equipment or methods, and under adverse weather or curing conditions.
- C. Slump test shall be made in accordance with ASTM C143, latest revision, and shall be made with each load and at time of cylinders.
- D. The Contractor shall supply all cylinder molds, slump cones, tools and labor for preparing specimen, and shall provide clean, moist sand or burlap for curing. Cylinder shall not be shipped to the testing laboratory until the third day following preparation, and shall be protected from accidental damage at all times.
- E. The test cylinders shall be tested in a recognized commercial testing laboratory at the expense of the Contractor.

3.08 EXPANSION JOINTS, CONSTRUCTION JOINTS AND WATER SPOTS

- A. Expansion Joints shall be placed as indicated on the drawings. Joint materials for surfaces exposed to water and sewage shall conform to ASTM D175, Preformed Joint Filler, non-extruding and resilient (bituminous type), thickness as shown on the drawings. Joint materials for isolation joints, slab-on-grade joints and wall joints not exposed to water and sewage shall conform to ASTM D994, preformed expansion joint filler for concrete (bituminous type), thickness as shown on the drawings.
- B. Construction Joints shall be located in accordance with a schedule of pours which shall be prepared and submitted by the Contractor. Vertical construction joints shall be held to the minimum number consistent with good standard practice.
- C. Water Stops. Material for water stops shall be 9-inch PVC multi-rib center-bulb type for expansion joints, and 1/4" x 4" and 1/8" x 4" structural steel sheets for construction joints. PVC joint material shall be as manufactured by The Burke Company, or approved equal.

END OF SECTION

SECTION 03300

CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Work consists of the forming, mixing, placing and curing concrete for use in small structures, sidewalk, and curb replacement.

1.02 QUALITY ASSURANCE

- A. Concrete may be standard design and product of commercial ready-mix or transit-mix supplier conforming to the following requirements:

<u>CLASS</u>	<u>CEMENT CONTENT PER CUBIC YARD</u>	<u>MINIMUM 28-DAY STRENGTH (lb. per sq. in.)</u>
Structural	6.25 bags or 600 pounds	4,000
Non-structural	6.75 bags or 560 pounds	3,000

- B. Job mixes of small quantities shall conform to the same requirements.

1.03 SUBMITTALS

- A. Compressive strength tests, when required by the Engineer, shall be made by breaking standard 6-inch diameter by 12-inch high test specimens prepared, cured and broken in accordance with the ASTM C31 and C39. Three specimen test cylinders shall be taken from each concrete pour of three cubic yards. One additional test cylinder shall be taken for quantities up to one truck load. Test specimens shall be taken in the presence of the Engineer. One cylinder from each pour shall be broken at seven days, the remainder at twenty-eight days. Additional test cylinders may be ordered for determining the characteristics of a new design mix or changes in equipment or methods, and under adverse weather or curing conditions.
- B. Slump test shall be made in accordance with ASTM C143, and shall be made whenever directed by the Engineer.
- C. Responsibility for Tests and Reports
1. The Contractor shall supply all cylinder molds, slump cones, tools and labor for preparing specimens, and shall provide clean, moist sand or burlap for curing. Cylinders shall be shipped to the testing laboratory until the third day following preparation, and shall be protected from accidental damage at all times.
 2. The test cylinders shall be tested in a recognized commercial testing laboratory.

1.04 DELIVERY AND STORAGE

- A. Ready-mixed concrete delivered shall be accompanied by delivery tickets showing the following:
 - Date and time leaving plant
 - Type of cement and weight
 - Quantity of water and time added
 - Additive (if any).
- B. Bulk or bagged cement or bagged concrete mix shall be stored off the ground in a sheltered area.

PART 2 - PRODUCTS

2.01 CEMENT

- A. Portland cement shall conform to the latest revision of Federal and/or ASTM Specifications enumerated below:
 - 1. For general concrete construction, ASTM C150, Type I.
 - 2. Type II (meeting ASTM C150) cement shall be used in all areas where the concrete will be subjected to a hydrogen sulfide environment (i.e., direct contact with groundwater).

2.02 AGGREGATES

- A. Fine Aggregate
 - 1. Fine aggregate shall be clean, hard, strong, durable, uncoated particles of natural sand.
 - 2. The fine aggregate shall be reasonably well graded from coarse to fine.
- B. Coarse Aggregate
 - 1. Coarse aggregate shall be washed and consist of hard, tough, durable components, free from adherent coatings, salt, alkali, vegetable matter, and shall not contain an excessive number of soft, friable, thin or elongated particles. Coarse aggregate shall be properly graded from fine to coarse to produce concrete of the desired strength, density, and workability.
 - 2. Where the cover over reinforcing is two inches or more, the maximum size of aggregate shall be 1-1/2 inches. Where the cover over reinforcing is less than two inches, the maximum size of aggregate shall be 3/4-inch. The maximum size of aggregate shall not exceed one-fifth of the narrowest dimension between forms nor three-fourths of the minimum clear spacing between reinforcing bars.

2.03 BAGGED CONCRETE MIX

- A. For very small amounts of concrete a premixed sand, gravel and cement in 40 lb. (1/3 cu. ft.) or 80 lb. (2/3 cu. ft.) bags may be used. The Engineer must give approval for its use.

2.04 ADMIXTURES

- A. The design mix may be based upon the use of such admixtures as the designer may select to improve the workability, plasticity or rate of curing of the concrete.

2.05 MIXING WATER

- A. The water used in mixing concrete shall be fresh, clean and free from injurious amounts of oil, acid, alkali, or organic matter.
- B. Water from any source other than a municipal water supply shall be shown by test to comply with Florida State Department of Transportation requirements for mixing water.

2.06 STEEL BAR AND WIRE FABRIC REINFORCEMENT

- A. The reinforcing shall be fabricated to the proper shapes and dimensions. Before placing, all reinforcements shall be thoroughly cleaned of rust, mill scale and/or coatings.
- B. Reinforcing bars shall conform to the requirements of ASTM A615, Grade 60 including hoops and stirrups.
- C. Reinforcing steel shall be detailed, fabricated and placed according to the methods and standards recommended in the "Manual of Standard Practice for Detailing Reinforced Concrete Structures" of the American Concrete Institute.
- D. Splices in reinforcing mats shall be staggered. Horizontal mats shall be supported on metal chairs with all sills or pads below subgrade. Spacers shall be provided for wall and column steel and shall be removed as the concrete is placed.
- E. Wire fabric, unless otherwise shown or specified, shall be 6-inches by 6-inches by W1.4 x W1.4 woven or electrically welded wire fabric conforming to the requirements of ASTM A185.

PART 3 - EXECUTION

3.01 FORMS

- A. Material
 - 1. Forms shall be of wood, metal, or other approved materials, shall be built true to line and grade, mortar-tight, adequately braced and supported, and sufficiently rigid to prevent displacement or sagging. Metal forms shall be of a type and manufacture acceptable to the Engineer. Plywood, fiberboard, or absorptive type form linings may be used where appropriate.
 - 2. Form work shall be constructed conforming to AC1 347 Chapter 2. Joints of sectional forms shall be located in a modular manner with as few fillers as possible. Voids in plywood and joints between form modules used for concrete exposed to view or hydraulic action shall be filled with silicone sealant and shall be tool smooth. Profile items such reglets and anchors shall be securely fastened with flush mechanical fasteners.
 - 3. Pours shall not be scheduled until all erection and bracing of form work has been completed.

3.02 CONCRETE PLACING

- A. Concrete shall not be placed until forms and reinforcing have been inspected.
- B. Concrete shall be placed with the aid of mechanical vibrating equipment supplemented by hand forking or spading. Vibration shall be transmitted directly to the concrete and not through the forms. The duration of vibration at any location in the forms shall be held to the minimum necessary to produce thorough consolidation.
- C. Concrete shall be compacted and worked in an approved manner into all corners and angles of the forms and around reinforcement and embedded fixtures in such a manner as to prevent segregation of the coarse aggregate.
- D. Before depositing new concrete on or against concrete which has set, the existing surfaces shall be cleaned of all laitance, foreign matter and loose particles, and slushed with a neat cement grout. Grout for horizontal construction joints shall be of cement and fine aggregate in the same proportions as in the concrete to be placed, and shall be from 1/2- to 1-inch thickness.
- E. The concrete shall be placed by suitable equipment as nearly as possible to its final location and without any segregation of the aggregate. Free vertical drop shall not exceed three feet.

3.03 CONCRETE CURING

- A. Water for curing shall be clear and entirely free from any elements which might cause staining or discoloration.
- B. Concrete shall be kept wet by covering with water, water saturated covering, or by alternate methods which will keep all surfaces continuously wet, for a period of seven days.
- C. Where wood forms are left in place during curing, they shall be kept wet at all times.

3.04 WEATHER PROTECTION

- A. No concrete shall be mixed or placed when the air temperature in the shade and away from artificial heat is as low as 40 degrees F., and falling. Concrete may be mixed and placed when the air temperature in the shade and away from artificial heat is 35 degrees Fahrenheit, and rising.
- B. Fresh concrete shall be protected from rain, flowing water and mechanical injury.

3.05 CONCRETE FINISHING

- A. Slabs, Walks and Pavements shall be brought to a true and even finish by power or hand-floating. The surface shall be floated to a true, smooth finish. Troweling shall be the minimum to obtain a smooth, dense surface and shall not be done until the mortar has hardened sufficiently to prevent excess fine material from being worked to the surface. All walk and pavement surfaces, shall, immediately after troweling, be lightly broomed. The brooming shall be sufficient to mark the surface without appreciably disturbing the troweled finish.

END OF SECTION

SECTION 03600

GROUT

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide all labor, materials, tools and equipment and perform all grouting as specified hereinafter and indicated on the Drawings.

1.02 RELATED WORK

- A. Section 03100: *Cast-In-Place and Poured Concrete*.

1.03 SUBMITTALS

- A. Submit manufacturer's literature for review on the following items:
 - 1. Nonshrink grout data including grout properties, mixing, surface preparation and installation instructions.

1.04 DELIVERY AND STORAGE

- A. Deliver and store grouting materials in unbroken containers with seals and labels intact as packaged by the manufacturer.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Nonshrink, Nonmetallic Grout: The Burke Company's Non-Ferrous, Non-Shrink Grout, Sauereisen F-100 Level Fill, Master Builders Masterflow 713, Eculid NS Grout, or equal-pre-mixed type.
- B. Nonshrink Metallic Grout: The Burke Company's Metallic Spec Grout, Master Builders Embeco 636 Grout pre-mixed type, or equal.
- C. Epoxy Grout: Sikadur 42 Grout-Pak, or equal, for grouting sleeves for anchor bolts, etc.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Clean all bonding surfaces of dust and oil.

