CONTRACT, LEASE, AGREEMENT CONTROL FORM

Date: 08/25/2021

Contract/Lease Control #: C21-3050-PW

Procurement#: ITB PW 07-21

Contract/Lease Type: AGREEMENT

Award To/Lessee: GULF COAST UTILITY CONTRACTORS, LLC.

Owner/Lessor: OKALOOSA COUNTY

Effective Date: 03/02/2021

Expiration Date: 11/13/2021

Description of: 6TH STREET STORM WATER IMPROVEMENTS

Department: PW

Department Monitor: AUTREY

Monitor's Telephone #: 850-689-5772

Monitor's FAX # or E-mail: JAUTREY@MYOKALOOSA.COM

Closed:

Cc: BCC RECORDS

CONTRACT#: C21-3050-PW
GULF COAST UTILITY CONTRACTORS, LLC
6TH STREET AREA STORWATER IMPROVEMENTS
EXPIRES: 240 DAYS TO NTP

CHANGE ORDER FORM

Date: 8/17/2021 **Contract No.:** C21-3050-PW **Change Order No.:** 1

Owner: OKALOOSA COUNTY BOARD OF COUNTY COMMISSIONERS

Contractor: GULF COAST UTILITY CONTRACTORS, LLC

CHANGE TO CONTRACT PRICE	
DESCRIPTION	**AMOUNT**
Original Contract Price:	$2,577,387.50
Net change by previously authorized Change Orders:	0.00
Present Contract Price:	$2,577,387.50
This Change Order will add:	$35,098.70
New Contract Price:	$2,612,486.20

CHANGE TO CONTRACT TIME	
DESCRIPTION	**DATE or NUMBER OF DAYS**
Original Contract Time:	240 days
Original Substantial Completion Date:	10/30/2021
Net change by previously authorized Change Orders:	None
This Change Order will add:	14 days
New Contract Time:	254 days
New Substantial Completion Date:	11/13/2021

APPROVALS

REQUESTED BY: _____ DATE: 8/17/2021

PROJECT ENGINEER: _____ DATE: 8-17-21

CONTRACTOR: _____ DATE: 8-19-21

OWNER: Faye Douglas Digitally signed by Faye Douglas Date: 2021.08.25 09:53:39 -05'00' DATE: _____

This Change Order is an amendment to the Contract/Agreement between Contractor and the Owner, and all other contract provisions shall remain in full force and effect unless specifically amended in writing, signed by both parties.

Gulf Coast Utility Contractors, LLC
13938 Hwy 77
Panama City FL 32409
850-265-9166

License: CU-CO57185

Change Order

Order#: 1

Order Date: 07/21/2021

To: Okaloosa Cty Board of Comm
1250 N Eglin Parkway
Shalimar FL

Project: 403
21-08 6th St Stormwater Okaloosa Cty
1250 N Eglin Parkway
Shalimar FL 32536

The contractor agrees to perform and the owner agrees to pay for the following changes to this contract.

Plans Attached ☐

Ordered By: K. Morgan **Customer Order:**

Specifications Attached ☐

Description of Work	Amount
P-8 Manhole <10'	9,975.00
J-8 Doghouse Manhole <10'	11,975.00
48' of 24" ADS	6,480.00
Dewatering	5,000.00
Demo Asphalt	350.00
Asphalt	500.00
Limerock Base	300.00
Bond 1.5%	518.70

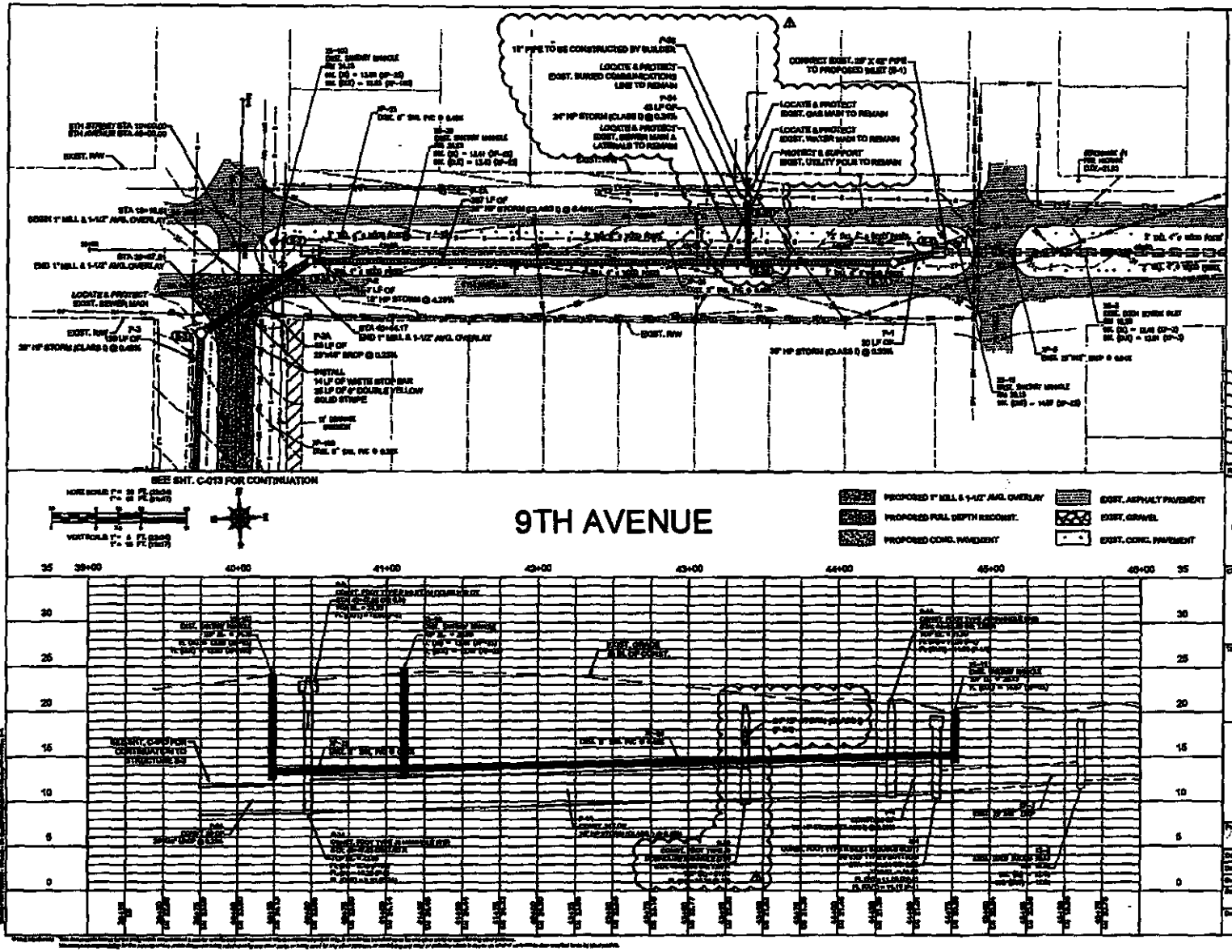
Negative changes will lower the overall contract price requiring no additional payment by owner.

Requested Amount of Change 35,098.70

The original Contract Sum was	2,577,387.50
Net change by previous Change Orders	0.00
The Contract Sum prior to this Change Order	2,577,387.50
The Contract Sum will be changed by this Change Order	35,098.70
The new Contract Sum including this Change Order will be	2,612,486.20
The Contract Time will be changed by	14 Days

Owner: _____ Date: _____

Contractor: _____ Date: _____



NOTE:
CONTRACTOR SHALL LOCATE AND PROTECT ALL WATER AND SEWER LATERALS WITHIN THE LIMITS OF CONSTRUCTION.

Okaloosa County
Board of County Commissioners

8th Street Drainage Improvements

PLAN & PROFILE - 9TH AVENUE

STA: 39+00 - 46+00

ISSUED FOR CONSTRUCTION

THIS DRAWING IS PART OF A DIGITALLY SIGNED AND SEALED SET OF DRAWINGS, IN ACCORDANCE WITH 61G15-23.004, F.A.C. PRINTED COPIES OF THIS DRAWING ARE NOT CONSIDERED SIGNED AND SEALED AND ALL SIGNATURES MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

Project Number	Sht	Total
390762	10	30

Designed	K. MORROW	Dsg check	S. HUTZ
Drawn	C. RILEY	Constructn	K. MORROW
Drg check	S. HUTZ	Approved	K. MORROW

Scale as noted	Status	Ver	Drawing
1:30	CON	1	STD

Drawing Number: C-010

CONTRACT, LEASE, AGREEMENT CONTROL FORM

Date: 03/03/2021

Contract/Lease Control #: C21-3050-PW

Procurement#: ITB PW 07-21

Contract/Lease Type: AGREEMENT

Award To/Lessee: GULF COAST UTILITY CONTRACTORS, LLC

Owner/Lessor: OKALOOSA COUNTY

Effective Date: 03/02/2021

Expiration Date: 240 DAYS FROM NTP

Description of: 6TH STREET STROM WATER IMPROVEMENTS

Department: PW

Department Monitor: AUTREY

Monitor's Telephone #: 850-689-5772

Monitor's FAX # or E-mail: JAUTREY@MYOKALOOSA.COM

Closed:

Cc: BCC RECORDS

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 3/31/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Alice Pousson
Sihle Insurance Group Inc. 1700 West Main St. Suite 300 Pensacola FL 32502	PHONE (A/C, No, Ext): 850-332-5458 FAX (A/C, No): 850-607-2060 E-MAIL ADDRESS: apousson@sihle.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Houston Specialty Insurance Comoany	12936
INSURER B : Imperium Insurance Company	35408
INSURER C : Bridgefield Casualty Insurance Company	10335
INSURER D : Travelers Property Casualty Insurance Company of A	25674
INSURER E : Westchester Surplus Lines Insurance Company	10172
INSURER F : Evanston Insurance Company	35378

INSURED GULFCOA-04
Gulf Coast Utility Contractors LLC
13938 Highway 77
Panama City FL 32409

COVERAGES **CERTIFICATE NUMBER:** 1540176928 **REVISION NUMBER:**

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 THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY [ ] PRO-JECT [ ] LOC OTHER:			ECAP1-HS-GL-000167-00	4/1/2021	4/1/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
B	**AUTOMOBILE LIABILITY** X ANY AUTO OWNED AUTOS ONLY X HIRED AUTOS ONLY SCHEDULED AUTOS X NON-OWNED AUTOS ONLY			ECAP1-IIC-CA-000167-00	4/1/2021	4/1/2022	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) PIP	$ 1,000,000 $ $ $ $ 10,000
A F	**UMBRELLA LIAB** X OCCUR X **EXCESS LIAB** CLAIMS-MADE DED X RETENTION $ 10,000			ECAP1-HS-CX-000167-00 MKLV7EUE100425	4/1/2021 4/1/2021	4/1/2022 4/1/2022	EACH OCCURRENCE AGGREGATE Excess	$ 4,000,000 $ 4,000,000 $ 1,000,000
C	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y/N ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N **(Mandatory In NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		0196-42722	4/1/2021	4/1/2022	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
D E D	Contractors Equipmnet Pollution Cargo	N N	N N	QT-630-0P91390A-TIL-20 G7179720A 002 QT-630-0P91390A-TIL-20	10/1/2020 4/1/2021 10/1/2020	10/1/2021 4/1/2023 10/1/2021	Leased & Rented Pollution Liability Cargo	$400,000 $1,000,000 $300,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Project name: 6th Street Area Stormwater Improvements Okaloosa County Board of County Commissioners are included as additional insured with regards to the general liability and automobile liability coverage when required by written contract. Waiver of Subrogation applies in favor of Okaloosa County Board of County Commissioners with regards to the general liability, automobile liability and workers compensation coverage when required by written contract.

CONTRACT#: C21-3050-PW
GULF COAST UTILITY CONTRACTORS, LLC
6TH STREET STORMWATER IMPROVEMENTS
EXPIRES: 240 DAYS FROM NTP

CERTIFICATE HOLDER

Okaloosa County Board of County Commissioners
1250 N Eglin Parkway
Shalimar FL 32579

CANC

SHC
THE EXPIRATION DATE THEREOF, NOTICE ...
ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

PROCUREMENT/CONTRACT/LEASE
INTERNAL COORDINATION SHEET

Procurement/Contract/Lease Number: C21-3050-PW Tracking Number: 4312-21

Procurement/Contractor/Lessee Name: GC4C Grant Funded: YES___ NO X

Purpose: amendment 1st

Date/Term: 240 days from NTP

Department #: 1004 & 53150

Account #: 3303 - 563001

Amount: 2,577,387.50 contract price

Department: PW Dept. Monitor Name: Andy

1. ☒ GREATER THAN $100,000
2. ☐ GREATER THAN $50,000
3. ☐ $50,000 OR LESS

Purchasing Review

Procurement or Contract/Lease requirements are met:

Date: 4-21-21

Purchasing Manager or designee — Jeff Hyde, DeRita Mason, Jesica Darr, Angela Etheridge

2CFR Compliance Review *(if required)*

Approved as written: no federal funds Grant Name: _____

Date: _____

Grants Coordinator

Risk Management Review

Approved as written: see email attached

Date: 4-21-21

Risk Manager or designee — Lisa Price

County Attorney Review

Approved as written: see email attached

Date: 4-21-21

County Attorney — Lynn Hoshihara, Kerry Parsons or Designee

Department Funding Review

Approved as written:

Date: _____

IT Review (if applicable)

Approved as written:

Date: _____

Revised September 22, 2020

DeRita Mason

From: Parsons, Kerry <KParsons@ngn-tally.com>
Sent: Wednesday, April 21, 2021 2:38 PM
To: Steve Schmidt; DeRita Mason
Subject: RE: Amendment to Contract with GCUC

This is approved for legal purposes.

Kerry A. Parsons, Esq.
Nabors
Giblin &
Nickerson
1500 Mahan Dr. Ste. 200
Tallahassee, FL 32308
T. (850) 224-4070
Kparsons@ngn-tally.com

From: Steve Schmidt <sschmidt@myokaloosa.com>
Sent: Wednesday, April 21, 2021 3:36 PM
To: DeRita Mason <dmason@myokaloosa.com>; Parsons, Kerry <KParsons@ngn-tally.com>
Subject: Amendment to Contract with GCUC

DeRita and Kerry,

Attached is my hijacked copy of Roy's Amendment to the Anderson Columbia contract, revised to address the overrun of time on the 6th Street Stormwater project, Contract # C21-3050-PW. Please look this over and let me know if it's acceptable. Chris Corbin with GCUC indicates they're "still shooting for May 3" to start.

Thanks, and best regards,

Steve

Steven R. Schmidt, C.P.M.
Surtax Project Manager
1759 S. Ferdon Blvd
Crestview, FL 32536
(850) 423-4886
sschmidt@myokaloosa.com

DeRita Mason

From: Lisa Price
Sent: Wednesday, April 21, 2021 2:50 PM
To: DeRita Mason
Subject: RE: Amendment to Contract with GCUC

Approved.

Lisa Price
Public Records & Contracts Specialist
302 N Wilson Street, Suite 301
Crestview, FL. 32536
(850) 689-5979
lprice@myokaloosa.com

"Kindness is the language which the deaf can hear and the blind can see"
Mark Twain

For all things Wellness please visit:
http://www.myokaloosa.com/wellness

From: DeRita Mason <dmason@myokaloosa.com>
Sent: Wednesday, April 21, 2021 2:39 PM
To: Lisa Price <lprice@myokaloosa.com>
Subject: FW: Amendment to Contract with GCUC

Lisa,
Please review and approve the attached.

Thank you,

DeRita Mason

CONTRACT#: C21-3050-PW
GULF COAST UTILITY CONTRACTNG, LLC
6TH STREET AREA STROMWATER IMPROVEMENTS
EXPIRES: 240 DAYS FROM NTP

FIRST AMENDMENT TO THE AGREEMENT BETWEEN OKALOOSA COUNTY, FLORIDA AND GULF COAST UTILITY CONTRACTORS, LLC CONTRACT NO. C21-3050-PW

This First Amendment to the Agreement between Okaloosa County, a political subdivision of the state of Florida (the "County"), and Gulf Coast Utility Contractors, LLC, executed this 4th day of May 2021, is made a part of the original Agreement effective March 2, 2021, Contract No. C21-3050-PW (the "original Agreement"), incorporated herein by reference. The County and Contractor hereby agree as follows:

1. **ARTICLE 4.01.A OF THE SUPPLEMENTARY CONDITIONS IS AMENDED AS FOLLOWS:**

   A. The Contract Times will commence to run on the seventieth 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. In no event will the Contract Times commence to run later than 75 days after the Effective Date of the Contract unless Owner and Contractor mutually agree to a time extension.

B. **OTHER PROVISIONS REMAIN IN EFFECT.** Except as specifically modified herein, all terms and conditions of the original Agreement between the parties, effective March 2, 2021 and any amendments thereto, shall remain in full force and effect.

C. **CONFLICTING PROVISIONS.** The terms, statements, requirements, or provisions contained in this Amendment shall prevail and be given superior effect and priority over any conflicting or inconsistent terms, statements, requirements or provisions contained in any other document or attachment.

(Remainder of Page Intentionally Left Blank)

IN WITNESS WHEREOF, the parties hereto have executed this Amendment on the day and year first written above.

WITNESS:

Signature

Michael Blatt
Print Name

GULF COAST UTILITY CONTRACTORS, LLC

BY: _____
As its: VICE PRESIDENT
CHRIS COBB

ATTEST:

Digitally signed by JD Peacock II
Date: 2021.05.05 15:02:51 -05'00'

J.D. Peacock II, Clerk of Courts

OKALOOSA COUNTY, FLORIDA

BY: _____
Carolyn N. Ketchel, Chairman

SEAL

NOTICE TO PROCEED

TO: Gulf Coast Utility Contractors, LLC
13938 Hwy 77
Panama City, FL 32409

PROJECT: 6th Street Storm Water Improvements C21-3050-PW

You are hereby notified you are able to commence WORK in accordance with the Agreement dated March 2, 2021. The work shall be substantially complete within 180 calendar days of the date of the Notice to Proceed and be fully complete within 240 calendar days of the date of the Notice to Proceed.

You are required to return an acknowledged copy of this **NOTICE TO PROCEED** to the **OWNER**: Okaloosa County Purchasing, Attention: DeRita Mason, 5479A Old Bethel Road, Crestview, FL 32536, within 15 days from the date this **NOTICE TO PROCEED** is fully executed.

Dated this 3rd day of May, 2021

OKALOOSA COUNTY BOARD OF COUNTY COMMISSIONERS
OWNER

BY: Jeffrey A Hyde
Jeff Hyde, Purchasing Manager

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged.

Commencement of Work: MAY 17, 2021.

GLUC
Company Name

This the 29th day of April, 2021

Signature

By: Chris Corbin, VP
Type or Print Name/Title

CONTRACT#: C21-3050-PW
GULF COAST UTILITY CONTRACTORS, LLC
6TH STREET STORM WATER IMPROVEMENTS
EXPIRES: 240 DAYS FROM NTP

Bond No. SUR0046880

THE AMERICAN INSTITUTE OF ARCHITECTS

Inst. #3434992 Bk: 3529 Pg: 4168
Page 1 of 2 Recorded: 3/4/2021 11:38 AM
RECORDING ARTICLE V: $8.00 RECORDING: $10.50

DEPUTY CLERK APRESTWOOD
JD PEACOCK II CLERK OF COURTS,
OKALOOSA COUNTY, FLORIDA

AIA Document A311

Performance Bond

This bond is given to comply with Section 255.05 Florida Statutes, and any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes, and Section 255.05(10) Florida Statues.

KNOW ALL MEN BY THESE PRESENTS: that (Here insert full name and address or legal title of contractor)

Gulf Coast Utility Contractors, LLC, 13938 Highway 77, Panama City, FL 32409; Phone: (850) 265-9166
as Principal, hereinafter called Principal, and, (Here insert full name and address or legal title of Surety)

Argonaut Insurance Company, 225 W. Washington Street, 24th Floor, Chicago, IL 60606;
Phone: 800-470-7958
as Surety, hereinafter called Surety, are held and firmly bound unto (Here insert full name and address or legal title of Owner)

Okaloosa County board of County Commissioners, 1250 N. Eglin Parkway, Shalimar, FL; Phone: 850-689-5772
as Obligee, hereinafter called Owner, in the amount of

Two Million Five Hundred Seventy-Seven Thousand Three Hundred Eighty-Seven and 50/100 Dollars ($2,577,387.50)

for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated 3-1-21, entered into a contract with Owner for
(Here insert full name, address and description of project)

Project No. ITB PW 07-21, 6th Street Area Stormwater Improvements, Okaloosa County, FL
in accordance with Drawings and Specifications prepared by (Here insert full name and address or legal title of Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

CONTRACT#: C21-3050-PW
GULF COAST UTILITY CONTRACTORS, LLC
6TH STREET AREA STORMWATER IMPROVEMENTS
EXPIRES: 240 DAYS FROM NTP

Bond No. SUR0046880

PERFORMANCE BOND

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly

1) Complete the Contract in accordance with its terms and conditions, or

2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the Owner and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Owner, and make available as Work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

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

Signed and sealed this **11th day of February, 2021.**

Gulf Coast Utility Contractors, LLC
(Principal)

(Name & Title)

Argonaut Insurance Company
(Surety)

Paul A. Locascio, Attorney-in-Fact
& FL Licensed Resident Agent

Bond No. SUR0046880

THE AMERICAN INSTITUTE OF ARCHITECTS

Inst. #3434993 Bk: 3529 Pg: 4170
Page 1 of 3 Recorded: 3/4/2021 11:38 AM
RECORDING ARTICLE V: $12.00 RECORDING: $15.00

DEPUTY CLERK APRESTWOOD
JD PEACOCK II CLERK OF COURTS,
OKALOOSA COUNTY, FLORIDA

AIA Document A311

Labor and Material Payment Bond

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PERFORMANCE BOND IN FAVOR OF THE OWNER CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT

This bond is given to comply with Section 255.05, Florida Statutes, and any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes, and Section 255.05(10) Florida Statues.

KNOW ALL MEN BY THESE PRESENTS: that as (Here insert full name and address or legal title of contractor)

Gulf Coast Utility Contractors, LLC, 13938 Highway 77, Panama City, FL 32409; Phone: (850) 265-9166
as Principal, hereinafter called Principal, and, (Here insert full name and address or legal title of Surety)

Argonaut Insurance Company, 225 W. Washington Street, 24th Floor, Chicago, IL 60606;
Phone: 800-470-7958
as Surety, hereinafter called Surety, are held and firmly bound unto (Here insert full name and address or legal title of Owner)

Okaloosa County board of County Commissioners, 1250 N. Eglin Parkway, Shalimar, FL; Phone: 850-689-5772
as Obligee, hereinafter called Owner, for the use and benefit of claimants as hereinbelow defined, in the amount of

Two Million Five Hundred Seventy-Seven Thousand Three Hundred Eighty-Seven and 50/100 Dollars ($2,577,387.50)
(here insert a sum equal to at least one-half of the contract price)
for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated 3-2-2021, entered into a contract with Owner for
(Here insert full name, address and description of project)

Project No. ITB PW 07-21; 6th Street Area Stormwater Improvements, Okaloosa County, FL
in accordance with Drawings and Specifications prepared by (Here insert full name and address or legal title of Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

Bond No. SUR0046880

LABOR AND MATERIAL PAYMENT BOND

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions

1. A claimant is defined as one having a direct contract with the Principal or, with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed.

Such notice shall be served by mailing the same by registered mail or certified mail; postage prepaid, in an envelope addressed to the Principal, Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one 1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the Project, or any part thereof, is situated, or in the United States District Court for the district in which the Project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against said improvement, whether or not claim for the amount of such lien 'be presented under and against this bond.

Signed and sealed this **11th day of February, 2021.**

Gulf Coast Utility Contractors, LLC
(Principal) (Seal)

(Name & Title)

Argonaut Insurance Company
(Surety) (Seal)

Paul A. Locascio, Attorney-in-Fact
& FL Licensed Resident Agent

AIA DOCUMENT A311 - PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND - AIA @ FEBRUARY 1970 ED. - THE AMERICAN INSTITUTE OF ARCHITECTS, 1735 N.Y. AVE., N.W., WASHINGTON, D. C. 20006

Bond No. SUR0046880

Argonaut Insurance Company
Deliveries Only: 225 W. Washington, 24th Floor
Chicago, IL 60606
United States Postal Service: P.O. Box 469011, San Antonio, TX 78246

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the Argonaut Insurance Company, a Corporation duly organized and existing under the laws of the State of Illinois and having its principal office in the County of Cook, Illinois does hereby nominate, constitute and appoint:

L Dale Waldorff, K Wayne Walker, Pamela L Jarman, Benjamin H French, Paul A Locascio, Rebekah G Wolf

Their true and lawful agent(s) and attorney(s)-in-fact, each in their separate capacity if more than one is named above, to make, execute, seal and deliver for and on its behalf as surety, and as its act and deed any and all bonds, contracts, agreements of indemnity and other undertakings in suretyship provided, however, that the penal sum of any one such instrument executed hereunder shall not exceed the sum of:

$50,000,000.00

This Power of Attorney is granted and is signed and sealed under and by the authority of the following Resolution adopted by the Board of Directors of Argonaut Insurance Company:

"RESOLVED, That the President, Senior Vice President, Vice President, Assistant Vice President, Secretary, Treasurer and each of them hereby is authorized to execute powers of attorney, and such authority can be executed by use of facsimile signature, which may be attested or acknowledged by any officer or attorney, of the Company, qualifying the attorney or attorneys named in the given power of attorney, to execute in behalf of, and acknowledge as the act and deed of the Argonaut Insurance Company, all bond undertakings and contracts of suretyship, and to affix the corporate seal thereto."

IN WITNESS WHEREOF, Argonaut Insurance Company has caused its official seal to be hereunto affixed and these presents to be signed by its duly authorized officer on the 8th day of May, 2017.

Argonaut Insurance Company

by: _____

Joshua C. Betz, Senior Vice President

STATE OF TEXAS
COUNTY OF HARRIS SS:

On this 8th day of May, 2017 A.D., before me, a Notary Public of the State of Texas, in and for the County of Harris, duly commissioned and qualified, came THE ABOVE OFFICER OF THE COMPANY, to me personally known to be the individual and officer described in, and who executed the preceding instrument, and he acknowledged the execution of same, and being by me duly sworn, deposed and said that he is the officer of the said Company aforesaid, and that the seal affixed to the preceding instrument is the Corporate Seal of said Company, and the said Corporate Seal and his signature as officer were duly affixed and subscribed to the said instrument by the authority and direction of the said corporation, and that Resolution adopted by the Board of Directors of said Company, referred to in the preceding instrument is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand, and affixed my Official Seal at the County of Harris, the day and year first above written.

KATHLEEN M. MEEKS
Notary Public, State of Texas
Comm. Expires 07-15-2021
Notary ID 557832-5

Kathleen M. Meeks
(Notary Public)

I, the undersigned Officer of the Argonaut Insurance Company, Illinois Corporation, do hereby certify that the original POWER OF ATTORNEY of which the foregoing is a full, true and correct copy is still in full force and effect and has not been revoked.

IN WITNESS WHEREOF, I have hereunto set my hand, and affixed the Seal of said Company, on the 11th day of February, 2021

James Bluzard, Vice President-Surety

THIS DOCUMENT IS NOT VALID UNLESS THE WORDS ARGO POWER OF ATTORNEY ARE IN BLUE. IF YOU HAVE QUESTIONS ON AUTHENTICITY OF THIS DOCUMENT CALL (210) 321 - 8400.

Project Manual

ITB PW 07-21

6TH STREET AREA STORMWATER IMPROVEMENTS

Okaloosa County, Florida

OKALOOSA COUNTY COMMISSIONERS

Carolyn Ketchel, Chair, District 2
Mel Ponder, Vice Chair District 5
Paul Mixon, District 1
Nathan Boyles, District 3
Trey Goodwin, Chair, District 4

COUNTY ADMINISTRATOR
John Hofstad

PUBLIC WORKS DIRECTOR
Jason Autrey, P.E.

COUNTY ENGINEER
Scott Bitterman, P.E.

ENGINEER OF RECORD
Kevin M. Morgan, P.E.

CONTRACT#: C21-3050-PW
GULF COAST UTILITY CONTRACTORS, LLC
6TH STREET AREA STORMWATER IMPROVEMENTS
EXPIRES: 240 DAYS FROM NTP

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 2/12/2021

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Sihle Insurance Group, Inc. 1700 West Main St. Suite 300 Pensacola FL 32502	**CONTACT NAME:** Alice Pousson **PHONE (A/C, No, Ext):** 850-332-5458 **FAX (A/C, No):** 850-607-2060 **E-MAIL ADDRESS:** apousson@sihle.com
INSURED GULFCOA-04 Gulf Coast Utility Contractors LLC 13938 Highway 77 Panama City FL 32409	**INSURER(S) AFFORDING COVERAGE** — **NAIC #** **INSURER A :** Travelers Indemnity Company of America — 25666 **INSURER B :** Phoenix Insurance Company — 25623 **INSURER C :** Travelers Insurance Company — 25658 **INSURER D :** Bridgefield Casualty Insurance Company — 10335 **INSURER E :** Travelers Property Casualty Insurance Company of A — 25674 **INSURER F :** Westchester Surplus Lines Insurance Company — 34452

COVERAGES **CERTIFICATE NUMBER:** 1937941293 **REVISION NUMBER:**

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 THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC OTHER:			CO-4N020483-20	4/1/2020	4/1/2021	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
B	**AUTOMOBILE LIABILITY** X ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS X HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY			810-4N035214-20	4/1/2020	4/1/2021	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) PIP	$ 1,000,000 $ $ $ $ 10,000
C	X **UMBRELLA LIAB** [X] OCCUR **EXCESS LIAB** [ ] CLAIMS-MADE DED [X] RETENTION $ 10,000			CO-4N020483-20	4/1/2020	4/1/2021	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
D	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [N] **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		0196-42722	4/1/2020	4/1/2021	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
E F E	Contractors Equipment Pollution Liability Cargo	N N N	N N N	QT-630-0P91390A-TIL-20 STP408176 QT-630-0P91390A-TIL-20	10/1/2020 4/1/2020 10/1/2020	10/1/2021 4/1/2021 10/1/2021	Leased & Rented Pollution Liability Cargo Liability	400,000 1,000,000 300,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Project name: 6th Street Area Stormwater Improvements

Okaloosa County Board of County Commissioners are included as additional insured with regards to the general liability and automobile liability coverage when required by written contract. Waiver of Subrogation applies in favor of Okaloosa County Board of County Commissioners with regards to the general liability, automobile liability and workers compensation coverage when required by written contract.

CERTIFICATE HOLDER

Okaloosa County Board of County Commissioners
1250 N Eglin Parkway
Shalimar FL 32579

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

PROCUREMENT/CONTRACT/LEASE
INTERNAL COORDINATION SHEET

Procurement/Contract/Lease Number: 07-21 Tracking Number: 4222-21

Procurement/Contractor/Lessee Name: Gulf Coast Utility Contractors Grant Funded: YES___ NO X

Purpose: 6th Street Stormwater Improvements

Date/Term: 240 from NTP

Department #: [redacted] see attached

Account #: _____

Amount: $2,577,387.50

1. ☒ GREATER THAN $100,000
2. ☐ GREATER THAN $50,000
3. ☐ $50,000 OR LESS

Department: PW Dept. Monitor Name: Andy

Purchasing Review

Procurement or Contract/Lease requirements are met:

Keta Mason Date: 1-28-2021

Purchasing Manager or designee — Jeff Hyde, DeRita Mason, Jesica Darr, Angela Etheridge

2CFR Compliance Review (if required)

Approved as written: NO federal funds Grant Name: _____

Date: _____

Grants Coordinator

Risk Management Review

Approved as written:

Date: _____

Risk Manager or designee — Lisa Price

County Attorney Review

Approved as written: see email attached

Date: 2-24-21

County Attorney — Lynn Hoshihara, Kerry Parsons or Designee

Department Funding Review

Approved as written:

Date: _____

IT Review (if applicable)

Approved as written:

Date: _____

Revised September 22, 2020

DeRita Mason

From: Lisa Price
Sent: Monday, February 1, 2021 10:05 AM
To: DeRita Mason
Subject: RE: Gulf Coast Utility Contractors Contract 07-21

Approved.

Lisa Price
Public Records & Contracts Specialist
302 N Wilson Street, Suite 301
Crestview, FL. 32536
(850) 689-5979
lprice@myokaloosa.com

"Kindness is the language which the deaf can hear and the blind can see"
Mark Twain

For all things Wellness please visit:
http://www.myokaloosa.com/wellness

From: DeRita Mason
Sent: Thursday, January 28, 2021 7:34 AM
To: 'Parsons, Kerry'
Cc: Lynn Hoshihara ; Lisa Price
Subject: Gulf Coast Utility Contractors Contract 07-21

Good morning,

Please review and approve the attached.

Thank you,

DeRita Mason

DeRita Mason

From: Parsons, Kerry <KParsons@ngn-tally.com>
Sent: Thursday, February 4, 2021 11:28 AM
To: DeRita Mason
Cc: Lynn Hoshihara; Lisa Price
Subject: RE: Gulf Coast Utility Contractors Contract 07-21

The above referenced contract is approved for legal purposes.

Kerry A. Parsons, Esq.
Nabors
Giblin &
Nickerson
1500 Mahan Dr. Ste. 200
Tallahassee, FL 32308
T. (850) 224-4070
Kparsons@ngn-tally.com

From: DeRita Mason <dmason@myokaloosa.com>
Sent: Thursday, January 28, 2021 8:34 AM
To: Parsons, Kerry <KParsons@ngn-tally.com>
Cc: Lynn Hoshihara <lhoshihara@myokaloosa.com>; Lisa Price <lprice@myokaloosa.com>
Subject: Gulf Coast Utility Contractors Contract 07-21

Good morning,

Please review and approve the attached.

Thank you,

DeRita Mason

DeRita Mason, CPPB
Senior Contracts and Lease Coordinator

DeRita Mason

From: Steve Schmidt
Sent: Monday, October 5, 2020 3:48 PM
To: DeRita Mason
Subject: RE: 6th Street Stormwater Improvements ITB 07-21

You'd think I'd learn to anticipate these questions. ☺

Department(s) & account number(s) for allocated funding for **Project ST000001**:

1004-531500 $128,750 (approximately $105,026 being carried forward for FY 21)
3303-563001 $622,000 (approved surtax funding from FY 19, still wholly available)

It won't be enough; we will be requesting additional surtax funding to complete the project after we receive bids and approve a low bidder.

Steve

Steven R. Schmidt, C.P.M.
Surtax Project Manager
1759 S. Ferdon Blvd
Crestview, FL 32536
(850) 423-4886
sschmidt@myokaloosa.com

From: DeRita Mason <dmason@myokaloosa.com>
Sent: Monday, October 5, 2020 2:46 PM
To: Steve Schmidt <sschmidt@myokaloosa.com>
Subject: RE: 6th Street Stormwater Improvements ITB 07-21

I will get it reviewed and to legal/risk today.
Can you give me the department/account/project number and the total budget?

Thank you,

DeRita Mason

Board of County Commissioners
Purchasing Department

State of Florida

Date: January 22, 2021

OKALOOSA COUNTY PURCHASING DEPARTMENT
NOTICE OF AWARD
ITB PW 07-21

6th Street Stormwater Improvements

Okaloosa County would like to thank all businesses which submitted responses to 6th Street Stormwater Improvements.

After in-depth examination of all responses in accordance with the County's Purchasing Manual, the County announces its intent to award the contract/purchase order to the following:

Gulf Coast Utility Contractors, LLC
13938 Hwy 77
Panama City, FL 32409

Any person/entity desiring to file a procurement protest must meet all the standards and criteria in accordance with Section 31 of the Okaloosa County Purchasing Manual. Failure to file a protest within the time prescribed in Section 31.02 of the Okaloosa County Purchasing Manual, shall constitute a waiver of protest proceedings.

Respectfully,

Jeffrey A Hyde

Jeffrey Hyde
Purchasing Manager

5479A Old Bethel Road, Crestview, FL 32536 Voice: (850) 689-5960 Fax: (850) 689-5970

SAM.GOV®

A NEW WAY TO SIGN IN - If you already have a SAM account, use your **SAM email** for login.gov. Log In

Login.gov FAQs

ALERT: SAM.gov will be down for scheduled maintenance Saturday, 12/12/2020 from 8:00 AM to 1:00 PM.

Search Results

Quick Search Results

Total records: 1

Save PDF | Export Results | Print

Result Page: 1

Sort by Relevance | Order by Descending

Your search returned the following results...

Entity **Gulf Coast Utility Contractors, L.L.C.** Status: **Active**

DUNS: **083415062**
Has Active Exclusion?: **No**
Expiration Date: **03/13/2021**
Purpose of Registration: **All Awards**

CAGE Code: **5BHD9**
DoDAAC:
Debt Subject to Offset?: **No**

View Details

Result Page: 1

Save PDF | Export Results | Print

DIVISION OF CORPORATIONS

Department of State / Division of Corporations / Search Records / Search by Entity Name /

Detail by Entity Name

Florida Limited Liability Company
GULF COAST UTILITY CONTRACTORS, L.L.C.

Filing Information

Document Number	L99000004446
FEI/EIN Number	52-2182511
Date Filed	07/20/1999
State	FL
Status	ACTIVE

Principal Address

13938 HIGHWAY 77
PANAMA CITY, FL 32409

Changed: 08/14/2009

Mailing Address

13938 Hwy 77
SOUTHPORT, FL 32409

Changed: 01/26/2016

Registered Agent Name & Address

SWEARINGTON, MICHAEL W
13938 HWY 77
PANAMA CITY, FL 32409

Address Changed: 02/09/2011

Authorized Person(s) Detail

Name & Address

Title MGRM

SWEARINGTON, MICHAEL W
13938 HWY 77
PANAMA CITY, FL 32409

Title MGRM

SWEARINGTON, TAMMI K

DOCUMENT 00520 – AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT

THIS AGREEMENT is by and between Okaloosa County, a political subdivision of the State of Florida, by and through its Board of County Commissioners, situated at 1250 N. Eglin Parkway, Shalimar, Florida ("OWNER") and Gulf Coast Utility Contractors, LLC of 13938 Hwy 77, Panama City, FL 32409, certified to do business in the state of Florida ("CONTRACTOR").

OWNER and CONTRACTOR hereby agree as follows:

ARTICLE 1 – WORK

1.01 CONTRACTOR shall complete all WORK as specified or indicated in the Contract Documents. The WORK is generally described as follows: Stormwater infrastructure retrofit. This project will also include other work associated with the retrofit of storm sewer piping and structures such as clearing and grubbing, earthwork, maintenance of traffic, dewatering, replacing asphalt paving, curbing and sod, and temporary removal and replacement of fencing and other improvements.

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: 6th Street Area Stormwater Improvements.

ARTICLE 3 – ENGINEER

3.01 The part of the Project that pertains to the WORK has been designed by Mott MacDonald Florida, LLC.

3.02 The OWNER has retained the County Engineer ("ENGINEER") 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 the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 Time of the Essence

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

4.02 Contract Times: Days

A. The Work will be substantially completed within 180 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 240 calendar days after the date when the Contract Times commence to run.

4.03 Liquidated Damages

A. Section 337.18(2) of the Florida Statutes, requires the OWNER adopt regulations for the determination of default and provisions that the Contractor pay liquidated damages (daily charge per calendar day) for any failure of the Contractor to complete the Contract work within the Contract Time.

B. B. Applicable liquidated damages are based on the total awarded contract.

C. CONTRACTOR and OWNER recognize that time is of the essence as stated in Paragraph 4.01 above and that OWNER will suffer financial and other losses if the Work is not completed and Milestones not achieved within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and

difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay. Contractor specifically acknowledges that the liquidated damages is not a penalty and waives any right to argue such at a later time.

1. Substantial Completion: CONTRACTOR shall pay OWNER $1000.00 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.
2. Completion of Remaining Work: After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, CONTRACTOR shall pay OWNER $1000.00 for each day that expires after such time until the Work is completed and ready for final payment.
3. Liquidated damages for failing to timely attain Substantial Completion and final completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents the amounts equal to the sum of the amounts determined pursuant to Paragraph 5.01.A below:

A. For all Work, at the prices stated in CONTRACTOR's Bid, attached hereto as an exhibit.

As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by ENGINEER as provided in Paragraph 10.06 of the General Conditions. Unit prices have been computed as proved in Paragraph 13.03 of the General Conditions.

Contract Amount of $2,577,387.50 (two million five hundred seventy-seven thousand three hundred eighty-seven dollars and fifty cents)

ARTICLE 6 – PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. CONTRACTOR shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. OWNER shall make progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment in accordance with § 218.70-218.79 F.S. (Local Government Prompt Payment Act) during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established in Paragraph 2.03 of the General Conditions (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 elsewhere in the Contract.

1. 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 OWNER may withhold, including but not limited to liquidated damages, in accordance with the Contract:
   a. 95 percent of Work completed (with the balance being retainage)

b. 95 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 15.06 of the General Conditions, OWNER shall pay the remainder of the Contract Price as recommended by ENGINEER as provided in said Paragraph 15.06.