3.02 INSTALLATION

A. Nonshrink Grout

1. Use nonshrink, nonmetallic grout for grouting precast concrete wall panel connections, column base plates, anchor bolts, reinforcing bars, pipe sleeves, machinery support and pump base plates. Use epoxy grout for anchor bolts, etc., where indicated on the Drawings.
2. Mix and place nonshrink grout as recommended by the manufacturer.
3. Mix grout as close to the work area as possible and transport quickly to its final position in a manner which will not permit segregation of materials.
4. Cure nonshrink grout with water saturated burlap for at least three days or with an application of Super Rez Seal cure and seal compound applied immediately after grout placement.
5. Do not operate machinery set on grout pads until grout has cured for at least 24 hours.

END OF SECTION

ADDITIONAL TECHNICAL SPECIFICATIONS

SECTION 120
EARTHWORK AND RELATED OPERATIONS
FOR LOCAL AGENCIES

4. Precast concrete sections shall be shipped after concrete has attained 3000 psi compressive strength.
5. Design precast concrete base, riser, transition top, flat slab top and grade ring for a minimum H-20 loading plus earth load. Calculate earth load with a unit weight of 130 pcf.
6. Mark date of manufacture, name and trademark of manufacturer on the inside of each precast section.
7. Construct and install precast concrete base as shown on the Drawings and specified in FDOT standards.
8. Provide integrally cast knock-out panels in precast concrete manhole sections at locations, and with sizes shown on Drawings. Knock-out panels shall have no steel reinforcing.

2.03 PRECAST CONCRETE STRUCTURES

- A. Refer to FDOT Standards for inside dimensions, headroom requirements and minimum thickness of concrete.
- B. Manufacturer shall notify ENGINEER at least 5 working days prior to placing concrete during manufacturing process. ENGINEER may inspect reinforcing steel placement prior to placing concrete.
- C. Structural design calculations and Drawings shall be prepared and stamped by a professional engineer registered in Florida.
- D. Design Criteria
 1. Precast concrete
 - a. Minimum compressive strength shall be 5,000 psi at 28 days.
 - b. Maximum water-to-cement ratio shall be 0.40 by weight.
 - c. Minimum cement content shall be 600 lbs of cement per cubic yard of concrete.
 2. Manufactured products
 - a. Conform to ACI 318 and ACI 350R.
 - b. Analyze walls and slabs using accepted engineering principals.
 - c. When "fy" exceeds 40,000 psi, "z" (ACI 318) shall not exceed 95,000 psi. "fs" shall not exceed 50 percent of "fy".
 - d. Design products to support their own weight, weight of soil at 120 pcf, and a live load equal to AASHTO HS-20 applied to top slab.
 - e. Cast base slab and walls together to form a monolithic base section.

- f. Design structure walls for a water pressure of 90 psf. Originate pressure diagram at finished ground surface. Include lateral pressure from vehicles in accordance with AASHTO.
- g. Consider discontinuities in structure produced by openings and joints. Provide additional reinforcing around openings. Frame openings to carry full design loads to support walls.
- h. Prevent flotation, with ground water level at finished ground surface, by dead weight of structure and soil load above structure. Do not consider skin friction, soil friction, or weight of equipment in structure.
- i. Locate horizontal wall joints 18-in minimum from horizontal centerline of wall openings.
- j. Design structure with a minimum number of joints. Maximum number of structure sections, including top slab, shall be four.
- k. Provide lifting hooks for top slab.
- l. Locate access openings, wall sleeves and pipe penetrations as shown on Drawings.
- m. Wall sleeves shall be provided by the precast concrete manufacturer.

2.04 BRICK MASONRY

- A. Bricks shall be sound, hard, uniformly burned, regular and uniform in shape and size. Underburned or salmon brick shall not be acceptable. Only whole brick shall be used.
 - 1. Bricks for channels and shelves shall conform to ASTM C32, Grade SS except that the mean of five tests for absorption shall not exceed 8 percent and no individual brick exceed 11 percent.
 - 2. Bricks for raising manhole frames to finished grade shall conform to ASTM C62.
- B. Mortar shall be composed of 1 part Portland cement, 2 parts sand, and hydrated lime not to exceed 10-lbs to each bag of cement. Portland cement shall be ASTM C150, Type II; hydrated lime shall conform to ASTM C207.
- C. Sand shall be washed, cleaned, screened, well graded with all particles passing a No.4 sieve and conform to ASTM C33.

2.05 JOINTING PRECAST MANHOLE SECTIONS AND STRUCTURES

- A. Seal tongue and groove joints of precast manhole and structure sections with either rubber O-ring gasket or preformed flexible joint sealant. O-ring gasket shall conform to ASTM C443. Preformed flexible joint sealant shall be Kent Seal No.2 by Hamilton-Kent; Ram-Nek by K. T. Snyder Company or equal.
- B. Completed joint shall withstand 15 psi internal water pressure without leakage or displacement of gasket or sealant.

2.06 MANHOLE RUNGS

- A. Manhole rungs shall be either of the following types:
1. Cast aluminum alloy 6061-T6, drop front design, 12-in wide with an abrasive step surface conforming to OSHA requirements.
 2. Steel reinforced, copolymer polypropylene, 16-in wide, M. A. Industries Inc, PF Series or equal. Copolymer polypropylene shall conform to ASTM D4101 Classification PP0344 B33534 Z02. Steel reinforcing shall be 1/2-in diameter, conforming to ASTM A615, Grade 60 and shall be continuous throughout rung.

2.07 PIPE CONNECTIONS TO MANHOLE

- A. Connect pipe to manhole in the following ways:
1. Grout in place - Precast manhole section shall have a formed, tapered circular opening larger than the pipe outside diameter. Grout shall be non-shrink and waterproof equal to Hallemite, Waterplug or Embeco. Plastic pipe shall have a waterstop gasket secured to pipe with a stainless steel clamp.
 2. Flexible sleeve - Integrally cast sleeve in precast manhole section or install sleeve in a formed or cored opening. Fasten pipe in sleeve with stainless steel clamp(s). Coat stainless steel clamp(s) with bituminous material to protect from corrosion. Flexible sleeve shall be Lock Joint Flexible Manhole Sleeve; Kor-N-Seal connector; PSX Press-Seal Gasket or equal.
 3. Compression gasket - Integrally cast compression gasket in precast manhole section. Insert pipe into compression gasket. Compression gasket shall be A-Lok or equal.

2.08 DAMPPROOFING

- A. Dampproofing shall be Hydrocide 648 by Sonneborn Building Products; Dehydratine 4 by A. C. Horn Inc; RIW Marine Liquid by Toch Brothers or equal.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Manhole and Structure Installation.
1. Manhole and structure shall be constructed to the dimensions shown on the Drawings and as specified in FDOT standards. Protect all work against flooding and flotation. Construct cast-in-place bases in accordance with the requirements of Division 3 and the details shown on the Drawings.
 2. Place manhole base on a bed of 12-in screened gravel as shown on the Drawings. Set manhole base grade so that a maximum grade adjustment of 8-in is required to bring the manhole frame and cover to final grade.
 - a. Use precast concrete grade rings or brick and non-shrink mortar to adjust manhole frame and cover to final grade.
 3. Set precast concrete barrel sections and structures plumb with a 1/4-in maximum out of plumb tolerance allowed. Seal joints of precast barrel sections with either a

rubber O-ring set in a recess or preformed flexible joint sealant in sufficient quantity to fill 75 percent of the joint cavity. Fill the outside and inside joint with non-shrink mortar and finished flush with the adjoining surfaces. Caulk the inside of any leaking barrel section joint with lead wool or non-shrink grout to the satisfaction of the ENGINEER.

4. Allow joints to set for 14 hours before backfilling unless a shorter period is specifically approved by the ENGINEER.
5. Plug holes in the concrete barrel sections required for handling with a non-shrinking grout or non-shrinking grout in combination with concrete plugs. Finish flush on the inside.
6. Cut holes in precast sections to accommodate pipes prior to setting manhole sections in place to prevent jarring which may loosen the mortar joints.
7. Backfill carefully and evenly around manhole sections.

B. Manhole Pipe Connections

1. Construct manhole pipe connections, including pipe stubs, as specified above. Close or seal pipe stubs for future connections with a gasketed watertight plug.

C. Manhole Rung Installation

1. Aluminum Manhole Rungs

- a. Grout aluminum manhole rungs into precast sections, on 12-in centers. Preform holes in riser and cone sections for rungs during casting. Holes for rungs shall be 1-1/8-inch in diameter and a minimum of 3-1/2-in deep.
- b. Grout rungs into precast sections immediately after casting and placing in the curing area, or immediately after coring holes for manhole rungs into base section. Fill holes with grout consisting of Portland Type II cement and mortar sand in a 1 to 1/2 ratio mixed to a putty consistency.
- c. Paint those parts of the rungs which are embedded with a heavy coating of zinc chromate or other approved paint.

2. Steel Reinforced Polypropylene Plastic Manhole Rungs

- a. Preform holes for manhole rungs during casting of the riser and cone sections, using tapered form pins specifically made for preforming manhole rung holes.
- b. Drive manhole rungs into preformed holes after concrete has developed a compressive strength of 3,000 psi.
- c. Alternatively, cast manhole rungs into riser and cone sections when concrete is placed.
- d. Drilling holes for manhole rungs may be used to accommodate field conditions when approved by the ENGINEER. Drill holes of diameter, spacing and depth required by manhole rung manufacturer.

3. Pull-out resistance test
 - a. All manhole rung installation methods shall withstand a pull-out resistance test of 1,500 pounds.

D. Brickwork

1. Mix mortar only in such quantity as may be required for immediate use. Use mortar before initial set has taken place. Mortar shall be used within 1-1/2 hours and shall be constantly worked with hoe or shovel until used. Anti-freeze mixtures shall not be included in the mortar. Install masonry when the outside temperature is above 40 degrees F unless provisions are made to protect the mortar, bricks and finished work from frost by heating and enclosing the work with tarpaulins or other suitable material. ENGINEER's decision regarding the adequacy of protection against freezing shall be final.
2. Construct channels and shelves of brick and concrete as shown on the Drawings and as specified in FDOT standards. Brick lined channels shall correspond in shape with the lower half of the pipe. Set shelf elevation at crown of highest pipe and slope 1-in/ft to drain toward the flow through channel. Construct brick surfaces exposed to sewage flow with nominal 2-in by 8-in face exposed (i.e. bricks on edge).

E. Setting Manhole Frame and Cover

1. Set manhole covers and frames in a full mortar bed. Utilize bricks or precast concrete grade rings, a maximum of 8-in thick, to assure frame and cover are set to the finished grade. Set manhole frame and cover to final grade prior to placement of permanent paving.

F. Dampproofing

1. Paint outer surfaces of precast and cast-in-place manholes and structures with two coats of bituminous dampproofing at the rate of 30 to 60 sq ft per gallon, in accordance with manufacturer's instructions.