ARTICLE 7 – INTEREST

7.01 All amounts not paid when due shall bear interest at the rate of 1% percent per month in accordance with § 218.735 F.S. (Local Government Prompt Payment Act).

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

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

A. CONTRACTOR has examined and carefully studied the Contract Documents, and any data and reference items identified in the Contract Documents.

B. CONTRACTOR has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. CONTRACTOR is familiar with and is satisfied as to all Federal, State and Local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. CONTRACTOR has carefully studied all, if any: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. CONTRACTOR has considered the information known to CONTRACTOR itself; information commonly known to CONTRACTORs doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports, if any, and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR; and (3) CONTRACTOR's safety precautions and programs.

F. Based on the information and observations referred to in the preceding paragraph, CONTRACTOR agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

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

H. CONTRACTOR has 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.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

J. CONTRACTOR's entry into this Contract constitutes an incontrovertible representation by CONTRACTOR that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

A. The Contract Documents consist of the following:
   1. Bid Form with Attachments (pages 00410-1 to 00410-25, inclusive).
   2. This Agreement (pages 00520-1 to 00520-13, inclusive).
   3. Performance bond (pages 00610-1 to 00610-3, inclusive).
   4. Payment bond (pages 00620-1 to 00620-3, inclusive).
   5. EJCDC General Conditions (pages 00700-1 to 00700-62, inclusive).
   6. Supplementary Conditions (pages 00800-1 to 00800-11, inclusive).
   7. Summary of Work (page 01010-1, inclusive).
   8. Project Coordination (pages 01040-1 to 01040-3, inclusive).
   9. Warranties and Manuals (page 01350-1, inclusive).
   10. Temporary Facilities (pages 01500-1 to 01500-3, inclusive).
   11. Project Closeout (pages 01700-1 to 01700-3, inclusive).
   12. Record Documents (pages 01750-1 to 01750-3, inclusive).
   13. Drawings consisting of 30 sheets with each sheet bearing the following general title: 6th Street Drainage Improvements, (incorporated by reference).
   14. Appendix A - Technical Specifications as prepared by Mott MacDonald Florida, LLC, bearing the title, 6th Street Drainage Improvements, Technical Specifications, August 2020, consisting of 201 pages.
   15. Addenda (numbers 1 to 2, inclusive).
   16. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
      a. Notice to Proceed.
      b. Work Change Directives.
      c. Contractor's Application for Payment
      d. Change Orders.
      e. Field Orders.

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 Terms

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 Assignment of Contract

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

10.03 Successors and Assigns

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

10.04 Severability

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

10.05 CONTRACTOR's Certifications

A. CONTRACTOR certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
   1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
   2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of OWNER, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive OWNER of the benefits of free and open competition;
   3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of OWNER, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
   4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 Independent CONTRACTORs

A. CONTRACTOR enters into the Contract as, and shall continue to be, an independent CONTRACTOR. All services shall be performed only by CONTRACTOR and CONTRACTOR's employees. Under no circumstances shall CONTRACTOR or any of CONTRACTOR's employees look to the OWNER as his/her employer, or as partner, agent or principal. Neither CONTRACTOR, nor any of CONTRACTOR's employees, shall be entitled to any benefits accorded to the OWNER's employees, including without limitation worker's compensation, disability insurance, vacation or sick pay. CONTRACTOR shall be responsible for providing, at CONTRACTOR's expense, and in CONTRACTOR's name, unemployment, disability, worker's compensation and other insurance as well as licenses and permits usual and necessary for conducting the services to be provided under this Contract.

10.07 Audit Provision

A. The OWNER and/or its designee shall have the right from time to time at its sole expense to audit the compliance by the CONTRACTOR with the terms, conditions, obligations, limitations, restrictions and requirements of this Agreement and such right shall extend for a period of five (5) years after termination of this Agreement.

10.08 Public Records

A. CONTRACTOR shall adhere to the Public Records law of Florida.

B. Specifically, CONTRACTOR must:
   1. Keep and maintain public records require by the OWNER to perform the service.
   2. Upon request from the OWNER's custodian of public records, provide the OWNER with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in chapter 119 Florida Statutes or as otherwise provided by law.
   3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the

Agreement term and following completion of the Agreement if the CONTRACTOR does not transfer the records to the OWNER.

4. Upon completion of the Agreement, transfer, at no cost, to the OWNER all public records in possession of the CONTRACTOR or keep and maintain public records required by the OWNER to perform the service. If the CONTRACTOR transfers all public records to the OWNER upon completion of the Contract, the CONTRACTOR shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the CONTRACTOR keeps and maintains public records upon completion of the Contract, the CONTRACTOR shall meet all applicable requirements for retaining the public records. All records stored electronically must be provided to the OWNER, upon the request from the OWNER's custodian of public records, in a format that is compatible with the information technology system of the OWNER.

C. **IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT OKALOOSA COUNTY RISK MANAGEMENT DEPARTMENT 302 N. WILSON ST., CRESTVIEW, FL 32536 PHONE (850) 689-5977 riskinfo@myokaloosa.com.**

10.09 Third Party Beneficiaries

A. It is specifically agreed between the parties executing this Agreement that it is not intended by any of the provisions of any part of the Agreement to create in the pubic or any member thereof, a third party beneficiary under this Agreement, or to authorize anyone not a part to this Agreement to maintain a suit for personal injuries or property damage pursuant to the terms or provision of this Agreement.

10.10 Other Provisions

A. OWNER stipulates that if the General Conditions that are made a part of this Contract are based on EJCDC® C-700, Standard General Conditions for the Construction Contract, published by the ENGINEERs Joint Contract Documents Committee®, and if OWNER is the party that has furnished said General Conditions, then OWNER has plainly shown all modifications to the standard wording of such published document to the CONTRACTOR, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

B. The individual signing this Agreement on behalf of CONTRACTOR represents and warrants that he or she is duly authorized and has legal capacity to execute and deliver this Agreement. The CONTRACTOR represent and warrants to the OWNER that the execution and delivery of the Agreement and the performance of CONTRACTOR's obligations hereunder have been duly authorized and that the Agreement is a valid and legal agreement binding on the CONTRACTOR and enforceable in accordance with its terms.

C. The waiver by a party of any breach or default in performance shall not be deemed to constitute a waiver of any other or succeeding breach or default. The failure of the OWNER to enforce any of the provisions hereof shall not be construed to be a waiver of the right of the OWNER thereafter to enforce such provisions.

D. All notices required by this Agreement shall be in writing to the representatives listed below:

AUTHORIZED REPRESENTATIVES:

OWNER:	CONTRACTOR:
Chairman – Board of County Commissioners	Gulf Coast Utility Contractors, LLC
Address	Address
1250 N. Eglin Parkway	13938 Hwy 77
Shalimar, FL 32579	Panama City, FL 32409
Phone	Phone
850-651-7105	850-265-9166

10.11 Equal Opportunity Employment

A. During the performance of this CONTRACT, the contractor agrees as follows:.

1. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.
3. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders
6. In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
7. The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any

subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

10.12 Federal Fair Labor Standards Act (Federal Minimum Wage)

A. All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part time workers.

B. The CONTRACTOR has full responsibility to monitor compliance to the referenced statute or regulation. The CONTRACTOR must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

10.13 Occupational Safety and Health Act of 1970

A. All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. CONTRACTOR must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The CONTRACTOR retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (20 CFR Part 1910). CONTRACTOR must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

10.14 COPELAND ANTI-KICKBACK ACT

A. The Contractor shall comply with the following:

1. Contractor. The contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.
2. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.
3. Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12.

10.15 CONTRACT WORK HOURS AND SAFETY STANDARDS

A. If the Sub-Recipient, with the funds authorized by this Agreement, enters into a contract that exceeds $100,000 and involves the employment of mechanics or laborers, then any such contract must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation.

10.16 CLEAN AIR ACT AND THE FEDERAL WATER POLLUTION CONTROL ACT

A. If the Sub-Recipient, with the funds authorized by this Agreement, enters into a contract that exceeds $150,000, then any such contract must include the following provision:
   1. Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387), and will report violations to FEMA and the Regional Office of the Environmental Protection Agency (EPA).

10.17 SUSPENSION AND DEBARMENT

A. This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such the contractor is required to verify that none of the contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).
B. The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.
C. This certification is a material representation of fact relied upon by the Division. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the Division, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
D. The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

10.18 BYRD ANTI-LOBBYING AMENDMENT

A. Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended). Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non- Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient.

10.19 E-Verify

A. Enrollment and verification requirements.
   1. If the CONTRACTOR is not enrolled as a Federal Contractor in E-Verify at time of contract award, the CONTRACTOR shall-
      a. Enroll. Enroll as a Federal Contractor in the E-Verify Program within thirty (30) calendar days of Contract award;
      b. Verify all new employees. Within ninety (90) calendar days of enrollment in the E-Verify program, begin to use E-Verify to initiate verification of employment eligibility of all new hires of the CONTRACTOR, who are working in the United States, whether or not assigned to the Contract, within three (3) business days after the date of hire (but see paragraph (3.) of this section); and,
      c. Verify employees assigned to the Contract. For each employee assigned to the Contract, initiate verification within ninety (90) calendar days after date of enrollment or within thirty (30) calendar days of the employee's assignment to the Contract, whichever date is later (but see paragraph (4.) of this section.)
   2. If the CONTRACTOR is enrolled as a Federal Contractor in E-Verify at time of Contract award, the CONTRACTOR shall use E-Verify to initiate verification of employment eligibility of
      a. All new employees.

1) Enrolled ninety (90) calendar days or more. The CONTRACTOR shall initiate verification of all new hires of the CONTRACTOR, who are working in the United States, whether or not assigned to the Contract, within three (3) business days after the date of hire (but see paragraph (3.) of this section); or

b. Enrolled less than ninety (90) calendar days. Within ninety (90) calendar days after enrollment as a Federal Contractor in E-Verify, the CONTRACTOR shall initiate verification of all new hires of the CONTRACTOR, who are working in the United States, whether or not assigned to the contract, within three (3) business days after the date of hire (but see paragraph (3.) of this section; or

1) Employees assigned to the Contract. For each employee assigned to the Contract, the CONTRACTOR shall initiate verification within ninety (90) calendar days after date of Contract award or within thirty (30) days after assignment to the Contract, whichever date is later (but see paragraph (4.) of this section.)

3. If the CONTRACTOR is an institution of higher education (as defined at 20 U.S.C. 1001(a)); a State of local government or the government of a Federally recognized Indian tribe, or a surety performing under a takeover agreement entered into with a Federal agency pursuant to a performance bond, the CONTRACTOR may choose to verify only employees assigned to the Contract, whether existing employees or new hires. The CONTRACTOR shall follow the applicable verification requirements of (1.) or (2.), respectively, except that any requirement for verification of new employees applies only to new employees assigned to the Contract.
4. Option to verify employment eligibility of all employees. The CONTRACTOR may elect to verify all existing employees hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), rather than just those employees assigned to the Contract. The CONTRACTOR shall initiate verification for each existing employee working in the United States who was hired after November 6, 1986 (after November 27, 2009, in the Commonwealth of the Northern Mariana Islands), within one hundred eighty (180) calendar days of-
   a. Enrollment in the E-Verify program; or
   b. Notification to E-Verify Operations of the CONTRACTOR's decision to exercise this option, using the Contract information provided in the E-Verify program Memorandum of Understanding (MOU)
5. The CONTRACTOR shall comply, for the period of performance of this Contract, with the requirements of the E-Verify program MOU.
   a. The Department of Homeland Security (DHS) or the Social Security Administration (SSA) may terminate the CONTRACTOR's MOU and deny access to the E-Verify system in accordance with the terms of the MOU. In such case, the CONTRACTOR, will be referred to a suspension or debarment official.
   b. During the period between termination of the MOU and a decision by the suspension or debarment official whether to suspend or debar, the CONTRACTOR is excused from its obligations under paragraph (b) of this clause. If the suspension or debarment official determines not to suspend or debar the CONTRACTOR, then the CONTRACTOR must reenroll in E-Verify.
   c. Web site. Information on registration for and use of the E-Verify program can be obtained via the Internet at the Department of Homeland Security Web site: http://www.dhs.gov/E-Verify.
   d. Individuals previously verified. The CONTRACTOR is not required by this clause to perform additional employment verification using E-Verify for any employee-
      1) Whose employment eligibility was previously verified by the CONTRACTOR through the E-Verify program;

2) Who has been granted and holds an active U.S. Government security clearance for access to confidential, secret, or top secret information in accordance with the National Industrial Security Program Operating Manual; or
3) Who has undergone a completed background investigation and been issued credentials pursuant to Homeland Security Presidential Directive (HSPD)-12. Policy for a Common Identification Standard for Federal Employees and Contractors.

6. Subcontracts. The CONTRACTOR shall include the requirements of this clause, including this paragraph € (appropriately modified for identification of the parties in each subcontract that -
   a. Is for
      1) Commercial and noncommercial services (except for commercial services that are part of the purchase of a COTS item (or an item that would be a COTS item, but for minor modifications), performed by the COTS provider, and are normally provided for that COTS item); or
      2) Construction;
   b. Has a value of more than $3,500; and
   c. Includes work performed in the United States.

10.20 Vendors on Scrutinized Companies List

A. By executing this Agreement, the CONTRACTOR certifies that it is not:
   1. listed on the Scrutinized Companies that Boycott Israel List, created pursuant to section 215.4725, Florida Statutes,
   2. engaged in a boycott of Israel,
   3. listed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to section 215.473, Florida Statutes, or
   4. engaged in business operations in Cuba or Syria.

B. Pursuant to section 287.135(5), Florida Statutes, the OWNER may immediately terminate this Agreement for cause if the CONTRACTOR is found to have submitted a false certification as to the above or if the CONTRACTOR is placed on the Scrutinized Companies that Boycott Israel List, is engaged in a boycott of Israel, has been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or has been engaged in business operations in Cuba or Syria, during the term of the Agreement. If the OWNER determines that the CONTRACTOR has submitted a false certification, the OWNER will provide written notice to the CONTRACTOR. Unless the CONTRACTOR demonstrates in writing, within 90 calendar days of receipt of the notice, that the OWNER's determination of false certification was made in error, the OWNER shall bring a civil action against the CONTRACTOR. If the OWNER's determination is upheld, a civil penalty equal to the greater of $2 million or twice the amount of this Agreement shall be imposed on the CONTRACTOR, and the CONTRACTOR will be ineligible to bid on any Agreement with a Florida agency or local governmental entity for three years after the date of OWNER's determination of false certification by CONTRACTOR. If federal law ceases to authorize the states to adopt and enforce the contracting prohibition identified in this Section 10.20, this Section 10.20 shall be null and void.

10.21 Contracting with Small and Minority Businesses, Women's Business Enterprises, and Labor Area Surplus Firms.

A. The CONTRACTOR shall take the following affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus firms are used <u>whenever possible</u>:
   1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
   2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and
6. Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (a) through (e) of this section.

10.22 Procurement of Recovered Materials

A. Contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

10.23 Energy Policy and Conservation Act (43 U.S.C. §6201)

A. All contracts except micro-purchases ($3000 or less, except for construction contracts over $2000). Contracts shall comply with mandatory standards and policies relating to energy efficiency, stating in the state energy conservation plan issued in compliance with the Energy Policy and Conservation act. (Pub. L. 94-163, 89 Stat. 871) [53 FR 8078, 8087, Mar. 11, 1988, as amended at 60 FR 19639, 19645, Apr. 19, 1995].

10.24 Safeguarding Personal Identifiable Information

A. Contractor will take reasonable measures to safeguard protected personally identifiable information and other information designated as sensitive by the awarding agency or is considered sensitive consistent with applicable Federal, state and/or local laws regarding privacy and obligations of confidentiality.

10.25 Record Retention

A. Contractor will retain of all required records pertinent to this contract for a period of five (5) years, beginning on a date as described in 2 C.F.R. §200.333 and retained in compliance with 2 C.F.R. §200.333.

10.26 Access to Public Records

A. CONTRACTOR will make available to the OWNER's granting agency, the granting agency's Office of Inspector General, the Government Accountability Office, the Comptroller General of the United States, Okaloosa County, Okaloosa County Clerk of Court's Inspector General, or any of their duly authorized representatives any books, documents, papers or other records, including electronic records, of the contractor that are pertinent to the OWNER's grant award, in order to make audits, investigations, examinations, excerpts, transcripts, and copies of such documents. The right also includes timely and reasonable access to the contractor's personnel during normal business hours for the purpose of interview and discussion related to such documents. This right of access shall continue as long as records are retained.

10.27 Federal Changes

A. Contractor shall comply with all applicable Federal agency regulations, policies, procedures and directives, including without limitation those listed directly or by reference, as they may be amended or promulgated from time to time during the term of the contract.

10.28 Buy America

A. All unmanufactured and manufactured articles, materials and supplies which are acquired for public use under this Agreement must have been produced in the United States as required under 41 U.S.C. 10a, unless it would not be in the public interest or unreasonable in cost.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement.

This Agreement will be effective on March 1, 2021 (which is the Effective Date of the Contract).

OWNER:

BOARD OF COUNTY COMMISSIONERS
OKALOOSA COUNTY, FLORIDA

Carolyn N. Ketchel, Chairman

Attest:
J. D. Peacock II, Clerk of Circuit Court

Address for giving notices:

1250 N. Eglin Parkway

Shalimar, FL 32579

CONTRACTOR:

GULF COAST UTILITY CONTRACTORS, LLC

By:

Title: Pres. dent

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

Attest: Staci Corbin

Title: Project Admin

Address for giving notices:

Gulf Coast Utility Contractors, LLC

13938 Hwy 77

Panama City, FL 32409

License No.: CUC057185

END OF DOCUMENT 00520 – DRAFT AGREEMENT BETWEEN OWNER & CONTRACTOR FOR CONSTRUCTION CONTRACT

Bond No. SUR0046880

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A311

Labor and Material Payment Bond

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PERFORMANCE BOND IN FAVOR OF THE OWNER CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT

This bond is given to comply with Section 255.05, Florida Statutes, and any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes, and Section 255.05(10) Florida Statues.

KNOW ALL MEN BY THESE PRESENTS: that as (Here insert full name and address or legal title of contractor)

Gulf Coast Utility Contractors, LLC, 13938 Highway 77, Panama City, FL 32409; Phone: (850) 265-9166
as Principal, hereinafter called Principal, and, (Here insert full name and address or legal title of Surety)

Argonaut Insurance Company, 225 W. Washington Street, 24th Floor, Chicago, IL 60606;
Phone: 800-470-7958
as Surety, hereinafter called Surety, are held and firmly bound unto (Here insert full name and address or legal title of Owner)

Okaloosa County board of County Commissioners, 1250 N. Eglin Parkway, Shalimar, FL; Phone: 850-689-5772
as Obligee, hereinafter called Owner, for the use and benefit of claimants as hereinbelow defined, in the amount of

Two Million Five Hundred Seventy-Seven Thousand Three Hundred Eighty-Seven and 50/100 Dollars ($2,577,387.50)
(here insert a sum equal to at least one-half of the contract price)
for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated 3-1-2021, entered into a contract with Owner for
(Here insert full name, address and description of project)

Project No. ITB PW 07-21; 6th Street Area Stormwater Improvements, Okaloosa County, FL
in accordance with Drawings and Specifications prepared by (Here insert full name and address or legal title of Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

Bond No. SUR0046880

LABOR AND MATERIAL PAYMENT BOND

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions

1. A claimant is defined as one having a direct contract with the Principal or, with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed.

Such notice shall be served by mailing the same by registered mail or certified mail; postage prepaid, in an envelope addressed to the Principal, Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

b) After the expiration of one 1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the Project, or any part thereof, is situated, or in the United States District Court for the district in which the Project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against said improvement, whether or not claim for the amount of such lien 'be presented under and against this bond.

Signed and sealed this **11th day of February, 2021**.

Gulf Coast Utility Contractors, LLC
(Principal) (Seal)

(Name & Title)

Argonaut Insurance Company
(Surety) (Seal)

Paul A. Locascio, Attorney-in-Fact
& FL Licensed Resident Agent

Bond No. SUR0046880

Argonaut Insurance Company
Deliveries Only: 225 W. Washington, 24th Floor
Chicago, IL 60606
United States Postal Service: P.O. Box 469011, San Antonio, TX 78246

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the Argonaut Insurance Company, a Corporation duly organized and existing under the laws of the State of Illinois and having its principal office in the County of Cook, Illinois does hereby nominate, constitute and appoint:

L Dale Waldorff, K Wayne Walker, Pamela L Jarman, Benjamin H French, Paul A Locascio, Rebekah G Wolf

Their true and lawful agent(s) and attorney(s)-in-fact, each in their separate capacity if more than one is named above, to make, execute, seal and deliver for and on its behalf as surety, and as its act and deed any and all bonds, contracts, agreements of indemnity and other undertakings in suretyship provided, however, that the penal sum of any one such instrument executed hereunder shall not exceed the sum of:

$50,000,000.00

This Power of Attorney is granted and is signed and sealed under and by the authority of the following Resolution adopted by the Board of Directors of Argonaut Insurance Company:

"RESOLVED, That the President, Senior Vice President, Vice President, Assistant Vice President, Secretary, Treasurer and each of them hereby is authorized to execute powers of attorney, and such authority can be executed by use of facsimile signature, which may be attested or acknowledged by any officer or attorney, of the Company, qualifying the attorney or attorneys named in the given power of attorney, to execute in behalf of, and acknowledge as the act and deed of the Argonaut Insurance Company, all bond undertakings and contracts of suretyship, and to affix the corporate seal thereto."

IN WITNESS WHEREOF, Argonaut Insurance Company has caused its official seal to be hereunto affixed and these presents to be signed by its duly authorized officer on the 8th day of May, 2017.

Argonaut Insurance Company

by: _____

Joshua C. Betz, Senior Vice President

STATE OF TEXAS
COUNTY OF HARRIS SS:

On this 8th day of May, 2017 A.D., before me, a Notary Public of the State of Texas, in and for the County of Harris, duly commissioned and qualified, came THE ABOVE OFFICER OF THE COMPANY, to me personally known to be the individual and officer described in, and who executed the preceding instrument, and he acknowledged the execution of same, and being by me duly sworn, deposed and said that he is the officer of the said Company aforesaid, and that the seal affixed to the preceding instrument is the Corporate Seal of said Company, and the said Corporate Seal and his signature as officer were duly affixed and subscribed to the said instrument by the authority and direction of the said corporation, and that Resolution adopted by the Board of Directors of said Company, referred to in the preceding instrument is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand, and affixed my Official Seal at the County of Harris, the day and year first above written.

KATHLEEN M. MEEKS
Notary Public, State of Texas
Comm. Expires 07-15-2021
Notary ID 857802-8

_____
(Notary Public)

I, the undersigned Officer of the Argonaut Insurance Company, Illinois Corporation, do hereby certify that the original POWER OF ATTORNEY of which the foregoing is a full, true and correct copy is still in full force and effect and has not been revoked.

IN WITNESS WHEREOF, I have hereunto set my hand, and affixed the Seal of said Company, on the 11th day of February, 2021

_____

James Bluzard, Vice President-Surety

THIS DOCUMENT IS NOT VALID UNLESS THE WORDS ARGO POWER OF ATTORNEY ARE IN BLUE. IF YOU HAVE QUESTIONS ON AUTHENTICITY OF THIS DOCUMENT CALL (210) 321 - 8400.

Bond No. SUR0046880

WALDORFF
INSURANCE & BONDING

February 12, 2021

Okaloosa County board of County Commissioners
1250 N. Eglin Parkway
Shalimar, FL

RE: Gulf Coast Utility Contractors, LLC
Bond No. SUR0046880
Project: ITB PW 07-21, 6th Street Area Stormwater Improvements, Okaloosa County, FL

To Whom It May Concern:

Please be advised that this letter will serve, as confirmation to date the performance bond, payment bond and power of attorney on the above referenced project that our client, Gulf Coast Utility Contractors, LLC , is going to perform. Please make sure the date is the same date of the contract or later.

If there are any questions or need for further information please contact us.

Sincerely yours,

Paul A. Locascio

Paul A. Locascio
Attorney-In-Fact
Argonaut Insurance Company

ARGONAUT INSURANCE COMPANY SEAL 1948 ILLINOIS

MAIN OFFICE
45 EGLIN PARKWAY, NE SUITE 202
FORT WALTON BEACH, FL 32548
(850) 581-4925 FAX (850) 581-4930
TOLL FREE: (800) 342-7621

Trusted Choice®

1110 NW 6TH STREET
GAINESVILLE, FL 32601-4247
(352) 374-7779 FAX (850) 581-4930
TOLL FREE: (888) 901-3841

WWW.WALDORFFINSURANCE.COM

FRONT PAGE OF PUBLIC PAYMENT & PERFORMANCE BOND
In compliance with F.S. Chapter 255.05(1)(a)

Bond No.:	SUR0046880
Contractor Name:	Gulf Coast Utility Contractors, LLC
Contractor Address:	13938 Highway 77, Panama City, FL 32409
Contractor Phone No:	(850) 265-9166
Surety Company Name:	Argonaut Insurance Company
Surety Company Address:	225 W. Washington Street, 24th Floor, Chicago, IL 60606
Surety Company Phone No:	800-470-7958
Agent Name:	Waldorff Insurance & Bonding, Inc.
Agent Address:	45 Eglin Parkway, NE, Suite 202 Fort Walton Beach, FL 32548-4928
Agent Phone No:	(850) 581-4925
Obligee Name:	Okaloosa County board of County Commissioners
Obligee Address:	1250 N. Eglin Parkway, FL
Obligee Phone No:	850-689-5772
Bond Amount:	$2,577,387.50
Contract No: (if applicable)	ITB PW 07-21
Description of Work:	6th Street Area Stormwater Improvements
Project Address:	Okaloosa County, FL

FRONT PAGE

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

Bond No. SUR0046880

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A311

Performance Bond

This bond is given to comply with Section 255.05 Florida Statutes, and any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes, and Section 255.05(10) Florida Statues.

KNOW ALL MEN BY THESE PRESENTS: that (Here insert full name and address or legal title of contractor)

Gulf Coast Utility Contractors, LLC, 13938 Highway 77, Panama City, FL 32409; Phone: (850) 265-9166
as Principal, hereinafter called Principal, and, (Here insert full name and address or legal title of Surety)

Argonaut Insurance Company, 225 W. Washington Street, 24th Floor, Chicago, IL 60606;
Phone: 800-470-7958
as Surety, hereinafter called Surety, are held and firmly bound unto (Here insert full name and address or legal title of Owner)

Okaloosa County board of County Commissioners, 1250 N. Eglin Parkway, Shalimar, FL; Phone: 850-689-5772
as Obligee, hereinafter called Owner, in the amount of

Two Million Five Hundred Seventy-Seven Thousand Three Hundred Eighty-Seven and 50/100 Dollars ($2,577,387.50)

for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Contractor has by written agreement dated _____, entered into a contract with Owner for
(Here insert full name, address and description of project)

Project No. ITB PW 07-21, 6th Street Area Stormwater Improvements, Okaloosa County, FL
in accordance with Drawings and Specifications prepared by (Here insert full name and address or legal title of Architect)

which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

Bond No. SUR0046880

PERFORMANCE BOND

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Contractor shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly

1) Complete the Contract in accordance with its terms and conditions, or

2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or, if the Owner elects, upon determination by the Owner and the Surety jointly of the lowest responsible bidder, arrange for a contract between such bidder and Owner, and make available as Work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by Owner to Contractor under the Contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

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

Signed and sealed this **11th day of February, 2021.**

(Seal)

Gulf Coast Utility Contractors, LLC
(Principal)

(Name & Title)

Argonaut Insurance Company
(Surety)

(Seal)

Paul A. Locascio, Attorney-in-Fact
& FL Licensed Resident Agent

DOCUMENT 00410 – BID FORM WITH ATTACHMENTS

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to: **Okaloosa County, a political subdivision of the State of Florida.**

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

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 BIDDER accepts all of the terms and conditions of the Instructions to BIDDERs, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that BIDDER may agree to in writing upon request of OWNER.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, BIDDER represents that:

A. BIDDER has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the Addenda as defined in Attachment "A".

B. BIDDER has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. BIDDER is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. BIDDER has carefully studied all: (1) reports, if any, of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. BIDDER has considered the information known to BIDDER itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by BIDDER; and (3) BIDDER's safety precautions and programs.

F. BIDDER agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

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

H. BIDDER has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that BIDDER has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to BIDDER.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by BIDDER that BIDDER has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 BIDDER certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. BIDDER has not directly or indirectly induced or solicited any other BIDDER to submit a false or sham Bid;

C. BIDDER has not solicited or induced any individual or entity to refrain from bidding; and

D. BIDDER has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of OWNER, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive OWNER of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more BIDDERs, with or without the knowledge of OWNER, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the e execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 BIDDER acknowledges that (1) each Bid Unit Price includes an amount considered by BIDDER to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents. Unit Prices have been computed in accordance with Paragraph 13.03B of the General Conditions.

5.02 BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

ARTICLE 6 – TIME OF COMPLETION

6.01 BIDDER agrees that the Work will be substantially complete within 180 calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 240 calendar days after the date when the Contract Times commence to run.

6.02 BIDDER accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security as discussed in Article 7 of the Instructions to BIDDERs;

B. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

C. Contractor's License Number or Evidence of BIDDER's ability to obtain a State Contractor's License and a covenant by BIDDER to obtain said license within the time for acceptance of Bids; and

D. Attachments

A. Addendum Acknowledgement
B. Schedule of Subcontractors
C. Conflict of Interest Disclosure
D. Recycled Content
E. Drug-Free Workplace Program Certification
F. Indemnification and Hold Harmless
G. Insurance Compliance Certification
H. Cone of Silence
I. Federal E-Verify Compliance Certification
J. Certification Regarding Child Labor
K. Non-Collusion Declaration
L. Company Data
M. List of References
N. Vendors on Scrutinized Companies Lists
O. Certification Regarding Lobbying
P. Debarment & Suspension
Q. Certificate of Good Standing for State of Florida-see above*

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – GRANT DIRECTIVES

9.01 Contractor Purchased Equipment for State or Local Ownership

A. The Contractor shall not purchase any equipment for state or local ownership.

9.02 Local / State Hiring Preference

A. No local / state hiring preferences shall be used.

9.03 Public Agencies in Competition with the Private Sector

A. No public agency shall be permitted to bid in competition or to enter into subcontract with private contractors.

9.04 Publicly Owned Equipment

A. Publicly owned equipment shall not compete with privately owned equipment on this contract

ARTICLE 10 – BID SUBMITTAL

Bidder: Indicate correct name of bidding entity:

Gulf Coast Utility Contractors, LLC.

By:
Signature:

Printed name: Mike Swearington

(If BIDDER is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:
Signature:

Printed name: Susan Southerland

Title: Corporate Secretary

Submittal Date: December 2, 2020

Address for giving notices:

13938 Hwy 77, Panama City, FL 32409

Telephone Number: 850-265-9166

Fax Number: 850-265-9949

Contact Name: Chris Corbin

Contact Phone Number: 850-596-0457

Contact Email Address: chris.corbin@gcuc.net

Federal ID or SS Number: 52-2182511

Bidder's License No.: CU-C057185

DUNS Number: 083415062

CAGE Code: 5BHD9

BID SCHEDULE - UNIT PRICES

CONTRACTOR: Gulf Coast Utility Contractors, LLC. **DATE:** December 2, 2020

PROJECT NAME: 6TH STREET AREA STORMWATER IMPROVEMENTS

Pay Item	Unit	Unit Cost	Estimated Quantity	Cost
MOBILIZATION	LS	$110,000.00	1	$110,000.00
MAINTENANCE OF TRAFFIC	LS	$50,000.00	1	$50,000.00
EROSION CONTROL	LS	$22,750.00	1	$22,750.00
INLET PROTECTION SYSTEM (32 LF EACH)	EA	$275.00	25	$6,875.00
CLEARING & GRUBBING	LS	$379,775.00	1	$379,775.00
FENCING (REMOVE/REINSTALL)	LS	$2,500.00	1	$2,500.00
4" MEDIAN WOODEN POST	EA	$75.00	65	$4,875.00
TEMPORARY CARPORT BRACING	LS	$5,000.00	1	$5,000.00
UNSUITABLE MATERIAL REMOVAL & REPLACE	CY	$25.00	200	$5,000.00
TYPE B STABILIZATION	SY	$5.00	1290	$6,450.00
OPTIONAL BASE,GROUP 04	SY	$11.75	1120	$13,160.00
SUPERPAVE ASPH CONC, 2" AVG	TN	$120.00	120	$14,400.00
SUPERPAVE ASPH CONC, 1.5" AVG	TN	$120.00	580	$69,600.00
MILLING EXIST ASPH PAVT 1" AVG DEPTH	SY	$7.50	6980	$52,350.00
DEWATERING	LS	$125,000.00	1	$125,000.00
CAP PIPE ENDS AND ADD FLOWABLE FILL	LS	$110,000.00	1	$110,000.00
BOX CULVERT (DESIGN, HEADWALL/ENDWALLS, ETC)	LS	$175,000.00	1	$175,000.00
FDOT 18" STRAIGHT CONCRETE ENDWALL	EA	$4,750.00	3	$14,250.00
FDOT 24" STRAIGHT CONCRETE ENDWALL	EA	$5,750.00	1	$5,750.00
FDOT INLETS, DT BOT, TYPE E, <10', DBL. SLOT	EA	$5,250.00	1	$5,250.00
FDOT INLETS, DT BOT, TYPE E, J BOT, >10' DBL. SLOT	EA	$9,750.00	1	$9,750.00
FDOT INLETS, DT BOT, TYPE F, <10'	EA	$5,750.00	2	$11,500.00
FDOT INLETS, DT BOT, TYPE F, J BOT, <10'	EA	$8,975.00	16	$143,600.00
FDOT INLETS, DT BOT, TYPE F, J BOT, >10'	EA	$10,000.00	1	$10,000.00

FDOT INLETS, DT BOT, TYPE G, <10'	EA	$7,950.00	3	$23,850.00
FDOT MANHOLES, J-7, <10'	EA	$9,975.00	1	$9,975.00
FDOT MANHOLES, J-8, >10'	EA	$9,750.00	2	$19,500.00
FDOT MANHOLES, J-8, <10' (CONFLICT BOX w/ 16" CARRIER CASING)	EA	$15,000.00	1	$15,000.00
FDOT MANHOLES, J-8, >10' (CONFLICT BOX w/ 16" CARRIER CASING)	EA	$17,500.00	1	$17,500.00
18" HP STORMDRAIN PIPE	LF	$125.00	272	$34,000.00
24" HP STORMDRAIN PIPE	LF	$135.00	49	$6,615.00
36" HP STORMDRAIN PIPE	LF	$150.00	847	$127,050.00
36" HP STORMDRAIN PIPE (CLASS 1)	LF	$155.00	748	$115,940.00
42" HP STORMDRAIN PIPE	LF	$200.00	941	$188,200.00
54" RCP STORMDRAIN PIPE	LF	$275.00	1509	$414,975.00
24"x38" ERCP STORMDRAIN PIPE	LF	$185.00	54	$9,990.00
29"x45" ERCP STORMDRAIN PIPE	LF	$225.00	89	$20,025.00
43"x68" ERCP STORMDRAIN PIPE	LF	$350.00	182	$63,700.00
16" DIA. STEEL CARRIER CASING	LF	$200.00	7	$1,400.00
ROADSIDE SWALES	LS	$20,000.00	1	$20,000.00
RIPRAP W/FILTER FABRIC	TN	$125.00	33	$4,125.00
ASPHALT DRIVEWAY (STABILIZATION, BASE,1.5" SP)	SY	$50.00	62	$3,100.00
CONCRETE DRIVEWAY (STABILIZATION, BASE, CONCRETE)	SY	$75.00	664.4	$49,830.00
GRAVEL DRIVEWAY (STABILIZATION, BASE, CONCRETE)	SY	$25.00	235	$5,875.00
SOD ALLOWANCE	SY	$3.95	7950	$31,402.50
LANDSCAPING ALLOWANCE	LS	$5,000.00	1	$5,000.00
LANDSCAPE TIMBERS	LF	$100.00	25	$2,500.00
REGRADE DITCH	LS	$15,000.00	1	$15,000.00
MAILBOXES (REMOVE, TEMP. RELOCATE, AND REINSTALL)	EA	$250.00	6	$1,500.00
CLUSTER MAILBOXES (REMOVE, TEMP. RELOCATE, AND REINSTALL)	EA	$500.00	2	$1,000.00
SIGNAGE (REMOVE AND REINSTALL)	LS	$7,500.00	1	$7,500.00
STRIPPING & PAVEMENT MARKINGS	LS	$10,000.00	1	$10,000.00
TOTAL:				$2,577,387.50

BID SUMMARY (amount in numbers)

(A) TOTAL BID AMOUNT: $ 2,577,387.50

The Bidder represents that it has examined the site of the Work and informed itself fully in regard to all conditions pertaining to the place where the work is to be done; that it has examined the plans and specifications for the work and other Contract Documents relative thereto and has read all of the Addenda furnished prior to the opening of the Bids, as acknowledged below; and that it has otherwise fully informed itself regarding the nature, extent, scope and details of the Work to be performed.

If provided with a Notice of Intent to Award the Contract by the Owner, the Bidder shall execute and deliver to the Owner all of the documents required by the Contract Documents, including but not limited to, any Addendum to the Agreement and the Performance and Payment Bonds in the form contained in the Contract Documents, furnish the required evidence of the specified insurance coverages, furnish all necessary permits, license, materials, equipment, machinery, maintenance, tools, apparatus, means of transportation and labor necessary to complete the Work.

Dated and signed at Bay County, FL, this 2nd day of December, 2020.

Gulf Coast Utility Contractors, LLC.
(Name of Bidder)

(Authorized Signature)

President
(Title)

13938 Hwy 77
(Mailing Address)

Panama City, FL 32409
(City, State, Zip)

52-2182511
(Federal ID No. or SS No.)

DOCUMENT 00410 – ADDENDUM ACKNOWLEDGEMENT – ATTACHMENT "A"

Acknowledgement is hereby made of the following addenda (identified by number) received since issuance of solicitation:

ADDENDUM NUMBER	DATE
1	11/12/20
2	11/23/20

NOTE: Prior to submitting the response to this solicitation, it is the responsibility of the BIDDER to confirm if any addenda have been issued. If such addenda have been issued, acknowledge receipt by noting number(s) and date(s) above.

DOCUMENT 00410 – SCHEDULE OF SUBCONTRACTORS – ATTACHMENT "B"

Attachment "B" is not required to be submitted as part of the Bid Package as defined in Paragraph 11.02 of the Instructions to Bidders.

The following is a complete list of all subcontractors utilized for this project (if applicable):

1. Emerald Coast Striping — Company Name
   Striping & Signage — Type of Work
   1901 N. East Avenue — Address
   850-215-4875 — Telephone Number
   Panama City, FL 32405 — City, State, Zip
   20-8743994 — Federal ID Number

2. _____ — Company Name
   _____ — Type of Work
   _____ — Address
   _____ — Telephone Number
   _____ — City, State, Zip
   _____ — Federal ID Number

3. _____ — Company Name
   _____ — Type of Work
   _____ — Address
   _____ — Telephone Number
   _____ — City, State, Zip
   _____ — Federal ID Number

4. _____ — Company Name
   _____ — Type of Work
   _____ — Address
   _____ — Telephone Number
   _____ — City, State, Zip
   _____ — Federal ID Number

Authorized Signature: _____

DOCUMENT 00410 – CONFLICT OF INTEREST DISCLOSURE – ATTACHMENT "C"

For purposes of determining any possible conflict of interest, all BIDDERs, must disclose if any Okaloosa Board of County commissioner, employee(s), elected official(s) or if any of its agencies is also an owner, corporate officer, agency, employee, etc., of their business.

Indicate either "YES" (a county employee, elected official or agency is also associated with your business) or "NO". If yes, give person(s) name(s) and position(s) with your business.

YES: _____ NO: X

NAME	POSITION

December 2, 2020
Date

By (Signature)

Gulf Coast Utility Contractors, LLC.
Firm Name

Mike Swearington
By (Printed)

13938 Hwy 77
Address

President
Title

Panama City, FL 32409
Address

chris.corbin@gcuc.net
Email

850-265-9166
Office Number

850-596-0457
Cell Number

DOCUMENT 00410 – RECYCLED CONTENT – ATTACHMENT "D"

1. Material: Asphalt

Is the above material: Virgin _____ Recycled X If recycled, what percentage 20 %

Describe: 20% millings in the mix

Is the material packaged/shipped in packaging containing recycled content? Yes _____ No X

If yes, specify packaging: _____

Is the material recyclable after it has reached the end of its intended use? Yes X No _____

If yes, explain: Asphalt Millings

2. Material: _____

Is the above material: Virgin _____ Recycled _____ If recycled, what percentage _____ %

Describe: _____

Is the material packaged/shipped in packaging containing recycled content? Yes _____ No _____

If yes, specify packaging: _____

Is the material recyclable after it has reached the end of its intended use? Yes _____ No _____

If yes, explain: _____

3. Material: _____

Is the above material: Virgin _____ Recycled _____ If recycled, what percentage _____ %

Describe: _____

Is the material packaged/shipped in packaging containing recycled content? Yes _____ No _____

If yes, specify packaging: _____

Is the material recyclable after it has reached the end of its intended use? Yes _____ No _____

If yes, explain: _____

DOCUMENT 00410 – DRUG-FREE WORKPLACE PROGRAM CERTIFICATION – ATTACHMENT "E"

THE BELOW SIGNED BIDDER CERTIFIES that it has implemented a drug-free workplace program. 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, any 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 quote 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 quote, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893, Florida Statutes, 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, drug abuse assistance or rehabilitation program if such is available in employee's community, by any employee who is 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 this statement, I certify that this firm complies fully with the above requirements.