3.02 LEAKAGE TESTS

- A. Test each manhole for leakage. ENGINEER shall observe each test. Perform exfiltration test as described below:
- B. Assemble manhole in place; fill and point all lifting holes and exterior joints within 6-ft of the ground surface with an approved non-shrinking mortar. Test prior to placing the shelf and invert and before filling and pointing the horizontal joints below 6-ft of depth. Lower ground water table below bottom of the manhole for the duration of the test. Plug all pipes and other openings into the manhole and brace to prevent blow out.
- C. Fill manhole with water to the top of the cone section. If the excavation has not been backfilled and no water is observed moving down the surface of the manhole, the manhole is satisfactorily water-tight. If the test, as described above is unsatisfactory as determined by the ENGINEER, or if the manhole excavation has been backfilled, continue the test. A period of time may be permitted to allow for absorption. Following this period, refill manhole to the top of the cone, if necessary and allow at least 8 hours to pass. At the end of the test period, refill the manhole to the top of the cone again, measuring the volume of water added. Extrapolate the refill amount to a 24-hour leakage rate. The leakage for each manhole shall not exceed one gallon per vertical foot for a 24-

hour period. If the manhole fails this requirement, but the leakage does not exceed three gallons per vertical foot per day, repairs by approved methods may be made as directed by the ENGINEER. If leakage due to a defective section of joint exceeds three gallons per vertical foot per day, the manhole shall be rejected. Uncover the rejected manhole as necessary and to disassemble, reconstruct or replace it as directed by the ENGINEER. Retest the manhole and, if satisfactory, fill and paint the interior joints.

- D. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorptions, etc. It will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete.
- E. An infiltration test may be substituted for an exfiltration test if the ground water table is above the highest joint in the manhole. If there is no leakage into the manhole as determined by the ENGINEER, the manhole will be considered water-tight. If the ENGINEER is not satisfied, testing shall be performed as described hereinbefore.
- F. Leakage Tests for Structures
 - 1. The ENGINEER will visually inspect structure(s) for possible leaks before backfilling of structures is allowed. Seal all joints to the satisfaction of the ENGINEER.
 - 2. The ENGINEER may require an exfiltration test as described for manholes on any structure for which he/she deems the test appropriate.

3.03 CLEANING

- A. Thoroughly clean all new manholes of all silt, debris and foreign matter of any kind, prior to final inspections.

END OF SECTION

SECTION 02611

REINFORCED CONCRETE PIPE FOR GRAVITY SERVICE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This section covers materials and methods of installation of Reinforced Concrete Pipe for non-pressure or gravity service in Piped Utility Systems.

1.02 HANDLING AND STORAGE

- A. Pipe, fittings, and accessories shall be loaded and unloaded by lifting with hoists or skidding in order to avoid shock or damage. Under no circumstances shall such material be dropped. Pipe handled on skidways shall not be rolled or skidded against pipe on the ground. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior surface or internal lining of the pipes.
- B. Materials, if stored, shall be kept safe from damage. The interior of all pipe, fittings, and other appurtenances shall be kept free from dirt or foreign matter at all times.
- C. Gaskets for joints shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.
- D. Inspection
 - 1. Pipe and appurtenances shall be inspected at the point of delivery. Material found to be defective due to manufacture or damage in shipment shall be rejected. Tests as specified in the applicable material standard may be performed to ensure conformance with the standard.

PART 2 - PRODUCTS

2.01 ROUNDED PIPE

- A. Pipe shall be cast vibrated, machine-made or flat bed concrete pipe that is designed, manufactured, cured, tested and marked in accordance with the requirements of ASTM Designation C-76. Pipe shall be equivalent to Class III, unless otherwise noted on plans, and Wall B or C of the proper strength for the depth of cover required. Pipe shall be manufactured in lengths no longer than 16-feet nor shorter than 8-feet, except that shorter lengths as required at closures or junctions of structures will be permitted. Pipe with elliptical reinforcing shall be adequately marked to prevent improper placement in the trench. Lift holes or eyes may be provided in each pipe for the purpose of handling.
- B. Joints shall be of either a bell and spigot or double spigot and sleeve design using round rubber gaskets. The joint shall be so designed and fabricated that when the pipe is laid it shall be self-centering, and when the joint completed, the gasket will be enclosed on all four surfaces. The gasket shall not be required to support the weight of the pipe, but shall keep the joint tight under all normal conditions of service, including expansion, contraction and earth settlement.
- C. Joints and gaskets shall conform to the requirements of ASTM C443.

EARTHWORK AND RELATED OPERATIONS

SECTION 120 EXCAVATION AND EMBANKMENT

120-1 Description.

120-1.1 General: Excavate and construct embankments as required for the roadway, ditches, channel changes and borrow material. Use suitable excavated material or authorized borrow to prepare subgrades and foundations. Construct embankments in accordance with Standard Plans, Index 120-001. Compact and dress excavated areas and embankments.

Meet the requirements of Section 110 for excavation of material for clearing and grubbing and Section 125 for excavation and backfilling of structures and pipe. Material displaced by the storm sewer or drainage structure system is not included in the earthwork quantities shown in the Plans.

120-1.2 Unidentified Areas of Contamination: When encountering or exposing any abnormal condition indicating the presence of contaminated materials, cease operations immediately in the vicinity and notify the Engineer. The presence of tanks or barrels; discolored earth, metal, wood, ground water, etc.; visible fumes; abnormal odors; excessively hot earth; smoke; or other conditions that appear abnormal may indicate the presence of contaminated materials and must be treated with extreme caution.

Make every effort to minimize the spread of contamination into uncontaminated areas. Immediately provide for the health and safety of all workers at the job site and make provisions necessary for the health and safety of the public that may be exposed to any potentially hazardous conditions. Ensure provisions adhere to all applicable laws, rules or regulations covering potentially hazardous conditions and will be in a manner commensurate with the gravity of the conditions.

The Engineer will notify the District Contamination Impact Coordinator (DCIC) who will coordinate selecting and tasking the Department's Contamination Assessment/Remediation Contractor (CAR). Provide access to the potentially contaminated area. Preliminary investigation by the CAR Contractor will determine the course of action necessary for site security and the steps necessary under applicable laws, rules, and regulations for additional assessment and/or remediation work to resolve the contamination issue.

The CAR Contractor will delineate the contamination areas, any staging or holding area required; and, in cooperation with the Prime Contractor and Engineer, develop a work plan that will provide the CAR Contractor's operations schedule with projected completion dates for the final resolution of the contamination issue.

The CAR Contractor will maintain jurisdiction over activities inside any outlined contaminated areas and any associated staging holding areas. The CAR Contractor will be responsible for the health and safety of workers within the delineated areas. Provide continuous access to these areas for the CAR Contractor and representatives of regulatory or enforcement agencies having jurisdiction.

Both Contractors will use the schedule as a basis for planning the completion of both work efforts. The Engineer may grant the Contract Time extensions according to the provisions of 8-7.3.2.

Cooperate with the CAR Contractor to expedite integration of the CAR Contractor's operations into the construction project. The Prime Contractor is not expected to

engage in routine construction activities, such as excavating, grading, or any type of soil manipulation, or any construction processes required if handling of contaminated soil, surface water or ground water is involved. All routine construction activities requiring the handling of contaminated soil, surface water or groundwater will be by the CAR Contractor. Adjustments to quantities or to Contract unit prices will be made according to work additions or reductions on the part of the Prime Contractor in accordance with 4-3.

The Engineer will direct the Prime Contractor when operations may resume in the affected area.

120-2 Classifications of Excavation.

120-2.1 General: The Department may classify excavation specified under this Section for payment as any of the following: regular excavation, subsoil excavation, lateral ditch excavation, and channel excavation.

If the proposal does not show subsoil excavation or lateral ditch excavation as separate items of payment, include such excavation under the item of regular excavation.

If the proposal shows lateral ditch excavation as a separate item of payment, but does not show channel excavation as a separate item of payment, include such excavation under the item of lateral ditch excavation. Otherwise, include channel excavation under the item of regular excavation.

120-2.2 Regular Excavation: Regular excavation includes roadway excavation and borrow excavation, as defined below for each.

120-2.2.1 Roadway Excavation: Roadway excavation consists of the excavation and the utilization or disposal of all materials necessary for the construction of the roadway, ditches, channel changes, etc., except as may be specifically shown to be paid for separately and that portion of the lateral ditches within the limits of the roadway right-of-way as shown in the Plans.

120-2.2.2 Borrow Excavation: Borrow excavation consists of the excavation and utilization of material from authorized borrow pits, including only material that is suitable for the construction of roadway embankments or of other embankments covered by the Contract.

A Cost Savings Initiative Proposal (CSIP) submittal based on using borrow material from within the project limits will not be considered.

120-2.3 Subsoil Excavation: Subsoil excavation consists of the excavation and disposal of muck, clay, rock, or any other material that is unsuitable in its original position and that is excavated below the finished grading template. For stabilized bases and sand bituminous road mixes, consider the finished grading template as the top of the finished base, shoulders and slopes. For all other bases and rigid pavement, consider the finished grading template as the finished shoulder and slope lines and bottom of completed base or rigid pavement. For pond and ditches that identify the placement of a blanket material, consider the finished grading template as the bottom of the blanket material. Subsoil excavation also consists of the excavation of all suitable material within the above limits as necessary to excavate the unsuitable material. Consider the limits of subsoil excavation indicated in the Plans as being particularly variable, in accordance with the field conditions actually encountered.

The quantity of material required to replace the excavated material and to raise the elevation of the roadway to the bottom of the template will be paid for under embankment or borrow excavation (Truck Measure).

120-2.4 Lateral Ditch Excavation: Lateral ditch excavation consists of all excavation of inlet and outlet ditches to structures and roadway, changes in channels of streams, and ditches

parallel to the roadway right-of-way. Dress lateral ditches to the grade and cross-section shown in the Plans.

120-2.5 Channel Excavation: Channel excavation consists of the excavation and satisfactory disposal of all materials from the limits of the channel as shown in the Plans.

120-3 Preliminary Soils Investigations.

When the Plans contain the results of a soil survey, do not assume such data is a guarantee of the depth, extent, or character of material present.

120-4 Removal of Unsuitable Materials and Existing Roads.

120-4.1 Subsoil Excavation: Where muck, rock, clay, or other material within the limits of the roadway is unsuitable in its original position, excavate such material to the cross-sections shown in the Plans or indicated by the Engineer, and backfill with suitable material. Shape backfill material to the required cross-sections. Where the removal of plastic soils below the finished earthwork grade is required, meet a construction tolerance, from the lines shown in the Plans as the removal limits, of plus or minus 0.2 feet in depth and plus or minus 6 inches (each side) in width.

120-4.2 Construction over Existing Old Road: Where a new roadway is to be constructed over an old one, plow or scarify the old road, and break it up full width, regardless of height of fill. If the Plans provide that paving materials may be incorporated into the fill, distribute such material in a manner so as not to create voids. Recompact the old road meeting the requirements of 120-10.2.