December 2, 2020 Date	 By (Signature)
Gulf Coast Utility Contractors, LLC. Company Name	Mike Swearington By (Printed)
13938 Hwy 77 Address	President Title
Panama City, FL 32409 Address	chris.corbin@gcuc.net Email
850-265-9166 Office Number	850-596-0457 Cell Number

DOCUMENT 00410 – INDEMNIFICATION AND HOLD HARMLESS – ATTACHMENT "F"

To the fullest extent permitted by law, CONTRACTOR shall indemnify and hold harmless the OWNER, the Design Engineer and the officers and employees from each from liabilities, damages, losses and costs including but not limited to reasonable attorney fees, to the extent caused by the negligence, recklessness or intentional wrongful conduct of the CONTRACTOR and other persons employed or utilized by the CONTRACTOR in the performance of this Agreement.

December 2, 2020 Date	 By (Signature)
Gulf Coast Utility Contractors, LLC. Firm Name	Mike Swearington By (Printed)
13938 Hwy 77 Address	President Title
Panama City, FL 32409 Address	chris.corbin@gcuc.net Email
850-265-9166 Office Number	850-596-0457 Cell Number
850-265-9949 Fax Number	850-596-0457 After-Hour Number(s)

DOCUMENT 00410 – INSURANCE COMPLIANCE CERTIFICATION – ATTACHMENT "G"

This form is to be completed and signed by you certifying that your policy either meets the insurance requirements as specified in Bid No. **ITB PW 07-21**, or that the insurance company has reviewed the bid requirements and certifies that you were quoted any price increase due to required coverage.

I certify that the insurance requirements have been reviewed.

December 2, 2020 Date	 By (Signature)
Gulf Coast Utility Contractors, LLC. Firm Name	Mike Swearington By (Printed)
13938 Hwy 77 Address	President Title
Panama City, FL 32409 Address	chris.corbin@gcuc.net Email
850-265-9166 Office Number	850-596-0457 Cell Number

DOCUMENT 00410 – CONE OF SILENCE CLAUSE – ATTACHMENT "H"

The Board of County Commissioners has established a solicitation silence policy **(Cone of Silence)** that prohibits oral and written communication regarding all formal solicitations for goods and services (ITB, RFP, ITQ, ITN, and RFQ) or other competitive solicitation between the bidder (or its agents or representatives) or other entity with the potential for a financial interest in the award (or their respective agents or representatives) regarding such competitive solicitation, and any County Commissioner or County employee, selection committee member or other persons authorized to act on behalf of the Board including the County's Architect, Engineer or their subconsultants, or anyone designated to provide a recommendation to award a particular contract, other than the Purchasing Department Staff.

The period commences from the time of advertisement until contract award.

Any information thought to affect the committee or staff recommendation submitted after bids are due, should be directed to the Purchasing Director or an appointed representative. It shall be the Purchasing Manager's decision whether to consider this information in the decision process.

Any violation of this policy shall be grounds to disqualify the bidder from consideration during the selection process.

All bidders must agree to comply with this policy by signing the following statement and including it with their submittal.

I, _____, representing Gulf Coast Utility Contractors, LLC.
Signature Company Name

On this 2nd day of December, 20 20 hereby agree to abide by the County's **"Cone of Silence Clause"** and understand violation of this policy shall result in disqualification of my proposal/submittal.

DOCUMENT 00410 – FEDERAL E-VERIFY COMPLIANCE CERTIFICATION – ATTACHMENT "I"

In accordance with Okaloosa County Policy and Executive Order Number 11-116 from the office of the Governor of the State of Florida, BIDDER hereby certifies that the U.S. Department of Homeland Security's E-Verify system will be used to verify the employment eligibility of all new employees hired by the BIDDER during the contract term, and shall expressly require any subcontractors performing work or providing services pursuant to the contract to likewise utilize the U.S. Department of Homeland Securities E-Verify system to verify the employment of all new employees hired by the subcontractor during the contract term; and shall provide documentation of such verification to the COUNTY upon request.

As the person authorized to sign this statement, I certify that this company complies/will comply fully with the above requirements.

December 2, 2020 Date	 By (Signature)
Gulf Coast Utility Contractors, LLC. Firm Name	Mike Swearington By (Printed)
13938 Hwy 77 Address	President Title
Panama City, FL 32409 Address	chris.corbin@gcuc.net Email
850-265-9166 Office Number	850-596-0457 Cell Number

DOCUMENT 00410 – CERTIFICATION REGARDING CHILD LABOR – ATTACHMENT "J"

In accordance with solicitation provision 45 CFR 22.15, BIDDER hereby certifies the review of the "List of Products Requiring Contractor Certification or Indentured Child Labor" as published by the Department of Labor in accordance with Executive Order 13126 of June 12, 1999 if any end products are used within this Contract as required by the Prohibition of Acquisition of Products Produced by Forced or Indentured Child Labor, 48 CFR 52.222-18. The list identifies products by their country of origin that the Departments of Labor, Treasury and State have a reasonable basis to believe might have been mined, produced or manufactured by forced or indentured child labor. (www.dol.gov/ilab/) see (22.1505(a))

The BIDDER certifies that they have made a good faith effort to determine whether forced or indentured child labor was used to mine, produce, or manufacture as listed for that end product. On the basis of those efforts, the BIDDER certifies that it is not aware of any such use of child labor. Specifically, any electrical equipment is not allowed from China per ORCA Certification 52.222-18.

As the person authorized to sign this statement, I certify that this company complies/will comply fully with the above requirements.

December 2, 2020	
Date	By (Signature)
Gulf Coast Utility Contractors, LLC.	Mike Swearington
Firm Name	By (Printed)
13938 Hwy 77	President
Address	Title
Panama City, FL 32409	chris.corbin@gcuc.net
Address	Email
850-265-9166	850-596-0457
Office Number	Cell Number

DOCUMENT 00410 – NON-COLLUSION STATEMENT – ATTACHMENT "K"

The below signed BIDDER has not divulged to, discussed or compared his bid with other BIDDERs and has not colluded with any other BIDDER or parties to bid whatever. (Note: No premiums, rebates or gratuities permitted either with, prior to, or after any delivery of materials.) Any such violation will result in the cancellation and/or return of material (as applicable) and the removal from bid list(s).

December 2, 2020 Date	 By (Signature)
Gulf Coast Utility Contractors, LLC. Firm Name	Mike Swearington By (Printed)
13938 Hwy 77 Address	President Title
Panama City, FL 32409 Address	chris.corbin@gcuc.net Email
850-265-9166 Office Number	850-596-0457 Cell Number

DOCUMENT 00410 – COMPANY DATA – ATTACHMENT "L"

Bidder's Company Name: Gulf Coast Utility Contractors, LLC.

Physical Address: 13938 Hwy 77, Panama City, FL 32409

Contact Person (printed): Chris Corbin

Phone Number: 850-265-9166 Fax Number: 850-265-9949

Cell Number: 850-596-0457

Email: chris.corbin@gcuc.net

Federal ID or SS Number: 52-2182511

Bidder's License Number: CU-C057185

Emergency After-Hours,
Weekend or Holiday Contact
with Number: Chris Corbin 850-596-0457

DOCUMENT 00410 – LIST OF REFERENCES – ATTACHMENT "M"

1. McNeil Carroll Engineering, Inc
Company Name

17800 Panama City Beach Parkway
Address

Panama City Beach, FL 32413
City, State, Zip

Robert Carroll
Contact Person

850-234-1730
Telephone Number

rcarroll@mcneilcarroll.com
Email

2. City of Panama City Beach
Company Name

110 South Arnold Road
Address

Panama City Beach, FL 32413
City, State, Zip

Al Shortt
Contact Person

850-233-5100
Telephone Number

ashortt@pcbgov.com
Email

3. Solid Ground Holdings, LLC.
Company Name

1275 Emerald Coast Parkway #423
Address

Miramar Beach, FL 32550
City, State, Zip

Randy Gardner
Contact Person

850-585-6280
Telephone Number

randy1217@icloud.com
Email

DOCUMENT 00410 – VENDORS ON SCRUTINIZED COMPANIES LISTS – ATTACHMENT "N"

By executing this Certificate Mike Swearington, the bid proposer, certifies that it is not: (1) listed on the Scrutinized Companies that Boycott Israel List, created pursuant to section 215.4725, Florida Statutes, (2) engaged in a boycott of Israel, (3) listed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to section 215.473, Florida Statutes, or (4) engaged in business operations in Cuba or Syria. Pursuant to section 287.135(5), Florida Statutes, the County may disqualify the bid proper immediately or immediately terminate any agreement entered into for cause if the bid proposer is found to have submitted a false certification as to the above or if the Contractor is placed on the Scrutinized Companies that Boycott Israel List, is engaged in a boycott of Israel, has been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or has been engaged in business operations in Cuba or Syria, during the term of the Agreement. If the County determines that the bid proposer has submitted a false certification, the County will provide written notice to the bid proposer. Unless the bid proposer demonstrates in writing, within 90 calendar days of receipt of the notice, that the County's determination of false certification was made in error, the County shall bring a civil action against the bid proposer. If the County's determination is upheld, a civil penalty shall apply, and the bid proposer will be ineligible to bid on any Agreement with a Florida agency or local governmental entity for three years after the date of County's determination of false certification by bid proposer.

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

DATE: December 2, 2020

COMPANY: Gulf Coast Utility Contractors, LLC.

ADDRESS: 13938 Hwy 77

Panama City, FL 32409

PHONE NO.: 850-265-9166

SIGNATURE: _____

NAME: Mike Swearington
(Typed or Printed)

TITLE: President

E-MAIL: chris.corbin@gcuc.net

DOCUMENT 00410 – CERTIFICATION REGARDING LOBBYING – ATTACHMENT "O"

LOBBYING - 31 U.S.C. 1352, 49 CFR Part 19, 49 CFR Part 20

APPENDIX A, 49 CFR PART 20--CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

(To be submitted with each bid or offer exceeding $100,000)

The undersigned [CONTRACTOR] certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, et seq.)]

3. The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

[Note: Pursuant to 31 U.S.C. § 1352(c)(1) -(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such expenditure or failure.]

The Contractor, Gulf Coast Utility Contractors, LLC., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. A 3801, et seq., apply to this certification and disclosure, if any.

Gulf Coast Utility Contractors, LLC.
Company Name

Contractor's Authorized Official (Signature)

December 2, 2020
Date

President
Title

DOCUMENT 00410 – DEBARMENT & SUSPENSION – ATTACHMENT "P"

Certification Regarding Debarment, Suspension, Ineligibility

Contractor Covered Transactions

(1) The prospective subcontractor of the Sub-recipient, Gulf Coast Utility Contractors, LLC., certifies, by submission of this document, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the Sub-recipient's subcontractor is unable to certify to the above statement, the prospective contract shall attach an explanation to this form.

CONTRACTOR

Gulf Coast Utility Contractors, LLC.

By: _____
Signature

Mike Swearington, President
Name and Title

13938 Hwy 77
Street Address

Panama City, FL 32409
City, State, Zip

December 2, 2020
Date

Okaloosa County BOCC
Sub-Recipient's Name

18HM-H4-01-56-01-XXX
DEM Contract Number

4177-06-A
FEMA Project Number

ADDENDUM NO. 1

November 12, 2020

ITB PW 07-21

6TH STREET AREA STORMWATER IMPROVEMENTS

The following items are hereby incorporated into the project manual, procurement documents, contract documents, plans and specifications:

ITEM NO. 1

Question 1 – Will there be an option for teleconference or is the pre-bid in person only?

Answer: The pre-bid meeting will be held in the large Public Works Training Room at 1759 S. Ferdon Boulevard, Crestview, FL 32536, and will be in person only. Masks are required to enter the building and the room will be set up to accommodate social distancing standards.

END OF QUESTIONS

RECEIPT OF THIS ADDENDUM SHALL BE ACKNOWLEDGED BY WRITING THIS ADDENDUM NUMBER AND DATE IN THE SPACE PROVIDED ON DOCUMENT 00410-8, *'ADDENDUM ACKNOWLEDGEMENT - ATTACHMENT A.'*

The opening date for this ITB remains December 2, 2020 at 3:00 PM CST.

DOCUMENT 00020 – ADVERTISEMENT FOR BIDS

OKALOOSA BOARD OF COUNTY COMMISSIONERS
CRESTVIEW, FLORIDA
ITB PW 07-21 6th Street Area Stormwater Improvements

Notice is hereby given that Sealed Bids for the construction of the 6th Street Area Stormwater Improvements ITB PW 07-21 will be received by Board of County Commissioners of Okaloosa County at the Okaloosa County Purchasing Department 5479A Old Bethel Rd., Crestview, FL until 03:00 PM local time on December 2, 2020, at which time the Bids received will be publicly opened and read. No bids will be received after the designated time. The project consists of stormwater infrastructure retrofit. This project will also include other work associated with the retrofit of storm sewer piping and structures such as clearing and grubbing, earthwork, maintenance of traffic, dewatering, replacing asphalt paving and curbing, and temporary removal and replacement of fencing and other improvements. The work is further defined as shown on the Plans and as described by the Contract Documents.

Bids will be received for a single prime Contract. Bids shall be on a unit price basis as indicated in the Bid Form. All terms, specifications and conditions set forth in this ITB are incorporated into your response. A bid will not be accepted unless all conditions have been met.

The Issuing Office for the Bidding Documents is: Okaloosa Co. Engineering Dept., 1759 S. Ferdon Blvd., Crestview, FL 32536 (850) 689-5772. Prospective Bidders may examine the Bidding Documents at the Issuing Office on Mondays through Fridays between the hours of 8 AM – 4 PM. Bidding documents are available on compact disc (as portable document format (PDF) files) from the Issuing Office for a non-refundable charge of $5.00 if picked-up or $20.00 including standard shipping. No printed copies of the bidding documents will be issued. Bid Documents may also be downloaded in PDF format free of charge by contacting DeRita Mason at the Okaloosa County Purchasing Department (850) 689-5960

Bid security shall be furnished in accordance with the Instructions to Bidders.

A mandatory pre-bid conference will be held at 09:00 AM local time on November 18, 2020 at the Okaloosa County Public Works Office, 1759 S. Ferdon Blvd., Crestview, FL.

All bids must be received in sealed envelopes reflecting on the outside thereof the Bidder's name and 6th Street Area Stormwater Improvements ITB PW 07-21. Any Bidder failing to mark outside of the envelope as set forth herein may not be entitled to have their bid considered. Okaloosa County is not responsible for lost or late delivery of bids by the U.S. Postal Service or other delivery services used by the respondent. Neither faxed nor electronically submitted bids will be accepted.

The Okaloosa BCC reserves the right to award the bid to the lowest responsive, responsible Bidder and to waive any irregularity or technicality in bids received. Okaloosa County shall be the sole judge of the bid and the resulting negotiated agreement that is in its best interest and its decision shall be final. Bids may not be withdrawn for a period of sixty (60) days after the bid opening unless otherwise specified.

OKALOOSA COUNTY
BOARD OF COUNTY COMMISSIONERS

Robert A. "Trey" Goodwin III
Chairman

Jeff Hyde
Purchasing Manager

END OF DOCUMENT 00020 - ADVERTISEMENT FOR BIDS

ADDENDUM NO. 2

TO:	ALL BIDDERS
PROJECT:	ITB PW 07-21 – 6th Street Area Stormwater Improvements
BID TIME AND DATE:	3:00 PM LOCAL TIME, December 2, 2020 (NO CHANGE)

November 23, 2020

The following items are hereby incorporated into the project manual, procurement documents, contract documents, plans and specifications:

ITEM NO. 1 – QUESTIONS RECEIVED AT PRE-BID MEETING AND LATER

Question 1 – Is there an estimated budget for this project?

Answer: The total amount currently *budgeted* for the project is $750,750 for everything from engineering through construction. Due to a change in the scope of the project during engineering, it is anticipated that additional Surtax funds will be needed. The estimated cost of construction is over $1 million. Surtax funding is available, but is subject to approvals by the Infrastructure Surtax Advisory Committee (ISAC) and the Board of County Commissioners.

Question 2 – Is the public aware of the work? Can you provide that flyer that went out to the public?

Answer: Yes, the public is aware of the work. A sample letter and attachment sheets prepared by the engineer are attached hereto as Exhibit "A."

Question 3 – Pay item for carport? Is there room to just move it back?

Answer: There is not room to move it back (to the east). Additional discussion/coordination is underway between the owner and the County regarding the disposition of the carport. Bidders are advised, for bidding

purposes, to bid the cost to temporarily remove and reinstall the carport in its current location.

Question 4 – Can we cut and patch road?

Answer: Cut and patching of crossings should be done in accordance with patch details shown on Sheet C-027. Cuts in areas to be milled and overlaid will not need to be patched and milled, as long as the cuts are property maintained with graded aggregate base material and any potential runoff is appropriately contained with silt fencing.

Question 5 – Landscape allowance.

Answer: No replacement of trees, bushes and other plantings is anticipated. The landscape allowance is expected to cover the cost of irrigation repairs and replacement necessitated by damage from construction, and is recommended to be a lump sum of $5,000 for bid purposes. See the revised bid tab, and sheet C-003 attached as Exhibit 'B."

Question 6 – Asphalt pay item? Is it remove and replace?

Answer: Asphalt and driveway removal is included in the cost of the clearing and grubbing pay item. The asphalt pay item is for replacement only.

END OF QUESTIONS

RECEIPT OF THIS ADDENDUM SHALL BE ACKNOWLEDGED BY WRITING THIS ADDENDUM NUMBER AND DATE IN THE SPACE PROVIDED ON DOCUMENT 00410-8, *'ADDENDUM ACKNOWLEDGEMENT - ATTACHMENT A.'*

/s/ Steven R. Schmidt
Steven R. Schmidt
Surtax Project Manager

Exhibit "A"

September 29, 2020

<Name>

<Address>

RE: 6th Street Drainage Improvement Project

Dear <Name>:

The 6th Street Drainage Improvement Project will replace the existing drainage system on 6th Street with a new drainage system utilizing Infrastructure Surtax dollars approved by the voters. The project will consist of drainage pipes, inlets, box culverts, driveway reconstruction, ditches, milling and resurfacing, full-depth roadway reconstruction (in areas disturbed by the construction), maintenance of traffic, and sodding. The project limits on 6th Street are from the southern end of 6th Street to 9th Avenue and along 9th Avenue from 6th Street to 7th Street. The project construction will likely begin in early 2021.

You are receiving this letter because your property fronts on the project area, and you have trees, bushes, fencing or other improvements in the construction area that will need to be removed. Some items, such as standard fencing (chain link or aluminum) and mailboxes, will be temporarily removed and replaced by the contractor. Other items, such as non-standard fencing, satellite dishes, carport structures, fountains, pavers, landscaping and trees, will not be replaced by the contractor. If you have one of the latter items and wish to keep them, you are advised to remove them from the right-of-way prior to commencement of construction. Please refer to the figure enclosed for a depiction of the construction area.

If you have questions, or would like additional information, please contact me at (850) 423-4886.

Sincerely,

Steven R. Schmidt
Surtax Project Manager
Okaloosa County

PANAMA CITY, FLORIDA
LIC. CU-C057185
GULF COAST UTILITY CONTRACTORS
GCUC
850-265-9166

CORPORATE RESOLUTION

I, Susan Southerland, the duly elected secretary of Gulf Coast Utility Contractors, LLC, a corporation organized and existing under the laws of the State of Florida, do hereby certify that the following resolution was unanimously adopted by a quorum of the board of directors of said corporation at a meeting held in accordance with the law and the by-laws of said corporation on the 12th day of March, 2020.

"It is hereby resolved that Mike Swearington, the duly elected President of Gulf Coast Utility Contractors, LLC, is hereby authorized to execute and submit a proposal to the Okaloosa County Board of County Commissioners for the 6th Street Area Stormwater Improvements Project and such other instruments in writing as may be necessary on behalf of said corporation, and that the proposal, bid bond, and other such instruments signed by him shall be binding upon said corporation as its own acts and deeds."

I further certify that the above resolution is in force and effect and has not been revised, revoked, or rescinded.

Given my hand and the seal of said corporation this 20th day of November 2020.

By_____
Susan Southerland, Secretary

SEAL

13938 Hwy 77 Southport, FL 32409
Ph: (850) 265-9166 • Fax: (850) 265-9949

Ron DeSantis, Governor

Halsey Beshears, Secretary

Florida dbpr

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

CONSTRUCTION INDUSTRY LICENSING BOARD

THE UNDERGROUND UTILITY & EXCAVATION CO. HEREIN IS CERTIFIED UNDER THE PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

SWEARINGTON, MICHAEL WILLIAM

GREEN COAST UTILITY ZONE [illegible]
[illegible]
SOUTHPORT [illegible]

LICENSE NUMBER: CUC057185

EXPIRATION DATE: AUGUST 31, 2022

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

EXHIBIT A

SYSTEM FOR AWARD MANAGEMENT (OCT 2016)

(a) Definitions. As used in this provision.

"Electronic Funds Transfer (EFT) indicator" means a four-character suffix to the unique entity identifier. The suffix is assigned at the discretion of the commercial, nonprofit, or Government entity to establish additional System for Award Management records for identifying alternative EFT accounts (see subpart 32.11) for the same entity.

"Registered in the System for Award Management (SAM) database" means that—

(1) The Offeror has entered all mandatory information, including the unique entity identifier and the EFT indicator, if applicable, the Commercial and Government Entity (CAGE) code, as well as data required by the Federal Funding Accountability and Transparency Act of 2006 (see subpart 4.14) into the SAM database;

(2) The offeror has completed the Core, Assertions, and Representations and Certifications, and Points of Contact sections of the registration in the SAM database;

(3) The Government has validated all mandatory data fields, to include validation of the Taxpayer Identification Number (TIN) with the Internal Revenue Service (IRS). The offeror will be required to provide consent for TIN validation to the Government as a part of the SAM registration process; and

(4) The Government has marked the record "Active".

"Unique entity identifier" means a number or other identifier used to identify a specific commercial, nonprofit, or Government entity. See www.sam.gov for the designated entity for establishing unique entity identifiers.

(b) (1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee shall be registered in the SAM database prior to award, during performance, and through final payment of any contract, basic agreement, basic ordering agreement, or blanket purchasing agreement resulting from this solicitation.

(2) The Offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "Unique Entity Identifier" followed by the unique entity identifier that identifies

the Offeror's name and address exactly as stated in the offer. The Offeror also shall enter its EFT indicator, if applicable. The unique entity identifier will be used by the Contracting Officer to verify that the Offeror is registered in the SAM database.

(c) If the Offeror does not have a unique entity identifier, it should contact the entity designated at www.sam.gov for establishment of the unique entity identifier directly to obtain one. The Offeror should be prepared to provide the following information:

(1) Company legal business name.

(2) Tradestyle, doing business, or other name by which your entity is commonly recognized.

(3) Company Physical Street Address, City, State, and Zip Code.

(4) Company Mailing Address, City, State and Zip Code (if separate from physical).

(5) Company telephone number.

(6) Date the company was started.

(7) Number of employees at your location.

(8) Chief executive officer/key manager.

(9) Line of business (industry).

(10) Company Headquarters name and address (reporting relationship within your entity).

(d) If the Offeror does not become registered in the SAM database in the time prescribed by the Contracting Officer, the Contracting Officer will proceed to award to the next otherwise successful registered Offeror.

(e) Processing time, which normally takes 48 hours, should be taken into consideration when registering. Offerors who are not registered should consider applying for registration immediately upon receipt of this solicitation.

(f) Offerors may obtain information on registration at https://www.acquisition.gov .

Offerors SAM information:

Entity Name: _____

Entity Address: _____

Duns Number: _____

CAGE Code: _____

DOCUMENT 00610 – PERFORMANCE BOND

CONTRACTOR *(name and address)*:

Gulf Coast Utility Contractors, LLC
13938 Hwy 77
Panama City, FL 32409

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*: Okaloosa Board of County Commissioners
1250 N. Eglin Parkway
Shalimar, FL 32579

CONSTRUCTION CONTRACT

Effective Date of the Agreement: _____
Amount: $2,577,387.50
Description *(name and location)*: 6th Street Area Stormwater Improvement

BOND

Bond Number: _____
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*: _____
Amount: $2,577,387.50
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.
2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:
3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:
7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and
7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.
9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this

Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

END OF DOCUMENT 00610 – PERFORMANCE BOND

DOCUMENT 00620 – PAYMENT BOND

CONTRACTOR *(name and address)*:

Gulf Coast Utility Contractors, LLC
13938 Hwy 77
Panama City, FL 32409

SURETY *(name and address of principal place of business)*:

OWNER *(name and address)*: Okaloosa Board of County Commissioners
1250 N. Eglin Parkway
Shalimar, FL 32579

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount: $2,577,387.50
Description *(name and location)*: 6th Street Area Stormwater Improvement

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount: $2,577,387.50
Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond shall arise after the following:

5.1 Claimants who do not have a direct contract with the Contractor,

5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).

5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

7.2 Pay or arrange for payment of any undisputed amounts.

7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 Claim: A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

END OF DOCUMENT 00620 – PAYMENT BOND

DOCUMENT 00700 – GENERAL CONDITIONS

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

EJCDC®
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

Issued and Published Jointly by

ACEC
AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

National Society of Professional Engineers®

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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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 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.

1.02 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

2.01 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.

2.02 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.

2.03 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.

2.04 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.

2.05 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.

2.06 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

3.01 Intent

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

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents.

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.

3.02 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.

3.03 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).

3.04 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.

3.05 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

4.01 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.

4.02 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.

4.03 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.

4.04 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.

4.05 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

5.01 Availability of Lands

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.

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.

5.02 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.

5.03 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.

5.04 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.

5.05 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.

5.06 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

6.01 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.

6.02 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.

6.03 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.

6.04 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.

6.05 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.

6.06 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.

6.07 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

7.01 Supervision and Superintendence

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

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.

7.02 Labor; Working Hours

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, 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.

7.03 Services, Materials, and Equipment

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, 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.

7.04 "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.

7.05 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.

7.06 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.

7.07 Patent Fees and Royalties

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to

patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

7.08 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

7.09 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

8.01 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.

8.02 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.

8.03 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

9.01 Communications to Contractor

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

9.02 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.

9.03 Furnish Data

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

9.04 Pay When Due

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

9.05 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.

9.06 Insurance

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

9.07 Change Orders

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

9.08 Inspections, Tests, and Approvals

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

9.09 Limitations on Owner's Responsibilities

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

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

10.01 Owner's Representative

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract.

10.02 Visits to Site

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 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.

10.03 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.

10.04 Rejecting Defective Work

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

10.05 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.

10.06 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.

10.07 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.

10.08 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.

10.09 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

11.01 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.

11.02 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.

11.03 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.

11.04 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.

11.05 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.

11.06 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.

11.07 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.

11.08 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

12.01 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

13.01 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, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 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.

13.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances: 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.

13.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. 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

14.01 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.

14.02 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.

14.03 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.

14.04 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.

14.05 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.

14.06 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.

14.07 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

15.01 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.

15.02 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.

15.03 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.

15.04 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.

15.05 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.

15.06 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.

15.07 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.

15.08 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

16.01 Owner May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by 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.

16.02 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.

16.03 Owner May Terminate For Convenience

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; 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.

16.04 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 (3) 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

17.01 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

18.01 Giving Notice

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
   1. delivered in person, 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.

18.02 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.

18.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. 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.

18.04 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.

18.05 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.

18.06 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.

18.07 Controlling Law

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

18.08 Headings

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

END OF DOCUMENT 00700 – GENERAL CONDITIONS

DOCUMENT 00800 – SUPPLEMENTARY CONDITIONS

GENERAL

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

ARTICLE 2 – PRELIMINARY MATTERS

2.02 Copies of Documents

Delete Paragraph 2.02.A in its entirety and insert the following in its place.

A. Owner shall furnish to Contractor one printed copy of the Contract including one fully executed counterpart of the Agreement. An electronic portable document format (PDF) may be requested by Contractor.

2.03 Before Starting Construction

Delete Paragraph 2.03 in its entirety.

2.04 Preconstruction Conference; Designation of Authorized Representatives

Delete Paragraph 2.04.A in its entirety and insert the following in its place:

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, procedures for handling Shop Drawings, Samples, and other submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

2.05 Initial Acceptance of Schedules

Delete Paragraph 2.05 in its entirety.

ARTICLE 3 – DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.04 Requirements of the Contract Documents

Delete Paragraph 3.04.C in its entirety and insert the following:

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 FDOT Section 5-12 Claims by Contractor.

ARTICLE 4 – COMMENCEMENT AND PROGRESS OF THE WORK

4.01 Commencement of Contract Times; Notice to Proceed

Delete Paragraph 4.01.A in its entirety and insert the following in its place.

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 one hundred twenty-fifth (125th) day after the day of Bid opening or the thirtieth day after the Effective Date of the Contract, whichever date is earlier.

4.04 Progress Schedule

A. Amend Paragraph 4.04 where all references to Paragraph 2.05 should now read FDOT Section 8-3.2 Submission of Working Schedule.

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

5.02 Use of Site and Other Areas

Delete Paragraph 5.02.A.2 in its entirety and insert the following:

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 mediation, 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 mediation) 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.

5.03 Subsurface and Physical Conditions

Delete Paragraphs 5.03.A and 5.03.B in their entirety and insert the following:

A. No reports of explorations or tests of subsurface conditions at or adjacent to the Site, or drawings of physical conditions relating to existing surface or subsurface structures at the Site, are known to Owner.

5.06 Hazardous Environmental Conditions

Delete Paragraphs 5.06.B and 5.06.I in their entirety.

Delete Paragraphs 5.06.A and 5.06.J in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.

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 mediation 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.

ARTICLE 6 – BONDS AND INSURANCE

6.01 Performance, Payment and Other Bonds

Add the following paragraph immediately after Paragraph 6.01.C:

1. All bonds shall be written by a surety with no less than an "A" rating by national rating agency. All sureties must be on the U.S. Department of Treasury's Listing of Approved Sureties (Department Circular 570) and bonds must be within the Treasury's underwriting limitation.

6.02 Insurance – General Requirements

Delete Paragraph 6.02.B in its entirety and insert the following:

B. All insurance required by the Contract to be purchased and maintained by OWNER and 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. All companies that provide insurance policies required under this CONTRACT shall have a minimum A+, Class X or higher in the Bests Key Rating Guide.

Add the following new paragraph immediately after Paragraph 6.02.J:

K. Where applicable, Okaloosa County Board of County Commissioners shall be shown as an Additional insured with a waiver of subrogation on the certificate of insurance.

6.03 Contractor's Insurance

Add the following new paragraph immediately after Paragraph 6.03.J:

K. 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 A.2 of the General Conditions:

State:	Statutory
Federal, if applicable (e.g., Longshoreman's):	Statutory
Employer's Liability:	
Bodily injury, each accident	$ 500,000
Bodily injury by disease, each employee	$ 500,000
Bodily injury/disease aggregate	$ 500,000

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate	$ 1,000,000
Products - Completed Operations Aggregate	$ 1,000,000
Personal and Advertising Injury	$ 1,000,000
Each Occurrence (Bodily Injury and Property Damage)	$ 1,000,000

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person	$ 1,000,000
Each accident	$ 1,000,000
Property Damage:	
Each accident	$ 500,000
[or]	
Combined Single Limit of	$ 1,000,000

4. Additional Insureds: In addition to Owner (Okaloosa County Board of County Commissioners) include as additional insureds the following: Mott MacDonald Florida, LLC, 220 West Garden St. Suite 700, Pensacola, FL 32502.

5. Contractor's Pollution under Paragraph 6.03.F of the General Conditions

Each Occurrence	$ Not Required
General Aggregate	$ Not Required

6. Contractor's Professional Liability under Paragraph 6.03.H of the General Conditions

Each Occurrence	$ Not Required
Annual Aggregate	$ Not Required

Delete Paragraph 6.03.C.1 in its entirety and insert the following in its place:

1. Products and completed operations coverage:
   a. Such insurance shall be maintained for two 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 continuation of such insurance at final payment and two years thereafter.

ARTICLE 7 – CONTRACTOR'S RESPONSIBILITIES

7.02 Labor; Working Hours

Delete Paragraph 7.02 B. in its entirety and insert the following:

B. In the absence of any Laws or Regulations to the contrary, Contractor may perform the Work on holidays, during any or all hours of the day, and on any or all days of the week, at Contractor's sole discretion.

Add the following new paragraph immediately after Paragraph 7.02.B:

1. Contractor shall be responsible for the cost of any overtime pay or other expense incurred by the Owner for Engineer's services (including those of the Resident Project Representative, if any), Owner's representative, and construction observation services, occasioned by the performance of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day. If Contractor is responsible but does not pay, or if the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

7.07 Patent Fees and Royalties

Delete Paragraphs 7.07.B and C in their entirety and replace with the following:

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

mediation 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 mediation 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.

7.10 Patent Fees and Royalties

Delete Paragraph 7.10.B in its entirety and replace with the following:

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 mediation 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.

7.16 Shop Drawings, Samples and Other Submittals

Delete Paragraph 7.16 in its entirety.

7.18 Indemnification

Delete Paragraph 7.18.A in its entirety and insert the following:

A. To the fullest extent permitted by law, CONTRACTOR shall indemnify and hold harmless the OWNER, the Design Engineer and the officers and employees from each from liabilities, damages, losses and costs including but not limited to reasonable attorney fees, to the extent caused by the negligence, recklessness or intentional wrongful conduct of the CONTRACTOR and other persons employed or utilized by the CONTRACTOR in the performance of this Agreement.

This indemnification shall survive the termination of this Contract. Nothing contained in this subarticle 7.18.A is intended to nor shall it constitute a waiver of the Owner's sovereign immunity.

ARTICLE 8 – OTHER WORK AT THE SITE

8.03 Legal Relationships

Delete Paragraph 8.03.D in its entirety and insert the following:

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 (both Design and CEI, 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 mediation 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 mediation or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

10.03 Project Representative

Add the following new paragraphs immediately after Paragraph 10.03.A:

B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.

1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.
2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.
4. Liaison:
    a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.
    b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
    c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
6. Shop Drawings and Samples:
    a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
    b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
    c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
8. Review of Work and Rejection of Defective Work:
    a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
    b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract

Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

9. Inspections, Tests, and System Start-ups:
   a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
   b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
10. Records:
   a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
   b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
   c. Maintain records for use in preparing Project documentation.
11. Reports:
   a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
   b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
   c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.
12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
14. Completion:
   a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
   b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a final punch list of items to be completed and deficiencies to be remedied.

c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

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

13.03 Unit Price Work

Delete Paragraph 13.03.E in its entirety and insert the following in its place:

E. The unit price of an item of Unit Price Work shall be subject to reevaluation and adjustment under the following conditions:

1. if the extended price of a particular item of Unit Price Work amounts to 5 percent or more of the Contract Price (based on estimated quantities at the time of Contract formation) and the variation in the quantity of that particular item of Unit Price Work actually furnished or performed by Contractor differs by more than 25 percent from the estimated quantity of such item indicated in the Agreement; and
2. if there is no corresponding adjustment with respect to any other item of Work; and
3. if Contractor believes that Contractor has incurred additional expense as a result thereof, Contractor may submit a Change Proposal, or if Owner believes that the quantity variation entitles Owner to an adjustment in the unit price, Owner may make a Claim, seeking an adjustment in the Contract Price.

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

15.01 Progress Payments

Delete Paragraph 15.01.B.1 in its entirety and insert the following in its place:

B. Applications for Payment

1. Application for payment shall generally be submitted on a monthly basis (no more than once per 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.

Delete Paragraph 15.01.C.1 in its entirety and insert the following in its place:

C. Review of Application

1. Engineer will within 5 business 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.

15.02 Substantial Completion

Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

ARTICLE 16 – SUSPENSION OF WORK AND TERMINATION

16.04 Contractor May Stop Work or Terminate

Delete Paragraphs 16.04.A and 16.04.B in their entirety and insert the following in their place:

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 (3) Owner fails for 60 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 60 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 18 – MISCELLANEOUS

18.07 Controlling Law

Delete paragraph 18.07.A in its entirety and replace the following in its place:

A. This Contract shall be interpreted in accordance with the laws of the State of Florida without regard to its principles of conflicts of laws. The parties agree that venue for any legal proceedings arising out of this Contract shall be in the state courts of Okaloosa County, Florida.

Add the following two sub articles to Article 18.

18.09 Coordination of Contract Documents

A. The following documents are integral parts of the Contract; a requirement occurring in one is as binding as though occurring in all. All parts of the Contract are complementary and describe and provide for a complete Work. In addition to the work and materials specified in the Standard Specifications as being included in any specific pay item, include in such pay items additional, incidental work not specifically mentioned, when so shown in the plans, or if indicated, or obvious and apparent, as being necessary for the proper completion of the Work under such pay item and not stipulated as being covered under other pay items.

B. In cases of discrepancy, the governing order of the documents is as follows:
   1. Modifications issued after the execution of the Agreement
   2. Agreement between Owner & Contractor for Construction Contract
   3. Addenda issued after the Bid Specifications were advertised to potential Bidders
   4. Supplementary Conditions
   5. EJCDC General Conditions, 2013 Edition
   6. Technical Specifications
   7. Construction Drawings
   8. Computed dimensions govern over scaled dimensions

18.10 Construction Closeout Requirements to County

A. Immediately after being notified by the Engineer that all other requirements of the Agreement have been completed Contractor shall complete the following items
   1. Signed Release of Liens;
   2. Certificate of Insurance for two year period, letter from Contractor stating Certificate of Insurance will be maintained for two (2) years;
   3. Certifications from Surety that Payment/Performance Bond shall remain in effect one year following final payment;
   4. Consent of Surety for Final Payment;
   5. Final Invoice with Engineer's Recommendation, final payment of this Contract shall be made within sixty (60) days after completion by the Contractor of all Work covered by the Agreement and acceptance of such Work by the County;
   6. Record (As-Built) Drawing

END OF DOCUMENT 00800 – SUPPLEMENTARY CONDITION

DOCUMENT 01010 – SUMMARY OF WORK

PART 1 - GENERAL

1.01 Work Covered by the Contract Documents

A. The project intent is to construct retrofit of storm sewer piping and structures and associated work, such as clearing and grubbing, earthwork, maintenance of traffic, dewatering, replacing asphalt paving and curbing, and temporary removal and replacement of fencing and other improvements.

B. The WORK covered by the CONTRACT Documents include demolition/clearing and grubbing and other WORK as shown on the construction drawings and described in the Technical Specifications.

1.02 Work Sequence

A. The work sequence will be determined by the CONTRACTOR. Demolition/clearing and grubbing can take place simultaneously if needed.

1.03 Contractor's Use of Premises

A. The CONTRACTOR use and responsibilities of premises as shown on the construction drawings and described in the specifications.

B. CONTRACTOR shall assume full responsibility for safety at the work site for all workers and visitors.

C. The CONTRACTOR shall send proper notices, make all necessary arrangements, and perform all services required in the care and maintenance of all OWNER and public utilities within the construction limits.

PART 2 - PRODUCTS OMITTED

PART 3 - EXECUTION OMITTED

END OF DOCUMENT 01010 – SUMMARY OF WORK

DOCUMENT 01040 – PROJECT COORDINATION

PART 1 - GENERAL

1.01 Related Documents

A. Drawings and general provisions of CONTRACT, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 Summary

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
   1. Coordination.
   2. Administrative and supervisory personnel.
   3. General installation provisions.
   4. Cleaning and protection.

1.03 Coordination

A. Coordination: Coordinate construction activities included under various sections of these Specifications to assure efficient and orderly installation of each part of the WORK. Coordinate construction operations included under different sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
   1. Where installation of one part of the WORK is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
   2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
   1. Prepare similar memoranda for the OWNER and separate CONTRACTORs where coordination of their WORK is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the WORK. Such administrative activities include, but are not limited to, the following:
   1. Preparation of schedules.
   2. Installation and removal of temporary facilities.
   3. Delivery and processing of submittals.
   4. Progress meetings.
   5. Project Close-out activities.

1.04 Submittal

A. Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.
   1. Show the interrelationship of components shown on separate Shop Drawings.
   2. Indicate required installation sequences.
   3. Comply with requirements contained in Section 00700 Article 7.16

B. Staff Names: Within 15 days of Notice to Proceed, submit a list of the CONTRACTOR's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

PART 2 - PRODUCTS OMITTED

PART 3 - EXECUTION

3.01 General Installation Provisions

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which WORK is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.
C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
D. Provide attachment and connection devices and methods necessary for securing WORK. Secure WORK true to line and level. Allow for expansion and building movement.
E. Visual Effects: Provide uniform joint widths in exposed WORK. Arrange joints in exposed WORK to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
F. Recheck measurements and dimensions, before starting each installation.
G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.
I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.02 Cleaning and Protection

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
    1. Excessive static or dynamic loading
    2. Excessive internal or external pressures
    3. Excessively high or low temperatures
    4. Thermal shock
    5. Excessively high or low humidity
    6. Air contamination or pollution
    7. Water
    8. Solvents
    9. Chemicals

10. Puncture
11. Abrasion
12. Heavy traffic
13. Soiling, staining and corrosion
14. Bacteria
15. Rodent and insect infestation
16. Combustion
17. Electrical current
18. Improper lubrication
19. Unusual wear or other misuse
20. Contact between incompatible materials
21. Misalignment
22. Excessive weathering
23. Unprotected storage
24. Improper shipping or handling
25. Theft
26. Vandalism

END OF DOCUMENT 01040 – PROJECT COORDINATION

DOCUMENT 01350 – WARRANTIES AND MANUALS

PART 1 – GENERAL

1.01 Warranties

A. The CONTRACTOR shall provide a warranty on all materials and workmanship for at least one (1) year (min.) from the date of Substantial Completion as per the General Conditions.
B. Additional Warranties apply to individual products, materials and / or assemblies; refer to each of the respective Specification sections to obtain the minimum required warranty information.

1.02 Operation Manuals

A. The CONTRACTOR shall file (in one place) all operation, maintenance or other manuals received with equipment and upon completion of project, they must be presented to the OWNER with a notification, in writing, to the ENGINEER that this has been accomplished.

PART 2 - PRODUCTS OMITTED

PART 3 - EXECUTION OMITTED

END OF DOCUMENT 01350 – WARRANTIES AND MANUALS

DOCUMENT 01500 – TEMPORARY FACILITIES

PART 1 – GENERAL

1.01 Temporary Storage and Office

A. The CONTRACTOR shall provide for his own use at project site, such storage and office space as deemed necessary.
B. Provide Construction barriers and /or barricades, locations will be coordinated with the OWNER's Representative on the site, before installation.
C. Trailers and sheds as necessary shall be located with-in the construction barriers, and only with the ENGINEER's and OWNER's approval.

1.02 Use Charges

A. Usage charges for temporary services of facilities are not chargeable to the Owner or the ENGINEER.

1.03 Regulations

A. Comply with requirements of local laws and regulations governing construction and local industry standards, in the installation of temporary services and facilities.

1.04 Standards

A. Comply with the requirements of NFPA Code 241, "Building Construction and Demolition Operations", the ANSI-AlO Series standards for "Safety Requirements for Construction and Demolition", and the NECA National Joint Guideline NJG-6 "Temporary Job Utilities and Services".

1.05 Inspections

A. Inspect and test each service before placing temporary utilities in use. Arrange for inspections and tests by governing authorities, and obtain certifications and permits for use.

1.06 Submittals

A. Submit copies of reports and permits required or necessary for the installation and operation; including any reports of tests, inspections and / or permits necessary for installation, use and operation of the temporary facilities.

1.07 Temporary Services

A. Toilet Facilities
   1. The CONTRACTOR shall provide temporary, on-site toilet facilities for the duration of construction. Cleaning shall conducted in accordance with 2.07.
B. General Utilities
   1. Water: The CONTRACTOR shall pay and provide for water needed for the Project during Construction.
   2. Power: The CONTRACTOR shall pay for electricity used for the Project during the Construction. CONTRACTOR shall coordinate with Gulf Power for connection.
      a. Comply with applicable requirements of NEMA, NECA and UL standards and governing regulations. Install temporary lighting of adequate illumination levels to perform the WORK specified as needed.
      b. Comply with NECA pertaining to installation of temporary wiring service and grounding. Provide transformers, and over current protective devices at main distribution panel for power and light circuitry.
      c. Provide disconnects for equipment circuits.

1.08 Protection of Occupants

A. Provide all warning signs, temporary fencing, barricades, supports, partitions, etc. as required to provide protection to the occupants, and to exclude unauthorized persons from the WORK areas.
   1. Comply with recognized standards and code requirements for erection of barricades where needed to prevent accidents. Paint with appropriate colors and warning signs to inform personnel at the site and the public of the hazard being protected against. Provide lighting where needed, including flashing red lights where appropriate.

1.09 Lifting Devices and Hoisting

A. Provide cranes, hoists, towers and other lifting devices necessary for the proper and efficient movement of materials; provide operating personnel for equipment as required. Equipment shall be provided with proper guys, bracing and other safety devices as required by Local or State codes.
B. Remove towers and hoisting equipment when they are no longer needed, or as directed by the Architect.

1.10 First Aid Supplies

A. Comply with governing regulations and recognized recommendations within the construction industry.

1.11 Rodent and Pest Control

A. The CONTRACTOR shall retain a local exterminator and/or pest control company to perform extermination and control procedures at regular intervals so that the project will be relatively free of pests and their residues at all times during the construction project.
B. Any pest control operations will be done in a lawful manner using environmentally safe materials.

1.12 Collection and Disposal of Waste

A. Establish a system for collection and disposal of waste materials. Enforce requirements strictly. Do not hold collected materials longer than seven (7) days during normal weather or three (3) days when the daily temperature is expected to rise above 80 degrees F. (27 degrees C).
B. Handle waste materials that are hazardous, dangerous, or unsanitary separately from other waste by containerizing.
C. Dispose of all waste material in a lawful manner.

1.13 Site Drainage

A. Utilize the existing facilities for temporary drainage where feasible.
B. Maintain the existing site, existing building and construction areas free of water.
C. Dispose of rainwater in a lawful manner which will not result in flooding in project, nor endanger either existing or new WORK or temporary facilities.
D. Take necessary measures to prevent erosion.

1.14 Environmental Protection

A. Conduct all construction activities, by means and methods that comply with any and all environmental regulations, to minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result from the performance of WORK at the site.

1.15 General Protection

A. Provide protection from damage, dust, etc. to all items in vicinity of the CONTRACT WORK including, but not limited to, existing building surfaces, finishes, items of equipment, utilities, etc. The CONTRACTOR will repair any new damage caused and / or created due to this construction project, to Owner's satisfaction at no additional cost to Owner. (Non-Construction related damage would be exempt from this clause)

PART 2 – PRODUCTS OMITTED

PART 3 - EXECUTION

3.01 General Operations

A. Supervision: Limit the availability of temporary services and facilities to essential and intended uses to minimize waste and abuse.
   1. Do not permit temporary installation to be abused or endangered.
B. Maintenance: Operate and maintain temporary services and facilities in good operating condition and in a safe and efficient manner until removal is authorized.
   1. Do not overload services or facilities.
   2. Protect from damage by freezing temperatures and/or similar elements.
   3. Do not allow unsanitary and/or hazardous conditions to develop or persist on site.
C. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour basis where required to achieve indicated results and avoid the possibility of damage to the WORK or to temporary facilities.

3.02 General Removal

A. Remove each temporary service and facility promptly when need has ended, or when it is replaced by use of a permanent facility, but no later than Substantial Completion.
B. Complete or, if necessary, restore permanent WORK delayed because of interference with the temporary service or facility.
C. Repair all damaged WORK, clean exposed surfaces and replace any WORK which cannot be repaired.
D. Clean and renovate any permanent services and/or facilities that may have been used to provide a temporary service and/or facilities during the construction period.

END OF DOCUMENT 01500 – TEMPORARY FACILITIES

DOCUMENT 01700 – PROJECT CLOSE-OUT

PART 1 - GENERAL

1.01 Related Documents

A. Drawings and general provisions of Contract, including General and Supplementary General Conditions and other Division-0 Specification sections, apply to the WORK of this section.

1.02 Description of Requirements

A. Definitions: Close-out is hereby defined to include general requirements near end of the Contract Time, in preparation for final acceptance, final payment and normal termination of contract.
B. Specific requirements for individual units of WORK are specified in sections of Division 0 through 16. Time of close-out is directly related to the "Substantial Completion", and must be a single time period for entire WORK.

1.03 Prerequisites to Substantial Completion

A. General: Prior to requesting the ENGINEER's inspection for certification of Substantial Completion, complete the following and list any known exceptions (if any) in request.
   1. The in progress payment request will coincident with or first following date claimed, show either 100% completion for portion of WORK claimed as "Substantially Complete", or list incomplete items, value of incompletion, and reasons for the items being incomplete.
   2. Include any supporting documentation required for completion as indicated in these Contract Documents.
   3. Submit statement showing accounting of any changes to the Contract Sum.
   4. Contractor shall notify and advise the OWNER of any pending insurance change over requirements.
   5. Submit specific warranties, workmanship / maintenance bonds, maintenance agreements, final certifications and similar documents.
   6. Obtain and submit releases enabling OWNER's full and unrestricted use of the WORK and access to services and utilities, including, where required, Occupancy Permits, operating certificates, and similar releases.
   7. Deliver tools, spare parts, extra stocks of materials, and similar physical items to the OWNER.
   8. Complete the start-up testing of the systems, and deliver the instructions of the operating systems to the OWNER and / or maintenance personnel. Discontinue (or change over) and remove from project site all temporary facilities and services, along with any construction tools and facilities, mock-ups, and similar elements.
   9. Complete the final cleaning up requirements, including the touch-up of any marred surfaces as required.
   10. Touch-up and otherwise repair and restore marred exposed finishes.

1.04 Inspection Procedures

A. Upon the receipt of the Contractor's request. The Engineer of Record will either proceed with the inspection or advise the Contractor of any prerequisites not fulfilled.
B. Following the initial inspection the Engineer of Record will either prepare a Certificate of Substantial Completion, or advise the Contractor of WORK that must be performed prior to the issuance of the certificate; and repeat the inspection when requested and assured that WORK has been substantially completed.
C. The Contractor shall prepare a type written "punch-list" of items to be completed and attach it to the Substantial Completion Form. Results of the completed inspection will form initial "punch-list" for the final acceptance.

1.05 Prerequisites to Final Acceptance

A. General: Prior to requesting the ENGINEER's final construction review for certification of final acceptance and final payment, as required by General Conditions, complete the following and list any known exceptions (if any) in request:
   1. Submit final payment request with final releases and supporting documentation not previously submitted and/or accepted. Include certificates of insurance for products and completed operations where required.
   2. Submit updated final statement, accounting for additional (final) changes to Contract Sum.
   3. Submit a certified copy of ENGINEER's "final punch-list" of itemized WORK to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the ENGINEER.
   4. Submit Consent of Surety.
   5. Submit Certified and Notarized Lien Release stating that all parties have been or will be paid (showing amounts).
   6. Submit final liquidated damages settlement statement, acceptable to OWNER.
   7. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Review Procedure: Upon receipt of Contractor's notice that WORK has been completed, including punch-list items resulting from earlier construction reviews, and excepting incomplete items delayed because of acceptable circumstances. The ENGINEER will re-inspect the WORK.

C. Upon completion of review, the ENGINEER will either prepare the Certificate of Final Acceptance or advise the Contractor of WORK not completed or of obligations not fulfilled as required for final acceptance.

D. If necessary, procedure will be repeated.

1.06 Equipment Close-out

A. General Operating / Maintenance Instructions: Arrange for each installer of the WORK that requires a continuing maintenance or operation, to meet with OWNER's personnel, at the project site, to provide basic instructions needed for the proper operation and any type of equipment maintenance.
   1. Include instructions by manufacturer's representatives where installers are not experts in the required procedures.
   2. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures and facilities.
   3. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy /efficiency adjustments, and similar operations.
   4. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds, and similar continuing commitments

1.07 Final Cleaning

A. For any special cleaning requirements for the specific units of WORK, would be specified in individual sections, of Divisions 2 through 16.

B. General cleaning during the progress of WORK is specified in General Conditions and as temporary services in "Temporary Facilities" section of this Division.

C. Provide final cleaning of the WORK, at time indicated, consisting of cleaning each surface or unit of WORK to normal "clean" condition as expected for a first-class building cleaning and maintenance program.

D. Comply with the manufacturer's instructions for cleaning operations. The following are examples, but not by way of limitation, of cleaning levels required:
   1. Remove labels which are not required as permanent labels.

2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing any substances which are noticeable as a vision obscuring material. Replace broken glass and all damaged transparent materials.
3. Clean all exposed exterior and interior hard-surfaced finishes, to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to the original reflective condition.
4. Wipe surfaces of mechanical and electrical equipment clean; remove any excess lubrication and other substances.
5. Remove debris and surface dust from limited-access spaces including roofs, plenums, shafts, attics and similar spaces.
6. Clean all light fixtures and lamps so as to function with full efficiency.
7. Clean the project site (within limits of construction), including landscape areas, of litter and foreign substances. Sweep paved areas to a broom-clean condition; remove stains, petro-chemical spills and other foreign deposits.

E. Removal of Protection: Except as otherwise indicated or requested by the ENGINEER and / or OWNER. Remove all temporary protection devices and facilities.

F. Comply with safety standards and governing regulations for the cleaning operations. Do not burn waste materials at site, or bury any debris or excess materials on the OWNER's property, or discharge volatile or other harmful or dangerous materials into the drainage systems. Remove all waste materials from site and dispose of in a lawful manner.

G. When extra materials are remaining after the completion of associated WORK, which have become the OWNER's property, dispose of these to OWNER's best advantage as directed.

END OF DOCUMENT 01700 – PROJECT CLOSE-OUT

DOCUMENT 01750 – RECORD DOCUMENTS

PART 1 – GENERAL

1.01 Related Documents

A. Drawings and general provisions of CONTRACT, including General and Supplementary General Conditions and other Division-0 Specification sections, apply to the WORK of this section.

1.02 Summary

A. Section includes administrative and procedural requirements for the record set of documents, including the following;
   1. Record Set of Drawings.
   2. Record Set of Specifications.

B. Related Sections:
   1. Section 01700 - Project Close-Out.

1.03 Record Document Submittal

A. Submit the following copies of the Record Documents during or prior to the Project Close-out:
   1. Provide one complete full size color copies, of the "marked-up" record set of drawings.
   2. Provide one complete "marked-up" record set of specifications.

B. Copies are to be distributed, one of each type to the OWNER.

1.04 Use and Storage

A. Store the Record Documents in the field office apart from the documents used for the construction. Do not use the Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition. Make all documents and samples available at all times for the OWNER, ENGINEERs and / or Building Inspectors as needed.

B. Each CONTRACTOR is responsible for obtaining, recording, and maintaining the Record Documents information for its own WORK. The CONTRACTOR is responsible for coordinating the information, where information from more than one CONTRACTOR is to be integrated with the information from other CONTRACTORs to form one combined record.

1.05 Record Drawings

A. Mark the Record Drawings to show the actual installation where the locations vary from the installation locations shown originally. Give particular attention to information on the concealed elements that would be difficult to identify or measure and record later. Items required to be marked include, but are not limited to, the following:
   1. Measured horizontal and vertical locations of underground utilities and other appurtenances, referenced to permanent surface improvements.
   2. Locations of concealed internal utilities and appurtenances.
   3. Actual equipment locations.
   4. Revisions to routing of piping and conduits.
   5. Duct size and routing.
   6. Depths of foundations below the first floor.
   7. Revisions to electrical circuitry.
   8. Dimensional changes to the Drawings.
   9. Revisions to details on the Drawings.
   10. Details not on the original CONTRACT Drawings.
   11. Changes made following the OWNER's written orders.
   12. Changes made by Addendum, Change Orders, Requests for Information (RFIs), or ENGINEER’s Supplemental Instructions (ASIs).

B. Mark the Record Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in the production of the marked-up Record Documents.

1.06 Record Specifications

A. Mark the Record Specifications to show Addendums, Change Orders, Requests for Information (RFIs), or ENGINEER's Supplemental Instructions (ASIs).
B. Indicate on the Record Specifications the actual product that was installed where the installation varies from the Specifications, addenda and CONTRACT modifications.
   1. Give particular attention to information on concealed products and the installations that cannot be readily identified and recorded later.
   2. Mark the Record copy with the propriety name and model number of products, materials and equipment furnished, including substitutions and product options selected.
   3. Record the name of manufacturer, supplier, installer and other necessary to provide a record of selections made.
   4. For each principal product, indicate whether the record Product Data has been submitted in the operation and maintenance manuals instead of submitted as record Product Data.
   5. Note related Change Orders and turnover drawings where applicable.

PART 2 – PRODUCT OMITTED

PART 3 – EXECUTION

3.01 Preparation

A. Daily mark the Record Documents to show the actual conditions where the installation varies from that shown originally. Require the individual or entity who obtained the record data, whether that individual or entity is the Installer, Sub-contractor or similar entity to provide the information for the preparation of the corresponding marked-up Record Set of Drawings.
   1. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
   2. Accurately record information in an acceptable drawing technique.
   3. Record data as soon as possible after obtaining it.
   4. Record and check the mark-up before enclosing the concealed installations.
   5. Record the changes and modifications as they occur. Do not wait until the end of the Project.

3.02 Recording

A. During construction, maintain an extra set of the CONTRACT Documents specifically for the purpose of creating the Record Documents. Keep them separate from the set used for construction.
   1. Stamp each sheet of the Record Drawings and the cover of the Record Specifications in the lower right-hand corner with a reasonably large ink stamp to read "Record Set".
   2. Mark Record Set Documents with a red pencil or pen. Use other colors to distinguish between changes for different categories of the WORK at the same location or for clarity. (All marks shall be photo reproducible.)
   3. Mark the record documents completely and accurately.
   4. Indicate any additional important information that was either shown schematically or omitted from the CONTRACT Documents.
   5. Mark the Record Documents to indicate actual WORK done that deviates from the CONTRACT Documents.
B. Maintain the Record Documents in good order and in a clean, dry, legible condition.
C. Make all Record Documents and samples available at all times for the OWNER, ENGINEERs and / or Building Inspectors as needed.
D. After completing the preparation of the Record Documents, prepare the drawings and specifications for distribution.

E. Submit the Record Documents, whether or not any changes and / or additional information was recorded.

END OF DOCUMENT 01750 – RECORD DOCUMENTS

MOTT MACDONALD

6th Street Drainage Improvements

Technical Specifications

August 2020

Okaloosa County, FL

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SECTION 102
MAINTENANCE OF TRAFFIC

102-1 Description.

Maintain traffic within the limits of the project for the duration of the construction period, including any temporary suspensions of the work. Develop, construct and maintain detours. Provide 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 (MOT) in construction areas. Provide any other special requirements for safe and expeditious movement of traffic specified in the Plans. MOT includes all facilities, devices and operations as required for safety and convenience of the public within the work zone.

Do not maintain traffic over those portions of the project where no work is to be accomplished or where construction operations will not affect existing roads. Do not obstruct or create a hazard to any traffic during the performance of the work and repair any damage to existing pavement open to traffic.

102-2 Materials.

Meet the following requirements:

Bituminous Adhesive.....FDOT Specs Section 970
Temporary Raised Pavement Markers..... FDOT Specs Section 990
Paint ..... FDOT Specs Section 971
Removable Tape ..... FDOT Specs Section 990
Glass Spheres..... FDOT Specs Section 971
Temporary Traffic Control Device Materials..... FDOT Specs Section 990
Retroreflective and Nonreflective Sheeting
for Temporary Traffic Control Devices..... FDOT Specs Section 994

102-2.1 Temporary Traffic Control Devices: Use only the materials meeting the requirements of FDOT Specs Section 990, FDOT Specs Section 994, Standard Plans and the Manual on Uniform Traffic Control Devices (MUTCD).

102-2.2 Detour: Provide all materials for the construction and maintenance of all detours.

102-2.3 Commercial Materials for Driveway Maintenance: Provide materials of the type typically used for base, including reclaimed asphalt pavement (RAP) material, and having stability and drainage properties that will provide a firm surface under wet conditions.

102-3 Specific Requirements.

102-3.1 Beginning Date of Contractor's Responsibility: Maintain traffic starting the day work begins on the project or on the first day Contract Time is charged, whichever is earlier.

102-3.2 Worksite Traffic Supervisor: Provide a Worksite Traffic Supervisor who is responsible for initiating, installing, and maintaining all temporary traffic control devices as described in this Section and the Contract Documents. Provide all equipment and materials needed to set up, take down, maintain traffic control, and handle traffic-related situations. Use approved alternate Worksite Traffic Supervisors when necessary.

The Worksite Traffic Supervisor is to perform the following duties:

1. On site direction of all temporary traffic control on the project.
2. Is on site during all set up and take down and performs a drive through inspection immediately after set up.
3. Is on site during all nighttime operations ensuring proper temporary traffic control.
4. Immediately corrects all safety deficiencies and corrects minor deficiencies that are not immediate safety hazards within 24 hours.
5. Is available on a 24 hour per day basis and present at the site within 45 minutes after notification of an emergency situation and is prepared to respond to maintain temporary traffic control or to provide alternate traffic arrangements.
6. Conducts daily daytime and weekly nighttime inspections of projects with predominately daytime work activities, and daily nighttime and weekly daytime inspections of projects with predominantly nighttime work activities of all traffic control devices, traffic flow, pedestrian, bicyclist, and business accommodations.

Advise the project personnel of the schedule of these inspections and give them the opportunity to join in the inspection as deemed necessary. Pedestrians are to be accommodated with a safe, accessible travel path around work sites separated from mainline traffic in compliance with the Americans with Disabilities Act (ADA) Standards for Transportation Facilities. Maintain existing or detour bicycle facilities satisfactorily throughout the project limits. Existing businesses in work areas are to be provided with adequate entrances for vehicular and pedestrian traffic during business hours.

The County may disqualify and remove from the project a Worksite Traffic Supervisor who fails to comply with the provisions of this Section. The County may temporarily suspend all activities, except traffic, erosion control and such other activities that are necessary for project maintenance and safety, for failure to comply with these provisions.

102-3.3 Lane Closures: Approval for all lane closures, mobile operations, and traffic pacing operations is required. Submit routine requests to the Engineer fourteen calendar days in advance of planned lane closures, mobile operations, and traffic pacing operations. For unforeseen events that require cancelling or rescheduling lane closures, mobile operations, and traffic pacing operations, revise the lane closure request as soon as possible.

102-4 Traffic Control Plan.

The Contractor's traffic control plan (TCP) to the plan shall be presented to the County for review and approval prior to starting work. Prepare the TCP in conformance with and in the form outlined in the current version of the FDOT Design Manual. Indicate in the plan a TCP foreach phase of activities. The Contractor shall take responsibility for identifying and assessing any potential impacts to a utility that may be caused by the TCP proposed by the Contractor, and notify the County in writing of any such potential impacts to utilities.

For projects with nighttime lane closure restrictions where paving is expected to extend into the winter months, the Contractor may propose TCP allowing for daytime lane closures for friction course paving. The TCP must be a lane closure analysis based on actual traffic counts and prepared in accordance with the FDOT Design Manual.

Engineer's approval of the alternate TCP does not relieve the Contractor of sole responsibility for all utility impacts, costs, delays or damages, whether direct or indirect, resulting from Contractor initiated changes in the design or construction activities from those in the original Contract Specifications, Design Plans (including TCPs) or other Contract Documents and which effect a change in utility work different from that shown in the Utility Plans, joint project agreements or utility relocation schedules.

The County reserves the right to reject the TCP. Obtain the Engineer's

written approval before beginning work using an alternate TCP. The Engineer's written approval is required for all modifications to the TCP. The Engineer will only allow changes to the TCP in an emergency without the proper documentation.

The Contractor may propose to extend lane closure times up to one hour in advance of the lane closure start times shown in the Plans for the following conditions:

1. Limited Access roadways with a traffic count of less than 1,300 vehicles per hour per lane
2. Arterials and Collector roadways with a traffic count of less than 1,550 vehicles per hour per lane.

To determine traffic count, record the number of vehicles in the direction of the closure during a 15-minute period. Multiply the number of vehicles by four and divide by the number of lanes in the direction of the closure.

102-5 Traffic Control.

102-5.1 Standards: FDOT Standard Plans are the minimum standards for the use in the development of all TCPs. The MUTCD, Part VI is the minimum national standard for traffic control for highway construction, maintenance, and utility operations. Follow the basic principles and minimum standards contained in these documents for the design, application, installation, maintenance, and removal of all traffic control devices, warning devices and barriers which are necessary to protect the public and workers from hazards within the project limits.

102-5.2 Maintenance of Roadway Surfaces: Maintain all lanes that are being used for the MOT, including those on detours and temporary facilities, under all weather conditions. Keep the lanes reasonably free of dust, potholes and rutting. Provide the lanes with the drainage facilities necessary to maintain a smooth riding surface under all weather conditions.

102-5.3 Number of Traffic Lanes: Maintain one lane of traffic in each direction. Maintain two lanes of traffic in each direction at existing four (or more) lane cross roads, where necessary to avoid undue traffic congestion. Construct each lane used for MOT at least as wide as the traffic lanes existing in the area before commencement of construction. Do not allow traffic control and warning devices to encroach on lanes used for MOT.

The Engineer may allow the Contractor to restrict traffic to one-way operation for short periods of time provided that the Contractor employs adequate means of traffic control and does not unreasonably delay traffic. When a construction activity requires restricting traffic to
one-way operations, locate the flaggers within view of each other when possible. When visual contact between flaggers is not possible, equip them with 2-way radios, official, or pilot vehicles, or use traffic signals.

102-5.4 Crossings and Intersections: Provide and maintain adequate accommodations for intersecting and crossing traffic. Do not block or unduly restrict any median opening, road or street crossing the project unless approved by the Engineer. Before beginning any construction, submit to the Engineer the names and phone numbers of persons that can be contacted when signal operation malfunctions.

102-5.5 Access for Residences and Businesses: Provide continuous access to all residences and all places of business.

102-5.6 Protection of the Work from Injury by Traffic: Where traffic would be injurious to a base, surface course, or structure constructed as a part of the work, maintain all traffic outside the limits of such areas until the potential for injury no longer exists.

102-5.7 Flagger: Provide flaggers to control traffic when traffic in both directions must use a single lane and in other situations as required. All flaggers must meet the personnel qualifications specified in FDOT Specs Section 105.

102-5.8 Conflicting Pavement Markings: Where the lane use or where normal vehicle or pedestrian paths are altered during construction, remove all pavement markings (paint, tape, thermoplastic, raised pavement markers, etc.) that will conflict with the adjusted vehicle or pedestrian paths. Use of paint to cover conflicting pavement markings is prohibited. Remove

conflicting pavement markings using a method that will not damage the surface texture of the pavement and which will eliminate the previous marking pattern regardless of weather and light conditions.

Remove all pavement markings that will be in conflict with "next phase of operation" vehicle pedestrian paths as described above, before opening to vehicle traffic or use by pedestrians.

Cost for removing conflicting pavement markings (paint, tape, thermoplastic, raised pavement markers, etc.) to be included in Maintenance of Traffic, lump sum.

102-5.9 Vehicle and Equipment Visibility: Equip all pickups and automobiles used on the project with a minimum of one Class 2 warning light that meets the Society of Automotive Engineers Recommended Practice SAE J595, dated November 1, 2008, or SAE J845, dated December 1, 2007, and incorporated herein by reference. Existing lights that meet SAE J845, dated March, 1992, or SAE J1318, dated April, 1986, may be used to their end of service life. The warning lights must be a high intensity amber or white rotating, flashing, oscillating or strobe light. Lights must be unobstructed by ancillary vehicle equipment such as ladders, racks or booms and be visible 360 degrees around the vehicle. If the light is obstructed, additional lights will be required. The lights must be operating when the vehicle is in a work area where a potential hazard exists, when operating at less than the average speed for the facility while performing work activities, making frequent stops or called for in the Plans or Standard Plans.

Equip all other vehicles and equipment with a minimum of 4 square feet of retroreflective sheeting or warning lights.

102-5.10 No Waiver of Liability: Conduct operations in such a manner that no undue hazard results due to the requirements of this Article. The procedures and policies described herein in no way acts as a waiver of any terms of the liability of the Contractor or his surety.

102-6 Detours.

102-6.1 General: Construct and maintain detour facilities wherever it becomes necessary to divert traffic, including pedestrians and bicyclists, from any existing facility, or wherever construction operations block the flow of traffic.

102-6.2 Construction: Plan, construct, and maintain detours for the safe passage of traffic in all conditions of weather. Provide the detour with all facilities necessary to meet this requirement.

Where pedestrian facilities are detoured, blocked or closed during the work, provide safe alternate accessible routes through or around the work zone meeting the requirements of the ADA Standards for Transportation Facilities. When temporary walkway surfaces and ramps are required to be constructed, ensure surfaces are stable, firm, slip resistant, and kept free of any obstructions and hazards such as holes, debris, mud, construction equipment and stored materials.

102-6.3 Construction Methods: Select and use construction methods and materials that provide a stable and safe detour facility. Construct the detour facility to have sufficient durability to remain in good condition, supplemented by maintenance, for the entire period that the detour
is required.

102-6.4 Removal of Detours: Remove detours when they are no longer needed and before the Contract is completed. Take ownership of all materials from the detour and dispose of them, except for the materials on loan from the County with the stipulation that they are returned.

102-6.5 Detours Over Existing Roads and Streets: When the County specifies that traffic be detoured over roads or streets outside the project area, do not maintain such roads or streets. However, maintain all signs and other devices placed for the purpose of the detour.

102-6.7 Special Detour: A special detour is defined as a diversion or lane shift for vehicular traffic that requires temporary pavement.

102-6.8 Pedestrian Special Detour: A pedestrian special detour is defined as a

temporary pedestrian way that requires temporary pavement or other stable, firm, slip-resistant surface.

102-7 Traffic Control Officer.

Provide uniformed law enforcement officers, including marked law enforcement vehicles, to assist in controlling and directing traffic in the work zone when the following types of work is necessary on projects:

1. When directing traffic/overriding the signal in a signalized intersection.
2. When FDOT Standard Plans, Index 102-619 is used on freeway facilities (interstates, toll roads, and expressways) at nighttime for work within the travel lane.
3. When FDOT Standard Plans, Index 102-655 Traffic Pacing is called for in the Plans or approved by the Engineer.
4. When pulling conductor/cable above an open traffic lane on limited access facilities, when called for in the Plans or approved by the Engineer.
5. When FDOT Standard Plans, Index 102-625 Temporary Road Closure 5 Minutes or Less is used.
6. When performing lane closures during nighttime operations on roadways with posted speed limits 55 mph or greater.

At no additional cost to the County, traffic control officers may be used for operations other than those listed above.

The County will not consider any claim arising from the failure of a traffic control officer to be present or available on the project. A noncompensable time extension may be granted when a state or local emergency requires all area law enforcement officers to be on-duty and not available for hire.

102-8 Driveway Maintenance.

102-8.1 General: Ensure that each residence and business has safe, stable, and reasonable access.

102-8.2 Construction Methods: Place, level, manipulate, compact, and maintain the material, to the extent appropriate for the intended use.

102-9 Temporary Traffic Control Devices.

102-9.1 General: Use only devices that are listed on the APL. Immediately remove or cover, using any method of covering approved by the Engineer, any existing or temporary devices that do not apply to current conditions.

The use of NCHRP Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Features devices purchased prior to January 1, 2020 is permitted on projects let prior to January 1, 2030. All devices manufactured or purchased on or after January 1, 2020 must be MASH compliant in accordance with Section 990.

The APL number is to be permanently marked on the device at a readily visible location. Sheeting used on devices and pavement markings are exempt from this requirement.

Notify the Engineer in writing of any scheduled operation that will affect traffic patterns or safety sufficiently in advance of commencing such operation to permit review of the plan for the proposed installation of temporary traffic control devices.

Assign an employee the responsibility of maintaining the position and condition of all temporary traffic control devices throughout the duration of the Contract. Keep the Engineer advised at all times of the identification and means of contacting this employee on a 24 hour basis.

Maintain temporary traffic control devices in the correct position, properly oriented, clearly visible and clean, at all times. All applicable temporary traffic control devices must meet the classification category of Acceptable as defined in the American Traffic Safety Services Association (ATSSA) Quality Guidelines for Temporary Traffic Control Devices and Features. Temporary concrete barriers must meet the classification category of Acceptable defined in the County's Temporary Concrete Barrier Evaluation Guide, which may be

viewed at the following URL:

https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/programmanagement/implemented/urlinspecs/files/docs/default-source/content-docs/programmanagement/implemented/urlinspecs/files/temporaryconcretebarrierguide.pdf.pdf? sfvrsn=343b4c97_10.

Pedestrian longitudinal channelizing devices (LCDs) must meet the classification category of Acceptable as defined in the Pedestrian LCD Evaluation Guide, which may be viewed at the following URL:
https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/programmanagement/implemented/urlinspecs/files/lcdevaluationguide.pdf?sfvrsn=166e0f 16_2.

Immediately repair, replace or clean damaged, defaced or dirty devices. Traffic control devices must not be cleaned while installed/used. Use of warning lights on any temporary traffic control device is prohibited, with the exception of the trailer mounted portable regulatory signs.

Employ an approved independent Channelizing Device Supplier (CDS) to provide and maintain the condition of the following non-fixed channelizing devices: drums, cones, vertical panels, barricades, tubular markers, and longitudinal channelizing devices. Cones may be provided and maintained by the Contractor.

The CDS shall not be affiliated with the Contractor and must be approved by the County. County approved CDSs are listed on the State Construction Office website.
CDSs seeking inclusion on the list must meet the requirements of 102-9.1.1.The CDS shall submit a monthly certification on letterhead that the channelizing devices mentioned above installed/used within the work zone meet classification category of Acceptable as defined in the Pedestrian LCD Evaluation Guide and the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features. The CDS shall submit the monthly certification on letterhead for channelizing devices installed/used within the work zone. The CDS certification shall include the following statement, “I certify that I have provided and maintained the following devices <list devices covered under the certification> in accordance with Pedestrian LCD Evaluation Guide and the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features.” If the Contractor chooses to provide and maintain cones, the Contractor must submit a monthly Contractor certification on letterhead that all cones installed/used within the work zone meet acceptable standards as outlined in the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features. The Contractor certification shall include the following statement, “I certify that I have provided and maintained cones in accordance with the ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features.”

102-9.1.1 Approved Independent Channelizing Device Supplier (CDS) Requirements: Submit the following documents to the State Construction Office for review and approval

1. A letter on company letterhead signed and dated by the owner of the company or company officer with the following information and statements:

a. The company’s owners, stockholders, and officers.

b. A statement declaring that the company will not perform as a CDS on any project where there is common ownership, directly or indirectly, between the company and the Contractor.

c. A statement declaring that the company will furnish and maintain the condition of all channelizing devices with the exception of cones as required in 102-9.1 with its own forces.

e. On a separate sheet, list a sample project history of the company's experience as a channelizing device supplier for the five years declared in item 1(d) above including the following information:

1. Project name and number and a brief description of CDS work performed,
2. Beginning and ending date of CDS project activities,
3. Location of project (city, state),
4. Monetary amount of CDS work on project,
5. Owner of project, contact person and phone number with area code,
6. Name of Contractor (client) that the work was performed for and phone number with area code.

2. A maintenance plan for approval by the County that outlines the frequency and methods for maintaining the condition of all channelizing devices, except cones owned and maintained by the Contractor, installed/used in the work zone.

102-9.2 Work Zone Signs: Furnish, install, maintain, remove and relocate signs in accordance with the Plans and FDOT Standard Plans, Index 102-600.

102-9.2.1 Post Mounted Signs: Meet the requirements of FDOT Specs 990-8.

102-9.2.2 Portable Signs: Use only approved systems, which includes sign stands and attachment hardware (nuts, bolts, clamps, brackets, braces, etc.), meeting the vendor requirements specified on the APL drawings.

102-9.2.3 Barrier Mounted Signs: If post mounting criteria cannot be achieved in accordance with FDOT Standard Plans, Index 102-600 and a barrier or traffic railing exists, use temporary sign criteria provided in FDOT Standard Plans, Index 700-013.

102-9.3 Business Signs: Provide and place signs in accordance with the Plans and FDOT Standard Plans, Index 102 series. Furnish signs having retroreflective sheeting meeting the requirements of FDOT Specs Section 990.

102-9.4 Project Information Signs: Provide and place signs in accordance with the Plans and FDOT Standard Plans, Index 102 series. Furnish signs having retroreflective sheeting meeting the requirements of FDOT Specs Section 990.

102-9.5 Channelizing Devices: Furnish, install, maintain, remove and relocate channelizing devices in accordance with the Plans and Standard Plans.

102-9.5.1 Retroreflective Collars for Traffic Cones: Use collars for traffic cones listed on the APL that meet the requirements of Section 990. Use cone collars at night designed to properly fit the taper of the cone when installed. Place the upper 6 inch collar a uniform 3-1/2 inches distance from the top of the cone and the lower 4 inch collar a uniform 2 inches distance below the bottom of the upper 6 inch collar.
Collars must be capable of being removed for temporary use or attached permanently to the cone in accordance with the manufacturer's recommendations. Provide a white sheeting having a
smooth outer surface and that has the property of a retroreflector over its entire surface.

102-9.5.2 Longitudinal Channelizing Devices (LCDs): Use LCDs listed on the APL and meeting the requirements of Section 990 and the Standard Plans. LCDs must be interlocked except for the stand-alone unit placed perpendicular to a sidewalk. For LCDs requiring internal ballasting, an indicator that clearly identifies the proper ballast level will be required. For LCDs requiring external ballasting, the ballasting methods must be detailed in the APL drawings including ballasting type and minimum weight.

Ensure that joints on the pedestrian LCDs are free of sharp edges and have a maximum offset of 1/2 inch in any plane.

Use alternating orange and white solid color vehicular LCDs. Vehicular LCDs may be substituted for drums, vertical panels, or barricades.

102-9.6 Temporary Barrier: Furnish, install, maintain, remove and relocate temporary barrier in accordance with the Plans and Standard Plans. Obtain and use precast temporary concrete barrier from a manufacturing plant that is on the County's Production Facility Listing. Temporary concrete barrier must meet the material and construction requirements of FDOT Specs Section 521 unless noted otherwise in the Standard Plans. Proprietary temporary concrete, steel, or water filled barrier used must be listed on the APL.

The maximum allowable height increase between consecutive temporary barrier units in the direction of traffic is 1 inch.

Temporary barrier must comply with FDOT Standard Plans, Index 102-100 or 102-120. Install temporary barriers as either anchored or freestanding as shown in the Plans or the Standard Plans. An anchored unit is defined as having at least one stake or bolt into the underlying pavement or bridge deck. All other units, including those with keeper pins, are considered freestanding.

Remove temporary asphalt pads and repair all attachment scars to permanent structures and pavements after barrier removal. Make necessary repairs due to defective material, work, or Contractor operations at no cost to the County. Restore barrier damaged by the
traveling public within 24 hours after notification as authorized by the Engineer.

Trailer mounted barriers listed on the APL may be used at the option of the Contractor. Trailer mounted barriers listed on the APL must have an FHWA eligibility letter and be successfully crash tested in accordance with MASH TL-3 criteria. All trailer mounted barriers must be equipped with an APL listed truck mounted attenuator, an APL listed vehicle mounted arrow board and vehicle warning lights in accordance with this Section.

102-9.6.2.1 Temporary Barrier Meeting the Requirements of Standard Plans, Index 102-120 and 102-110: Ensure the marking requirements of the respective Index are met.

102-9.6.2.2: Proprietary Precast Temporary Concrete Barrier Fabricated prior to 2005: Submit a certification stating that all unmarked barrier units meet the requirements of the Specifications and the Standard Plans. Certifications will be project specific and non-transferable.

102-9.6.2.3 Proprietary Precast Temporary Concrete Barrier Fabricated in 2005 or later: Ensure each barrier unit has permanent clear markings, showing the manufacture date, serial number, manufacturer's name or symbol, and the APL number. Label the markings on a plate, plaque, or cast in the unit. Proprietary barrier fabricated prior to 2016 and marked with the "INDX 521" in lieu of the APL number will be permitted.

102-9.6.2.4 Temporary Concrete Barrier Repair: Before beginning the repair, remove all laitance, loose material, and any other deleterious matter to sound concrete or a minimum depth of one inch. Additionally, when reinforcing bars, inserts or weldments are exposed, remove the concrete to provide a minimum one inch clearance all around. Fill the repair area with an approved high performance concrete repair material in accordance with FDOT Specs 930-5 and the manufacturer's recommendations. Restore surfaces and edges to the original dimensions and shape of the barrier.

Repairs are not allowed on barrier units that have one or more of the following deficiencies: structural cracking or cracks that exist through the entire cross-section;
unit-to-unit connection assemblies or anchor slots are broken or no longer in a fixed position.

Do not paint repaired barriers.

102-9.7 Barrier Delineators: Install barrier delineators on top of temporary barrier and
vehicular LCDs meeting the requirements of FDOT Specs Section 705.

102-9.8 Temporary Glare Screen: Use temporary glare screens listed on the APL that meet the requirements of FDOT Specs Section 990. Furnish, install, maintain, remove and relocate glare screen systems in conjunction with temporary barrier at locations identified in the Plans.

The anchorage of the glare screen to the barrier must be capable of safely resisting an equivalent tensile load of 600 pounds per foot of glare screen, with a requirement to use a
minimum of three fasteners per barrier section.

When glare screen is utilized on temporary barrier, barrier delineators will not be required.