120-4.3 Obliterating Old Road: Where the Plans call for obliteration of portions of an old road outside of the proposed new roadway, obliterate such sections of the old road by grading to fill ditches and to restore approximately the original contour of the ground or a contour which produces a pleasing appearance.

120-5 Disposal of Surplus and Unsuitable Material.

120-5.1 Ownership of Excavated Materials: Dispose of surplus and excavated materials as shown in the Plans or, if the Plans do not indicate the method of disposal, take ownership of the materials and dispose of them outside the right-of-way.

120-5.2 Disposal of Muck on Side Slopes: As an exception to the provisions of 120-5. 1, when approved by the Engineer, in rural undeveloped areas, the Contractor may place muck (A-8 material) on the slopes, or store it alongside the roadway, provided there is a clear distance of at least 6 feet between the roadway grading limits and the muck, and the Contractor dresses the muck to present a neat appearance. In addition, the Contractor may also dispose of this material by placing it on the slopes in developed areas where, in the opinion of the Engineer, this will result in an aesthetically pleasing appearance and will have no detrimental effect on the adjacent developments. Where the Engineer permits the disposal of muck or other unsuitable material inside the right-of-way limits, do not place such material in a manner which will impede the inflow or outfall of any channel or side ditches. The Engineer will determine the limits adjacent to channels within which such materials may be disposed.

120-5.3 Disposal of Paving Materials: Unless otherwise noted, take ownership of paving materials, such as paving brick, asphalt block, concrete slab, sidewalk, curb and gutter, etc., excavated in the removal of existing pavements, and dispose of them outside the right-of-way. If the materials are to remain the property of the Department, place them in neat piles as directed. Existing limerock base that is removed may be incorporated in the stabilized portion of

the subgrade. If the construction sequence will allow, incorporate all existing limerock base into the project as allowed by the Contract Documents.

120-5.4 Disposal Areas: Where the Contract Documents require disposal of excavated materials outside the right-of-way, and the disposal area is not indicated in the Contract Documents, furnish the disposal area without additional compensation.

Provide areas for disposal of removed paving materials out of sight of the project and at least 300 feet from the nearest roadway right-of-way line of any State maintained road. If the materials are buried, disregard the 300 foot limitation.

120-6 rrow.

120-6.1 Materials for Borrow: Do not open borrow pits until the Engineer has approved their location.

Do not provide borrow materials that are polluted as defined in Chapter 376 of the Florida Statutes (oil of any kind and in any form, gasoline, pesticides, ammonia, chlorine, and derivatives thereof, excluding liquefied petroleum gas) in concentrations above any local, State, or Federal standards.

Prior to placing any borrow material that is the product of soil incineration, provide the Engineer with a copy of the Certificate of Materials Recycling and Post Burn Analysis showing that the material is below all allowable pollutant concentrations.

120-6.2 Furnishing of Borrow Areas: To obtain the Engineer's approval to use an off-site construction activity area that involves excavation such as a borrow pit or local aggregate pit, request in writing, a review for cultural resources involvement. Send the request to the Division of Historical Resources (DHR), Department of State, State Historic Preservation Officer, Tallahassee, FL. As a minimum, include in the request the Project Identification Number, the County, a description of the property with Township, Range, Section, etc., the dimensions of the area to be affected, and a location map. Do not start any work at the off-site construction activity area prior to receiving clearance from the DHR that no additional research is warranted.

For certain locations, the DHR will require a Cultural Resources Assessment (CRA) Survey before approval can be granted. When this is required, secure professional archaeological services to complete an historical and archaeological survey report. Submit the report to the DHR and to the Department. The Engineer will determine final approval or rejection of off-site construction activity areas based on input from the DHR.

Before receiving approval or before use of borrow areas, obtain written clearance from the Engineer concerning compliance with the Federal Endangered Species Act and other Wildlife Regulations as specified in 7-1.4 and Section 4(f) of the USDOT Act as specified in 7-1.8.

The Department will adjust Contract Time in accordance with 8-7 for any suspension of operations required to comply with this Article. The Department will not accept any monetary claims due to delays or loss of off-site construction activity areas.

Except where the Plans specifically call for the use of a particular borrow or dredging area, the Contractor may substitute borrow or dredging areas of his own choosing provided the Engineer determines the materials from such areas meet the Department's standards and other requirements for stability for use in the particular sections of the work in which it is to be placed, and the Contractor absorbs any increase in hauling or other costs. Stake the corners of the proposed borrow area and provide the necessary equipment along with an operator in order for the Engineer to investigate the borrow area. The Engineer will determine test locations, collect samples, and perform tests to investigate the proposed borrow area based on soil strata

and required soil properties. The Engineer will approve use of materials from the proposed area based on test results and project requirements. Final acceptance of materials will be based on Point of Use Test as described in 6-1.2.4.

Before using any borrow material from any substitute areas, obtain the Engineer's approval, in writing, for the use of the particular areas, and, where applicable, ensure that the Engineer has cross-sectioned the surface. Upon such written approval by the Engineer, consider the substitute areas as designated borrow areas.

When furnishing the dredging or borrow areas, supply the Department with evidence that the necessary permits, rights, or waivers for the use of such areas have been secured.

Do not excavate any part of a Contractor furnished borrow area which is less than 300 feet from the right-of-way of the project or any State Road until the Engineer has approved a plan for landscaping and restoring the disturbed area. Perform this landscaping and land restoration at no expense to the Department, prior to final acceptance of the project. Do not provide a borrow area closer than 25 feet to the right-of-way of any state road. In Department furnished borrow pits, do not excavate material within 5 feet of adjacent property lines.

Upon completion of excavation, neatly shape, dress, grass, vegetate, landscape, and drain all exposed areas including haul roads, as necessary so as not to present an objectionable appearance.

Meet the requirements of Section 104 when furnishing borrow areas, regardless of location.

120-6.3 Borrow Material for Shoulder Build-up: When so indicated in the Plans, furnish borrow material with a specific minimum bearing value, for building up of existing shoulders. Blend materials as necessary to achieve this specified minimum bearing value prior to placing the materials on the shoulders. Take samples of this borrow material at the pit or blended stockpile. Include all costs of providing a material with the required bearing value in the Contract unit price for borrow material.

120-6.4 Haul Routes for Borrow Pits: Provide and maintain, at no expense to the Department, all necessary roads for hauling the borrow material. Where borrow area haul roads or trails are used by others, do not cause such roads or trails to deteriorate in condition.

Arrange for the use of all non-public haul routes crossing the property of any railroad. Incur any expense for the use of such haul routes. Establish haul routes which will direct construction vehicles away from developed areas when feasible, and keep noise from hauling operations to a minimum. Advise the Engineer in writing of all proposed haul routes.

120-6.5 Authorization for Use of Borrow: When the item of borrow excavation is included in the Contract, use borrow only when sufficient quantities of suitable material are not available from roadway and drainage excavation, to properly construct the embankment, subgrade, and shoulders, and to complete the backfilling of structures. Do not use borrow material until so ordered by the Engineer, and then only use material from approved borrow pits.

120-7 Materials for Embankment.

120-7.1 Use of Materials Excavated from the Roadway and Appurtenances: Assume responsibility for determining the suitability of excavated material for use on the project in accordance with the applicable Contract Documents. Consider the sequence of work and maintenance of traffic phasing in the determination of the availability of this material.

120-7.2 General Requirements for Embankment Materials: Construct embankments of acceptable material including reclaimed asphalt pavement (RAP), recycled concrete aggregate

(RCA) and portland cement concrete rubble, but containing no muck, stumps, roots, brush, vegetable matter, rubbish, reinforcement bar or other material that does not compact into a suitable and enduring roadbed. Do not use RAP or RCA in the top 3 feet of slopes and shoulders that are to be grassed or have other type of vegetation established. Do not use RAP or RCA in stormwater management facility fill slopes.

Remove all waste material designated as undesirable. Use material in embankment construction in accordance with plan details or as the Engineer directs.

Complete the embankment using maximum particle sizes (in any dimension) as follows:

1. In top 12 inches: 3-1/2 inches (in any dimension).
2. 12 to 24 inches: 6 inches (in any dimension).
3. In the depth below 24 inches: not to exceed 12 inches (in any dimension) or the compacted thickness of the layer being placed, whichever is less.

Spread all material so that the larger particles are separated from each other to minimize voids between them during compaction. Compact around these rocks in accordance with 120-9.2.

When and where approved by the Engineer, the Contractor may place larger rocks (not to exceed 18 inches in any dimension) outside the one to two slope and at least 4 feet or more below the bottom of the base. Compact around these rocks to a firmness equal to that of the supporting soil. Construct grassed embankment areas in accordance with 120-9.2.5. Where constructing embankments adjacent to bridge end bents or abutments, do not place rock larger than 3-1/2 inches in diameter within 3 feet of the location of any end-bent piling.

120-7.3 Materials Used at Pipes, Culverts, etc.: Construct embankments over and around pipes, culverts, and bridge foundations with selected materials.

120-8 mbankment Construction.

120-8.1 General: Construct embankments in sections of not less than 300 feet in length or for the full length of the embankment. Do not construct another LOT over an untested LOT without the Engineer's approval in writing.

For construction of mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts and retaining wall systems, a LOT is defined as a single lift of finished embankment not to exceed 500 feet.

For construction of shoulder-only areas, shared use paths, and sidewalks areas, a LOT is defined as a single lift of finished embankment not to exceed 2000 feet.

Isolated compaction operations will be considered as separate LOTs. For multiple phase construction, a LOT shall not extend beyond the limits of the phase.

120-8.2 Dry Fill Method:

120-8.2.1 General: Construct embankments to meet the compaction requirements in 120-9 and in accordance with the acceptance program requirements in 120-10.

As far as practicable, distribute traffic over the work during the construction of embankments so as to cover the maximum area of the surface of each layer.

Construct embankment using the dry fill method whenever normal dewatering equipment and methods can accomplish the needed dewatering.

120-8.2.1.1 Maximum Compacted Lift Thickness Requirements: Construct the embankment in successive layers with lifts up to a maximum listed in the table below based on the embankment material classification group.

Group	AASHTO Soil Class	Maximum Lift Thickness	Thick Lift Control Test Section Requirements
1	A-3	12 inches	Not Needed
	A-2-4 (No. 200 Sieve \leq 15%)		
2	A-1	6 inches without Control Test Section	Maximum of 12 inches per 120-8.2.1.2
	A-2-4 (No. 200 Sieve $>$ 15%)		
	A-2-5, A-2-6, A-2-7, A-4, A-5, A-6		
	A-7 (Liquid Limit $<$ 50)		

120-8.2.1.2 Thick Lift Requirements: For embankment materials classified as Group 2 in the table above, the option to perform thick lift construction in successive layers of not more than 12 inches compacted thickness may be used after meeting the following requirements:

1. Notify the Engineer and obtain approval in writing prior to beginning construction of a test section.
 - a. Demonstrate the possession and control of compacting equipment sufficient to achieve density required by 120-10.2 for the full depth of a thicker lift.
2. Construct a test section of the length of one full LOT of not less than 500 feet.
3. Perform five Quality Control (QC) tests at random locations within the test section.
 - a. All five QC tests and a Department Verification test must meet the density required by 120-10.2.
 - b. Identify the test section with the compaction effort and soil classification in the Department's Earthwork Records System (ERS).
4. Obtain Engineer's approval in writing for the compaction effort after completing a successful test section.