102-9.9 Temporary Crash Cushion (Redirective or Gating): Furnish, install, maintain and subsequently remove temporary crash cushions in accordance with the details and notes
shown in the Plans, Standard Plans, and requirements of the pre-approved alternatives listed on
the APL.

Temporary crash cushions can be either new or used functionally sound refurbished devices. Performance of intended function is the only condition for acceptance. All
metallic components must be galvanized in accordance with FDOT Specs Section 967.

Anchor abutting temporary barrier in accordance the Standard Plans or APL drawings, as required. Bidirectional installations must have a transition panel installed between
the crash cushion and the abutting barrier. Delineate the crash cushion in accordance with Section 544. Maintain the crash cushions until their authorized removal. Do not place any materials or equipment within the length of the crash cushion.

Remove temporary asphalt or concrete pads and repair all attachment scars to
permanent structures and pavements after crash cushion removal. Make necessary repairs due to defective material, work, or Contractor operations at no cost to the County. Restore crash
cushions damaged by the traveling public within 24 hours after notification as authorized by the Engineer.

102-9.10 Temporary Guardrail: Furnish temporary guardrail in accordance with the Plans and Standard Plans. Meet the requirements of FDOT Specs Section 536.

102-9.11 Arrow Board: Furnish arrow boards that meet the requirements of FDOT Specs Section 990 as required by the Plans and Standard Plans to advise approaching traffic of lane closures or shoulder work. Ensure that the arrow board display panel is raised to a fully upright position and is fully visible to motorists. Type B arrow boards may be used on

low to intermediate speed (0 mph to 50 mph) facilities or for maintenance or moving operations on any speed facility.
Type C arrow boards must be used for all other operations on high-speed (50 mph and greater)
facilities and may be substituted for Type B arrow boards on any speed facility.

102-9.12 Portable Changeable Message Sign (PCMS): Furnish PCMSs or truck mounted changeable message signs that meet the requirements of Section 990 as required by the Plans and FDOT Standard Plans to supplement other temporary traffic control devices used in work zones. Ensure that the PCMS display panel is raised to a fully upright position and is fully visible to motorists. Use PCMS with a minimum letter height of 18 inches. For facilities with posted speed limits of 45 mph or less, PCMS with a minimum letter height of 12 inches may be used.

Messages must have no more than two phases. The display time for each phase must be at least two seconds but no more than three seconds. The sum of the display time must be a maximum of six seconds.

102-9.13 Portable Regulatory Signs (PRS): Furnish PRSs that meet the requirements of FDOT Specs Section 990 as required by the Plans and Standard Plans. Ensure that the PRS sign panel is raised to a fully upright position and is fully visible to motorists.

Activate portable regulatory signs only during active work activities and deactivate when no work is being performed.

102-9.14 Radar Speed Display Unit (RSDU): Furnish RSDUs that meet the requirements of FDOT Specs Section 990 as required by the Plans and Standard Plans to inform motorists of the posted speed and their actual speed. Ensure that the RSDU display panel is mounted in accordance with the manufacturer's recommendations.

Activate the radar speed display unit only during active work activities and deactivate when no work is being performed.

102-9.15 Temporary Signalization and Maintenance: Provide temporary signalization and maintenance at existing, temporary, and new intersections including but not limited to the
following:

1. Installation of temporary poles and span wire assemblies as shown in the Plans,
2. Temporary portable traffic signals as shown in the Plans,
3. Adding or shifting signal heads,
4. Trouble calls,
5. Maintaining intersection and coordination timing and preemption devices. Coordination timing will require maintaining functionality of system communications.

Restore any loss of operation within 12 hours after notification. Provide alternate temporary traffic control until the signalization is restored.

Provide traffic signal equipment that meets the requirements of the FDOT Standard Plans and FDOT Specs Section 603-2. The Engineer may approve used signal equipment if it is in acceptable condition.
Replacement components for traffic signal cabinet assemblies will be provided by the maintaining agency. For temporary signals used for lane closure operations on two-lane, two-way roadways meet the requirements in 102-9.21.

102-9.16 Temporary Traffic Detection and Maintenance: Provide temporary traffic detection and maintenance at existing, temporary, and new signalized intersections. Provide temporary traffic detection equipment listed on the APL. Restore any loss of detection within
12 hours. Ensure 90% accuracy per signal phase, measured at the initial installation and after

any lane shifts, by comparing sample data collected from the detection system with ground truth data collected by human observation. Collect the sample and ground truth data for a minimum of five minutes during a peak and five minutes during an off-peak period with a minimum three
detections for each signal phase. Perform the test in the presence of the Engineer.

102-9.17 Truck Mounted Attenuators and Trailer Mounted Attenuators: Furnish, operate and maintain APL listed truck mounted and trailer mounted attenuators in accordance
with the manufacturer's recommendations.

For posted speeds of 50 mph or greater, use either truck mounted attenuators or
trailer mounted attenuators that meet TL-3 criteria. For posted speeds of 45 mph or less, use either truck mounted attenuators or trailer mounted attenuators that meet TL-2 or TL-3 criteria.

Attenuators will not be paid for separately. Include the cost of the truck with either a truck mounted attenuator or a trailer mounted attenuator in Maintenance of Traffic, lump sum. Payment includes all costs, including furnishing, operating maintaining and removal when no longer required, and all materials, labor, tools, equipment and incidentals required for
attenuator maintenance.

102-9.18 Temporary Raised Rumble Strip Set: Furnish, install, maintain, remove, and reinstall temporary raised rumble strips per the manufacturer's recommendations and in accordance with FDOT Standard Plans, Index 102-603.

The temporary raised rumble strip may be either a removable polymer striping tape or a molded engineered polymer material.

102-9.19 Automated Flagger Assistance Devices (AFAD): Furnish, install, maintain, remove, and relocate AFADs in accordance with the Plans, FDOT Standard Plans, Index 102-603, and APL vendor drawings.

Position AFADs where they are clearly visible to oncoming traffic. AFADs may be placed on the centerline if they have been successfully crash tested in accordance with MASH TL-3 criteria. A gate arm is required in accordance with FDOT Specs Section 990 if a single AFAD is used on the shoulder to control one direction of traffic.

The devices may be operated either by a single flagger at one end of the traffic
control zone, from a central location, or by a separate flagger near each device location. Use only flaggers trained in accordance with FDOT Specs Section 105 and in the operation of the AFAD. When in use, each AFAD must be in view of, and attended at all times by, the flagger operating the device.

Provide two flaggers on-site and use one of the following methods in the deployment of AFADs:

1. Place an AFAD at each end of the temporary traffic control zone, or
2. Place an AFAD at one end of the temporary traffic control zone and a
flagger at the opposite end.

A single flagger may simultaneously operate two AFADs as described in (1) or a single AFAD as described in (2) if all of the following conditions are met:

1. The flagger has an unobstructed view of the AFAD(s),
2. The flagger has an unobstructed view of approaching traffic in both directions,
3. For two AFADs, the AFADs are less than 800 feet apart. For one AFAD, the AFAD and the flagger are less than 800 feet apart.
4. Two flaggers are available on-site to provide normal flagging operations should an AFAD malfunction.

AFADs may be either a remotely controlled Stop/Slow AFAD mounted on either a trailer or a movable cart system, or a remotely controlled Red/Yellow Lens AFAD.

Illuminate the flagging station when the AFAD is used at night. When the AFAD is not in use, remove or cover signs and move the AFAD device outside the clear zone or shield
it with a barrier.

AFADs will not be paid for separately. AFADs may be used as a supplement or an alternate to flaggers in accordance with the Plans, FDOT Standard Plans, Index 102-603, and the APL vendor drawings. Include the cost for AFADs in Maintenance of Traffic, Lump Sum.

102-9.20 Temporary Lane Separator: Furnish, install, maintain, remove and relocate temporary lane separator in accordance with the Plans and FDOT Standard Plans, Index 102-600.

Anchor the portable temporary lane separator with a removable anchor bolt. Use epoxy on bridge decks where anchoring is not allowed. Remove the epoxy from the bridge deck by hydroblasting or other method approved by the Engineer.

102-9.21 Temporary Signals for Lane Closures on Two-Lane, Two-Way Roadways: Furnish, install, maintain, remove, and relocate temporary signals for lane closure operations on two-lane, two-way roadways at the locations shown in the Plans. Temporary signals may be used, at the Contractor's option, as an alternate to flaggers for lane closure operations on two-lane, two-way roadways in accordance with FDOT Standard Plans, Index 102-606. Temporary signals can either be portable signals or span wire signals and must be listed on the APL.

102-9.22 Type III Barricades: Use type III barricades in accordance with the TTCP and Standard Plans. Ensure stripes are sloping downward in the direction road users are to pass. Mount sign panels in accordance with the manufacturer's instructions. Do not place ballast on any rails, or higher than 13 inches above the driving surface. Do not splice the retroreflective sheeting.

102-10 Work Zone Pavement Marking.

102-10.1 Description: Furnish and install work zone pavement markings for MOT in construction areas and in close conformity with the lines and details shown in the Plans and Standard Plans.

Centerlines, lane lines, edge lines, stop bars, standard crosswalks, and turn arrows will be required in work zones prior to opening the road to traffic.

102.10.2 Painted Pavement Markings:

102-10.2.1 General: Use painted pavement markings meeting the requirements of Section 710. Use standard paint unless otherwise identified in the Plans or approved by the Engineer.

102-10.3 Removable Tape:

102-10.3.1 General: Use removable tape listed on the APL as shown in the Plans and meeting the requirements of FDOT Specs Section 990-4.

102-10.3.2 Application: Apply removable tape with a mechanical applicator to provide pavement lines that are neat, accurate and uniform. Equip the mechanical applicator with a film cut-off device and with measuring devices that automatically and accumulatively measure the length of each line placed within an accuracy tolerance of plus or minus 2%. Ensure removable tape adheres to the road surface. Removable tape may be placed by hand on short sections, 500 feet or less, if it is done in a neat accurate manner.

102-10.3.3 Retroreflectivity: Apply white and yellow pavement markings that will attain an initial retroreflectivity of not less than 300 mcd/lx·m^2 for white and contrast markings and not less than 250 mcd/lx·m^2 for yellow markings. Black portions of contrast tapes and black masking tapes must be non-reflective and have a reflectance of less than 5 mcd/lx m^2. At the end of the six month service life, the retroreflectance of white and yellow removable tape shall not be less than 150 mcd/lx·m^2.

102-10.3.4 Removability: Provide removable tape capable of being removed from bituminous concrete and portland cement concrete pavement intact or in substantially large strips, either manually or by a mechanical roll-up device, at temperatures above 40ºF, without the use of heat, solvents, grinding or blasting.

102-10.4 Temporary Raised Pavement Markers (RPMs): Use Class B RPMs except for work that consists of ground-in rumble strips at centerline locations. For ground-in rumble strips at centerline locations, use temporary RPMs in accordance with Section 710. Provide only temporary RPMs listed on the APL. Install all markers in accordance with the manufacturer's recommendations, the Standard Plans, and Section 706. After initial installation, replace broken or missing temporary RPMs in locations where more than three consecutive temporary RPMs are broken or missing at no expense to the County.

102-12 Submittals.

102-12.1 Submittal Instructions: Prepare a certification of quantities, using the County's current approved form, for certified in the Contract. Submit the certification of quantities to the Engineer. The County will not pay for any disputed items until the Engineer approves the certification of quantities.

102-13 Basis of Payment.

102-13.1 Maintenance of Traffic (General Work): All material, devices, and design of the MOT plan will be included in the lump sum cost of the maintenance of traffic pay item. The MOT pay item lump sum cost may include but not limited to the following:

102-13.26 Payment Items: Payment will be made under:

Maintenance of Traffic
Flaggers
Special Detour
Residential/Commercial Material for Driveway Maintenance
Pedestrian Special Detour
Traffic Control Officer
Temporary Highway Lighting
Work Zone Sign
Business Sign
Barrier Mounted Work Zone Sign
Temporary Barriers
Temporary Barrier wall
Temporary Lane Separator
Temporary Guardrail
Channelizing Devices
Arrow Board
Temporary Raised Pavement Markers
Temporary Crash Cushion, Gating
Temporary Crash Cushion, Redirective
Glare Screen
Portable Changeable Message Sign
Temporary Signalization and Maintenance
Temporary Traffic Detection and Maintenance
Type III Barricade
Way Roadways
Portable Regulatory Sign
Radar Speed Display Unit
Temporary Raised Rumble Strips
Painted Pavement Markings.
Thermoplastic Pavement Markings.

SECTION 110
CLEARING AND GRUBBING

110-1 Description.

Clear and grub within the areas shown in the Plans. Remove and dispose of all trees, stumps, roots and other such protruding objects, buildings, structures, appurtenances, existing flexible asphalt pavement, concrete, and other facilities necessary to prepare the area for the proposed construction. Remove and dispose of all product and debris not required to be salvaged or not required to complete the construction.

Perform miscellaneous work necessary for the complete preparation of the overall project site as specified in 110-10.

110-2 Standard Clearing and Grubbing.

110-2.1 Work Included: Completely remove and dispose of all buildings, timber, brush, trees, stumps, roots, rubbish, debris, tree trimming, sawcutting, existing flexible pavement and base, drainage structures, culverts, and pipes. Remove all other obstructions resting on or protruding through the surface of the existing ground and the surface of excavated areas.

Perform standard clearing and grubbing within the following areas:

1. All areas where excavation is to be done, including borrow pits, lateral ditches, right-of-way ditches, etc.
2. All areas where roadway embankments will be constructed.
3. All areas where structures will be constructed, including pipe culverts and other pipelines.

110-2.2 Depths of Removal of Roots, Stumps, and Other Debris: In all areas where excavation is to be performed, or roadway embankments are to be constructed, remove roots and other debris to a depth of 12 inches below the ground surface. Remove roots and other debris from all excavated material to be used in the construction of roadway embankment or roadway base. Plow the surface to a depth of at least 6 inches, and remove all roots thereby exposed to a depth of at least 12 inches. Completely remove and dispose of all stumps within the roadway right-of-way.

Remove all roots, etc., protruding through or appearing on the surface of the completed excavation within the roadway area and for structures, to a depth of at least 12 inches below the finished excavation surface.

Remove or cut off all stumps, roots, etc., below the surface of the completed excavation in borrow pits, material pits, and lateral ditches.

In borrow and material pits, do not perform any clearing or grubbing within 3 feet inside the right-of-way line.

Within all other areas where standard clearing and grubbing is to be performed, remove roots and other debris projecting through or appearing on the surface of the original ground to a depth of 12 inches below the surface, but do not plow or harrow these areas.

110-2.3 Boulders: Remove any boulders encountered in the roadway excavation (other than as permitted under the provisions of 120-7.2) or found on the surface of the ground. When approved by the Engineer place boulders in neat piles inside the right of way. The Contractor may stockpile boulders encountered in Department-furnished borrow areas, which are not suitable for use in the embankment construction, within the borrow area.

110-2.4 Asbestos Containing Materials (ACM) Not Identified Prior to the Work: When encountering or exposing any condition indicating the presence of asbestos, cease operations immediately in the vicinity and notify the Engineer, in accordance with 110-6.5.

110-3 Selective Clearing and Grubbing.

110-3.1 General: Remove and dispose of vegetation, obstructions, etc., as shown in the Plans. Provide acceptable fill material, and grade and compact holes or voids created by the

removal of the stumps. Perform all selective clearing and grubbing in accordance with ANSI A300.

No staging, storing, stockpiling, parking or dumping will be allowed in selective clearing and grubbing areas. Only mechanical equipment related to selective clearing and grubbing activities will be allowed in selective clearing and grubbing areas. Protect trees to remain from trunk, branch and root damage.

110-3.2 Protection of Plant Preservation Areas: Areas to remain natural may be designated in the Plans. No clearing and grubbing, staging, storage, stockpiling, parking or dumping is allowed in these areas. Do not bring equipment into these areas.

110-3.3 Tree Protection Barrier: Construct a tree protection barrier in accordance with FDOT Standard Plans Index 110-100 and the Plans. Maintain barrier for duration of the Contract.

110-3.4 Tree Root and Branch Pruning: When pruning cuts or root pruning to existing trees are shown in the Plans, work is to be supervised on site by an International Society of Arboriculture (ISA) Certified Arborist and performed in accordance with ANSI A300.

110-3.5 Tree Removal: Remove trees as shown in the Plans.

110-4 Protection of Property Remaining in Place.

Protect property to remain in place in accordance with 7-11.

110-5 Removal of Buildings.

110-5.1 Parts to be Removed: Completely remove all parts of the buildings, including utilities, plumbing, foundations, floors, basements, steps, connecting concrete sidewalks or other pavement, septic tanks, and any other appurtenances, by any practical manner which is not detrimental to other property and improvements.

Remove utilities to the point of connection to the utility authority's cut-in. After removing the sewer connections to the point of cut-in, construct a concrete plug at the cut-in point, as directed by the Engineer, except where the utility owners may elect to perform their own plugging. Contact the appropriate utility companies prior to removal of any part of the building to ensure disconnection of services.

Submit demolition schedule 15 working days before beginning any demolition or renovation of a building.

110-5.2 Removal by Others: Where buildings within the area to be cleared and grubbed are so specified to be removed by others, remove and dispose of any foundations, curtain walls, concrete floors, basements or other foundation parts which might be left in place after such removal of buildings by others.

110-6 Removal of Existing Bridges.

110-6.1 General: The work under this Article includes bridges, as defined in 1-3.

Remove and dispose of the materials from existing bridges. Remove

1. those bridges and approach slabs, or portions of bridges, shown in the Plans to be removed,
2. those bridges and approach slabs, or portions of bridges, found within the limits of the area to be cleared and grubbed, and directed by the Engineer to be removed,
3. those bridges and approach slabs, or portion of bridges, which are necessary to be removed in order to complete the work, and
4. other appurtenances or obstructions which may be designated in the Contract Documents to be included as an item of payment for the work under this Article.

Submit schedule information and demolition plan for approval 15 working days before beginning any demolition or renovation of any structures.

110-6.2 Method of Removal:

110-6.2.1 General: Remove the structures in such a way so as to leave no obstructions to any proposed new bridge or to any waterways. Pull, cut off, or break off pilings to the requirements of the permit or other Contract Documents, or if not specified, not less than 2 feet below the finish ground line. In the event that the Plans indicate channel excavation to be

done by others, consider the finish ground line as the limits of such excavation. For materials which are to remain the property of the Department or are to be salvaged for use in temporary bridges, avoid damage to such materials, and entirely remove all bolts, nails, etc. from timbers to be so salvaged. Mark structural steel members for identification as directed.

110-6.2.2 Removal of Steel Members with Hazardous Coatings: Submit to the Engineer for approval the "Contractor's Lead in Construction Compliance Program", QP2 certification from the Society for Protective Coatings (SSPC) from the firm actually removing and disposing of these steel members before any members are disturbed.

Vacuum power tool clean any coated steel member to bare metal as defined by SSPC-SP11 a minimum of 4 inches either side of any area to be heated (e.g. torch cutting, sawing, grinding, etc.) in accordance with 29 CFR 1926.354. Abrasive blasting is prohibited.

110-6.3 Partial Removal of Bridges: On concrete bridges to be partially removed and widened, remove concrete by manually or mechanically operated pavement breakers, by concrete saws, by chipping hammers, or by hydro-demolition methods. Do not use explosives. Where concrete is to be removed to neat lines, use concrete saws or hydro-demolition methods capable of providing a reasonably uniform cleavage face. If the equipment used will not provide a uniform cut without surface spalling, first score the outlines of the work with small trenches or grooves. For all demolition methods, submit for review and approval of the Engineer, a demolition plan that describes the method of removal, equipment to be used, types of rebar splices or couplers, and method of straightening or cutting rebar. In addition, for hydro-demolition, describe the method for control of water or slurry runoff and measures for safe containment of concrete fragments that are thrown out by the hydro-demolition machine.

110-6.4 Authority of U.S. Coast Guard: For bridges in navigable waters, when constructing the project under authority of a U.S. Coast Guard permit, the U.S. Coast Guard may inspect and approve the work to remove any existing bridges involved therein, prior to acceptance by the Department.

110-6.5 Asbestos Containing Materials (ACM) Not Identified Prior to the Work: When encountering or exposing any condition indicating the presence of asbestos, cease operations immediately in the vicinity and notify the Engineer.

Make every effort to minimize the disturbance of the ACM. Immediately provide provisions for the health and safety of all jobsite personnel and the public that may be exposed to any ACM. Provisions shall meet all applicable Federal, State, and Local Rules and Regulations regarding potentially hazardous conditions due to ACM.

The Engineer will notify the District Contamination Impact Coordinator (DCIC) who will engage the services of the Department's Contamination Assessment/Remediation Contractor (CAR). Provide access to the potential contamination area. Preliminary investigation by the CAR Contractor will determine the course of action necessary for site security and the steps necessary to resolve the contamination issue.

The CAR Contractor will perform an asbestos survey to delineate the asbestos areas, and identify any staging or holding areas that will be needed for assessment or abatement of the asbestos material.

The CAR Contractor will maintain jurisdiction over activities within areas contaminated with ACM including staging and holding areas. The CAR Contractor will be responsible for the health and safety of workers within these delineated areas. Provide continuous access to these areas for the CAR Contractor and representatives of regulatory or enforcement agencies having jurisdiction.

Coordinate with the CAR Contractor and Engineer to develop a work plan with projected completion dates for the final resolution of the contamination, in coordination with any regulatory agencies as appropriate. Use the work plan and schedule as a basis for planning the completion of all work efforts. The Engineer may grant 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. 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 inform the Prime Contractor when operations may resume in the affected area.

110-7 Removal of Existing Concrete.

Remove and dispose of existing rigid portland cement concrete pavement, sidewalk, slope pavement, driveways, ditch pavement, curb, and curb and gutter, etc.,

Remove all gravity walls, noise/sound walls, retaining walls, MSE walls, perimeter walls, and roadway concrete barriers, where shown in the Plans. All ancillary elements of these concrete features being removed including, but not limited to, leveling pads, copings, reinforcing steel or straps, footings, etc, are incidental and included in the cost of the removal.

110-8 Ownership of Materials.

Except as may be otherwise specified in the Contract Documents, take ownership of all buildings, structures, appurtenances, and other materials removed and dispose of them in accordance with 110-9.

110-9 Disposal of Materials.

110-9.1 General: Either stack materials designated to remain the property of the Department in neat piles within the right-of-way, load onto the Department's vehicles, or deliver to location designated in the Plans.

Dispose of timber, stumps, brush, roots, rubbish, and other material resulting from clearing and grubbing in areas and by methods meeting the applicable requirements of all Federal, State and Local Rules and Regulations. Do not block waterways by the disposal of debris.

With the approval of the Engineer, wood chips may be evenly distributed to a depth of no more than one inch in designated areas in the Department's right-of-way.

110-9.2 Burning Debris: Contractor shall submit a request in writing for any burning debris. County to approval burning prior to the Contractor starting any burning.

110-9.3 Timber and Crops: The Contractor may sell any merchantable timber, fruit trees, and crops that are cleared under the operations of clearing and grubbing for his own benefit, subject to the provisions of 7-1.2, which may require that the timber, fruit trees, or crops be burned at or near the site of their removal, as directed by the Engineer. The Contractor is liable for any claims which may arise pursuant to the provisions of this Subarticle.

110-9.4 Disposal of Treated Wood: Treated wood must be handled and disposed of properly during removal. Treated wood should not be cut or otherwise mechanically altered in a manner that would generate dust or particles without proper respiratory and dermal protection. The treated wood must be disposed of in at least a lined solid waste facility or through recycling/reuse. Treated wood shall not be disposed by burning or placement in a construction and demolition (C&D) debris landfill.

110-9.5 Hazardous Materials/Waste: Handle, transport, and dispose of hazardous materials/waste in accordance with all Federal, State, and Local Rules and Regulations including, but not limited to, the following:

1. SSPC Guide 7
2. Federal Water Pollution Control Act, and
3. Resource Conservation and Recover Act (RCRA).

Accept responsibility for the collection, sampling, classification, packaging, labeling, accumulation time, storage, manifesting, transportation, treatment and disposal of hazardous materials/waste, both solid and liquid. Separate all solid and liquid waste and collect all liquids used at hygiene stations and handle as hazardous materials/waste. Obtain written approval from the Engineer for all hazardous materials/waste stabilization methods before

implementation.

Obtain an EPA/FDEP Hazardous Waste Identification Number (EPA/FDEP ID Number) before transporting and/or disposal of any hazardous materials/waste.

List the Department as the generator for hazardous materials/waste resulting from removal or demolition of Department materials.

Submit the following for the Engineers' approval before transporting, treatment or disposal of any hazardous materials/waste:

1. Name, address and qualifications of the transporter,
2. Name, address and qualifications of the treatment facility,
3. Proposed treatment and/or disposal of all Hazardous Materials/Waste.
4. EPA/FDEP Hazardous Waste Identification Number Application Form.
5. Manifest forms.

Transport all hazardous materials/waste in accordance with applicable Federal, State, and Local Rules and Regulations including, but not limited to, the 40 CFR 263 Standards.

Submit all final Hazardous Materials/Waste manifest/bills of lading and certificates of disposal to the Engineer within 21 days of each shipment.

110-9.5.1 Steel Members with Hazardous Coating: Dispose of steel members with hazardous coating in one of the following manners:

1. Deliver the steel members and other hazardous waste to a licensed recycling or treatment facility capable of processing steel members with hazardous coating.
2. Deliver the steel members with hazardous coating to a site designated by the Engineer for use as an offshore artificial reef. Deliver any other hazardous materials/waste to a licensed hazardous materials/waste recycling treatment facility.

Dismantle and/or cut steel members to meet the required dimensions of the recycling facility, treatment facility or offshore artificial reef agency.

All compensation for the cost of removal and disposal of hazardous materials/waste will be included in the Cost of Removal of Existing Structures.

110-9.5.2 Certification of Compliance: Submit certification of Compliance from the firm actually removing and disposing of the hazardous materials/waste stipulating, the hazardous materials/waste has been handled, transported and disposed of in accordance with this Specification. The Certification of Compliance shall be attested to by a person having legal authority to bind the company.

Maintain all records required by this Specification and ensure these records are available to the Department upon request.

110-10 Miscellaneous Operations.

110-10.1 Water Wells Required to be Plugged: Fill or plug all water wells within the right-of-way, including areas of borrow pits and lateral ditches, that are not to remain in service, in accordance with applicable Federal, State, and Local Rules and Regulations.

Cut off the casing of cased wells at least 12 inches below the ground line or 12 inches below the elevation of the finished excavation surface, whichever is lower. Water wells, as referred to herein, are defined either as artesian or non-artesian, as follows:

1. An artesian well is an artificial hole in the ground from which water supplies may be obtained and which penetrates any water-bearing rock, the water in which is raised to the surface by natural flow or which rises to an elevation above the top of the water-bearing bed. Artesian wells are further defined to include all holes drilled as a source of water that penetrate any water-bearing beds that are a part of the artesian water system of Florida, as determined by representatives of the applicable Water Management District.
2. A non-artesian (water-table) well is a well in which the source of water is an unconfined aquifer. The water in a non-artesian well does not rise above the source bed.

110-10.2 Leveling Terrain: Within the areas between the limits of construction and the outer limits of clearing and grubbing, fill all holes and other depressions, and cut down all

mounds and ridges. Make the area of a sufficient uniform contour so that the Department's subsequent mowing and cutting operations are not hindered by irregularity of terrain. Perform this work regardless of whether the irregularities were the result of construction operations or existed originally.

110-10.3 Mailboxes: When the Contract Documents require furnishing and installing mailboxes, permit each owner to remove the existing mailbox. Work with the Local Postmaster to develop a method of temporary mail service for the period between removal and installation of the new mailboxes. Install the mailboxes in accordance with the FDOT Standard Plans.

110-11 Method of Measurement.

110-11.1 Clearing and Grubbing: The quantity to be paid for will be the lump sum quantity and may include but not limited to the following:

110-12 Basis of Payment.

110-12.1 Clearing and Grubbing:

110-12.1.1 Lump Sum Payment: Price and payment will be full compensation for all clearing and grubbing required for the construction of the drainage and roadway items and ditches, channel changes, or other outfall areas, and any other clearing and grubbing indicated, or required for the construction of the entire project, including all necessary hauling, furnishing equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain, tree removal, and the landscaping work of trimming, etc.

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110-12.8 Payment Items: Payment may include but not limited to these items below be made under:

Clearing and Grubbing
Removal of Existing Bridges
Removal of Existing Concrete
Plugging Water Wells
Plugging Water Wells
Mailboxes
Tree Protection Barrier
Tree Root and Tree trimming
Tree Removal
Saw cutting
Disposal and Disposal Fees

SECTION 160
STABILIZATION

160-1 Description.

Stabilize designated portions of the roadbed to provide a firm and unyielding subgrade, having the required bearing value specified in the Plans.

160-2 Materials.

160-2.1 Commercial Material: Meet the requirements of FDOT Specs Section 914-2.1.

160-2.2 Local Material: Submit test results to the Engineer at least 14 days prior to the stabilization operation.

160-2.2.1 Local Stabilizing Material: Sample and test material from each source and meet the requirements of FDOT Specs Section 914. The Engineer will verify the Quality Control (QC) test results meet the requirements of FDOT Specs Section 914. If the QC and Verification results do not compare, the Engineer will take one additional sample of material from the source in question and the
State Materials Office (SMO) or an AASHTO accredited laboratory designated by the SMO will perform Resolution testing. If the Resolution test results satisfy the required criteria, material from that source will be verified and accepted. If the Resolution test results do not meet the required criteria, reject the material.

160-2.2.2 Reclaimed Asphalt Pavement (RAP): Obtain the Engineer's approval in writing for the option to use 100% RAP material. Material must be milled and stockpiled without blending or contaminating with any other material.

160-2.2.3 Reclaimed Asphalt Pavement (RAP) Blended Material: RAP blended material is defined as material meeting the requirements of 914-1 and 914-2.2 except for the limits for organic content. If the RAP blended material meets the requirements of 914-1 and 914-2, then the blended material will be classified as local stabilizing material. Provide test results to the Engineer and obtain their approval in writing before using RAP blended material. The Engineer will verify that the QC test results meet the acceptance criteria, otherwise the Engineer will perform Resolution testing procedures specified in 160-2.2.1.

160-2.3 Existing Base: Obtain the Engineer's approval in writing before using existing base. When the material from an existing base is used as all, or a portion, of the stabilizing additives, no further testing is required unless directed by the Engineer.

160-2.4 Granular Subbase: The Engineer may allow, at no additional cost to the County, the substitution of 6 inches of granular subbase meeting the requirements of FDOT Specs 290-2 and 290-3, only when 12 inches of Type B stabilization requiring a Limerock Bearing Ratio (LBR) value of 40 is specified in accordance with FDOT Standard Plans, Index 120-001.

160-3 Construction Methods.

160-3.1 General: Prior to the beginning of stabilizing operations, construct the area to be stabilized to an elevation such that, upon completion of stabilizing operations, the completed stabilized subgrade will conform to the lines, grades, and cross-section shown in the Plans. Prior to spreading any additive stabilizing material, bring the surface of the roadbed to a plane approximately parallel to the plane of the proposed finished surface.

Construct mainline pavement lanes, turn lanes, ramps, parking lots, concrete box culverts, retaining wall systems, shoulder-only areas, sidewalk, and shared use path areas meeting the requirements of 120-8.1, except replace "embankment" with "subgrade".

Isolated mixing operations will be considered as separate LOTs. Curb pads and shoulders compacted separately shall be considered separate LOTs. Isolated compaction operations will be considered as separate LOTs. For multiple phase construction, a LOT shall not extend beyond the limits of the phase.

160-3.2 Application and Acceptance of Stabilizing Material: After completing the roadbed grading operations, determine the type and quantity (if any) of stabilizing material necessary for compliance with the bearing value requirements. Before using any Fossil Fuel Combustion Products (FFCPs), submit documentation, at the preconstruction meeting or no later than 30 days prior to delivery of FFCP's to the project, signed and sealed by the Specialty Engineer that these materials meet the requirements of 403.7047 F.S. Notify the Engineer of the approximate quantity to be added before spreading. When additive stabilizing materials are required, spread the material uniformly over the area to be stabilized.

The Engineer may perform Independent Verification (IV) sampling and testing if variability in the stabilizing material is observed during inspection after spreading on the roadway. If the IV test results do not meet the requirements of FDOT Specs Section 914, then remove and
replace the failing LOTs with acceptable material. The Engineer reserves the right to reject stabilizing material that contains excessive deleterious substances.

160-3.3 Mixing: Perform mixing using rotary tillers, a plant or other equipment meeting the approval of the Engineer. The subgrade may be mixed in one course if the equipment and method of construction provides the uniformity, particle size limitation, compaction and other desired results of 160-4. Thoroughly mix the area to be stabilized throughout the entire depth and width of the stabilizing limits.

Perform the mixing operations, as specified, (either in place or in a plant) regardless of whether the existing soil, or any select soils placed within the limits of the stabilized sections, have the required bearing value without the addition of stabilizing materials. **160-3.4 Mixed Material Requirements:** At the completion of the mixing, ensure the gradation of the material within the limits of the area being stabilized is such that 97% will pass a 3-1/2 inch sieve. Break down or remove from the stabilized area materials, including clay lumps or lumps made of clay-size particles (any particle size 2 microns or less), not meeting the gradation requirements. After mixing, remove any existing lumps of clay or clay-sized particles greater than one inch that do not meet the requirements of 160-3.2 or this Section from the stabilized area. The final product must meet the acceptance requirements of 160-4.

160-3.4.1 Classification and Bearing Value: Meet the soil utilization and bearing value requirements for the subgrade in accordance with 160-4.

160-3.4.2 Compaction: After completing the mixing operations and satisfying the requirements for bearing value, uniformity, and particle size, compact the materials at a moisture content permitting the specified compaction in 160-4.2.3. If the moisture content of the material is improper for attaining the specified density, either add water or allow the material to dry until reaching the proper moisture content for the specified compaction.

160-3.4.3 Finish Grading: Shape the completed stabilized subgrade to conform with the finished lines, grades, and cross-section indicated in the Plans. Check the subgrade using elevation stakes or other means approved by the Engineer.

160-3.4.4 Condition of Completed Subgrade: After completing the stabilizing and compacting operations, ensure that the subgrade is firm and substantially unyielding to the extent that it will support construction equipment and will have the bearing value required by the Plans.

Remove all soft and yielding material, and any other portions of the subgrade which will not compact readily, and replace it with suitable material so that the whole subgrade is brought to line and grade, with proper allowance for subsequent compaction.

160-3.4.5 Maintenance of Completed Subgrade: After completing the subgrade as specified above, maintain it free from ruts, depressions, and any damage resulting from the hauling or handling of materials, equipment, tools, etc. The Contractor is responsible for maintaining the required density until the subsequent base or pavement is in place including any repairs, replacement, etc., of curb and gutter, sidewalk, etc., which might become necessary in order to recompact the subgrade in the event of underwash or other damage occurring to the previously compacted subgrade. Perform any such recompaction at no expense to the County. Construct and maintain ditches and drains along the completed subgrade section.

160-4 Acceptance Program for Mixed Materials.

160-4.1 General Requirements:

160-4.1.1 Initial Equipment Comparison: Meet the requirements of FDOT Spec Section 120-10.1.1.

160-4.1.2 Initial Production LOT: Meet the requirements of FDOT Spec Section 120-10.1.2.

1**60-4.1.3 Density over 105%:** Meet the requirements of FDOT Spec Section 120-10.1.3.

160-4.1.4 Quality Control Tests:

160-4.1.4.1 Modified Proctor Maximum Density Determination: Collect enough material to split and create three separate samples. Determine test locations, including stations and offsets, using the Random Number generator approved by the County. Retain the Verification and Resolution samples for the County until the Engineer accepts the LOTs represented by the samples. Determine modified Proctor maximum density and optimum moisture content by sampling and testing the material in accordance FM 1-T180.

160-4.1.4.2 Density Testing Requirements: Meet the requirements of FDOT Spec Section 120-10.1.4.2.

160-4.1.4.3 Bearing Value Requirements: Test the stabilized subgrade sample collected in 160-4.1.4.1 to determine the LBR in accordance with FM 5-515. Within the entire limits of the width and depth of the areas to be stabilized, obtain the required minimum bearing value at the frequency in 160-4.4.1. For any area where the bearing value obtained is deficient from the value indicated in the Plans, in excess of the tolerances established herein, spread and mix additional stabilizing material in accordance with 160-3.3. Perform this reprocessing for the full width of the roadway being stabilized and longitudinally for a distance of 50 feet beyond the limits of the area in which the bearing value is deficient.

Determine the quantity of additional stabilizing material to be used in reprocessing.

160-4.1.4.3.1 Under-tolerances in Bearing Value Requirements: The under-tolerances are allowed for the following specified Bearing Values:

Specified Bearing Value	Under-tolerance
LBR 40	5.0
LBR 35	4.0
LBR 30 (and under)	2.5

160-4.1.4.3.2 Unsoaked LBR Requirements: If unsoaked LBR is desired, submit request for approval to the Engineer. Upon approval by the Engineer to consider the use of unsoaked LBR, randomly sample and test from three locations in the initial LOT for both soaked and unsoaked LBR in accordance with FM 5-515. Ensure all of the tests achieves the LBR value shown in the table below. Continue testing unsoaked LBR at the frequency shown in 160-4.4.1. Discontinue unsoaked LBR testing if any unsatisfactory QC LBR test result is obtained or resolution determines an unsatisfactory LBR.

The following unsoaked bearing value requirement is based on tests performed on samples obtained after completing mixing operations:

Specified Bearing Value	Unsoaked Bearing Value Required	Under-tolerance
LBR 40	LBR 43	0.0

160-4.1.4.4 Soil Classification and Organic Content Testing: Perform soil classification tests on the sample collected in 160-4.1.4.1, in accordance with AASHTO T88, AASHTO T89, AASHTO T90, and FM 1-T267. The Engineer may waive the soil classification and organic content testing requirements for existing base or granular subbase materials. Classify soils in accordance with AASHTO M145 to determine compliance with soil utilization requirements as specified in Standard Plans, Index 120-001. If the stabilizing material used is 100% RAP or RAP blended material, then replace FM 1-T267 with FM 5-563 (excluding gradation analysis). The following testing requirements must be met.

Test Method	Criteria
AASHTO M145	Soil Symbol = S
FM 1-T267	Average of 3 Organic Content $\leq$ 2.5%
	Individual Organic Content Result $\leq$ 4.0%
AASHTO T89	Liquid Limit $\leq$ 30
AASHTO T90	Plastic Index $\leq$ 8
FM 5-563*	Asphalt Content $\leq$ 4.0%

~~* Replace FM 1-T 267 with FM 5-563 (excluding gradation analysis) for 100% RAP or RAP blended material~~

160-4.1.5 County Verification: Meet the requirements of 120-10.1.5 except the Engineer will conduct the Verification tests in order to accept all materials and work associated with 160-4.1.4.

160-4.1.6 Reduced Testing Frequency: Meet the requirements of 120-10.1.6.

160-4.1.7 Payment for Resolution Tests: Meet the requirements of 120-10.1.7.

160-4.2 Mixing Depth Requirements: Report depth requirements in the Earthwork Records System (ERS) measured to the nearest 0.25 inch. The difference between the individual measured depth thickness on the roadway and the plan target thickness must not exceed 2 inches. The difference between the LOT average (average of the three individual measured depth thickness) and the plan target thickness must not exceed 1 inch. No undertolerance of mixing depth is allowed.

As an exception to the above mixing requirements, where the subgrade is of rock, the Engineer may waive the mixing operations (and the work of stabilizing), and the County will not pay for stabilization for such sections of the roadway.

Meet the required Plan mixing-depths by measuring from the proposed final grade line. Determine test locations, including stations and offsets, using the Random Number

generator approved by the County. Notify the Engineer a minimum of 24 hours before checking mixing depths. Record results on County approved forms.

160-4.3 Density Acceptance Criteria:

160-4.3.1 General: Within the entire limits of the width and depth of the areas to be stabilized, other than as provided in 160-4.3.2, obtain a minimum density at any location of 98% of the Modified Proctor maximum density as determined by FM 1-T 180.

160-4.3.2 Exceptions to Density Requirements: The Contractor need not obtain the minimum density specified in 160-4.3.1 in the upper 6 inches of areas to be grassed under the same Contract. Compact these areas to a reasonably firm condition as directed by the Engineer.

160-4.4 Additional Requirements:

160-4.4.1 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.

<table>
<tr><th>Test Name</th><th>Quality Control</th><th>Verification</th><th>Verification for Shoulder-Only, Shared Use Path and Sidewalk Construction</th></tr>
<tr><td>Modified Proctor Maximum Density</td><td rowspan="5">One per two consecutive LOTs</td><td rowspan="5">One per eight consecutive LOTs</td><td rowspan="5">One per four LOTs</td></tr>
<tr><td>LBR</td></tr>
<tr><td>Gradation, LL/PI, and Soil Classification</td></tr>
<tr><td>Organic Content</td></tr>
<tr><td>Asphalt Content*</td></tr>
<tr><td>Density</td><td>One per LOT</td><td>One per four LOTs</td><td>One per two LOTs</td></tr>
<tr><td>Stabilizing Mixing Depth</td><td>Three per 500 feet</td><td>Witness QC</td><td>Witness QC</td></tr>
<tr><td colspan="4">*Replace organic content with asphalt content for 100% RAP or RAP blended material only.</td></tr>
</table>

160-4.5 Verification Comparison Criteria and Resolution Procedures:

160-4.5.1 Bearing Value: The Engineer will collect a sample at a location other than the location where the sample was collected in 160-4.1.4.1, and test the stabilized subgrade for determination of the LBR in accordance with FM 5-515. The Engineer will select test locations, including stations and offsets, using a Random Number generator, based on the LOTs under consideration.

160-4.5.1.1 Unsoaked LBR: The Engineer will sample and test the initial LOT for one soaked and one unsoaked LBR if consideration of the unsoaked LBR has been approved.

160-4.5.1.2 Resolution Procedure: If the County's Verification test meets the requirements of 160-4.1.4.3, the Engineer will accept the corresponding LOTs. Otherwise, the Engineer will collect an additional sample in the same LOT the Verification sample was obtained. SMO or an AASHTO accredited laboratory designated by SMO will

perform Resolution testing on the additional sample. The material will be sampled and tested in accordance with FM 5-515.

If the resolution testing results meet the requirements of 160-4.1.4.3, then the Engineer will accept the LOTs in question. Otherwise reprocess the corresponding LOTs in accordance with 160-3 and retest in accordance with 160-4.1.4.3.

160-4.5.2 Modified Proctor Maximum Density Determination: Meet the requirements of 120-10.4.1 except replace FM 1-T099 with FM 1-T180.

160-4.5.3 Density Testing: Meet the requirement of FDOT Spec Section 120-10.4.2

160-4.5.4 Soil Classification: Meet the requirements of FDOT Spec Section 120-10.4.3 with the exception that the limits will be in accordance with 160-4.1.4.4.

160-4.5.5 Organic Content: Meet the requirements of FDOT Spec Section 120-10.4.4 with the exception that the limits will be in accordance with 160-4.1.4.4.

160-4.5.6 Asphalt Content: If the material used to stabilize is 100% RAP or RAP blended material, meet the requirement of 120-10.4.4, except replace FM 1-T267 with FM 5-563 (exclude gradation analysis) and meet the limits of 160-4.1.4.4.

160-4.5.7 Mixing Depth: The Engineer will witness the Contractor's mixing depth checks to ensure compliance with 160-4.2. The Engineer will select test locations, including stations and offsets, using a Random Number generator. The County will witness the mixing depth checks.

1. If the depth checks meet the requirements of 160-4.2, the Engineer will accept that 500-foot section.
2. If the depth checks confirm shallow depth, re-mix the 500-foot section to an appropriate depth and re-measure in accordance with 160-4.2. The Engineer will repeat the witness process.
3. If the depth checks confirm extra deep mixing, conduct an additional QC density test after compaction for the bottom 12 inches of the subgrade for that 500-foot section in addition to a QC density test for the top 12 inches. The additional density test must meet the requirements of 160-4.3.

160-4.6 Disposition of Defective Materials: Meet the requirements of 120-10.5.

160-5 Method of Measurement.

The quantity to be paid for will be the plan quantity, in square yards, completed and accepted.

160-6 Basis of Payment.

Price and payment will constitute full compensation for all work and materials specified in this Section, including furnishing, spreading and mixing of all stabilizing material required and any reprocessing of stabilization areas necessary to attain the specified bearing value. The County will make full payment for any areas where the existing subgrade materials meet the design bearing value requirements without the addition of stabilizing additives, as well as areas where the Contractor may elect to place select high-bearing materials from other sources within the limits of the stabilizing.

If the item of borrow excavation is included in the Contract, any stabilizing materials obtained from designated borrow areas will be included in the pay quantity for borrow excavation.

Payment will be made under:

Stabilization - per square yard.

SECTION 204
GRADED AGGREGATE BASE

204-1 Description.

Construct a base course composed of graded aggregate.

204-2 Materials.

Use graded aggregate material, produced from Department approved sources, which yields a satisfactory mixture meeting all the requirements of these Specifications after it has been crushed and processed as a part of the mining operations.

The Contractor may furnish the material in two sizes of such gradation that, when combined in a central mix plant pugmill, the resultant mixture meets the required specifications.

Use graded aggregate base material of uniform quality throughout, substantially free from vegetable matter, shale, lumps and clay balls, and having a Limerock Bearing Ratio value of not less than 100. Use material retained on the No. 10 sieve composed of aggregate meeting the following requirements:

Soundness Loss, Sodium, Sulfate: AASHTO T104 ..... 15%

Percent Wear: AASHTO T96 (Grading A)

Group 1 Aggregates 45%

Group 2 Aggregates 65%

Group 1: This group of aggregates is composed of limestone, marble, or dolomite.

Group 2: This group of aggregates is composed of granite, gneiss, or quartzite.

Use graded aggregate base material meeting the following gradation:

Sieve Size	Percent by Weight Passing
2 inch	100
1 1/2 inch	95 to 100
3/4 inch	65 to 90
3/8 inch	45 to 75
No. 4	35 to 60
No. 10	25 to 45
No. 50	5 to 25
No. 200	0 to 10

For Group 1 aggregates, ensure that the fraction passing the No. 40 sieve has a Plasticity Index (AASHTO T90) of not more than 4.0 and a Liquid Limit (AASHTO T89) of not more than 25, and contains not more than 67% of the weight passing the No. 200 sieve.

For Group 2 aggregates, ensure that the material passing the No. 10 sieve has a sand equivalent (AASHTO T176) value of not less than 28.

The Contractor may use graded aggregate of either Group 1 or Group 2, but only use one group on any Contract. (Graded aggregate may be referred to hereinafter as “aggregate”.)

204-3 Equipment.

Provide equipment meeting the requirements of FDOT Specs Section 200-3.

204-4 Transporting Aggregate.

Transport aggregate as specified in FDOT Specs Section 200-4.

204-5 Spreading Aggregate.

Spread aggregate as specified in FDOT Specs Section 200-5.

204-6 Compacting and Finishing Base.

204-6.1 General: Meet the requirements of FDOT Specs Section 200-7.1 with density requirements of 204-
6.3.

204-6.1.1 Single-Course Base: Construct as specified in FDOT Specs Section 200-6.1.1.

204-6.1.2 Multiple-Course Base: Construct as specified in FDOT Specs Section 200-6.1.2.

204-6.2 Moisture Content: Meet the requirements of FDOT Specs Section 200-6.2.

204-6.3 Density Requirements: After attaining the proper moisture conditions, uniformly compact the material to a density of not less than 100% of the maximum density as determined by FM 1-T 180, Method D. For shoulder only areas and shared use paths, obtain a minimum density of 98% of the maximum density as determined by FM 1-T 180, Method D.

204-6.4 Density Tests: Meet the requirements of FDOT Specs Section 200-7.2.2.

204-6.5 Correction of Defects: Meet the requirements of FDOT Specs Section 200-6.4.

204-6.6 Dust Abatement: Minimize the dispersion of dust from the base material during construction and maintenance operations by applying water or other dust control materials.

204-7 Testing Surface.

Test the surface in accordance with the requirements of FDOT Specs Section 200-7.

204- Priming and Maintaining.

Meet the requirements of FDOT Specs Section 200-8.

204- Thickness Requirements.

Meet the requirements of FDOT Specs Section 285-6.

204-10 Calculations for Average Thickness of Base.

Calculations for determining the average thickness of base will be made in accordance with 285-7.

204-11 Method of Measurement.

204-11.1 General: The quantity to be paid for will be the plan quantity area, in square yards, completed and accepted.

204-11.2 Authorized Normal Thickness Base: The surface area of authorized normal thickness base will be the plan quantity area, omitting any areas not allowed for payment under the provisions of 204-9 and omitting areas which are to be included for payment under 204-11.3. The area for payment, of authorized normal thickness base, will be the surface area determined as provided above, adjusted by adding or deducting, as appropriate, the area of base represented by the difference between the calculated average thickness, determined as provided in 204-10, and the specified normal thickness, converted to equivalent square yards of normal thickness base.

204-11.3 Authorized Variable Thickness Base: As specified in FDOT Specs Section 200-10.3.

204-12 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section, including dust abatement, correcting all defective surface and deficient thickness, removing cracks and checks and the additional aggregate required for such crack elimination.

Payment will be made under: per square yard.

SECTION 334
SUPERPAVE ASPHALT CONCRETE

334-1 Description.

334-1.1 General: Construct a Superpave Asphalt Concrete pavement with the type of mixture specified in the Contract Documents, or when offered as alternates, as selected. Superpave mixes are identified as Type SP-9.5, Type SP-12.5 or Type SP-19.0.

Obtain Superpave Asphalt Concrete from a plant that is currently on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105. Producers must meet the requirements of Section 320 for plant and equipment and the general construction requirements of Section 330.

334-1.2 Traffic Levels: The requirements for Type SP Asphalt Concrete mixtures are based on the design traffic level of the project. The traffic levels for the project are as specified in the Contract Documents.

334-1.3 Gradation Classification: The Superpave mixes are classified as fine and are defined in 334-3.2.2.

The equivalent AASHTO nominal maximum aggregate size Superpave mixes are as follows:

Type SP-9.5..... 9.5 mm
Type SP-12.5..... 12.5 mm
Type SP-19.0..... 19.0 mm

334-1.4 Thickness: The total thickness of the Type SP asphalt layers will be the plan thickness as shown in the Contract Documents. Before paving, propose a thickness for each individual layer meeting the requirements of this specification, which when combined with other layers (as applicable) will equal the plan thickness. For construction purposes, the plan thickness and individual layer thickness will be converted to spread rate based on the maximum specific gravity of the asphalt mix being used, as well as the minimum density level, as shown in the following equation:

$$\text{Spread rate (lbs/yd}^2\text{)} = t \times G_{mm} \times 43.3$$

Where: t = Thickness (in.) (plan thickness or individual layer thickness)

G_{mm} = Maximum specific gravity from the verified mix design

The weight of the mixture shall be determined as provided in 320-3.2. For target purposes only, spread rate calculations should be rounded to the nearest whole number.

Note: Plan quantities are based on a G_{mm} of 2.540, corresponding to a spread rate of 110 lbs/yd^2-in. Pay quantities will be based on the actual maximum specific gravity of the mix being used.

334-1.4.1 Layer Thicknesses: The allowable layer thicknesses for Type SP Asphalt Concrete mixtures are as follows:

Type SP-9.5.....1 to 1-1/2 inches
Type SP-12.5..... 1-1/2 to 2-1/2 inches
Type SP-19.0..... 2 to 4 inches

In addition to the minimum and maximum thickness requirements, the following restrictions are placed on mixes when used as a structural course:

Type SP-9.5 - Limited to the top two structural layers, two layers maximum.

Type SP-9.5 - Do not use on Traffic Level D and E applications.

Type SP-19.0 - Do not use in the final (top) structural layer below FC-5 mixtures. Type SP-19.0 mixtures are permissible in the layer directly below FC-9.5 and FC-12.5 mixtures. Do not use in the final (top) layer of shoulders.

334-1.4.2 Additional Requirements: The following requirements also apply to Type SP Asphalt Concrete mixtures:

1. A minimum 1-1/2 inch initial lift is required over an Asphalt Membrane Interlayer (AMI).

2. When construction includes the paving of adjacent shoulders (less than or equal to 5 feet wide), the layer thickness for the upper pavement layer and shoulder must be the same and paved in a single pass, unless called for differently in the Contract Documents.

3. All overbuild layers must be Type SP Asphalt Concrete designed at the traffic level as stated in the Contract Documents. Use the minimum and maximum layer thicknesses as specified above unless called for differently in the Contract Documents. On variable thickness overbuild layers, the minimum and maximum allowable thicknesses will be as specified below, unless called for differently in the Contract Documents.

Type SP-9.5..... 3/8 to 2 inches
Type SP-12.5..... 1/2 to 3 inches
Type SP-19.0.....1-1/2 to 4 inches

4. Variable thickness overbuild layers constructed using a Type SP-9.5 or SP-12.5 mixtures may be tapered to zero thickness provided the contract documents require a minimum of 1-1/2 inches of dense-graded mix placed over the variable thickness overbuild layer.

334-2 Materials.

334-2.1 General Requirements: Meet the material requirements specified in Division III. Specific references are as follows:

Superpave PG Asphalt Binder .....Section 916
Coarse Aggregate.....Section 901
Fine Aggregate.....Section 902

334-2.2 Superpave Asphalt Binder: Unless specified otherwise in the Contract Documents, use an asphalt binder grade as determined from Table 334-1.

334-2.3 Reclaimed Asphalt Pavement (RAP) Material:

334-2.3.1 General requirements: RAP may be used as a component of the asphalt mixture subject to the following requirements:

1. When using a PG 76-22 asphalt binder, limit the amount of RAP material used in the mix to a maximum of 20% by weight of total aggregate. As an exception, amounts greater than 20% RAP by weight of total aggregate can be used if no more than 20% by weight of the total asphalt binder comes from the RAP material. RAP is not allowed in mixtures containing High Polymer asphalt binder. High Polymer asphalt is defined in Section 916.

2. Assume full responsibility for the design, production and construction of asphalt mixes which incorporate RAP as a component material.

3. Use RAP from a Department approved stockpile or millings from a Department project.

4. Provide stockpiled RAP material that is reasonably consistent in characteristics and contains no aggregate particles which are soft or conglomerates of fines.

5. Provide RAP material having a minimum average asphalt binder content of 4.0% by weight of RAP. As an exception, when using fractionated RAP, the minimum average asphalt binder content for the coarse portion of the RAP shall be 2.5% by weight of the coarse portion of the RAP. The coarse portion of the RAP shall be the portion of the RAP retained on the No. 4 sieve. The Engineer may sample the stockpiles to verify that this requirement is met.

334-2.3.2 Material Characterization for Mix Design: Assume responsibility for establishing the asphalt binder content, gradation, and bulk specific gravity (G_{sb}) of the RAP material based on a representative sampling of the material by roadway cores or stockpile samples. For roadway core samples, assume responsibility for the degradation that will occur during the milling operation.

334-2.3.3 RAP Stockpile Approval: Prior to the incorporation of RAP into the asphalt mixture, stockpile the RAP material and obtain approval for the stockpile by one of the following methods:

1. Continuous stockpile: When RAP is obtained from one or multiple sources and is either processed, blended, or fractionated, and stockpiled in a continuous manner, assure an adequate number of test results are obtained for stockpile approval. Test the RAP material for gradation and asphalt content at a minimum frequency of one sample per 1000 tons with a minimum of six test results. Test the RAP material for G_{mm} (for G_{sb} determination) at a minimum frequency of one sample per 5000 tons with a minimum of two test results. Based on visual inspection and a review of the test data, the Engineer will determine the suitability of the stockpiled material. In addition, address the details and specifics of the processing, sampling, testing and actions to be taken in the Producer Quality Control (QC) Plan.

2. Non-continuous single stockpile: When an individual stockpile is being constructed, obtain representative samples at random locations and test the RAP material for gradation and asphalt content at a minimum frequency of one sample per 1000 tons with a minimum of six test results. Test the RAP material for G_{mm} (for G_{sb} determination) at a minimum frequency of one sample per 5000 tons with a minimum of two test results. Based on visual inspection and a review of the test data, the Engineer will determine the suitability of the stockpiled material. Once the RAP stockpile has been approved, do not add additional material without prior approval of the Engineer.

Determine the asphalt binder content and gradation of the RAP material in accordance with FM 5-563 and FM 1-T 030, respectively. Establish the G_{sb} of the RAP material by using one of the following methods:

a. Calculate the G_{sb} value based upon the effective specific gravity (G_{se}) of the RAP material, determined on the basis of the asphalt binder content and maximum specific gravity (G_{mm}) of the RAP material. The Engineer will approve the estimated asphalt binder absorption value used in the calculation.

b. Measure the G_{sb} of the RAP aggregate, in accordance with FM 1-T 084 and FM 1-T 085. Obtain the aggregate by using a solvent extraction method.

334-2.3.4 Pavement Coring Report: When the Contract includes milling of the existing asphalt pavement, the Pavement Coring Report may be available on the Department's website.

334-2.3.5 Asphalt Binder for Mixes with RAP: Select the appropriate asphalt binder grade based on Table 334-1. Obtain a sample of the mixture for the Engineer within the first 1,000 tons of production and at a continuing frequency of one sample per 4,000 tons of mix. The Engineer reserves the right to change the asphalt binder grade at design based on the characteristics of the RAP asphalt binder, and reserves the right to make changes during production.

Table 334-1
Asphalt Binder Grade for Mixes Containing RAP

Percent RAP	Asphalt Binder Grade
0 - 15	PG 67-22
16 - 30	PG 58-22
>30	PG 52-28

334-2.4 Recycled Crushed Glass: Recycled crushed glass may be used as a component of the asphalt mixture subject to the following requirements:

1. Consider the recycled crushed glass a local material and meet all requirements specified in 902-6.
2. Limit the amount of recycled crushed glass to a maximum of 15% by weight of total aggregate.
3. Use an asphalt binder that contains an anti-stripping agent listed on the Approved Product List (APL). The anti-strip additive shall be introduced into the asphalt binder by the supplier during loading.
4. Do not use recycled crushed glass in friction course mixtures or in structural course mixtures which are to be used as the final wearing surface.

334-3 General Composition of Mixture.

334-3.1 General: Compose the asphalt mixture using a combination of aggregate (coarse, fine or mixtures thereof), mineral filler, if required, and asphalt binder material. Size, grade and combine the aggregate fractions to meet the grading and physical properties of the mix design. Aggregates from various sources may be combined.

334-3.2 Mix Design:

334-3.2.1 General: Design the asphalt mixture in accordance with AASHTO R 35-12, except as noted herein. Prior to the production of any asphalt mixture, submit the proposed mix design with supporting test data indicating compliance with all mix design criteria to the Engineer. For all mix designs, include representative samples of all component materials, including asphalt binder. Allow the Director of the Office of Materials a maximum of four weeks to either conditionally verify or reject the mix as designed.

For a Traffic Level A mixture, meet the mix design criteria for a Traffic Level B mixture and for a Traffic Level D mixture meet the mix design criteria for a Traffic Level E mixture. In addition, a Type SP mix one traffic level higher than the traffic level specified in the Contract Documents may be substituted, at no cost to the Department. Based on the previous conditions, the following substitutions are allowed:

Traffic Level E can be substituted for Traffic Level D.
Traffic Level D or E can be substituted for Traffic Level C.
Traffic Level C can be substituted for Traffic Level B.

Traffic Level B or C can be substituted for Traffic Level A.

The same traffic level and binder type that is used for the mainline traffic lanes may be placed in the shoulder at no additional cost to the Department, even if the conditions stated above are not met for the shoulder.

Do not use more than four mix designs per nominal maximum aggregate size per traffic level per binder grade per year, where the year starts at the Notice to Proceed. Exceeding this limitation will result in a maximum Composite Pay Factor (CPF) of 1.00 as defined in 334-8.2 for all designs used beyond this limit.

Warm mix technologies (additives, foaming techniques, etc.) listed on the Department's website may be used in the production of the mix. The URL for obtaining this information, if available, is: https://www.fdot.gov/materials/mac/production/warmmixasphalt/.

When warm mix technologies are used, for mixtures containing a PG 52-28, PG 58-22, or PG 67-22 binder, a mixture will be considered a warm mix asphalt design if the mixing temperature is 285°F or less. For mixtures containing a PG 76-22 or High Polymer binder, a mixture will be considered a warm mix asphalt design if the mixing temperature is 305°F or less.

The Engineer will consider any marked variations from original test data for a mix design or any evidence of inadequate field performance of a mix design as sufficient evidence that the properties of the mix design have changed, and the Engineer will no longer allow the use of the mix design.

334-3.2.2 Mixture Gradation Requirements: Combine the coarse and fine aggregate in proportions that will produce an asphalt mixture meeting all of the requirements defined in this specification and conform to the gradation requirements at design as defined in AASHTO M 323-12, Table 3. Aggregates from various sources may be combined.

334-3.2.2.1 Mixture Gradation Classification: Plot the combined mixture gradation on an FHWA 0.45 Power Gradation Chart. Include the Control Points from AASHTO M 323-12, Table-3, as well as the Primary Control Sieve (PCS) Control Point from AASHTO M 323-12, Table 4. Fine mixes are defined as having a gradation that passes above the primary control sieve control point and above the maximum density line for all sieve sizes smaller than the primary control sieve and larger than the No. 100 sieve.

334-3.2.3 Aggregate Consensus Properties: For Traffic Level C through E mixtures, meet the following consensus properties at design for the aggregate blend. Aggregate consensus properties do not apply to Traffic Level A and B mixtures.

334-3.2.3.1 Coarse Aggregate Angularity: When tested in accordance with ASTM D 5821-01 (2006), meet the percentage of fractured faces requirements specified in AASHTO M 323-12, Table 5.

334-3.2.3.2 Fine Aggregate Angularity: When tested in accordance with AASHTO T 304-11, Method A, meet the uncompacted void content of fine aggregate specified in AASHTO M 323-12, Table 5.

334-3.2.3.3 Flat and Elongated Particles: When tested in accordance with ASTM D 4791-10, (with the exception that the material passing the 3/8 inch sieve and retained on the No. 4 sieve shall be included), meet the requirements specified in AASHTO M 323-12, Table 5. Measure the aggregate using the ratio of 5:1, comparing the length (longest dimension) to the thickness (shortest dimension) of the aggregate particles.

334-3.2.3.4 Sand Equivalent: When tested in accordance with AASHTO T 176-08, meet the sand equivalent requirements specified in AASHTO M 323-12, Table 5.

334-3.2.4 Gyratory Compaction: Compact the design mixture in accordance with AASHTO T 312-12, with the following exception: use the number of gyrations at N_{design} as defined in Table 334-2. Measure the inside diameter of gyratory molds in accordance with AASHTO T 312-12.

Table 334-2
Gyratory Compaction Requirements

Traffic Level	N_{design} Number of Gyrations
A	50
B	65
C	75
D	100
E	100

334-3.2.5 Design Criteria: Meet the requirements for nominal maximum aggregate size as defined in AASHTO M 323-12, as well as for relative density, VMA, VFA, and dust-to-binder ratio as specified in AASHTO M 323-12, Table 6. $N_{initial}$ and $N_{maximum}$ requirements are not applicable.

334-3.2.6 Moisture Susceptibility: For all traffic levels, use a liquid anti-strip agent listed on the APL at the specified dosage rate. Hydrated lime may be used instead of the liquid anti-strip agent.

Provide a mixture having a retained tensile strength ratio of at least 0.80 and a minimum tensile strength (unconditioned) of 100 psi.

334-3.2.7 Additional Information: In addition to the requirements listed above, provide the following information with each proposed mix design submitted for verification:

1. The design traffic level and the design number of gyrations (N_{design}).
2. The source and description of the materials to be used.
3. The Department source number and the Department product code of the aggregate components furnished from a Department approved source.
4. The gradation and proportions of the raw materials as intended to be combined in the paving mixture. The gradation of the component materials shall be representative of the material at the time of use. Compensate for any change in aggregate gradation caused by handling and processing as necessary.
5. A single percentage of the combined mineral aggregate passing each specified sieve. Degradation of the aggregate due to processing (particularly material passing the No. 200 sieve) should be accounted for and identified.
6. The bulk specific gravity (G_{sb}) value for each individual aggregate and RAP component, as identified in the Department's aggregate control program.
7. A single percentage of asphalt binder by weight of total mix intended to be incorporated in the completed mixture, shown to the nearest 0.1%.
8. A target temperature for the mixture at the plant (mixing temperature) and a target temperature for the mixture at the roadway (compaction temperature) in accordance

with 320-6.3. Do not exceed a target temperature of 340°F for High Polymer asphalt binder, 330°F for PG 76-22 asphalt binders, and 315°F for unmodified asphalt binders.

9. Provide the physical properties at the optimum asphalt content, which must conform to all specified requirements.

10. The name of the Construction Training Qualification Program (CTQP) Qualified Mix Designer.

11. The ignition oven calibration factor.

12. The warm mix technology, if used.

334-3.3 Mix Design Revisions: During production, the Contractor may request a target value revision to a mix design, subject to meeting the following requirements: the target change falls within the limits defined in Table 334-3, appropriate data exists demonstrating that the mix complies with production air voids specification criteria, and the mixture gradation meets the basic gradation requirements defined in 334-3.2.2.

Table 334-3
Limits for Potential Adjustments to Mix Design Target Values

Characteristic	Limit from Original Mix Design
No. 8 sieve and Coarser	± 5.0%
No. 16 sieve	± 4.0%
No. 30 sieve	± 4.0%
No. 50 sieve	± 3.0%
No. 100 sieve	± 3.0%
No. 200 sieve	± 1.0%
Asphalt Binder Content (1)	± 0.3%
Each Component of Aggregate Blend (2)	± 5.0 %

(1) Reductions to the asphalt binder content will not be permitted if the VMA during production is lower than 1.0% below the design criteria.
(2) Revisions to FC-5 mixtures to be determined by the Engineer.

Submit all requests for revisions to mix designs, along with supporting documentation, to the Engineer. In order to expedite the revision process, the request for revision or discussions on the possibility of a revision may be made verbally, but must be followed up by a written request. The verified mix design will remain in effect until the Engineer authorizes a change. In no case will the effective date of the revision be established earlier than the date of the first communication between the Contractor and the Engineer regarding the revision.

A new design mix will be required if aggregate sources change, or for any substitution of an aggregate product with a different aggregate code, unless approved by the Engineer.

334-4 Producer Process Control (PC).

Assume full responsibility for controlling all operations and processes such that the requirements of these Specifications are met at all times. Perform any tests necessary at the plant and roadway for process control purposes. Enter all PC test data into the Department's database. The Engineer will not use these test results in the acceptance payment decision.

Address in the Producer QC Plan how PC failures will be handled. When a PC failure occurs, investigate, at a minimum, the production process, testing equipment and/or sampling

methods to determine the cause of the failure, and make any necessary changes to assure compliance with these Specifications. Obtain a follow up sample immediately after corrective actions are taken to assess the adequacy of the corrections. In the event the follow-up PC sample also fails to meet Specification requirements, cease production of the asphalt mixture until the problem is adequately resolved to the satisfaction of the QC Manager.

334-5 Acceptance of the Mixture.

334-5.1 General: The mixture will be accepted at the plant with respect to gradation (P_{-8} and P_{-200}), asphalt content (P_b), and volumetrics (volumetrics is defined as air voids at N_{design}). The mixture will be accepted on the roadway with respect to density of roadway cores. Acceptance will be on a LOT by LOT basis (for each mix design) based on tests of random samples obtained within each sublot taken at a frequency of one set of samples per sublot. A roadway LOT and a plant production LOT shall be the same. Acceptance of the mixture will be based on Contractor QC test results that have been verified by the Department.

334-5.1.1 Sampling and Testing Requirements: Obtain the samples in accordance with FM 1-T 168. Obtain samples at the plant of a sufficient quantity to be split into three smaller samples; one for QC, one for Verification testing and one for Resolution testing; each sample at approximately 35 pounds. The split samples for Verification testing and Resolution testing shall be reduced in size and stored in three boxes each. The approximate size of each box must be 12 inches x 8 inches x 4 inches. Provide, label and safely store sample boxes in a manner agreed upon by the Engineer for future testing.

The asphalt content of the mixture will be determined in accordance with FM 5-563. The gradation of the recovered aggregate will be determined in accordance with FM 1-T 030. Volumetric testing will be in accordance with AASHTO T 312-12and FM 1-T 209. Prior to testing volumetric samples, condition the test-sized sample for one hour, plus or minus five minutes, at the target roadway compaction temperature in a shallow, flat pan, such that the mixture temperature at the end of the one hour conditioning period is within plus or minus 20°F of the roadway compaction temperature. Test for roadway density in accordance with FM 1-T 166.

334-5.1.2 Acceptance Testing Exceptions: When the total combined quantity of hot mix asphalt for the project, as indicated in the Plans for Type B-12.5, Type SP and Type FC mixtures only, is less than 2000 tons, the Engineer will accept the mix on the basis of visual inspection. The Engineer may require the Contractor to run process control tests for informational purposes, as defined in 334-4, or may run independent verification tests to determine the acceptability of the material.

Density testing for acceptance will not be performed on widening strips or shoulders with a width of 5 feet or less, open-graded friction courses, variable thickness overbuild courses, leveling courses, any asphalt layer placed on subgrade (regardless of type), miscellaneous asphalt pavement, shared use paths, crossovers, gore areas, or any course with a specified thickness less than 1 inch or a specified spread rate that converts to less than 1 inch as described in 334-1.4. Density testing for acceptance will not be performed on asphalt courses placed on bridge decks or approach slabs; compact these courses in static mode only per the requirements of 330-7.7. In addition, density testing for acceptance will not be performed on the following areas when they are less than 500 feet (continuous) in length: turning lanes, acceleration lanes, deceleration lanes, shoulders, parallel parking lanes or ramps. Do not perform density testing for acceptance in situations where the areas requiring density testing is less than 50 tons within a sublot.

Density testing for acceptance will not be performed in intersections. The limits of the intersection will be from stop bar to stop bar for both the mainline and side streets. A random core location that occurs within the intersection shall be moved forward or backward from the intersection at the direction of the Engineer.

Where density testing for acceptance is not required, compact these courses (with the exception of open-graded friction courses) in accordance with the rolling procedure (equipment and pattern) as approved by the Engineer or with Standard Rolling Procedure as specified in 330-7.2. In the event that the rolling procedure deviates from the procedure approved by the Engineer, or the Standard Rolling Procedure, placement of the mix shall be stopped.

The density pay factor (as defined in 334-8.2) for areas not requiring density testing for acceptance will be paid at the same density pay factor as for the areas requiring density testing within the same LOT. If the entire LOT does not require density testing for acceptance, the LOT will be paid at a density pay factor of 1.00.

334-5.2 Full LOTs: Each LOT will be defined (as selected by the Contractor prior to the start of the LOT) as either (1) 2,000 tons, with each LOT subdivided into four equal sublots of 500 tons each, or (2) 4,000 tons, with each LOT subdivided into four equal sublots of 1,000 tons each. As an exception to this, the initial LOT of all new mix designs shall be defined as 2,000 tons, subdivided into four equal sublots of 500 tons each. Before the beginning of a LOT, the Engineer will develop a random sampling plan for each sublot and direct the Contractor on sample points, based on tonnage, for each sublot during construction.

334-5.3 Partial LOTs: A partial LOT is defined as a LOT size that is less than a full LOT. A partial LOT may occur due to the following:

l. The completion of a given mix type or mix design on a project.

2. Closure of the LOT due to time. LOTs will be closed 30 calendar days after the start of the LOT. Time periods other than 30 calendar days may be used if agreed to by both the Engineer and the Contractor, but under no circumstances shall the LOT be left open longer than 60 days.

3. A LOT is terminated per 334-5.4.4.

All partial LOTs will be evaluated based on the number of tests available, and will not be redefined. If a LOT is closed before the first plant random sample is obtained, then the LOT will be visually accepted by the Engineer and the LOT pay factor will be 1.00.

334-5.4 QC Sampling and Testing: Obtain all samples randomly as directed by the Engineer.

Should the Engineer determine that the QC requirements are not being met or that unsatisfactory results are being obtained, or should any instances of falsification of test data occur, acceptance of the Producer's QC Plan will be suspended and production will be stopped.

334-5.4.1 Lost or Missing Verification/Resolution Samples: In the event that any of the Verification and/or Resolution asphalt mixture samples that are in the custody of the Contractor are lost, damaged, destroyed, or are otherwise unavailable for testing, the minimum possible pay factor for each quality characteristic as described in 334-8.2 will be applied to the entire LOT in question, unless called for otherwise by the Engineer. Specifically, if the LOT in question has more than two sublots, the pay factor for each quality characteristic will be 0.55. If the LOT has two or less sublots, the pay factor for each quality characteristic will be 0.80. If only the roadway cores are lost, damaged, destroyed, or are otherwise unavailable for testing, then the

minimum possible pay factor for density will be applied to the entire LOT in question. In either event, the material in question will also be evaluated in accordance with 334-5.9.5.

If any of the Verification and/or Resolution samples that are in the custody of the Department are lost, damaged, destroyed or are otherwise unavailable for testing, the corresponding QC test result will be considered verified, and payment will be based upon the Contractor's data.

334-5.4.2 Plant Sampling and Testing Requirements: Obtain one random sample of mix per sublot in accordance with 334-5.1.1 as directed by the Engineer. Test the QC split sample for gradation, asphalt binder content and volumetrics in accordance with 334-5.1.1. Complete all QC testing within one working day from the time the samples were obtained.

334-5.4.3 Roadway Sampling and Testing Requirements: Obtain five 6 inch diameter roadway cores within 24 hours of placement at random locations as directed by the Engineer within each sublot. Test these QC samples for density (G_{mb}) in accordance with 334-5.1.1. Obtain a minimum of three cores per sublot at random locations as identified by the Engineer in situations where the sublot/LOT was closed or terminated before the random numbers were reached or where it is impractical to cut five cores per sublot. Do not obtain cores any closer than 12 inches from an unsupported edge. The Engineer may adjust randomly generated core locations for safety purposes or as the Engineer deems necessary. Do not perform density testing for acceptance in a sublot if the plant random sample for that sublot has not been obtained. Maintain traffic during the coring operation; core the roadway, patch the core holes (within three days of coring); and trim the cores to the proper thickness prior to density testing.

Density for the sublot shall be based on the average value for the cores cut from the sublot with the target density being a percentage of the maximum specific gravity (G_{mm}) of the sublot, as defined in the Contract. Once the average density of a sublot has been determined, do not retest the samples unless approved by the Engineer. Ensure proper handling and storage of all cores until the LOT in question has been accepted.

334-5.4.4 Individual Test Tolerances for QC Testing: Terminate the LOT if any of the following QC failures occur:

1. An individual test result of a sublot for air voids does not meet the requirements of Table 334-4,

2. The average sublot density does not meet the requirements of Table 334-4,

3. Two consecutive test results within the same LOT for gradation or asphalt binder content do not meet the requirements of Table 334-4,

When a LOT is terminated due to a QC failure, stop production of the mixture until the problem is resolved to the satisfaction of the QC Manager and/or Asphalt Plant Level II technician responsible for the decision to resume production after a QC failure, as identified in Section 105. In the event that it can be demonstrated that the problem can immediately be or already has been resolved, it will not be necessary to stop production. When a LOT is terminated, make all necessary changes to correct the problem. Do not resume production until appropriate corrections have been made. Prior to resuming production, inform the Engineer of the problem and corrections made to correct the problem. After resuming production, sample and test the material to verify that the changes have corrected the problem. Summarize this information and provide it to the Engineer prior to the end of the work shift when production resumes.

In the event that a QC failure is not addressed as defined above, the Engineer's approval will be required prior to resuming production after any future QC failures.

Address any material represented by a failing test result, as defined above in this subarticle, in accordance with 334-5.9.5. Any LOT terminated under this subarticle will be limited to a maximum Pay Factor of 1.00 (as defined in 334-8.2) for all quality characteristics and will include all material placed up to the point when the LOT was terminated.

In the event that a G_{mm} test result differs by more than 0.040 from the mix design G_{mm}, investigate the causes of the discrepancy and report the findings and proposed actions to the Engineer.

Table 334-4
Master Production Range

Characteristic	Tolerance (1)
Asphalt Binder Content (%)	Target ±0.55
Passing No. 200 Sieve (%)	Target ±1.50
Air Voids (%)	2.30 – 6.00
Density (minimum % G_{mm})(2)	89.50

(1) Tolerances for sample size of n = 1 from the verified mix design
(2) Based on an average of 5 randomly located cores

334-5.5 Verification Testing: In order to determine the validity of the Contractor's QC test results prior to their use in the Acceptance decision, the Engineer will run verification tests.

334-5.5.1 Plant Testing: At the completion of each LOT, the Engineer will test a minimum of one Verification split sample randomly selected from the LOT. Results of the testing and analysis for the LOT will be made available to the Contractor within one working day from the time the LOT is completed. Verification samples shall be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1.

The Verification test results will be compared with the QC test results based on the between-laboratory precision values shown in Table 334-5.

Table 334-5
Between-Laboratory Precision Values

Property	Maximum Difference
G_{mm}	0.016
G_{mb} (gyratory compacted samples)	0.022
G_{mb} (roadway cores)	0.014
P_b	0.44%
P_{-200}	FM 1-T 030 (Figure 2)
P_{-8}	FM 1-T 030 (Figure 2)

If all of the specified mix characteristics compare favorably, then the LOT will be accepted, with payment based on the Contractor's QC test data for the LOT.

If any of the results do not compare favorably, then the Resolution samples from the LOT will be sent to the Resolution laboratory for testing, as described in 334-5.6.

334-5.5.2 Roadway Testing: At the completion of each LOT, the Engineer will determine the density (G_{mb}) of each core (previously tested by QC) as described in 334-5.1.1 from the same sublot as the plant samples. For situations where roadway density is not required for the random sublot chosen, then another sublot shall be randomly chosen for roadway density cores only. Results of the testing and analysis for the LOT will be made available to the Contractor within one working day from the time the LOT is completed.

The individual Verification test results will be compared with individual QC test results by the Engineer based on the between-laboratory precision values given in Table 334-5.

If each of the core test results compare favorably, then the LOT will be accepted with respect to density, with payment based on the Contractor's QC test data for the LOT.

If any of the results do not compare favorably, then the core samples from the LOT will be sent to the Resolution laboratory for testing as specified in 334-5.6.

334-5.6 Resolution System:

334-5.6.1 Plant Samples: In the event of an unfavorable comparison between the Contractor's QC test results and the Engineer's Verification test results on any of the properties identified in Table 334-5, the Resolution laboratory will test all of the split samples from the LOT for only the property (or properties) in question. Resolution samples shall be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. In lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1.

334-5.6.2 Roadway Samples: In the event of an unfavorable comparison between the Contractor's QC test data and the Engineer's Verification test data on the density results, the Resolution laboratory will test all of the cores from the LOT. Testing will be as described in 334-5.1.1.

334-5.6.3 Resolution Determination: The Resolution test results (for the property or properties in question) will be compared with the QC test results based on the between-laboratory precision values shown in Table 334-5.

If the Resolution test results compare favorably with all of the QC results, then acceptance and payment for the LOT will be based on the QC results, and the Department will bear the costs associated with Resolution testing. No additional compensation, either monetary or time, will be made for the impacts of any such testing.

If the Resolution test results do not compare favorably with all of the QC results, then acceptance and payment for the LOT will be based on the Resolution test data for the LOT, and 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.

In addition, the material failure requirements of 334-5.4.4 apply to the Resolution test data. Address any material represented by the failing test results in accordance with 334-5.9.5. For this situation, the LOT will be limited to a maximum Pay Factor of 1.00 (as defined in 334-8.2) for all quality characteristics.

In the event of an unfavorable comparison between the Resolution test results and QC test results, make the necessary adjustments to assure that future comparisons are favorable.

334-5.7 Independent Verification (IV) Testing:

334-5.7.1 Plant: The Contractor shall provide sample boxes and take samples as directed by the Engineer for IV testing. Obtain enough material for three complete sets of tests (two samples for IV testing by the Engineer and one sample for testing by the Contractor). If agreed upon by both the Engineer and the Contractor, only one sample for IV testing by the Engineer may be obtained. IV samples will be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. The Contractor's split sample, if tested immediately after sampling, shall be reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. If the Contractor's sample is not tested immediately after sampling, then the sample shall be reheated at the target roadway compaction temperature for 1-1/2 hours, plus or minus 5 minutes, reduced to the appropriate testing size, and conditioned and tested as described in 334-5.1.1. For the IV and Contractor's samples, in lieu of the 1-1/2 hours reheating procedure, the mixture may be reheated to within plus or minus 20°F of the roadway compaction temperature using a microwave oven. Stir the mixture as necessary during the reheating process to maintain temperature uniformity. Subsequently, condition and test the mixture as described in 334-5.1.1. The Contractor's test results shall be provided to the Engineer within one working day from the time the sample was obtained.

If any of the IV test results do not meet the requirements of Table 334-4, then a comparison of the IV test results and the Contractor's test results, if available, will be made. If a comparison of the IV test results and the Contractor's test results meets the precision values of Table 334-5 for the material properties in question, or if the Contractor's test results are not available, then the IV test results are considered verified and the Contractor shall cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Address any material represented by the failing test results in accordance with 334-5.9.5.

If a comparison of the IV test results and the Contractor's test results does not meet the precision values of Table 334-5 for the material properties in question, then the second IV sample shall be tested by the Engineer for the material properties in question. If a comparison between the first and second IV test results does not meet the precision values of Table 334-5 for the material properties in question, then the first IV test results are considered unverified for the material properties in question and no action shall be taken.

If a comparison between the first and second IV test results meets the precision values of Table 334-5 for the material properties in question, then the first IV sample is considered verified and the Contractor shall cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already

has been) resolved. Address any material represented by the failing test results in accordance with 334-5.9.5.

The Engineer has the option to use the IV sample for comparison testing as specified in 334-6.