In case of a change in compaction effort or soil classification, failing QC test or when the QC tests cannot be verified, construct a new test section. The Contractor may elect to place material in 6 inches compacted thickness at any time. Construct all layers approximately parallel to the centerline profile of the road.

The Engineer reserves the right to terminate the Contractor's use of thick lift construction. Whenever the Engineer determines that the Contractor is not achieving satisfactory results, revert to the 6 inch compacted lifts.

120-8.2.1.3 Equipment and Methods: Provide normal dewatering equipment including, but not limited to, surface pumps, sump pumps and trenching/digging machinery. Provide normal dewatering methods including, but not limited to, constructing shallow surface drainage trenches/ditches, using sand blankets, sumps and siphons.

When normal dewatering does not adequately remove the water, the Engineer may require the embankment material to be placed in the water or on low swampy ground in accordance with 120-9.2.3.

120-8.2.2 Placing in Unstable Areas: When depositing fill material in water, or on low swampy ground that will not support the weight of hauling equipment, construct the

embankment by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers. Once sufficient material has been placed so that the hauling equipment can be supported, construct the remaining portion of the embankment in layers in accordance with the applicable provisions of 120-9.2.2.

120-8.2.3 Placing on Steep Slopes: When constructing an embankment on a hillside sloping more than 20 degrees from the horizontal, before starting the fill, deeply plow or cut steps into the surface of the original ground on which the embankment is to be placed.

120-8.2.4 Placing Outside the Standard Minimum Slope: The standard minimum slope is defined as the plane described by a one (vertical) to two (horizontal) slope downward from the roadway shoulder point or the gutter line, in accordance with Standard Plans, Index 120-001 and 120-002. Where material that is unsuitable for normal embankment construction is to be used in the embankment outside the standard minimum slope, place such material in layers of not more than 18 inches in thickness, measured loose. The Contractor may also place material which is suitable for normal embankment, outside such standard minimum slope, in 18 inch layers. Maintain a constant thickness for suitable material placed within and outside the standard minimum slope, unless placing in a separate operation.

120-8.3 Hydraulic Method:

120-8.3.1 Method of Placing: When the hydraulic method is used, as far as practicable, place all dredged material in its final position in the embankment by such method. Place and compact any dredged material that is reworked, or moved and placed in its final position by any other method, as specified in 120-9.2. Baffles or any other form of construction may be used if the slopes of the embankments are not steeper than indicated in the Plans. Remove all timber used for temporary bulkheads or baffles from the embankment, and fill and thoroughly compact all voids. When placing fill on submerged land, construct dikes prior to beginning of dredging, and maintain the dikes throughout the dredging operation.

120-8.3.2 Excess Material: Do not use any excess material placed outside the prescribed slopes or below the normal high-water table to raise the fill areas. Remove only the portion of this material required for dressing the slopes.

120-8.3.3 Protection of Openings in Embankment: Leave openings in the embankments at the bridge sites. Remove any material which invades these openings or existing channels without additional compensation to provide the same existing channel depth as before the construction of the embankment. Do not excavate or dredge any material within 200 feet of the toe of the proposed embankment.

120-8.4 Reclaimed Asphalt Pavement (RAP) Method:

120-8.4.1 General: Use only RAP material stored at facilities with an approved Florida Department of Environmental Protection Stormwater permit or, transferred directly from a milling project to the Department project. Certify the source if RAP material is from an identifiable Department project. Do not use RAP material in the following areas: construction areas that are below the seasonal high groundwater table elevation; MSE Wall backfill; underneath MSE Walls or the top 6 inches of embankment.

Prior to placement, submit documentation to the Engineer for his approval, outlining the proposed location of the RAP material.

120-8.4.2 Soil and RAP Mixture: Place the RAP material at the location and spread uniformly, using approved methods to obtain a maximum layer thickness of 4 inches. Mix this 4 inches maximum layer of RAP with a loose soil layer 8 to 10 inches thick. After mixing,

meet all embankment utilization requirements of Standard Plans, Index 120-001 for the location used. The total RAP and other embankment material shall not exceed 12 inches per lift after mixing and compaction if the contractor can demonstrate that the density of the mixture can be achieved. Perform mixing using rotary tillers or other equipment meeting the approval of the Engineer. The Engineer will determine the order in which to spread the two materials. Mix both materials to the full depth. Ensure that the finished layer will have the thickness and shape required by the typical section. Demonstrate the feasibility of this construction method by successfully completing a 500 foot long test section.

120-8.4.3 Alternate Soil and RAP Layer Construction: Construct soil in 6 to 12 inch compacted lifts and RAP in alternate layers with 6 inch maximum compacted lifts. Use soil with a minimum LBR value of 40 to prevent failure during compaction of the overlying RAP layer. Demonstrate the feasibility of this construction method by successfully completing a 500 foot long test section.

120-9 Compaction Requirements.

120-9.1 Moisture Content: Compact the materials at a moisture content such that the specified density can be attained. If necessary to attain the specified density, add water to the material, or lower the moisture content by manipulating the material or allowing it to dry, as is appropriate.

120-9.2 Compaction of Embankments:

120-9.2.1 General: Uniformly compact each layer, using equipment that will achieve the required density, and as compaction operations progress, shape and manipulate each layer as necessary to ensure uniform density throughout the embankment.

120-9.2.2 Compaction Over Unstable Foundations: Where the embankment material is deposited in water or on low swampy ground, and in a layer thicker than 12 inches (as provided in 120-8.2.2), compact the top 6 inches (compacted thickness) of such layer to the density as specified in 120-10.2.

120-9.2.3 Compaction Where Plastic Material Has Been Removed: Where unsuitable material is removed and the remaining surface is of the A-4, A-5, A-6, or A-7 Soil Groups (see AASHTO M145), as determined by the Engineer, compact the surface of the excavated area by rolling with a sheepsfoot roller exerting a compression of at least 250 psi on the tamper feet, for the full width of the roadbed (subgrade and shoulders). Perform rolling before beginning any backfill, and continue until the roller feet do not penetrate the surface more than 1 inch. Do not perform such rolling where the remaining surface is below the normal water table and covered with water. Vary the procedure and equipment required for this operation at the discretion of the Engineer.

120-9.2.4 Compaction of Grassed Shoulder Areas: For the upper 6 inch layer of all shoulders which are to be grassed, since no specific density is required, compact only to the extent directed.

120-9.2.5 Compaction of Grassed Embankment Areas: Do not compact the outer layers of any embankments where plant growth will be established. Leave this layer in a loose condition to a minimum depth of 6 inches for the subsequent seeding or planting operations. Do not place RAP or RAP blended material within the top 12 inches of areas to be grassed.

120-9.3 Compaction for Pipes, Culverts, etc.: Compact the backfill of trenches to the densities specified for embankment or subgrade, as applicable, and in accordance with the requirements of 125-9.2.

Thoroughly compact embankments over and around pipes, culverts, and bridges in a manner which will not place undue stress on the structures, and in accordance with the requirements of 125-9.2.

120-9.4 Compaction of Subgrade: If the Plans do not provide for stabilizing, compact the subgrade as defined in 1-3 in both cuts and fills, to the density specified in 120-10.2. For cut areas, determine Standard Proctor Maximum Density in accordance with FM 1-T099 at a frequency of one per mile or when there is a change in soil type, whichever occurs first. For undisturbed soils, do not apply density requirements where constructing paved shoulders 5 feet or less in width.

Where trenches for widening strips are not of sufficient width to permit the use of standard compaction equipment, perform compaction using vibratory rollers, trench rollers, or other type compaction equipment approved by the Engineer.

Maintain the required density until the base or pavement is placed on the subgrade.

120-10 Acceptance Program.

120-10.1 General Requirements:

120-10.1.1 Initial Equipment Comparison: Before initial production, perform an initial nuclear moisture density gauge comparison with the Verification and Independent Assurance (IA) gauges. When comparing the computed dry density of one nuclear gauge to a second gauge, three sets of calculations must be performed (IA to QC, IA to Verification, and QC to Verification). Ensure that the difference between any two computed dry densities does not exceed 2 lb/ft³ between gauges from the same manufacturer, and 3 lb/ft³ between gauges from different manufacturers. Repair or replace any gauge that does not compare favorably with the IA gauge.

Perform a comparison analysis between the QC nuclear gauge and the Verification nuclear gauge any time a nuclear gauge or repaired nuclear gauge is first brought to the project. Repair and replace any QC gauge that does not compare favorably with the Verification gauge at any time during the remainder of the project. Calibrate all QC gauges annually.

120-10.1.2 Initial Production LOT: Before construction of any production LOT, prepare a 500 foot initial control section consisting of one full LOT. Notify the Engineer in writing at least 24 hours prior to production of the initial control section. Perform all QC tests required in 120-10.1.4. When the initial QC test results pass specifications, the Engineer will perform a Verification test to verify compliance with the specifications. Do not begin constructing another LOT until successfully completing the initial production LOT. The Engineer will notify the Contractor in writing of the initial production LOT approval within three working days after receiving the Contractor's QC data when test results meet the following conditions:

1. QC and Verification tests must meet the density requirements.
2. Difference between QC and Verification computed dry density results shall meet the requirements of 120-10.1.1.

If Verification test result fails the density requirements of 120-10.2, correct the areas of non-compliance. The QC and Verification tests will then be repeated.

120-10.1.3 Density over 105%: When a QC computed dry density results in a value greater than 105% of the applicable Proctor maximum dry density, the Engineer will perform an Independent Verification (IV) density test within 5 feet. If the IV density results in a

value greater than 105%, the Engineer will investigate the compaction methods, examine the applicable Standard Proctor Maximum Density and material description. The Engineer may collect and test an IV Standard Proctor Maximum Density sample for acceptance in accordance with the criteria of 120-10.2.

120-10.1.4 Quality Control (QC) Tests:

120-10.1.4.1 Standard Proctor Maximum Density Determination:

Determine the QC standard Proctor maximum density and optimum moisture content by sampling and testing the material in accordance with the specified test method listed in 120-10.2.

120-10.1.4.2 Density Testing Requirements: Ensure compliance to the requirements of 120-10.2 by Nuclear Density testing in accordance with FM 1-T238. Determine the in-place moisture content for each density test. Use FM 1-T238, FM 5-507 (Determination of Moisture Content by Means of a Calcium Carbide Gas Pressure Moisture Tester), or ASTM D-4643 (Laboratory Determination of Moisture Content of Granular Soils by use of a Microwave Oven) for moisture determination.

120-10.1.4.3 Soil Classification: Perform soil classification tests on the sample collected in 120-10.1.4.1, in accordance with AASHTO T88, T89, T90, and FM 1-T267. Classify soils in accordance with AASHTO M145 in order to determine compliance with embankment utilization requirements as specified in Standard Plans, Index 120-001.

120-10.1.5 Department Verification: The Engineer will conduct Verification tests in order to accept all materials and work associated with 120-10.1.4. The Engineer will verify the QC results if they meet the Verification Comparison Criteria, otherwise the Engineer will implement Resolution procedures.

The Engineer will select test locations, including Station, Offset, and Lift, using a random number generator, based on the LOTs under consideration. Each Verification test evaluates all work represented by the QC testing completed in those LOTs.

In addition to the Verification testing, the Engineer may perform additional Independent Verification (IV) testing. The Engineer will evaluate and act upon the IV test results in the same manner as Verification test results.

When the project requires less than four QC tests per material type, the Engineer reserves the right to accept the materials and work through visual inspection.

120-10.1.6 Reduced Testing Frequency: Obtain the Engineer's written approval for the option to reduce density testing frequency to one test every two LOTs if Resolution testing was not required for 12 consecutive verified LOTs, or if Resolution testing was required, but the QC test data was upheld and all substantiating tests are recorded in the Earthwork Records System (ERS).

Generate random numbers based on the two LOTs under consideration. When QC test frequency is reduced to one every two LOTs, obtain the Engineer's approval to place more than one LOT over an untested LOT. Assure similar compaction efforts for the untested LOTs. If the Verification test fails, and QC test data is not upheld by Resolution testing, the QC testing will revert to the original frequency of one QC test per LOT. Do not apply reduced testing frequency in construction of shoulder-only areas, shared use paths, sidewalks, and first and last lift.

120-10.1.7 Payment for Resolution Tests: If the Resolution laboratory results compare favorably with the QC results, the Department will pay for Resolution testing. No additional compensation, either monetary or time, will be made for the impacts of any such testing.

If the Resolution laboratory results do not compare favorably with the QC results, the costs of the Resolution testing will be deducted from monthly estimates. No additional time will be granted for the impacts of any such testing.

120-10.2 Acceptance Criteria: Obtain a minimum QC density of 100% of the standard Proctor maximum density as determined by FM 1-T099, Method C, with the following exceptions: embankment constructed by the hydraulic method as specified in 120-8.3; material placed outside the standard minimum slope as specified in 120-8.2.4 except when a structure is supported on existing embankment; and, other areas specifically excluded herein.

120-10.3 Additional Requirements:

120-10.3.1 Frequency: Conduct QC sampling and testing at a minimum frequency listed in the table below. The Engineer will perform Verification sampling and tests at a minimum frequency listed in the table below.

Test Name	Quality Control	Verification	Verification of Shoulder-Only Areas, Shared Use Paths, and Sidewalks
Standard Proctor Maximum Density	One per soil type	One per soil type	One per soil type
Density	One per LOT	One per four LOTS and for wet conditions, the first lift not affected by water	One per two LOTS
Soil Classification and Organic Content	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density	One per Standard Proctor Maximum Density

120-10.3.2 Test Selection and Reporting: Determine test locations including stations and offsets, using the random number generator approved by the Engineer. Do not use notepads or worksheets to record data for later transfer to the Density Log Book. Notify the Engineer upon successful completion of QC testing on each LOT prior to placing another lift on top.

120-10.4 Verification Comparison Criteria and Resolution Procedures:

120-10.4.1 Standard Proctor Maximum Density Determination: The Engineer will verify the QC results if the results compare within 4.5 lb/ft³ of the Verification test result. Otherwise, the Engineer will take one additional sample of material from the soil type in question. The State Materials Office (SMO) or an AASHTO accredited laboratory designated by the SMO will perform Resolution testing. The material will be sampled and tested in accordance with FM 1-T099, Method C.

The Engineer will compare the Resolution test results with the QC test results. If all Resolution test results are within 4.5 lb/ft³ of the corresponding QC test results, the Engineer will use the QC test results for material acceptance purposes for each LOT with that soil type. If the Resolution test result is not within 4.5 lb/ft³ of the Contractor's QC test, the Verification test result will be used for material acceptance purposes.

120-10.4.2 Density Testing: When a Verification or IV density test fails the acceptance criteria, retest the site within a 5 foot radius and the following actions will be taken:

1. If the QC retest meets the acceptance criteria and meets the 120-10.1.1 criteria when compared with the Verification or IV test, the Engineer will accept those LOTs.

2. If the QC retest does not meet the acceptance criteria and compares favorably with the Verification or IV test, rework and retest the LOT. The Engineer will re-verify those LOTs.

3. If the QC retest and the Verification or IV test do not compare favorably, complete a new comparison analysis as defined in 120-10.1.1. Once acceptable comparison is achieved, retest the LOTs. The Engineer will perform new verification testing. Acceptance testing will not begin on a new LOT until the Contractor has a gauge that meets the comparison requirements.

Record QC test results in the density logbook on approved Department forms provided by the Engineer. Submit the original, completed density logbook to the Engineer at final acceptance.

120-10.4.3 Soil Classification: The Engineer will verify the QC test results if the Verification and the QC test results both match the soil utilization symbol listed in Standard Plans, Index 120-001. Otherwise, the Engineer will test the sample retained for Resolution testing. The SMO or an AASHTO accredited laboratory designated by the SMO will perform the Resolution testing. The material will be sampled and tested in accordance with AASHTO T88, T89, and T90, and classified in accordance with AASHTO M145.

The Engineer will compare the Resolution test results with the QC test results. If the Resolution test matches the QC soil utilization symbol, the Engineer will use the QC soil utilization symbol for material acceptance purposes. If the Resolution test result does not match the Contractor's QC soil utilization symbol, the Verification test results will be used for material acceptance purposes.

120-10.4.4 Organic Content: The Engineer will verify the QC test results if the Verification test results satisfy the organic content test criteria in Standard Plans, Index 120-001. Otherwise, the Engineer will test the sample retained for Resolution testing. The SMO or an AASHTO accredited laboratory designated by the SMO will perform Resolution testing. The material will be sampled and tested in accordance with FM 1-T267. If the Resolution test results satisfy the required criteria, material of that soil type will be verified and accepted. If the Resolution test results do not meet the required criteria, reject the material and reconstruct with acceptable material.

120-10.5 Disposition of Defective Materials: Assume responsibility for removing and replacing all defective material, as defined in Section 6.

Alternately, submit an Engineering Analysis Scope in accordance with 6-4 to determine the disposition of the material.

120-11 Maintenance and Protection of Work.

While construction is in progress, maintain adequate drainage for the roadbed at all times. Maintain a shoulder at least 3 feet wide adjacent to all pavement or base construction in order to provide support for the edges.

Maintain all earthwork construction throughout the life of the Contract, and take all reasonable precautions to prevent loss of material from the roadway due to the action of wind or water. Repair, at no expense to the Department except as otherwise provided herein, any slides, washouts, settlement, subsidence, or other mishap which may occur prior to final acceptance of

the work. Perform maintenance and protection of earthwork construction in accordance with Section 104.

Maintain all channels excavated as a part of the Contract work against natural shoaling or other encroachments to the lines, grades, and cross-sections shown in the Plans, until final acceptance of the project.

120-12 Construction.

120-12.1 Construction Tolerances: Shape the surface of the earthwork to conform to the lines, grades, and cross-sections shown in the Plans. In final shaping of the surface of earthwork, maintain a tolerance of 0.3 foot above or below the cross-section with the following exceptions:

1. Shape the surface of shoulders to within 0.1 foot of the cross-section shown in the Plans.
2. Shape the earthwork to match adjacent pavement, curb, sidewalk, structures, etc.
3. Shape the bottom of conveyance ditches so that the ditch impounds no water.
4. When the work does not include construction of base or pavement, shape the entire roadbed (shoulder point to shoulder point) to within 0.1 foot above or below the Plan cross-section.
5. When the work includes permitted linear stormwater management facilities, shape the swales and ditch blocks to within 0.1 feet of the cross-section shown in the Plans.

Ensure that the shoulder lines do not vary horizontally more than 0.3 foot from the true lines shown in the Plans.

120-12.2 Operations Adjacent to Pavement: Carefully dress areas adjacent to pavement areas to avoid damage to such pavement. Complete grassing of shoulder areas prior to placing the final wearing course. Do not manipulate any embankment material on a pavement surface.

When shoulder dressing is underway adjacent to a pavement lane being used to maintain traffic, exercise extreme care to avoid interference with the safe movement of traffic.

120-13 Method of Measurement.

120-13.1 General: When payment for excavation is on a volumetric basis, the quantity to be paid for will be the volume, in cubic yards, calculated by the method of average end areas, unless the Engineer determines that another method of calculation will provide a more accurate result. The material will be measured in its original position by field survey or by photogrammetric means as designated by the Engineer, unless otherwise specified under the provisions for individual items.

Where subsoil excavation extends outside the lines shown in the Plans or authorized by the Engineer including allowable tolerances, and the space is backfilled with material obtained in additional authorized roadway or borrow excavation, the net fill, plus shrinkage allowance, will be deducted from the quantity of roadway excavation or borrow excavation to be paid for, as applicable.

The quantity of all material washed, blown, or placed beyond the authorized roadway cross-section will be determined by the Engineer and will be deducted from the quantity of roadway excavation or borrow excavation to be paid for, as applicable.

Subsoil excavation that extends outside the lines shown in the Plans or authorized by the Engineer including allowable tolerances will be deducted from the quantity to be paid for as subsoil excavation.

120-13.2 Roadway Excavation: The measurement will include only the net volume of material excavated between the original ground surface and the surface of the completed earthwork, except that the measurement will also include all unavoidable slides which may occur in connection with excavation classified as roadway excavation.

The pay quantity will be the plan quantity provided that the excavation was accomplished in substantial compliance with the plan dimensions and subject to the provisions of 9-3.2 and 9-3.4. On designated 3-R Projects, regular excavation will be paid for at the Contract lump sum price provided that the excavation was accomplished in substantial compliance with the plan dimension.

120-13.3 Borrow Excavation: Measurement will be made on a loose volume basis, measured in trucks or other hauling equipment at the point of dumping on the road. If measurement is made in vehicles, level the material to facilitate accurate measurement.

Unsuitable material excavated from borrow pits where truck measurement is provided for and from any borrow pits furnished by the Contractor, will not be included in the quantity of excavation to be paid for.

120-13.4 Lateral Ditch Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans or as directed by the Engineer. The measurement will include the full station-to-station length shown in the Plans or directed by the Engineer and acceptably completed. Excavation included for payment under Section 125 will not be included in this measurement.