334-5.7.2 Roadway: Obtain five 6 inch diameter roadway cores within 24 hours of placement, as directed by the Engineer, for IV testing. In situations where it is impractical to cut five cores per sublot, obtain a minimum of three cores per sublot at random locations, as identified by the Engineer. These independent cores will be obtained from the same LOTs and sublots as the Independent Verification Plant samples, or as directed by the Engineer. The density of these cores will be obtained as described in 334-5.1.1. If the average of the results for the sublot does not meet the requirements of Table 334-4 for density, then a comparison of the IV Gmm test results and the Contractor's Gmm test results, if available, will be made in accordance with the procedure provided in 334-5.7.1. Address any material represented by the failing test results in accordance with 334-5.9.5.

334-5.8 Surface Tolerance: The asphalt mixture will be accepted on the roadway with respect to surface tolerance in accordance with the applicable requirements of 330-9.

334-5.9 Minimum Acceptable Quality Levels:

334-5.9.1 PFs Below 0.90: In the event that an individual pay factor for any quality characteristic of a LOT falls below 0.90, take steps to correct the situation and report the actions to the Engineer. In the event that the pay factor for the same quality characteristic for two consecutive LOTs is below 0.90, cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Actions taken must be approved by the Engineer before production resumes.

334-5.9.2 CPFs Less Than 0.90 and Greater Than or Equal to 0.80: If the composite pay factor for the LOT is less than 0.90 and greater than or equal to 0.80, cease production of the asphalt mixture until the problem is adequately resolved (to the satisfaction of the Engineer), unless it can be demonstrated to the satisfaction of the Engineer that the problem can immediately be (or already has been) resolved. Actions taken must be approved by the Engineer before production resumes.

334-5.9.3 CPFs Less Than 0.80 and Greater Than or Equal to 0.75: If the CPF for the LOT is less than 0.80 and greater than or equal to 0.75, address the defective material in accordance with 334-5.9.5.

334-5.9.4 CPFs Less Than 0.75: If the CPF for the LOT is less than 0.75, remove and replace the defective LOT at no cost to the Department, or as approved by the Engineer.

334-5.9.5 Defective Material: Assume responsibility for removing and replacing all defective material placed on the project, at no cost to the Department.

As an exception to the above and upon approval of the Engineer, obtain an engineering analysis in accordance with Section 6 by an independent laboratory (as approved by the Engineer) to determine the disposition of the material. The engineering analysis must be signed and sealed by a Professional Engineer licensed in the State of Florida.

The Engineer may determine that an engineering analysis is not necessary or may perform an engineering analysis to determine the disposition of the material.

Any material that remains in place will be accepted with a CPF as determined by 334-8, or as determined by the Engineer.

If the defective material is due to a gradation, asphalt binder content or density failure, upon the approval of the Engineer the Contractor may perform delineation tests on roadway cores in lieu of an engineering analysis to determine the limits of the defective material that may require removal and replacement. Prior to any delineation testing, all sampling locations shall be approved by the Engineer. All delineation sampling and testing shall be monitored and verified by the Engineer. For materials that are defective due to air voids, an engineering analysis is required.

When evaluating defective material by engineering analysis or delineation testing, at a minimum, evaluate all material located between passing QC, PC or IV test results. Exceptions to this requirement shall be approved by the Engineer.

334-6 Comparison Testing.

At the start of the project (unless waived by the Engineer) and at other times as determined necessary by the Engineer, provide split samples for comparison testing with the Engineer. The purpose of these tests is to verify that the testing equipment is functioning properly and that the testing procedures are being performed correctly. In the event that the Engineer determines that there is a problem with the Contractor's testing equipment and/or testing procedures, immediately correct the problem to the Engineer's satisfaction. In the event that the problem is not immediately corrected, cease production of the asphalt mixture until the problem is adequately resolved to the satisfaction of the Engineer.

If so agreed to by both the Contractor and the Engineer, the split sample used for comparison testing may also be used for the QC sample. The split sample used for comparison testing must also meet the requirements for IV testing described in 334-5.7.

334-7 Method of Measurement.

For the work specified under this Section (including the pertinent provisions of Sections 320 and 330), the quantity to be paid for will be the weight of the mixture, in tons. For each pay item, excluding overbuild, the pay quantity will be based on the quantity placed on the project, limited to 105% of the adjusted plan quantity for the pay item. The adjusted plan quantity will be determined by dividing the pay item's original plan quantity (including any Engineer approved quantity revisions) by the design G_{mm} stated in 334-1.4, then multiplying it by the tonnage-weighted average G_{mm} of the mixes used for the pay item.

The bid price for the asphalt mix will include the cost of the liquid asphalt and the tack coat application as directed in 300-8. There will be no separate payment or unit price adjustment for the asphalt binder material in the asphalt mix. For the calculation of unit price adjustments of bituminous material, the average asphalt content will be based on the percentage specified in 9-2.1.2. The weight will be determined as provided in 320-3.2 (including the provisions for the automatic recordation system).

Prepare and submit a Certification of Quantities to the Engineer in accordance with 9-2.1.2.

334-8 Basis of Payment.

334-8.1 General: Price and payment will be full compensation for all the work specified under this Section (including the applicable requirements of Sections 320 and 330).

For materials accepted in accordance with 334-5, based upon the quality of the material, a pay adjustment will be applied to the bid price of the material as determined on a LOT by LOT basis. The pay adjustment will be assessed by calculating a Pay Factor for the following

individual quality characteristics: pavement density, air voids, asphalt binder content, and the percentage passing the No. 200 and No. 8 sieves. The pay adjustment will be computed by multiplying a Composite Pay Factor (CPF) for the LOT by the bid price per ton.

334-8.2 Pay Factors:

334-8.2.1 Partial LOTs: For Partial LOTs where no random sample is obtained due to insufficient tonnage, a CPF of 1.00 shall be applied.

334-8.2.2 Two or Less Sublot Test Results: In the event that two or less sublot test results are available for a LOT, Pay Factors will be determined based on Table 334-6, using the average of the accumulated deviations from the target value. (Except for density, deviations are absolute values with no plus or minus signs.) Use the 1-Test column when there is only one sublot test result and use the 2-Tests column when there are two sublots.

Table 334-6
Small Quantity Pay Table

Pay Factor	1 Sublot Test Deviation	2 Sublot Test Average Deviation
Asphalt Binder Content		
1.05	0.00-0.23	0.00-0.16
1.00	0.24-0.45	0.17-0.32
0.90	0.46-0.55	0.33-0.39
0.80	>0.55	>0.39
No. 8 Sieve		
1.05	0.00-2.25	0.00-1.59
1.00	2.26-4.50	1.60-3.18
0.90	4.51-5.50	3.19-3.89
0.80	>5.50	>3.89
No. 200 Sieve		
1.05	0.00-0.55	0.00-0.39
1.00	0.56-1.10	0.40-0.78
0.90	1.11-1.50	0.79-1.06
0.80	>1.50	>1.06
Air Voids		
1.05	0.00-0.50	0.00-0.35
1.00	0.51-1.00	0.36-0.71
0.90	1.01-1.70	0.72-1.20
0.80	1.71-2.00	1.21-1.41
0.70	2.01-2.50	1.42-1.77
0.55	>2.50	>1.77
Density [(1)]		
1.05	+ (0.00-2.00), - (0.00-0.50)	+ (0.00-1.40), - (0.00-0.35)
1.00	+ (2.01-3.00), - (0.51-1.00)	+ (1.41-2.10), - (0.36-0.71)
0.95	+ (3.01-3.50), - (1.01-2.00)	+ (2.11-2.80), - (0.72-1.41)
0.90	+ (3.51-4.00), - (2.01-3.00)	+ (2.81-3.50) – (1.42-2.12)
0.80	+ (>4.00), - (>3.00)	+ (>3.50), - (>2.12)

Table 334-6 Small Quantity Pay Table		
Pay Factor	1 Sublot Test Deviation	2 Sublot Test Average Deviation
(1). Each density test result is the average of five cores. The target density is 93.00 percent of G_{mm} (92.00 percent when compaction is limited to the static mode or for layers specified to be one inch thick). When compaction is limited to the static mode, no vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer. In this case, the target density is 92.00 percent of G_{mm}.		

334-8.2.3 Three or More Sublot Test Results: When three or more sublot test results are available for a LOT, the variability-unknown, standard deviation method will be used to determine the estimated percentage of the LOT that is within the specification limits. The number of significant figures used in the calculations will be in accordance with requirements of AASHTO R11-06, Absolute Method.

334-8.2.3.1 Percent Within Limits: The percent within limits (PWL) and Pay Factors for the LOT will be calculated as described below. Variables used in the calculations are as follows:

x = individual test value (sublot)
n = number of tests (sublots)
s = sample standard deviation
$\Sigma(x^2)$ = summation of squares of individual test values
$(\Sigma x)^2$ = summation of individual test values squared
Q_U = upper quality index
USL = upper specification limit (target value plus upper specification limit from Table 334-7)
Q_L = lower quality index
LSL = lower specification limit (target value minus lower specification limit from Table 334-7)
P_U = estimated percentage below the USL
P_L = estimated percentage above the LSL

1. Calculate the arithmetic mean $(\overline{X})$ of the test values:

$$\overline{X} = \frac{\sum x}{n}$$

2. Calculate the sample standard deviation (s):

$$s = \sqrt{\frac{n\sum\left(x^2\right) - \left(\sum x\right)^2}{n(n-1)}}$$

3. Calculate the upper quality index (Q_U):

$$Q_U = \frac{\text{USL} - \overline{\text{X}}}{\text{s}}$$

4. Calculate the lower quality index (Q_L):

$$Q_L = \frac{\overline{X} - LSL}{s}$$

5. From Table 334-8, determine the percentage of work below the USL (P_U).

6. From Table 334-8, determine percentage of work above the LSL (P_L) Note: If USL or LSL is not specified; percentages within (USL or LSL) will be 100.

7. If Q_U or Q_L is a negative number, then calculate the percent within limits for Q_U or Q_L as follows: enter Table 334-8 with the positive value of Q_U or Q_L and obtain the corresponding percent within limits for the proper sample size. Subtract this number from 100.00. The resulting number is the value to be used in the next step (Step 8) for the calculation of quality level.

8. Calculate the percent within limits (PWL) = (P_U + P_L) - 100

9. Calculate the Pay Factor (PF) for each quality characteristic using the equation given in 334-8.2.3.2.

Table 334-7
Specification Limits

Quality Characteristic	Specification Limits
Passing No. 8 sieve (percent)	Target ± 3.1
Passing No. 200 sieve (percent)	Target ± 1.0
Asphalt Content (percent)	Target ± 0.40
Air Voids (percent)	4.00 ± 1.20
Density, vibratory mode (percent of G_{mm}):	93.00 + 3.00, - 1.20
Density, static mode (percent of G_{mm}):	92.00 + 4.00, - 1.50 (1)

(1): No vibratory mode in the vertical direction will be allowed. Other vibratory modes will be allowed, if approved by the Engineer.

Table 334-8
Percent Within Limits

Quality Index	Percent within Limits for Selected Sample Size			
	n = 3	n = 4	n = 5	n = 6
0.00	50.00	50.00	50.00	50.00
0.05	51.38	51.67	51.78	51.84
0.10	52.76	53.33	53.56	53.67
0.15	54.15	55.00	55.33	55.50
0.20	55.54	56.67	57.10	57.32
0.25	56.95	58.33	58.87	59.14
0.30	58.37	60.00	60.63	60.94
0.35	59.80	61.67	62.38	62.73
0.40	61.26	63.33	64.12	64.51
0.45	62.74	65.00	65.84	66.27

Table 334-8 Percent Within Limits				
Quality Index	Percent within Limits for Selected Sample Size			
	n = 3	n = 4	n = 5	n = 6
0.50	64.25	66.67	67.56	68.00
0.55	65.80	68.33	69.26	69.72
0.60	67.39	70.00	70.95	71.41
0.65	69.03	71.67	72.61	73.08
0.70	70.73	73.33	74.26	74.71
0.75	72.50	75.00	75.89	76.32
0.80	74.36	76.67	77.49	77.89
0.85	76.33	78.33	79.07	79.43
0.90	78.45	80.00	80.62	80.93
0.95	80.75	81.67	82.14	82.39
1.00	83.33	83.33	83.64	83.80
1.05	86.34	85.00	85.09	85.18
1.10	90.16	86.67	86.52	86.50
1.15	97.13	88.33	87.90	87.78
1.20	100.00	90.00	89.24	89.01
1.25	100.00	91.67	90.54	90.19
1.30	100.00	93.33	91.79	91.31
1.35	100.00	95.00	92.98	92.37
1.40	100.00	96.67	94.12	93.37
1.45	100.00	98.33	95.19	94.32
1.50	100.00	100.00	96.20	95.19
1.55	100.00	100.00	97.13	96.00
1.60	100.00	100.00	97.97	96.75
1.65	100.00	100.00	98.72	97.42
1.70	100.00	100.00	99.34	98.02
1.75	100.00	100.00	99.81	98.55
1.80	100.00	100.00	100.00	98.99
1.85	100.00	100.00	100.00	99.36
1.90	100.00	100.00	100.00	99.65
1.95	100.00	100.00	100.00	99.85
2.00	100.00	100.00	100.00	99.97
2.05	100.00	100.00	100.00	100.00
2.10	100.00	100.00	100.00	100.00
2.15	100.00	100.00	100.00	100.00

Table 334-8 Percent Within Limits				
Quality Index	Percent within Limits for Selected Sample Size			
	n = 3	n = 4	n = 5	n = 6
2.20	100.00	100.00	100.00	100.00
2.25	100.00	100.00	100.00	100.00
2.30	100.00	100.00	100.00	100.00
2.35	100.00	100.00	100.00	100.00
2.40	100.00	100.00	100.00	100.00
2.45	100.00	100.00	100.00	100.00
2.50	100.00	100.00	100.00	100.00
2.55	100.00	100.00	100.00	100.00
2.60	100.00	100.00	100.00	100.00
2.65	100.00	100.00	100.00	100.00

334-8.2.3.2 Pay Factors (PF): Pay Factors will be calculated by using the following equation:

$$\text{Pay Factor} = (55 + 0.5 \times \text{PWL}) / 100$$

The PWL is determined from Step (8) of 334-8.2.3.1.

334-8.3 Composite Pay Factor (CPF): A CPF for the LOT will be calculated based on the individual PFs with the following weighting applied: 40% Density (D), 25% Air Voids (V_a), 20% asphalt binder content (P_b), 10% Passing No. 200 (P_{-200}) and 5% Passing No. 8 (P_{-8}). Calculate the CPF by using the following formula:

$$\text{CPF} = [(0.400 \times \text{PF D}) + (0.250 \times \text{PF } V_a) + (0.200 \times \text{PF } P_b) + (0.100 \times \text{PF } P_{-200}) + (0.050 \times \text{PF } P_{-8})]$$

Where the PF for each quality characteristic is determined in either 334-8.2.2 or 334-8.2.3, depending on the number of sublot tests. Note that the number after each multiplication will be rounded to the nearest 0.01.

The pay adjustment shall be computed by multiplying the CPF for the LOT by the bid price per ton.

334-8.4 Payment: Payment will be made under:

Item No. 334- 1- Superpave Asphaltic Concrete - per ton.

SECTION 400
CONCRETE STRUCTURES

400-1 Description.

Construct concrete structures and other concrete members, with the exception of pavement and incidental concrete construction (which are specified in other Sections).

Refer to Section 450 for prestressed construction requirements additional to the requirements of this Section.

For precast concrete structures meet the requirements of Section 450 for inserts and lifting devices, handling, storage, shipping, and erection.

Obtain incidental precast products from a plant that is currently on the Department's Production Facility Listing. Producers seeking inclusion on the list shall meet the requirements of Section 105.

400-2 Materials.

Meet the following requirements:

Concrete ..... Sections 346 and 347
Penetrant Sealer .....Section 413
High Molecular Weight Methacrylate (HMWM)**
..... Section 413
Reinforcing for Concrete .....Section 415
Water.....Section 923
Curing Materials* .....Section 925
Epoxy Bonding Compounds** ..... Sections 926 and 937
Joint Materials**.....Section 932
Bearing Pads .....Section 932
Non-Shrink Grout** .....Section 934
Class 5 Applied Finish Coatings**.....Section 975
Galvanizing Compound** .....Section 562
Dowel Bar Assembly** .....Section 931
Filter Fabric.....Section 985

*The Engineer will allow clean sand and sawdust for certain curing, when and as specified.

**Use products listed on the Department's Approved Product List (APL).

400-3 Depth of Footing.

Refer to Section 455, "D. SPREAD FOOTINGS".

400-4 Falsework.

400-4.1 Plans: At the Engineer's request, submit detailed plans for falsework or centering to the Department. The Contractor is responsible for results obtained by using these plans.

400-4.2 Design and Erection: Design and construct all falsework to provide the necessary rigidity and to support the loads without appreciable settlement or deformation. Use screw jacks or hardwood wedges to take up any settlement in the framework, either before or during the placing of concrete. If any weakness develops and the centering shows undue settlement or distortion, stop the work, remove any affected concrete, and strengthen the falsework before resuming work. Support falsework which cannot be founded on a satisfactory footing on piling. Space, drive, and remove the piling in an approved manner.

400-4.3 Camber: Provide camber to correct for settlement and deflection of falsework. Give bridges permanent camber only when shown in the Plans.

400-4.4 Bridge Deck Overhang Falsework for Steel I-Girders: Locate the lower contact point of bridge deck overhang falsework supporting screed rails within 6 inches above the bottom flange. If the lower contact point of the overhang falsework bears more than 6 inches above the bottom flange and/or if the deck overhang is 4 feet or greater, submit shop drawings and calculations to the Engineer in accordance with Section 5 and Chapter 11 of the Structures Design Guidelines (SDG). The deck overhang is measured from the centerline of the girder supporting the overhang falsework to the outside edge of the concrete deck.

400-5 Forms.

400-5.1 General: Provide forms, either of wood or metal, that are as follows: externally secured and braced where feasible; substantial and unyielding; of adequate strength to contain the concrete without bulging between supports and without apparent deviation from the neat lines, contours, and shapes shown in the Plans. Design forms to withstand the additional forces of vibration without apparent deviation from the desired shape or position. Assemble forms to be mortar-tight. If using lumber forms, construct them of dressed wood of uniform thickness. Use form liners on wooden forms where Class 3 surface finish is specified. Construct assembled forms to render a concrete surface of smooth, uniform finish. Make provisions to remove forms without injury to concrete surfaces. Remove blocks and bracing with the forms, and do not leave any portion of the forms in the concrete. Use the same form system for a type of work throughout.

400-5.2 Inspection and Approval: Do not place concrete in a form until the form has been inspected and approved. Although the Engineer inspects and approves the forms, the Contractor is responsible for obtaining satisfactory concrete surfaces, free from warping, bulging, or other objectionable defects. Pay special attention to the ties and bracing. Where the forms appear to be insufficiently braced or unsatisfactorily built, stop and correct defects to the satisfaction of the Engineer.

400-5.3 Non-metallic Form Materials:

400-5.3.1 Lumber: For all surfaces, use lumber that is not less than 3/4 inch in thickness, dressed, and free of knot holes, loose knots, cracks, splits, warps, and other defects. Proportion the spacing of studs, joists, and wales to exclude warps and bulges and to produce true and accurate concrete surfaces. Only use structurally sound lumber.

400-5.3.2 Form Liners: Use form liners of durable, abrasion resistant materials that are unaffected by water. Use liners with a hard surface texture capable of rendering concrete surfaces of a smooth, uniform texture, without grain marks, patterns, or blemishes. Use form liner material of sufficient thickness to eliminate the reflection of irregularities, undesirable patterns, and marks from the forms to the surfaces. Replace liners as necessary to produce a

consistent concrete surface texture. Use form liners in large sheets and with true, tight-fitted joints which are logically located. Obtain the Engineer's approval of the layout of sheets. Do not use liners which have been patched. Use liner material of the same stock throughout.

400-5.3.3 Plywood: The Contractor may use plywood of not less than 5/8 inch in thickness manufactured with waterproof glue or protected with an approved impervious coating. Do not use pieces with bulged plies or raveled, untrue edges.

400-5.4 Special Requirements:

400-5.4.1 Re-entrant Angles: Use chamfered forms for exterior concrete corners and filleted forms for interior concrete corners. Use chamfers and fillets that are 3/4 by 3/4 inch and are mill-dressed on all sides to uniform dimensions. The Contractor may use plastic or metal chamfers and fillets provided they perform satisfactorily in producing uniform, smooth concrete corner surfaces without honeycomb.

400-5.4.2 Handrails and Parapets: Construct barriers and parapets in accordance with Section 521.

400-5.4.3 End-bent Caps: Do not place forms for end-bent caps until the embankment has been constructed to within 12 inches of the bottom of the cap. Place a mass of embankment that is sufficient to produce the subsidence, displacement, and settlement which may result from the construction of the total embankment.

400-5.4.4 Footings: Where footing concrete can be placed in dry excavation, the Contractor may omit cribs, cofferdams, and forms, subject to compliance with the following limitations and conditions:

1. Use this procedure only in locations not exposed to view from traveled roadways.
2. Obtain required elevations shown in the Plans.
3. Obtain neat line dimensions shown in the Plans.
4. Fill the entire excavation with concrete to the required elevation of the top of the footing.
5. The Engineer will determine the volume of footing concrete to be paid for from the neat line dimensions shown in the Plans.

400-5.5 Form Alignment, Bracing, and Ties: Construct forms in such manner that they may be adequately secured for alignment, shape, and grade. Use bracing systems, ties, and anchorages that are substantial and sufficient to ensure against apparent deviation from shape, alignment, and grade. Do not drive nails into existing concrete. Do not use bracing systems, ties, and anchorages which unnecessarily deface or mark, or have an injurious or undesirable effect on surfaces that will be a part of the finished surface.

If metal ties and anchorages are to remain in the concrete, construct them so as to permit the removal of metal to at least 1 inch beneath the finished surface of concrete. Use accessories for metal ties and anchorages that allow the removal of metal to the prescribed depth while leaving the smallest possible repairable cavity.

When using wire ties, cut or bend them back from the finished surface of the concrete a minimum of 1 inch. Do not use internal ties of wire when forming surfaces that are exposed to view.

400-5.6 Preparation and Cleaning: Meet the following requirements for the condition of forms at the time of beginning concrete casting:

1. Treat all forms with an approved form-release agent before placing concrete. Do not use material which adheres to or discolors the concrete.

2. Clean forms of all concrete laitance from previous use and all dirt, sawdust, shavings, loose wire ties and other debris.

3. Close and secure all inspection and cleanout holes.

400-5.7 Stay-In-Place Metal Forms:

400-5.7.1 General: Utilization of stay-in-place metal forms is permitted in lieu of removable forms to form concrete bridge decks between beams and between the webs of individual box girders when designated in the Plans. Stay-in-place metal forms may be of the cellular, non-cellular or non-cellular with top cover sheet type. The flutes of non-cellular stay-in-place metal forms may be filled with polystyrene foam or concrete. When polystyrene foam is used to fill the forms, fill form flutes completely; do not allow any portion of the polystyrene foam to extend beyond the limits of the flutes. Ensure that the polystyrene foam remains in its required position within flutes during the entire concrete placement process. Do not use reinforcing supports or other accessories in such a manner as to cause damage to the polystyrene foam. Replace all damaged polystyrene foam to the satisfaction of the Engineer.

Apply polymer sheeting to stay-in-place metal forms in accordance with the requirements in the following table. Apply polymer sheeting to all faces and edges (including sheared edges) of support angles used on bridges with Moderately and Extremely Aggressive Superstructure Environmental Classifications (as shown in the Plans). No polymer sheeting is required for beam attachment straps or clips partially embedded in concrete, and for support angles used on bridges with a Slightly Aggressive Superstructure Environmental Classification. Use polymer sheeting materials and application methods as described herein.

Polymer Sheeting Usage Requirements				
Form Type		Superstructure Environmental Classification (as shown in Plans)		
		Slightly Aggressive	Moderately Aggressive	Extremely Aggressive
Non-cellular form with concrete filled flutes		No polymer sheeting required	Polymer sheeting required on bottom side	Polymer sheeting required on bottom side
Non-cellular form with polystyrene foam filled flutes		Polymer sheeting required on inside	Polymer sheeting required on both sides*	Polymer sheeting required on both sides*
Non-cellular form with Top Cover Sheet	Top Cover Sheet	Polymer sheeting required on bottom side	Polymer sheeting required on bottom side	Polymer sheeting required on bottom side
	Non-cellular form	Polymer sheeting required on top side	Polymer sheeting required on both sides*	Polymer sheeting required on both sides*
Cellular form		No polymer sheeting allowed or required	Not permitted	Not permitted
* Polymer sheeting not required on bottom side of form located within box girders and U-beams.				

Prior to using stay-in-place metal forms, submit detailed plans for approval of the forming system, including method of support and attachment and method of protecting the supporting structural steel components from welding effects. Submit design calculations for the forming system, which have been signed and sealed by the Specialty Engineer. Detail stay-in-place metal forms such that they in no way infringe upon the concrete outline of the slab shown on the Plans. Use stay-in-place metal forms that provide and maintain the dimensions and configuration of the original slab in regards to thickness and slope.

Do not weld stay-in-place metal form supports and connections to the structural steel components. Do not connect polymer coated angles or other hardware that support polymer coated metal forms to the beam attachment straps or clips by welding. Electrical grounding to steel reinforcing or fiber reinforced polymer (FRP) reinforcing is prohibited.

Protect structural steel components from damage by using a shield to guard against weld splatter, weld overrun, arc strikes, or other damaging effects of the welding process. Upon completion of welding, rest the metal form support flush on the supporting steel component. Should any weld spatter, weld overrun, arc strike, or other effects of the welding process be evident or occur to the structural steel component, immediately stop in-place welding of the metal form supports for the remainder of the work. In this event, weld all metal form supports off of the structure and erect the forms after prefabrication, or use an alternate approved method of attaching the form supports. Remove improper weldment, repair the supporting steel component for any improper welding. Perform all required verification and testing at no expense to the Department and to the satisfaction of the Engineer.

Do not use stay-in-place metal forms until the forming system has been approved by the Engineer. The Contractor is responsible for the performance of the stay-in-place forms.

Structures designed, detailed, and dimensioned for the use of removable forms: Where stay-in-place metal forms are permitted, the Contractor is responsible and shall obtain the approval of the Engineer for any changes in design, etc. to accommodate the use of stay-in-place forms. The Engineer will compute pay quantities of the various components of the structure which are paid on a cubic yard basis from the design dimensions shown in the Plans with no allowance for changes in deflection or dimensions necessary to accommodate the stay-in-place forms or concrete to fill the form flutes. The Engineer will limit pay quantities of other Contract items that the Contractor increases to accommodate the use of stay-in-place forms to the quantity required for the original plan design.

Submit all changes in design details of bridge structural members that support stay-in-place forms, showing all revisions necessary to enable the supporting components to withstand any additional weight of the forms and the weight of any extra concrete that may be required to fill the forms. Include with the design calculations a comparative analysis of the stresses in the supporting components as detailed on the Contract Plans and as modified to support the forms. Use the identical method of analysis in each case, and do not allow the stresses in the modified components to exceed those of the component as detailed in the Contract Plans. Include with the design the adjusted cambers for any changes in deflection over those shown on the original Plans. Modify the beams to provide additional strength to compensate for the added dead loads imposed by the use of stay-in-place forms. Obtain the additional strength by adding strands to the pre-stressed beams or by adding steel material to increase the section modulus of steel girders. Substantiate the added strength by the comparative calculations. Do not

use stay-in-place forms until the forming system and all necessary design revisions of supporting members have been approved by the Engineer.

Structures designed, detailed, and dimensioned for the use of stay-in-place metal forms:

Prior to using stay-in-place metal forms, submit detailed plans for approval of the forming system (including method of support and attachment) together with design calculations. Include an analysis of the actual unit weight of the proposed forming system over the projected plan area of the metal forms. If the weight thus calculated exceeds the weight allowance for stay-in-place metal forms and concrete required to fill the forms shown on the Plans, then modify the supporting components to support the excess weight as specified by the Contractor's Specialty Engineer.

For all structures utilizing structural steel supporting components, paint the vertical sides of the top flange prior to installation of the stay-in-place metal forms in accordance with Section 560.

For non-polymer sheeting form surfaces, use zinc paint coating in accordance with Section 562 to all accessories cut from galvanized sheets, which are not embedded in concrete.

400-5.7.2 Design: Meet the following criteria for the design of stay-in-place bridge deck forms:

1. The maximum self weight of the stay in place metal forms, plus the weight of the concrete or expanded polystyrene required to fill the form flutes (where used), shall not exceed 20 psf.

2. Design the forms on the basis of dead load of form, reinforcement, and plastic concrete plus 50 pounds per square foot for construction loads. Use a unit working stress in the steel sheet of not more than 0.725 of the specified minimum yield strength of the material furnished, but not to exceed 36,000 psi.

3. Do not allow deflection under the weight of the forms, reinforcement, and plastic concrete to exceed 1/180 of the form span or 1/2 inch, whichever is less, for form spans of 10 feet or less, or 1/240 of the form span or 3/4 inch, whichever is less, for form spans greater than 10 feet. In all cases, do not use a total loading (psf) that is less than 20 plus the product of the deck thickness measured in inches times 12.5.

4. Use a design span of the form equal to the clear span of the form plus 2 inches. Measure the span parallel to the form flutes.

5. Compute physical design properties in accordance with requirements of the AISI Specifications for the Design of Cold Formed Steel Structural Members, latest published edition.

6. For all reinforcement, maintain the design concrete cover required by the Plans.

7. Maintain the plan dimensions of both layers of primary deck reinforcement from the top surface of the concrete deck.

8. Do not consider the permanent bridge deck form as lateral bracing for compression flanges of supporting structural members.

9. Do not use permanent steel bridge deck forms in panels where longitudinal deck construction joints are located between stringers.

10. Secure forms to the supporting members by means other than welding directly to the member.

400-5.7.3 Materials:

400-5.7.3.1 Metal Forms: Fabricate stay-in-place metal forms and supports from steel meeting the requirements of ASTM A653 having a coating designation G165. Do not use form materials that are less than 0.03 inch uncoated thickness.

400-5.7.3.2 Polymer Sheeting: Use polymer sheeting comprised of at least 85% ethylene acrylic acid copolymer capable of being applied to both G165 and G210 steel sheet as described in ASTM A742. Ensure that the polymer sheeting has a nominal thickness of 12 mils as manufactured and a minimum thickness of 10 mils after lamination to the steel sheet. Ensure that the polymer sheeting remains free of holes, tears and discontinuities and sufficiently flexible to withstand the forming process without any detrimental effects to bond, durability or performance. Ensure that the polymer sheeting is UV stabilized and contains antioxidants.

Ensure that the as-manufactured polymer sheeting (prior to application) has an Oxidative Induction Time (OIT) of 60 to 75 minutes at 170°C in air when tested according to ASTM D3895. Perform additional OIT tests on samples taken from the finished product (polymer sheeting applied to forms) resulting in a minimum OIT according to ASTM D3895 of 32 minutes at 170°C in air. Ensure that the polymer sheeting adheres to galvanized metal sufficient to prevent undercutting at penetrations made through the polymer sheeting or metal forms to the satisfaction of the Engineer. Ensure that edges subjected to shear cutting are coated by the form manufacturer with two coats of a compatible liquid coating repair material before delivery to the site. Ensure that steel used to produce polymer laminated metal forms is appropriately cleaned and prepared per NCCA (National Coil Coating Association) standard continuous coil coating practices. Ensure that pretreatment for use in conjunction with the manufacturer's polymer sheeting material is approved as compatible by the polymer sheeting manufacturer. Apply pretreatment in accordance with the polymer sheeting manufacturer's procedures. Apply polymer sheeting in accordance with the manufacturer's recommendations and procedures. Ensure that all steel has the polymer sheeting applied prior to fabrication of the stay-in-place forms and accessories.

Ensure that the screws to be used in the fastening of the stay-in-place laminated metal forms have a corrosion resistant cladding that will not have an adverse effect to the system due to the contact of dissimilar metals.

400-5.7.3.3 Certification: Submit a written certification from the manufacturer stating the product meets the requirements of this specification along with the delivery of the coated forms to the jobsite. Ensure that the certification conform**s** to the requirements of Section 6. Ensure that the manufacturer has a quality control program conforming to ISO 9001 2000 standards.

400-5.7.3.4 Polystyrene Foam: Use polystyrene foam comprised of expanded polystyrene manufactured from virgin resin of sufficient density to support the weight of concrete without deformation. Extrude the polystyrene foam to match the geometry of the flutes and provide a snug fit. Use polystyrene foam that has a density of not less than 0.8 pounds per cubic foot. Use polystyrene foam that has water absorption of less than 2.6% when tested according to ASTM C272. Submit a written certification from the manufacturer stating the product meets the requirements of this Specification along with the delivery of the product.

400-5.7.4 Construction: Install all forms in accordance with approved fabrication and erection plans.

Do not rest form sheets directly on the top of the stringer of floor beam flanges. Fasten sheets securely to form supports, and maintain a minimum bearing length of 1 inch at each end for metal forms. Place form supports in direct contact with the flange of the stringer or floor beam. Make all attachments for coated metal forms by bolts, clips, screws, or other approved means.

400-5.7.4.1 Form Galvanizing Repairs: For any permanent exposed steel where the galvanized coating has been damaged, thoroughly clean, wire brush, and paint it with two coats of galvanizing compound in accordance with Section 562 to the satisfaction of the Engineer. Do not touch up minor heat discoloration in areas of welds.

400-5.7.4.2 Polymer Sheeting Repairs: Inspect and identify areas for damage to the polymer sheeting and repair with liquid polymer coating similar and compatible with respect to durability, adhesion and appearance in accordance with ASTM A762, as furnished by the stay-in-place form manufacturer. Ensure that the inspection includes checking the polymer sheeting for cuts, tears, cracking, surface pits, peeling, dirt, grease, oil, stains, rust or bare areas. Reject any panels that show coating blistering, peeling or cracking. Repair all polymer sheeting damage according to the following:

1. Surface Preparation: Ensure that all surfaces to be repaired are clean and free of any deleterious substances. Remove all traces of dirt, soil, oil deposits, greases, and other surface contaminates in accordance with the polymer sheeting and coating manufacturer's written specifications prior to touch-up and recoating.

2. Application Procedures: Ensure that the liquid polymer repair coating is applied to a clean dry surface and in accordance with the manufacturer's written specifications. Apply the repair coating using a suitable paintbrush or other means acceptable to the Engineer. Apply a first coat of product to the surface at 2-4 mils in thickness. Let the first coat air dry. Apply a second coat to form a complete layer and increase the thickness, immediately after verifying the first coat is dry to the touch (15 - 25 minutes depending on the local air drying temperature and atmospheric conditions). Apply the second coat at the same coating thickness as the first at 2-4 mils. Ensure that the total dry film thickness of the two coats is not less than 6 mils. Apply additional coats in this same manner until desired coating thickness is achieved.

400-5.7.5 Placing of Concrete: Vibrate concrete to avoid honeycomb and voids, especially at construction joints, expansion joints, valleys and ends of form sheets. Use approved pouring sequences. Do not use calcium chloride or any other admixture containing chloride salts in the concrete.

400-5.7.6 Inspection: The Engineer will observe the Contractor's method of construction during all phases of the construction of the bridge deck slab, including the installation of the metal form system; location and fastening of the reinforcement; composition of concrete items; mixing procedures, concrete placement, and vibration; and finishing of the bridge deck. Should the Engineer determine that the procedures used during the placement of the concrete warrant inspection of the underside of the deck, remove at least one section of the metal forms in each span for this purpose. Do this as soon after placing the concrete as practicable in order to provide visual evidence that the concrete mix and the procedures are obtaining the

desired results. Remove an additional section in any span if the Engineer determines that there has been any change in the concrete mix or in the procedures warranting additional inspection.

If, in the Engineer's judgment, inspection is needed to check for defects in the bottom of the deck or to verify soundness, sound the metal forms with a hammer as directed by the Engineer after the deck concrete has been in place a minimum of two days. If sounding discloses areas of doubtful soundness to the Engineer, remove the metal forms from such areas for visual inspection after the concrete has attained adequate strength. Remove metal bridge deck forms at no expense to the Department.

At locations where sections of the metal forms have been removed, the Engineer will not require the Contractor to replace the metal forms. Repair the adjacent metal forms and supports to present a neat appearance and to ensure their satisfactory retention and where they are polymer sheeted, coat all exposed surfaces of stay-in-place metal form system elements that are not coated or are damaged with a field applied liquid polymer coating as specified in 400-5.7.4.2. As soon as the form is removed, the Engineer will examine the concrete surfaces for cavities, honeycombing, and other defects. If irregularities are found, and the Engineer determines that these irregularities do not justify rejection of the work, repair the concrete as directed, and provide a General Surface Finish in accordance with 400-15. If the Engineer determines that the concrete where the form is removed is unsatisfactory, remove additional metal forms as necessary to inspect and repair the slab, and modify the method of construction as required to obtain satisfactory concrete in the slab. Remove and replace all unsatisfactory concrete as directed, at no expense to the Department.

If the method of construction and the results of the inspections as outlined above indicate that sound concrete has been obtained throughout the slabs, the amount of sounding and form removal may be reduced when approved by the Engineer.

Corrosion of assembly screws will not be considered a structural or aesthetic problem and is considered acceptable.

Provide the facilities for the safe and convenient conduct of the inspection procedures.

400-5.8 Stay-In-Place Concrete Forms:

400-5.8.1 General: Permanent stay-in-place precast reinforced concrete forms may be used in lieu of removable forms to form concrete bridge deck slabs subject to the conditions contained herein. Precast reinforced concrete stay-in-place forms are not permitted to construct a composite concrete deck. Do not use precast prestressed concrete stay-in-place forms to form any permanent bridge decks.

When detailed Plans for structures are dimensioned for the use of removable forms, provide additional slab thickness, elevation changes, changes in design, etc. to accommodate the use of stay-in-place forms, subject to the Engineer's approval. The Engineer will compute pay quantities of the various component members of the structure which are paid on a cubic yard basis from the design dimensions shown in the Plans with no allowance for changes in deflection and changes in dimensions necessary to accommodate the stay-in-place forms. The Engineer will limit pay quantities of other Contract items which are increased to accommodate the use of stay-in-place forms to the quantity required for the original plan design.

Prior to using stay-in-place forms, submit for approval detailed plans of the forming system and design calculations. Indicate on the plans the form panel sizes, placing patterns, type of mastic or felt bearing material and type and method of caulking between panels.

Also, submit appropriate changes in design details of structural members supporting stay-in-place forms showing any revisions necessary to enable the supporting components to withstand the additional weight of the forms and perform equally as contemplated in the Plans. All calculations and details submitted shall be sealed by the Contractor's Engineer of Record. Modify the beams to provide additional strength to compensate for the added dead loads imposed by the use of stay-in-place forms. Obtain this strength by adding additional strands to prestressed girders or increasing the section modulus for steel girders. Do not use stay-in-place forms until the forming system and any necessary design revisions of supporting structural members have been approved by the Engineer. The Department is not responsible for the performance of the stay-in-place forms by its approval.

400-5.8.2 Materials: Construct permanent concrete forms of precast reinforced concrete with a Class 3 Surface Finish. As a minimum, use the same class of concrete and 28-day minimum compressive strength as being used to construct the bridge deck. Use welded steel wire reinforcement meeting the requirements of Section 931.

400-5.8.3 Design: Use the following criteria for the design of permanent bridge deck forms:

1. Design the forms on the basis of deadload of form, reinforcement, and plastic concrete plus an unfactored live load of 50 psf for construction loads. Meet the AASHTO design requirements for service loads and ultimate loads as applicable.

2. Deflection under the weight of the forms, reinforcement, and the plastic concrete shall not exceed 1/180 of the form span or 1/2 inch, whichever is less. In all cases, do not use a loading that is less than 120 psf total.

3. Use a design span of the form equal to the clear span of the form between supports. Measure the span of concrete forms parallel to the centerline of the form panels.

4. Compute physical design properties of concrete forms in accordance with current AASHTO design procedures.

5. Ensure that all reinforcement contained in the cast-in-place concrete has the minimum cover shown in the Plans or not less than one inch, whichever is greater. Measure the minimum cover normal to the plane of the bottom of the cast-in-place concrete. For stay-in-place concrete forms with other than plane surfaces in contact with the cast-in-place concrete, such as regularly spaced geometrical shapes projecting above the plane of the bottom of the cast-in-place concrete, meet the following special requirements:

a. Space geometrical shapes projecting above the bottom plane of the cast-in-place concrete used to provide support for reinforcement no closer than 3 feet apart and of sufficient height to maintain the required concrete cover on the bottom mat of reinforcing bars.

b. Construct all other geometrical shapes projecting above the plane of the bottom of the cast-in-place concrete to provide a minimum vertical clearance of 3/4 inch between the closest surface of the projections and the secondary longitudinal reinforcing bars in the deck slab.

c. Do not allow a minimum horizontal distance from the surface of any transverse reinforcing bars to surfaces of the stay-in-place form of less than 1 1/2 inches.

For all reinforcement for the stay-in-place form panels, provide a minimum of 1 inch concrete cover except that, for construction in a salt or other corrosive environment, provide a minimum of 1 1/2 inches concrete cover.