The pay quantity will be the plan quantity provided that the excavation was accomplished in substantial compliance with the plan dimensions and subject to the provisions of 9-3.2 and 9-3.4.

120-13.5 Channel Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans or in accordance with authorized Plan changes. The measurement will include the full station-to-station length shown in the Plans including any authorized changes thereto.

If shoaling occurs subsequent to excavation of a channel and the Engineer authorized the shoaled material to remain in place, the volume of any such material remaining within the limits of channel excavation shown in the Plans will be deducted from the measured quantity of channel excavation.

120-13.6 Subsoil Excavation: The measurement will include only material excavated within the lines and grades indicated in the Plans (including the tolerance permitted therefore) or as directed by the Engineer.

When no item for subsoil excavation is shown in the Contract but subsoil excavation is subsequently determined to be necessary, such unanticipated subsoil excavation will be paid for as provided in 4-4.

120-13.7 Embankment: The quantity will be at the plan quantity. Where payment for embankment is not to be included in the payment for the excavation, and is to be paid for on a cubic yard basis for the item of embankment, the plan quantities to be paid for will be calculated by the method of average end areas unless the Engineer determines that another method of calculation will provide a more accurate result. The measurement will include only material actually placed above the original ground line, within the lines and grades indicated in the Plans

or directed by the Engineer. The length used in the computations will be the station-to-station length actually constructed. The original ground line used in the computations will be as determined prior to placing of embankment subject to the provisions of 9-3.2, and no allowance will be made for subsidence of material below the surface of the original ground.

If there are authorized changes in plan dimensions or if errors in plan quantities are detected, plan quantity will be adjusted as provided in 9-3.2.

Where the work includes excavation of unsuitable material below the finished grading template or original ground line, whichever is lower as defined in 120-3.3, the original ground line is defined as the surface prior to beginning excavation, except that this surface is not outside the permissible tolerance of lines and grades for subsoil excavation as indicated in the Plans or as directed by the Engineer. Any overrun or underrun of plan quantity for subsoil excavation which results in a corresponding increase or decrease in embankment will be considered as an authorized plan change for adjustment purposes as defined in 9-3.2.2.

No payment will be made for embankment material used to replace unsuitable material excavated beyond the lines and grades shown in the Plans or ordered by the Engineer.

In no case will payment be made for material allowed to run out of the embankment on a flatter slope than indicated on the cross-section. The Contractor shall make his own estimate on the volume of material actually required to obtain the pay section.

120-14 Basis of Payment.

120-14.1 General: Prices and payments for the various work items included in this Section will be full compensation for all work described herein, including excavating, dredging, hauling, placing, and compacting; dressing the surface of the earthwork; maintaining and protecting the complete earthwork; and hauling.

The Department will not allow extra compensation for any reworking of materials. The Department will compensate for the cost of grassing or other permanent erosion control measures directed by the Engineer as provided in the Contract for similar items of roadway work.

120-14.2 Excavation:

120-14.2.1 Items of Payment: When no classification of material is indicated in the Plans, and bids are taken only on regular excavation, the total quantity of all excavation specified under this Section will be paid for at the Contract unit price for regular excavation.

When separate classifications of excavation are shown in the proposal, the quantities of each of the various classes of materials so shown will be paid for at the Contract unit prices per cubic yard for regular excavation, lateral ditch excavation, subsoil excavation, and channel excavation, as applicable, and any of such classifications not so shown will be included under the item of regular excavation (except that if there is a classification for lateral ditch excavation shown and there is no classification for channel excavation, any channel excavation will be included under the item of lateral ditch excavation). As an exception on designated projects, regular excavation will be paid for at the Contract lump sum price.

120-14.2.2 Basic Work Included in Payments: Prices and payments will be full compensation for all work described under this Section, except for any excavation, or embankment which is specified to be included for payment under other items. Such prices and payments will include hauling; any reworking that may be necessary to accomplish final disposal as shown in the Plans; the dressing of shoulders, ditches and slopes; removal of trash, vegetation, etc., from the previously graded roadway where no item for clearing and grubbing is shown in the Plans; and compacting as required.

120-14.2.3 Additional Depth of Subsoil Excavation: Where subsoil excavation is made to a depth of 0 to 5 feet below the depth shown in the Plans, such excavation will be paid for at the unit price bid.

Where subsoil excavation is made to a depth greater than 5 feet, and up to 15 feet, deeper than the depth shown in the Plans, such excavation will be paid for at the unit price bid plus 25% of such unit price. Additional extra depth, more than 15 feet below such plan depth, will be considered as a change in the character of the work and will be paid for as unforeseeable work.

Where no subsoil excavation is shown in a particular location on the original Plans, payment for extra depth of subsoil will begin 5 feet below the lowest elevation on the grading template.

120-14.2.4 Borrow Excavation: When the item of borrow excavation is included in the Contract, price and payment will also include the cost of furnishing the borrow areas and any necessary clearing and grubbing thereof, the removal of unsuitable material that it is necessary to excavate in order to obtain suitable borrow material, and also the costs incurred in complying with the provisions of 120-6.3.

120-14.2.5 Materials Excluded from Payment for the Excavation: No payment for excavation will be made for any excavation covered for payment under the item of embankment.

No payment will be made for the excavation of any materials which is used for purposes other than those shown in the Plans or designated by the Engineer. No payment will be made for materials excavated outside the lines and grades given by the Engineer, unless specifically authorized by the Engineer. As an exception, in operations of roadway excavation, all slides and falls of insecure masses of material beyond the regular slopes that are not due to lack of precaution on the part of the Contractor, will be paid for at the Contract unit price for the material involved. The removal of slides and falls of material classified as lateral ditch excavation or as subsoil excavation will not be paid for separately, but will be included in the Contract unit price for the pay quantity of these materials, measured as provided in 120-14.

120-14.3 Embankment:

120-14.3.1 General: Price and payment will be full compensation for all work specified in this Section, including all material for constructing the embankment, all excavating, dredging, pumping, placing and compacting of material for constructing the embankment complete, dressing of the surface of the roadway, maintenance and protection of the completed earthwork, and the removal of rubbish, vegetation, etc., from the roadway where no clearing and grubbing of the area is specified in the Plans. Also, such price and payment, in each case, will specifically include all costs of any roadway, lateral ditch, or channel excavation, unless such excavation is specifically shown to be paid for separately, regardless of whether the materials are utilized in the embankment.

120-14.3.2 Excluded Material: No payment will be made for the removal of muck or overburden from the dredging or borrow areas. No payment will be made for embankment material used to replace muck or other unsuitable material excavated beyond the lines and grades shown in the Plans or ordered by the Engineer.

120-14.3.3 Clearing and Grubbing: No payment will be made for any clearing and grubbing of the borrow or dredging areas. Where no clearing and grubbing of such areas is

specified in the Plans, the cost of any necessary clearing and grubbing will be included in the Contract unit or lump sum price for Embankment.

120-14.3.4 Cost of Permits, Rights, and Waivers: Where the Contractor provides borrow or dredging areas of his own choosing, the cost of securing the necessary permits, rights or waivers will be included in the Contract price for embankment.

120-14.4 Payment Items: Payment will be made under:

- Item No. 120- 1- Regular Excavation - per cubic yard.
- Item No. 120- 2- Borrow Excavation - per cubic yard.
- Item No. 120- 3- Lateral Ditch Excavation - per cubic yard.
- Item No. 120- 4- Subsoil Excavation - per cubic yard.
- Item No. 120- 5- Channel Excavation - per cubic yard.
- Item No. 120- 6- Embankment - per cubic yard.
- Item No. 120- 71- Regular Excavation (3-R Projects) - lump sum.

SECTION 344
LOCAL AGENCY PROGRAM
CONCRETE

SECTION 344
LOCAL AGENCY PROGRAM CONCRETE

344-1 Description.

344-1 General: Construct Local Agency Program (LAP) Concrete based on the type of work as described in the Contract and the Concrete Work Categories as defined below.

344-1.2 Work Categories: Construction of LAP concrete elements will fall into one of the following Concrete Work Categories:

344-1.2.1 Concrete Work Category 1: Includes the construction of sidewalks, curb and gutter, ditch and slope pavement, or other non-reinforced cast-in-place or precast elements.

344-1.2.2 Concrete Work Category 2: Includes the construction of precast concrete including concrete barriers, traffic railing barriers, parapets, sound barriers, inlets, manholes, junction boxes, pipe culverts, storm sewers, box culverts, prestressed concrete poles, concrete bases for light poles, highway sign foundations, retaining wall systems, traffic separators or other structural precast elements.

344-1.2.3 Concrete Work Category 3: Includes the work associated with the placement and/or construction of structural cast-in-place concrete requiring a class of concrete specified in FDOT Section 346.

344-2 Materials.

344-2.1 General: Use concrete composed of a mixture of Portland cement, aggregates, and water, with or without chemical or mineral admixtures that meet the following requirements:

344-2.1.1 Portland Cement: Cement shall conform to the requirements of the AASHTO or ASTM designations. Different brands of cement, cement of the same brand from different facilities or different types of cement shall be stored separately and shall not be mixed. Portland cements meeting the requirements of AASHTO M-85 or ASTM C-150 are allowed for LAP concrete.

344-2.1.2 Coarse and Fine Aggregates: Aggregates shall meet current FDOT requirements except that source approval by the FDOT is not required.

344-2.1.3 Water: Water shall meet current FDOT requirements.

344-2.1.4 Chemical Admixtures: Chemical admixtures shall meet current FDOT requirements. Admixtures may be added at the dosage rates recommended by the manufacturer.

344-2.1.5 Pozzolans and Slag: Pozzolans and Slag shall meet the current FDOT requirements.

344-2.2 Material Storage: Use a concrete production facility that meets the following requirements.

344-2.2.1 Cementitious Materials Storage: Provide a separate and clearly labeled weatherproof facility to store each brand or type of cementitious material without mixing or contamination. Provide a suitable, safe and convenient means of collecting cementitious material samples at each storage facility.

344-2.2.2 Aggregate Storage: Provide suitable bins, stockpiles or silos to store and identify aggregates without mixing, segregating or contaminating different grades or types of materials. Identify aggregate type/gradation. Handle the aggregates in a manner to minimize segregation and meet the specification requirements when recovered from storage. Continuously and uniformly sprinkle coarse aggregate with water, for 24 hours preceding introduction into the

concrete mix. Timers may be used to facilitate the sprinkling of aggregate stockpiles using an alternating on/off method. However, in no event shall the top surface of the stockpile be permitted to become dry prior to batching of concrete. Moisture probes may be used to determine the moisture content of the aggregate. Ensure that the accuracy of the probe is certified annually and verified weekly. Maintain stored aggregates in a well-drained condition to minimize free water content. Provide access for the Engineer to sample the aggregates from the recovery side of the storage facility.

344-3 Production, Mixing and Delivery of Concrete.

344-3.1 Concrete Production Requirements: Use concrete production facilities certified by the National Ready-Mixed Concrete Association (NRMCA), approved by the FDOT.

Produce concrete utilizing equipment that is in good operating condition and operated in a manner to ensure a consistent product. When moisture probes are not used, ensure that the concrete production facility determines the free moisture for the coarse and fine aggregates within two hours prior to each day's batching. On concrete placements expected to exceed three hours, perform an additional moisture test approximately half way through the batching operations and adjust batch proportions accordingly.

Ensure that the calibration of the measuring devices of the concrete production facilities meets the requirements of Chapter 531 of the Florida Statutes, and are in accordance with Chapter 9.2 of the FDOT Materials Manual. At least quarterly, ensure that all scales, meters and other weighing or measuring devices are checked for accuracy by a qualified representative of a scale company registered with the Bureau of Weights and Measures of the Florida Department of Agriculture. As an alternative, the producer may have this frequency identified in an FDOT approved QC plan. The accuracy of admixture measuring dispensers will be certified annually by the admixture supplier.

When Volumetric Mixers are used for Category I applications, deliver concrete in accordance with the requirements of Volumetric Mixer Manufacturers Bureau (VMMB) and ensure that the vehicle has a VMMB registered rating plate.

344-3.2 Classes of Concrete: Classes of concrete to be used on the project will be defined in the Contract Documents.

344-3.3 Contractors Quality Control: The Contractor will supply a Quality Control (QC) plan to identify to the Agency how quality will be ensured at the project site. During random inspections the Agency will use this document to verify that the construction of the project is in agreement with his QC plan.

344-3.4 Concrete Mix Design: Before producing any concrete, submit the proposed mix design to the Engineer on a form provided by the Agency. Otherwise, the agency will accept mix designs previously described in an FDOT approved QC plan. In any event, use only concrete mix designs having prior approval of the Engineer.

Materials may be adjusted provided that the theoretical yield requirement of the approved mix design is met. Show all required original approved design mix data and batch adjustments and substituted material on an Agency approved concrete delivery ticket. The Engineer may disqualify any concrete production facility for non-compliance with specification requirements.

344-3.5 Delivery: For cast-in-place applications, the maximum allowable mixing and agitation time of concrete is 90 minutes.

Furnish a delivery ticket on a form approved by the Agency with each batch of concrete before unloading at the placement site. The delivery ticket shall be printed. Record

material quantities incorporated into the mix on the delivery ticket. Ensure that the Batchers responsible for producing the concrete certifies that the batch was produced in accordance with these Specifications and signs the delivery ticket. The Contractor shall sign the delivery ticket certifying that the concrete was batched, delivered and placed in accordance with these Specifications.

The Contractor shall be responsible for rejecting loads of concrete that do not meet the plastic properties of the approved mix design or the minimum compressive strength requirements.

At the sole option of the Agency, the Engineer may accept concrete at a reduced pay when it is determined that the concrete will serve its intended function.

344-3.6 Placing Concrete:

344-3.6.1 Concreting in Cold Weather: Do not place concrete when the temperature of the concrete at placement is below 45°F.

Meet the air temperature requirements for mixing and placing concrete in cold weather as specified in Section 346. During the curing period, if NOAA predicts the ambient temperature to fall below 35°F for 12 hours or more or to fall below 30°F for more than 4 hours, enclose the structure in such a way that the concrete and air within the enclosure can be kept above 60°F for a period of 3 days after placing the concrete or until the concrete reaches a minimum compressive strength of 1,500 psi.

Assume all risks connected with the placing and curing of concrete. Although the Engineer may give permission to place concrete, the Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the Agency.

344-3.6.2 Concreting in Hot Weather: Meet the temperature requirements and special measures for mixing and placing concrete in hot weather as specified in Section 346.

When the temperature of the concrete as placed exceeds 75°F, incorporate in the concrete mix a water-reducing retarder or water reducer if allowed by Section 346.

Spray reinforcing steel and metal forms with cool fresh water just prior to placing the concrete in a method approved by the Engineer.

Assume all risks connected with the placing and curing of concrete. Although the Engineer may give permission to place concrete, the Contractor is responsible for satisfactory results. If the placed concrete is determined to be unsatisfactory, remove, dispose of, and replace the concrete at no expense to the Agency.

344-3.7 Mixers: Ensure that mixers are capable of combining the components of concrete into thoroughly mixed and uniform mass, free from balls or lumps of cementitious materials, and capable of discharging the concrete uniformly. Operate concrete mixers at speeds per the manufacturer's design. Do not exceed the manufacturer's rated capacity for the volume of mixed concrete in the mixer, mixing drum, or container.

344-3.8 Small Quantities of Concrete: With approval of the Engineer, small quantities of concrete, less than 3 yd³ placed in one day and less than 0.5 yd³ placed in a single placement may be accepted using a pre-bagged mixture. The Agency may verify that the pre-bagged mixture is prepared in accordance with the manufacturer's recommendations and will meet the requirements of this Specification.

344-3.9 Sampling and Testing:

344-3.9.1 Category 1: The Engineer may sample and test the concrete at his discretion to verify its quality. The minimum 28 day compressive strength requirement for this concrete is 2,500 psi.

344-3.9.2: Category 2: Provide a statement of certification from the manufacturer of the precast element that the element meets the quality control and inspection testing requirements of the Contract Documents.

344-3.9.3 Category 3: The Agency will randomly select a sample from each 200 yd³ or one day's production to determine plastic properties and to make three 4 x 8 inch cylinders for testing by the Agency at 28 days to ensure that the design compressive strength has been met. The Agency may, at its discretion, test additional concrete samples to ensure compliance with the specifications.

344-3.10 Records: Maintain the following records for review for at least 3 years after final acceptance of the project:

1. Approved concrete mix designs.
2. Materials source (delivery tickets, certifications, certified mill test reports).
3. A copy of the scale company or testing agency report showing the observed deviations from quantities checked during calibration of the scales and meters.
4. A copy of the documentation certifying the admixture weighing/measuring devices.
5. For Non Structural LAP concrete the Agency will accept recent NRMCA, VMMB or FDOT inspection records certifying the plant or truck can produce concrete. In addition, documentation will be available at the plant or in the truck showing that action has been taken to correct deficiencies noted during the inspections.

344-4 Acceptance of the Work.

344-4.1 Category 1 Work: Category 1 work will be accepted based upon compliance with Production, Mixing and Delivery Requirements specified in 334-3.

344-4.2 Category 2 Work: Precast elements will be accepted based upon certification from the Contractor that the elements were produced by a production facility on the FDOT's current approved plant list. In addition, the producers QC stamp will be displayed on the element.

344-4.3 Category 3 Work: Category 3 work shall be in full compliance with this Specification, and with current FDOT Specifications, Section 346 and associated Contractor Quality Control (QC) specifications governing cast-in-place concrete. In addition, a Delivery Ticket as described in 344-3.5 will be required for acceptance of the material at the project site.

344-5 Method of Measurement.

The quantities to be paid for will be the items shown in the plans, completed and accepted.

344-6 Basis of Payment.

Prices and payments will be full compensation for all work and materials specified in this Section.

SECTION 440
LOCAL AGENCY PROGRAM
UNDERDRAINS

SECTION 440 UNDERDRAINS

440-1 Description.

Construct underdrains, underdrain cleanout structures, underdrain inspection boxes and underdrain outlet pipes. Use any one of the types of pipe listed in 440-2, unless a particular type is specifically required. Use only perforated pipe, and do not use open joints.

440-2 Materials.

Meet the following requirements:

Concrete Pipe	Section 449
Filter Aggregate	Section 902
Corrugated Steel Pipe	Section 943
Corrugated Aluminum Pipe	Section 945
Polyvinyl-Chloride Pipe.....	Section 948
Corrugated High Density Polyethylene Pipe	Section 948
Corrugated Polypropylene Pipe	Section 948
Steel Reinforced Polyethylene Ribbed Pipe	Section 948
Filter Fabric Sock.....	Section 948
Geotextile Fabrics	Section 985

Use bitumized-fiber pipe only when called for in the Contract Documents.

440-3 Excavating Trench.

Excavate the trench carefully, to the depth required to permit the pipe to be laid to the grade required, and to the dimensions shown in the Plans.

440-4 Laying Pipe.

440-4.1 General: Bed the pipe firmly on the bottom of the trench, with the perforations down and joints securely made.

440-4.2 Corrugated Steel Pipe - Protection of Coating: Handle corrugated steel pipe in such a way that the zinc or aluminum coating will not be bruised or broken. Do not use pipe showing bruises or breakage of the zinc or aluminum coating.

440-4.3 Protection of Drain Inlet: Protect the influent end of the pipe in a manner which will prevent any soil from entering the drain.

440-4.4 Lateral Connections: Make lateral connections with prefabricated wyes, tees, elbows, etc., as required.

440-4.5 Underdrain Inspection Box: Construct underdrain inspection boxes in accordance with Standard Plans, Index 440-002 and the Plans.

440-4.6 Underdrain Cleanout Structures: Construct underdrain cleanout structures of in-line wye fittings and stub for access where called for in the Plans.

440-5 Placing Filter Material and Backfilling.

440-5.1 Placing Material: After laying the pipe and obtaining the Engineer's approval, backfill the trench with filter material to the lines shown in the Plans.

440-5.2 Compaction of Filter Material and Protection of Pipe: Place and compact the filter material around the pipe and for the full width of the trench, in layers not exceeding 6 inches in thickness. Take special care to avoid displacement or damage to the pipe.

440-5.3 Backfill Above Filter Material: For all types of pipe, backfill the portion of the trench above the filter material with suitable pervious material. Place and compact the material in layers not exceeding 4 inches in thickness.

440-6 Type V Underdrain Construction.

To prevent clogging of Type V underdrain from construction sediments, initially excavate the associated stormwater facilities to rough grade. After the contributing drainage area is stabilized, construct the underdrains and excavate the stormwater facilities to achieve the final elevation.

440-7 Method of Measurement.

The quantities to be paid for will be the length, in feet, of underdrain, which includes underdrain cleanout structures, measured in place, along the centerline and gradient of the underdrain, completed and accepted. The quantities to be paid for will be the length, in feet, of outlet pipe measured in place, along the centerline and gradient of the outlet pipe, completed and accepted. The quantity of underdrain inspection boxes to be paid for will be the number completed and accepted.

440-8 Basis of Payment.

Price and payment will be full compensation for all the work, including all materials and all excavation except the volume included in the items for the grading work.

Payment will be made under:

- | | |
|-------------------|------------------------------------|
| Item No. 440- 1- | Underdrain - per foot. |
| Item No. 440- 70- | Underdrain Inspection Box - each. |
| Item No. 440- 73- | Underdrain Outlet Pipe - per foot. |