6. Maintain the plan dimensions of both layers of primary deck reinforcement from the top surface of the concrete deck. Measure the minimum cover of the bottom mat of reinforcement normal to the top of the precast concrete form panel.

7. Do not consider the permanent bridge deck form as lateral bracing for compression flanges of supporting structural members.

8. Do not use permanent concrete bridge deck forms in panels where longitudinal deck construction joints are located between stringers.

9. Do not allow the maximum weight of the concrete form to exceed 40 pounds per square foot of form surface.

400-5.8.4 Construction: Install all forms in accordance with approved fabrication and erection plans.

For concrete forms, provide a minimum bearing length of at least 1 1/2 inches but not exceeding 2 1/2 inches. Support concrete forms on the beams or girders by continuous layers of an approved mastic or felt bearing material that will provide a mortar tight uniform bearing. Use a mastic or felt bearing material that has a minimum width of 1 inch and a maximum width of 1 1/2 inches. Seal joints between concrete form panels with caulking, tape, or other approved method.

400-5.8.5 Placing of Concrete: Place the concrete in accordance with the requirements of 400-5.7.5. Immediately prior to placing the slab concrete, saturate concrete stay-in-place form panels with water.

400-5.8.6 Inspection: Inspect the concrete in accordance with the requirements of 400-5.7.6.

After the deck concrete has been in place for a minimum period of two days, inspect the forms for cracks and excessive form deflection, and test for soundness and bonding of the forms by sounding with a hammer as directed by the Engineer. Remove, for visual inspection, form panels found to be cracked that show evidence of leakage and form panels which have a deflection greater than adjacent panels by 1/2 inch or more which show signs of leakage. If sounding discloses areas of doubtful soundness to the Engineer, remove the form panels from such areas for visual inspection after the concrete has attained adequate strength. Remove permanent bridge deck form panels at no expense to the Department.

At locations where sections of the forms have been removed, the Engineer will not require the forms to be replaced. Repair the adjacent forms and supports to present a neat appearance and to ensure their satisfactory retention. As soon as the form is removed, the Engineer will examine the concrete surfaces for cavities, honeycombing, and other defects. If irregularities are found, and the Engineer determines that these irregularities do not justify rejection of the work, repair the concrete as directed and provide a General Surface Finish in accordance with 400-15. If the concrete where the form is removed is unsatisfactory, as determined by the Engineer, additional forms shall be removed as necessary to inspect and repair the slab, and modify the methods of construction as required to obtain satisfactory concrete in the slab. Remove and replace all unsatisfactory concrete as directed at no expense to the Department.

If the methods of construction and the results of the inspections as outlined above indicate that the Contractor has obtained sound concrete throughout the slabs, the Contractor may moderate the amount of sounding and form removal, when approved.

Provide all facilities for the safe and convenient conduct of the inspection procedures.

400-6 Underdrain and Weep Holes.

Provide weep holes in all abutments and retaining walls.

Provide a continuous underdrain for box culverts in accordance with Design Standard Index No. 289. Provide weep holes that are at least 3 inches in diameter and not more than 10 feet apart. Place the outlet ends of the weep holes just above the ground line in front of abutments and retaining walls. Cover the exterior openings of all weep holes with galvanized wire mesh and a minimum of 2 cubic feet of clean, broken stone or gravel wrapped in Type D 3 filter fabric, to allow free drainage but prevent the fill from washing through.

400-7 Placing Concrete.

400-7.1Weather Restrictions:

400-7.1.1 Concreting in Cold Weather: Do not place concrete when the air temperature at placement is below 40ºF.

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 35ºF for 12 hours or more or to fall below 30ºF for more than 4 hours, enclose the structure in such a way that the air temperature within the enclosure can be kept above 50ºF 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 Department.

400-7.1.2 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 75ºF, incorporate in the concrete mix a water-reducing retarder or water reducer if allowed by Section 346.

Spray reinforcing bars 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 Department.

400-7.1.3 Wind Velocity Restrictions: Do not place concrete for bridge decks if the forecast of average wind velocity at any time during the planned hours of concrete placement exceeds 15 mph. Obtain weather forecasts from the National Weather Service “Hourly Weather Graph” for the city closest to the project site.

400-7.2 Lighting Requirements: Provide adequate lighting for all concrete operations conducted at night. Obtain approval of the lighting system prior to starting the concrete operations.

400-7.3 Inspections before Placing Concrete: Do not place concrete until the depth and character of the foundation and the adequacy of the forms and falsework have been approved by the Engineer. Do not deposit any concrete until all reinforcement is in place and has been inspected and approved by the Engineer.

400-7.4 Exposure to Water: Do not expose concrete other than seal concrete in cofferdams to the action of water before final setting. Do not expose such concrete to the action of salt or brackish water for a period of seven days after placing the concrete. Protect the concrete during this period by keeping salt or brackish water pumped out of cofferdams.

400-7.5 General Requirements for Placing Concrete: Deposit concrete as nearly as possible in its final position. Do not deposit large quantities at one point and then run or work it along the forms. Take special care to fill each part of the forms, to work coarse aggregate back from the face, and to force concrete under and around reinforcing bars without displacing them.

Use a method and manner of placing concrete that avoids the possibility of segregation or separation of aggregates. If the Engineer determines that the quality of concrete as it reaches its final position is unsatisfactory, remove it and discontinue or adjust the method of placing until the Engineer determines that the quality of the concrete as placed is satisfactory.

Use metal or metal-lined open troughs or chutes with no aluminum parts in contact with the concrete. As an exception, chutes made of aluminum with a protective coating for ready mixed concrete trucks, no longer than 20 feet, may be used. This exception does not apply to any other means of concrete conveyance. Where steep slopes are required, use chutes that are equipped with baffles or are in short lengths that reverse the direction of movement. Where placing operations would involve dropping the concrete freely more than 5 feet, deposit it through pipes, troughs, or chutes of sheet metal or other approved material. Use troughs, chutes, or pipes with a combined length of more than 30 feet only with the Department's authorization. Keep all troughs, chutes, and pipes clean and free from coatings of hardened concrete by thoroughly flushing them with water after each run or more often if necessary.

Place concrete against supporting material that is moist at the time of concrete placement. If additional water is required, uniformly apply it ahead of the concrete placement as directed by the Engineer. Do not place concrete on supporting material that is frozen. The Contractor may use a moisture barrier in lieu of controlling the foundation grade moisture when approved by the Engineer.

400-7.6 Placing Concrete by Belt Conveyor: Place concrete by means of a belt conveyor system with written Department authorization. Remove conveyor belt systems which produce unsatisfactory results before continuing operations. Take concrete samples for assurance testing at the discharge end of the belt conveyor system. Make available to the Engineer the necessary platform to provide a safe and suitable place for sampling and testing. Remove any concrete placed in an unsatisfactory manner at no expense to the Department before continuing operations.

Use conveyor belt systems that do not exceed a total length of 550 feet, measured from end to end of the total assembly. Arrange the belt assembly so that each section discharges into a vertical hopper arrangement to the next section. To keep segregation to a minimum, situate scrapers over the hopper of each section to remove mortar adhering to the belt and to deposit it into the hopper. Equip the discharge end of the conveyor belt system with a hopper and a chute or suitable deflectors to cause the concrete to drop vertically to the deposit area.

In order to avoid delays due to breakdowns, provide stand-by equipment with an alternate power source prior to the beginning of the placement.

After the beginning of the placement, direct the discharge from the belt conveyor so that the concrete always falls on freshly placed concrete.

400-7.7 Placing Concrete by Pumping: In general, use concrete pumping equipment that is suitable in kind and adequate in capacity for the work proposed. Use a pump discharge line that has a minimum diameter of 4 inches. Use a pump and discharge lines that are constructed so that no aluminum surfaces are in contact with the concrete being pumped. Operate the pump to produce a continuous stream of concrete, without air pockets. When using cement slurry or similar material to lubricate the discharge line when pumping begins, collect such material at the point of discharge. Dispose of the collected slurry in areas provided by the Contractor. Control the pump discharge locations so that the placement locations of the various LOTs of concrete represented by strength test cylinders can be identified in the event the test cylinders indicate deficient strength. When concrete is placed by pumping, take all test samples of concrete at the end of the discharge line, except in accordance with the provisions of Section 346.

400-7.8 Consolidation: Consolidate the concrete by continuous working with a suitable tool in an acceptable manner, or by vibrating as set forth in 400-7.11. When not using vibrators, thoroughly work and compact all thin-section work with a steel slicing rod. Spade all faces, and flush the mortar to the surface by continuously working with a concrete spading implement.

400-7.9 Obstructions: In cases where, because of obstructions, difficulty is encountered in puddling the concrete adjacent to the forms, bring the mortar content of the mix into contact with the interior surfaces by vibrating the forms. Produce the vibrations by striking the outside surfaces of the forms with wooden mallets or by other satisfactory means. In placing concrete around steel shapes place it only on one side of the shape until it flushes up over the bottom flange of the shape on the opposite side, after which place it on both sides to completion. After the concrete has taken its initial set, exercise care to avoid jarring the forms or placing any strain on the ends of projecting reinforcing bars.

400-7.10 Requirements for Successive Layers: Place concrete in continuous horizontal layers, approximately 20 inches thick. To avoid obtaining a plane of separation or a cold joint between layers, vibrate the concrete in accordance with 400-7.11.

400-7.11 Vibration of Concrete:

400-7.11.1 General: Consolidate all concrete except seal, steel pile jackets, and concrete for incidental construction by the use of mechanical vibrators.

400-7.11.2 Vibrators: Provide adequate vibrators on the project that are approved by the Engineer before beginning concrete work. Generally, provide vibrators of the internal type. For thin sections, where the forms are especially designed to resist vibration, the Contractor may use external vibrators. Use a vibrator with a minimum frequency of 4,500 impulses per minute with sufficient intensity and duration to cause complete consolidation of the concrete without causing segregation of the materials. For vibrating thin, heavily reinforced sections, use heads of such size to secure proper vibration of the concrete without disturbance of either the reinforcing bars or the forms.

400-7.11.3 Number of Vibrators Required: Use a sufficient number of vibrators to secure the compaction of each batch before the next batch is delivered, without delaying the

delivery. In order to avoid delays due to breakdowns, provide at least one stand-by vibrator, with an appropriate power source.

400-7.11.4 Method of Vibration: Use vibrators to consolidate properly placed concrete. Do not use them to move concrete about in the forms. Insert the vibrators in the surface of concrete at points spaced to ensure uniform vibration of the entire mass of the concrete. Insert the vibrator at points that are no further apart than the radius over which the vibrator is visibly effective. Allow the vibrator to sink into the concrete by its own weight, and allow it to penetrate into the underlying layer sufficiently so that the two layers are thoroughly consolidated together. After thoroughly consolidating the concrete, withdraw the vibrator slowly to avoid formation of holes.

400-7.11.5 Hand Spading: When necessary in order to secure well-filled forms, free from aggregate pockets, honeycomb, bubbles, etc., spade the concrete by hand, along the surfaces of the forms and in all corners, following the vibration.

400-7.12 Columns: Place concrete in columns in one continuous operation for each lift as shown in the Plans.

400-7.13 Slabs and Bridge Decks:

400-7.13.1 Bulkheads, Screed Rails, and Screeding Devices: Strike-off the concrete using an approved metal screed operating on rails or bulkheads. Use devices which do not contain aluminum parts. Prior to placing concrete, provide an approved screed capable of striking-off and screeding the surface of the slab or deck to the required shape. Set all necessary bulkheads and screed rails to the required grade. Use bulkheads, screed rails, and screeding devices that permit vertical profile adjustment to the grade, satisfactory for providing straight transverse slopes, differing transverse slopes broken as shown in the Plans and/or transverse slopes with changing grade along the longitudinal length of slab or deck. Locate the screed rails so the entire placement surface can be screeded to grade without using intermediate screed rails, unless approved otherwise by the Engineer.

Use a screed consisting of a truss or heavy beams that will retain it's shape under all working conditions, and a set of rotating drums with a diameter sufficient to carry a 2 inch mortar roll in front of and parallel to the axis of the drums, while making an initial pass. Adjust the drums to prevent mortar buildup forming behind the trailing edges of the drums. For long bridges, as defined in 400-15.2.5.1, provide a device that automatically smoothes the concrete surface to an untextured finish and that is attached to, and is moved by, the rolling drum screed. As an alternate to the drum type screed, a mechanical screed with a metal strike-off may be used. Equip the mechanical screed with mechanical vibrators to provide continuous uniform vibration to the entire length unless otherwise authorized by the Engineer. Small and irregularly shaped areas that cannot be mechanically screeded may be screeded in a manner approved by the Engineer.

400-7.13.2 Screed Demonstration: Subsequent to the placement of all reinforcing bars and prior to placing any slab or deck concrete, demonstrate that the proposed equipment and methods can finish the concrete to the specified grades while maintaining the specified cover over the reinforcement. Provide the demonstration over the entire length and width of the spans to be placed.

400-7.13.3 Screeding Operations: Perform concrete placement and screeding as independently controlled mechanical operations. Ensure that the passing of the screed and

forward movement of the screeding equipment are independent of the movement of concrete placement equipment.

Level the concrete in front of the screed as near to the finished grade as possible to prevent the screed from rising off the rail and forming uneven ridges behind the screed. Pass the screed over the slab or deck as many times as necessary to obtain a satisfactory surface and provide a concrete surface true to grade and crown, and free of irregularities.

Do not add water to the concrete surface to assist in finishing operations unless specifically authorized by the Engineer. If the Engineer permits the addition of water, apply only a fog mist, above the concrete surface, by means of approved power driven spray equipment.

For long bridges, as defined in 400-15.2.5.1, do not manually or mechanically float the concrete surface or apply a texture by broom or any other device to the concrete surface produced by the screeding process. Correct isolated surface irregularities in accordance with 400-15.2.5.3.

400-7.13.4 Placing Operations: Select an approved concrete design mix which ensures complete placement of all slab or deck concrete between construction joints before initial set begins in the plastic concrete. On placements of 50 yd^3 or less, the minimum placement rate is 20 cubic yards per hour. On placements of greater than 50 cubic yards, the minimum placement rate is 30 cubic yards per hour.

The Engineer will not permit slab or deck placements until an acceptable plan for meeting the minimum placement rate is approved.

400-7.13.5 Concrete Decks on Steel Spans: Where concrete decks are placed on steel spans, release the temporary supports under the bridge before placing any concrete.

400-7.13.6 Concrete Decks on T-Beams: For cast-in-place T-beam construction, cast the slabs and beams in one continuous operation. As an exception, where special shear anchorage or keys are provided for in the Plans or approved by the Engineer, the beams and slabs may be constructed in successive placements.

400-7.13.7 Diaphragms: Place concrete diaphragms at least 48 hours before the bridge deck slabs are placed unless otherwise indicated in the Plans.

400-7.13.8 Weather Protection: Provide an approved means of protecting unhardened concrete from rain. Position the protection system to shield the concrete from rain and running water. Provide a shield impervious to water over the slab or deck concrete, of sufficient size to protect all areas of slab or deck concrete subject to water damage, and include a means of intercepting and diverting water away from freshly placed concrete. Arrange the equipment so that the weather protection system can be erected over unhardened concrete. When there is a possibility of rain during concrete placement operations, place the weather protection system in stand-by readiness, capable of being deployed in a timely manner. Use the weather protection immediately when rain begins so that slab or deck concrete damage will not occur. Do not place concrete during rain.

Assume responsibility for damage to the slab or deck in the case of failure of the weather protection system.

400-7.14 Concrete Box Culverts: In general, place the base slab or footing of concrete box culverts, and allow them to set before constructing the remainder of the culvert. In this case, make suitable provision for longitudinal keys. Construct bottom slabs, footings, and apron walls

as a monolith if practicable. Where transverse construction joints are necessary, place them at right angles to the culvert barrel, and make suitable provision for keys.

In the construction of box culverts having walls 6 feet or less in height, the sidewalls and top slab may be constructed as a monolith or may place the concrete in the walls and allow it to set before placing the top slab concrete.

Where the height of the box culvert walls exceed 6 feet, place the walls, and allow the concrete to set at least 12 hours before placing the top slab concrete. In such cases, form keys in the sidewalls.

When casting the walls and top slabs of box culverts as a monolith, ensure that any necessary construction joints are vertical. Design all construction joints with formed keys. Provide keys that are beveled as shown in the Plans or as directed, but do not allow the edge of the beveled material forming the key to be less than 1 1/2 inches from the edge of the concrete.

Construct each wingwall, if possible, as a monolith. Ensure that construction joints, where unavoidable, are horizontal and so located that no joints will be visible in the exposed face of the wing above the ground line.

Precast box culvert sections may be used in lieu of cast-in-place box culvert construction provided the provisions in Section 410 are satisfied.

400-8 Seals.

400-8.1 General: Wherever practicable, dewater all foundation excavations, and deposit the concrete in the dry as defined in 455-15.2. Where conditions are encountered which render it impracticable to dewater the foundation before placing concrete, the Engineer may authorize the construction of a concrete foundation seal of the required size. Then, dewater the foundation, and place the balance of the concrete in the dry.

When required to place seal concrete, the Contractor is responsible for the satisfactory performance of the seal in providing a watertight excavation for placing structural concrete. The Department will provide and pay for the seal concrete as an aid to the construction of the structure. Repair seal concrete as necessary to perform its required function at no expense to the Department.

400-8.2 Method of Placing: Carefully place concrete deposited under water in the space in which it is to remain by means of a tremie, a closed-bottom dump bucket of not less than 1 cubic yard capacity, or other approved method. Do not disturb the concrete after depositing it. Deposit all seal concrete in one continuous placement. Do not place any concrete in running water, and ensure that all form work designed to retain concrete under water is watertight.

400-8.3 Use of Tremie: Use a tremie consisting of a tube having a minimum inside diameter of 10 inches, constructed in sections having water-tight joints. Do not allow any aluminum parts to have contact with the concrete. Ensure that the discharge end is entirely seated at all times, and keep the tremie tube full to the bottom of the hopper. When dumping a batch into the hopper, keep the tremie slightly raised (but not out of the concrete at the bottom) until the batch discharges to the bottom of the hopper. Stop the flow by lowering the tremie. Support the tremie such as to permit the free movement of the discharge end over the entire top surface of the work and to permit its being lowered rapidly when necessary to choke off or retard the flow. Provide a continuous, uninterrupted flow until completing the work. Exercise special care to maintain still water at the point of deposit.

400-8.4 Time of Beginning Pumping: Do not commence pumping to dewater a sealed cofferdam until the seal has set sufficiently to withstand the hydrostatic pressure, and in no case earlier than 72 hours after placement of the concrete.

400-9 Construction Joints.

400-9.1 Location: Make construction joints only at locations shown in the Plans or in the placement schedule, unless otherwise approved in writing. If not detailed in the Plans or placement schedule, or in case of emergency, place construction joints as directed.

400-9.2 Provisions for Bond and Transmission of Shear: Use shear key reinforcement where necessary to transmit shear or to bond the two sections together.

400-9.3 Preparations of Surfaces: Before depositing new concrete on or against concrete which has hardened, re-tighten the forms. Roughen the surface of the hardened concrete in a manner that will not leave loosened particles, aggregate, or damaged concrete at the surface. Thoroughly clean the surface of foreign matter and laitance, and saturate it with water.

400-9.4 Placing Concrete: Continuously place concrete from joint to joint. Carefully finish the face edges of all joints which are exposed to view true to line and elevation.

400-9.5 Joints in Sea Water or Brackish Water: For concrete placed in sea water or brackish water, do not place any construction joints between points 2 feet below the mean low water elevation and 6 feet above the mean high water elevation.

400-9.6 Joints in Long Box Culverts: For long concrete box culverts, vertical construction joints may be placed at a spacing not less than 30 feet. When using transverse construction joints, ensure that longitudinal reinforcing is continuous through the joint and that the joint is vertical.

400-9.7 Crack Control Grooves in Concrete Bridge Decks: When the Plans require crack control grooves in the top surface of decks, either install a tooled “V” groove prior to initial concrete set or saw a groove using an early entry dry cut saw. When using an early entry dry cut saw, operate in accordance with the manufacturer’s recommendations. Commence sawing as soon as the concrete has hardened enough to permit standing on the surface without leaving visible tracks or impressions and before uncontrolled concrete cracks occur.

400-10 Expansion Joints.

400-10.1 General: After meeting the smoothness criteria in 400-15, construct expansion joints to permit absolute freedom of movement. Carefully remove all loose or thin shells of mortar likely to cause a spall with movement at a joint from all expansion joints as soon as possible.

400-10.2 Sealed Joints: Fill expansion joints with a preformed joint filler. Cut the filler to conform to the cross-section of the structure, and furnish it in as few pieces as practicable, using only a single piece in each curb section. Do not use small pieces that would tend to come loose. Prepare joints to be sealed and apply the sealer in accordance with approved manufacturer’s directions.

400-10.3 Joint System Installation: Install expansion joints before or after the deck planing required by 400-15.2.5.5 following the manufacturer’s instructions. When installed after deck planing, install the edge rail assemblies in the blockouts on a profile tangent between the ends of the deck and/or approach slab to within a plus 0 and minus1/4 inch variation.

When installed before deck planing, install the edge rail assemblies 3/8 inch, plus or minus 1/16 inch, below the top surface of the deck or approach slab to compensate for concrete removal during planing.

400-11 Contact and Bearing Surfaces.

400-11.1 Separation of Surfaces: In general, separate all contact surfaces between superstructure and substructure or end walls and between adjacent superstructure sections by a layer of ASTM D6380 Class S, Type III organic felt.

400-11.2 Finishing of Bearing Surfaces: Construct bearings surfaces (areas) to the tolerances as specified herein and in the other parts of the Contract Documents. When using neoprene bearing pads, finish the concrete surface to a uniform 'rough' texture using a burlap drag, fine bristle broom or float. For metal or high load rotational bearings, fill minor depressions, 1/8 inch maximum, caused by finishing, bush hammering, or grinding with a low-viscosity epoxy meeting the requirements of 926-1, Type F-2, applied by the use of a squeegee. Bearing surfaces may be ground to final position with carborundum. Check all bearing surfaces with a metallic straightedge prior to setting bearings or neoprene pads.

400-11.2.1 Deviation from Specified Elevations for Steel Beam Superstructures: Construct to the elevation shown on the Plans plus or minus 0.01 feet and do not exceed a 0.01 feet difference between specified elevations of bearing areas of adjacent bearings measured between the centerlines of bearing areas.

400-11.2.2 Deviation from Specified Elevations for Concrete Beam Superstructures: Construct to the elevation shown on the Plans plus or minus 0.02 feet.

400-11.2.3 Projecting Irregularities: Projecting irregularities will not exceed 1/16 inch.

400-11.2.4 Variations in Flatness for Neoprene Pads: In any direction, the pad is to be flat to within 1/16 inch. Pads designated to be sloped are not to deviate from the theoretical slope by the same amount.

400-11.2.5 Variations in Flatness for Metal or High Load Rotational Bearings: Construct the bearing area to the tolerance indicated for the measured length along the orthogonal axes.

Bearing area length up to 30 inches long to plus or minus 1/16 inch.

Bearing area length over 30 inches up to 45 inches long to plus or minus 3/32 inch.

Bearing area length over 45 inches long to plus or minus 1/8 inch.

400-11.3 Bearing Pads: Use bearing pads for seating bridge shoes, ends of beams, and slabs of the types specified or required in the Plans.

Furnish and install neoprene pads as detailed in the Plans. Place neoprene pads, where specified or required, directly on concrete surfaces finished in accordance with the requirements of this Article. Ensure that pads, bearing areas of bridge seats, and metal bearing plates are thoroughly cleaned and free from oil, grease, and other foreign materials.

Exercise care in fabrication of related metal parts to avoid producing conditions detrimental to the performance of the pads, such as uneven bearing, excessive bulging, etc.

The Engineer will evaluate the degree of deformation and condition of bearing pads in the completed bridge on or before the final inspection required by 5-10 or when requested by the Contractor. As directed by the Engineer, correct horizontal bearing pad deformations that

at the time of inspection exceed 50% of the bearing pad thickness or that the Engineer predicts will exceed 50% of the bearing pad thickness during future high or low temperature periods. Payment for this correction effort will be considered extra work in accordance with 4-3.

400-12 Anchor Bolts and Dowels.

Set anchor bolts and dowels as specified in Section 460.

Galvanize all anchor bolts as specified in Section 962.

400-13 Epoxy Bonding Compounds.

Where epoxy bonding compounds for bonding concrete are specified or required, apply the epoxy bonding materials only to clean, dry, structurally sound concrete surfaces. Provide surface preparation, application, and curing of epoxy bonding compound in strict accordance with the manufacturer's recommendations for each particular application. Use an epoxy bonding compound listed on the Department's APL.

400-14 Removal of Forms.

Use the table below as the criterion for minimum time or compressive strength required before removal of forms or supports.

When using the time period criterion, include in the time period all days except days in which the temperature falls below 40ºF.

Use the specified 28-day minimum compressive strength value as stated in 346-3.1 for each Class of Concrete utilized.

Location of Concrete Placement	Minimum Time for Form Removal for any Strength Concrete*	Minimum (%) of 28-day Compressive Strength for Form Removal
(1) Deck slabs, top slabs of culverts and bottom of caps, forms under sidewalks, and safety curb overhangs extending more than 2 feet		
(a) Class II (Bridge Deck)	7 days**	75**
(b) Class II (Other than Bridge Deck)	7 days	75
(c) Class III	7 days	70
(d) Class IV	7 days	60
(e) Class V	7 days	50
(2) Walls, piers, columns, sides of beams and other vertical surfaces	24 hours***	50***
(3) Front face form of curbs	6 hours	70

* For mass concrete, remove forms in accordance with 346-3.3

** Reference 400-16.4

***Do not place additional load on the section until 70% of the specified 28-day concrete strength is attained. Also, refer to 400-7.4.

When using the percent of required strength, cast test cylinders for each mix for compressive strength determination or develop a curing concrete strength versus time curve (S/T Curve) which can be used in lieu of multiple test cylinders to determine when percent of required strength has been met.

Prior to curve use; obtain the Engineer's approval of the S/T Curve and its supporting data. An approved testing laboratory may be used to provide this information with approval of the Engineer. Plot S/T Curves using at least three different elapsed times that begin once test cylinders are cast; however, one of the elapsed times must be prior to the Contractor's intended form removal. Each elapsed time plotted must have a corresponding compressive strength computed by averaging the compressive strength of two test cylinders.

Cure such test cylinders as nearly as practical in the same manner as the concrete in the corresponding structural component, and test them in accordance with ASTM C39 and ASTM C31. Perform cylinder casting, curing, and testing at no expense to the Department and under the observation of the Engineer. When the S/T Curve indicates a compressive strength equal to or greater than the percentage of specified strength shown in the table above for form removal, the Contractor may remove the forms. When the ambient air temperature falls 15ºF or more below the ambient air temperature that existed during development of a S/T Curve, use a S/T Curve that corresponds to the lower temperature and that is developed in accordance with this section.

Do not remove forms at any time without the consent of the Engineer. Even when the Engineer provides consent to remove the forms, the Contractor is responsible for the work.

400-15 Finishing Concrete.

400-15.1 General Surface Finish (Required for All Surfaces): After placing and consolidating the concrete, strike-off all exposed surfaces to the lines and grades indicated in the Plans in a manner that will leave a surface of uniform texture free of undesirable surface irregularities, cavities, and other defects. Cut back metal ties supporting reinforcement, conduit, and other appurtenances a minimum of 1 inch from finished surface. After removing excess mortar and concrete and while the concrete is still in a workable state, carefully tool all construction and expansion joints. Leave joint filler exposed for its full length with clean edges. Ensure that finished work in addition to that specified above is compatible and complementary to the class of surface finish required.

Remove all laitance, loose material, form oil and curing compound from exposed surfaces that do not require forming and from exposed surfaces requiring forming, after form removal. Remove fins and irregular projections flush with the surface. Clean, saturate with water, and fill all holes, tie cavities, honeycomb, chips and spalls. Prior to filling, prepare the surface to ensure that patching mortar will bond to the existing concrete. Exercise care during the roughening process to prevent excessive defacement and damage to the surface of the existing concrete. Use patching mortar blended from the mix ingredients of the existing concrete. Ensure the patching mortar closely matches the color of the existing concrete when fully cured. As an alternative, mortar consisting of the following materials may be used: 4 parts of ordinary gray portland cement, 1/2 part of white portland cement, 1 part of fly ash and 2 to 4 parts of sand. The blended mortar must closely match the color of the filled element once fully cured and the proportion of white portland cement may be adjusted to achieve as close a match as possible. Regardless of the type patching mortar used, provide a mortar surface closely resembling the existing surface.

Cure the newly placed mortar using a curing blanket or a Type I clear curing compound at a uniform coverage as recommended by the manufacturer, but not less than 0.06 gallon per square yard.

In the event unsatisfactory surfaces are obtained, repair these surfaces by methods approved by the Engineer or the affected concrete will be rejected. Repair any surface or remove rejected concrete at no expense to the Department.

400-15.2 Surface Finishes:

400-15.2.1 General: In addition to the general surface work specified for all exposed concrete surfaces, the Engineer may require one of the classes of surface finish listed below. For all such exposed surfaces, begin finish work for the applicable class specified, along with the general finish work, immediately after removal of the forms. In order to further ensure the required quality of the finish, remove forms no later than the minimum time specified for the forms to remain in place. Satisfactorily repair finished concrete surfaces which are subsequently disfigured or discolored at no expense to the Department.

Provide the required class of surface finish for the various items of structural concrete as shown in the Plans.

400-15.2.2 Class 1 Surface Finish: As soon as the pointing has sufficiently set, thoroughly saturate the exposed surfaces with water, and rub them with a medium coarse carborundum stone. Continue rubbing until the surface has been ground to a paste and remove all form marks, irregularities, and projections. In this process, do not introduce any additive material other than water. After the rubbing has produced a smooth surface of uniform color, allow the material which has been ground to a paste to reset under proper curing conditions. Subsequently, as a second operation, re-saturate the concrete surfaces with water, and thoroughly rub them with a fine carborundum stone. Continue this rubbing until the surface has a smooth, fine grain texture of uniform color.

The Contractor may substitute a Class 5 applied finish coating in accordance with 400-15.2.6 as an alternate surface finish on all areas where Class 1 surface finish is specified.

400-15.2.3 Class 2 Surface Finish: As soon as pointing has sufficiently set, thoroughly saturate the exposed concrete surfaces with water and rub them with a medium coarse carborundum stone. Continue rubbing until the surface has been ground to a paste and remove all form marks, irregularities, and projections. In this process, do not introduce any additive material other than water.

After rubbing has produced a smooth surface finish, of uniform color, carefully brush the material which has been ground to a paste to a uniform texture, and allow it to reset under proper curing conditions. Carefully protect these surfaces from disfigurement and discoloration during subsequent construction operations.

400-15.2.4 Class 3 Surface Finish: Where this surface finish is specified, use forms with a form liner. Where specified or required on the Plans, use No. 89 coarse aggregate for concrete.

After concrete has been placed in the forms and compacted, finish all exposed surfaces which are not contained by the forms to produce a surface texture as nearly equal to that produced by the form as practicable. Generally, finish unformed surfaces to a smooth, dense surface with a steel trowel.

Perform all work, including general surface finish work, in a manner that will preserve the same surface texture and color produced by the form liner. Pointed areas may be rubbed with a dry carborundum stone.

400-15.2.5 Class 4 Deck Finish:

400-15.2.5.1 General: Apply a Class 4 finish on bridge decks and concrete approach slabs. On Short Bridges (bridges having a length less than or equal to 100 feet), and on Miscellaneous Bridges (Pedestrian, Trail and Movable Spans) regardless of length, meet the finish and smoothness requirements of 400-15.2.5.2 and 400-15.2.5.4. On Long Bridges (bridges having a length greater than 100 feet) meet the finish and smoothness requirements of 400-15.2.5.3 and 400-15.2.5.5. When an existing bridge deck is widened, see the Plans for the finish and smoothness requirements of the existing bridge deck and its new widened section. After meeting the screeding requirements of 400-7.13 and curing requirements of 400-16 and the smoothness requirements, herein, groove the bridge deck and approach slabs.

Regardless of bridge length, finish decks with less than 2 1/2 inches of top cover in accordance with the requirements for Short Bridges.

400-15.2.5.2 Plastic Surface Finish for Short and Miscellaneous Bridges: After screeding is completed, check the surface of the plastic concrete with a 10 foot straightedge, positioning and half-lapping the straightedge parallel to the centerline to cover the entire surface. Immediately correct deficiencies of more than 1/8 inch, measured as an ordinate between the surface and the straightedge.

Finish the concrete surface to a uniform texture using a burlap drag, fine bristle broom or float. Finish the deck to a smooth surface having a sandy texture without blemishes, marks or scratches deeper than 1/16 inch.

400-15.2.5.3 Plastic Surface Finish for Long Bridges: Do not moisten, manually float or apply texture to the concrete surface after the screed, with attached smoothing device, has passed unless correction of isolated surface irregularities is warranted and this should be done as soon as possible after screeding while the concrete is plastic. Correct all flaws such as cavities, blemishes, marks, or scratches that will not be removed by planing.

If the Engineer permits the addition of water when correcting flaws, apply moisture to the concrete surface only if required and only in the immediate vicinity of the isolated irregularity. Apply a quantity of moisture not greater than what is needed to facilitate correction of the irregularity and apply only a fog mist, above the concrete surface, by power driven spray equipment approved by the Engineer.

400-15.2.5.4 Smoothness Requirements for Short Bridges and Miscellaneous Bridges (including approach slabs): Perform a final straightedge check with a 10 foot straightedge, positioning and half-lapping the straightedge parallel to the centerline, approximately 5 feet apart to cover the entire surface. Correct all irregularities greater than 3/16 inch measured as an ordinate to the straightedge, by grinding. Perform grinding by the abrasive method using hand or power tools or by machine, to leave a smooth surface within a 1/8 inch tolerance.

400-15.2.5.5 Smoothness Evaluation and Concrete Surface Planing, Long Bridges (including approach slabs): Prior to planing, provide a smoothness evaluation of the completed bridge deck and exposed concrete surfaces of approach slabs by a computerized Cox California-type profilograph in accordance with the criteria herein and FM 5-558E. Furnish this evaluation through an independent provider approved by the Engineer, using equipment

calibrated by the Engineer. All bridge deck and concrete approach slab surfaces to within 2 feet of gutter lines are subject to this smoothness evaluation.

Prior to initial profilograph testing, complete work on the bridge deck and approach slabs. Thoroughly clean and clear the bridge deck and approach slab areas to be evaluated for smoothness of all obstructions and provide the smoothness evaluation. Ensure that no radio transmissions or other activities that might disrupt the automated profilograph equipment are allowed during the evaluation.

Average the Profile Index Value for the bridge deck, including the exposed concrete surfaces of the approach slabs, for the left and right wheel path of each lane. The maximum allowable Profile Index Value for acceptable smoothness is 10 inches per mile utilizing the 0.2 inch blanking band. Apply these criteria to a minimum of 100 feet of each lane. Additionally, correct individual bumps or depressions exceeding a cutoff height of 0.3 inch from a chord of 25 feet (see ASTM E1274) on the profilograph trace. Ensure that the surface meets a 1/4 inch in 10 feet straightedge check made transversely across the deck and approach slabs if determined necessary by the Engineer. Provide additional profilograph testing as necessary following longitudinal planing and any other actions taken to improve smoothness, until a profile meeting the acceptance criteria is obtained.

Regardless of whether expansion joints are installed before or after deck planing is complete, plane off the concrete deck surface to a minimum depth of 1/4 inch and also meet or exceed the profilograph smoothness criteria. Longitudinally plane the entire bridge deck and exposed concrete surfaces of the approach slabs using a self-propelled planing machine with gang mounted diamond saw cutting blades specifically designed for such work. Use the profilograph generated smoothness data, to establish the optimum planing machine settings. Plane the deck surface to within 2 feet of the gutter line so that there is a smooth transition, without vertical faces or sudden surface discontinuities, from the fully planed surface to the unplaned surface. Use a machine with a minimum wheel base length of 15 feet, constructed and operated in such manner that it does not cause strain or damage to deck or approach slab surfaces, excessive ravels, aggregate fractures or spalling. The equipment shall be approved by the Engineer. Perform longitudinal planing parallel to the roadway centerline, and provide a consistent, textured surface. Clean the surface of all slurry/debris generated during this work concurrently with operation of the machine.

After the deck has been planed the minimum 1/4 inch, reevaluate the surface smoothness using the profilograph testing described above. Perform cycles of planing and profilograph retesting as necessary until the deck and exposed concrete surfaces of approach slabs are in compliance with the smoothness criteria but do not exceed the maximum concrete removal depth of 1/2 inch.

400-15.2.5.6 Grooving: After the concrete surface profile, as required by 400-15.2.5, has been accepted by the Engineer, and prior to opening the bridge to traffic, groove the bridge deck and approach slabs perpendicular to the centerline of the structure. Do not groove the deck surface of pedestrian or trail bridges unless otherwise shown in the Contract Documents. Cut grooves into the hardened concrete using a mechanical saw device which will leave grooves nominally 1/8 inch wide and 3/16 inch deep. Space the grooves apart in random spacing center of grooves in the following sequence: 3/4 inch, 1-1/8 inch, 5/8 inch, 1 inch, 5/8 inch, 1-1/8 inch, 3/4 inch in 6 inch repetitions across the width to be grooved in one pass of the mechanical saw device. One 6 inch sequence may be adjusted by 1/4 sequence increments to accommodate

various cutting head widths provided the general pattern is carried out. The tolerance for the width of the grooves is plus 1/16 inch to minus 0 inch and the tolerance for the depth of grooves is plus or minus1/16 inch. The tolerance for the spacing of the grooves is plus or minus1/16 inch.

Cut grooves continuously across the deck or approach slab to within 18 inches of gutter lines at barrier rail, curb line and median divider. At skewed metal expansion joints in bridge deck surfaces, adjust groove cutting by using narrow width cutting heads so that all grooves of the bridge deck surface or approach slab surface end within 6 inches, measured normal to centerline of the joint, leaving no ungrooved surface adjacent to each side of the joint greater than 6 inches in width. Ensure that the minimum distance to the first groove, measured normal from the edge of the concrete joint or from the junction between the concrete and the metal leg of the armored joint angle, is 1 inch. Produce grooves that are continuous across construction joints or other joints in the concrete surface less than 1/2 inch wide. Apply the same procedure described above where the gutter lines at barrier rails, curb lines and median dividers are not parallel to the centerline of the bridge to maintain the 18 inches maximum dimension from the grooves to the gutter line. Cut grooves continuously across formed concrete joints.

400-15.2.6 Class 5 Applied Finish Coating:

400-15.2.6.1 General: Place an applied finish coating upon all concrete surfaces where the Plans indicate Class 5 Applied Finish Coating. Apply the finish coating after completion of the general surface work specified for all exposed concrete surfaces. Select an Applied Finish Coating from the APL meeting the requirements of Section 975.

400-15.2.6.2 Material: For the coating material, use a commercial product designed specifically for this purpose. Use only coating material that is manufactured by one manufacturer and delivered to the job site in sealed containers bearing the manufacturer's original labels. Submit the manufacturer's written instructions to the Engineer.

400-15.2.6.3 Surface Preparation: Prepare the surface prior to the application of an applied finish coating by providing a surface finish in accordance with the requirements of 400-15.1. The Engineer will not require surface voids that are 1/4 inch or less in width and depth to be grouted prior to application of the finish coating. Fill surface void larger than 1/4 inch in width and depth an approved high strength, non metallic, non shrink grout meeting the requirements of Section 934, mixed and applied in accordance with the manufacturer's recommendations. Apply the grout by filling the surface voids using burlap pads, float sponges, or other acceptable methods. As soon as the grout has taken its initial set, brush the surface to remove all loose grout, leaving the surface smooth and free of any voids. Ensure that the surface to be coated is free from efflorescence, flaking coatings, curing compound, dirt, oil, and other substances deleterious to the applied finish coating. Prior to application of the finish coating onto precast or cast-in-place concrete surfaces, test the concrete surface at 30 foot intervals for the presence of curing compound using one or two drops of muriatic acid placed on the concrete surface. If curing compound is present, there will be no reaction between the acid and the concrete. If there is no reaction, remove the compound by pressure washing the concrete surfaces. Prepare the surfaces in accordance with the manufacturer's recommendations, and ensure that they are in a condition consistent with the manufacturer's requirements. Clean surfaces of existing structures in accordance with 400-19.

400-15.2.6.4 Application: Apply the finish coating utilizing a method recommended by the manufacturer. When applying the finish coating by spraying, supply heavy

duty spray equipment capable of maintaining a constant pressure necessary for proper application. Mix and cure all coating materials in accordance with the manufacturer's written instructions. Apply the finished coating at a rate of 50, plus or minus 10 square feet per gallon.

400-15.2.6.5 Finished Product: Produce a texture of the completed finish coat that is generally similar to that of rubbed concrete. Ensure that the completed finished coating is tightly bonded to the structure and presents a uniform appearance and texture. If necessary, apply additional coats to produce the desired surface texture and uniformity.

Upon failure to adhere positively to the structure without chipping, flaking, or peeling, or to attain the desired surface appearance, remove coatings entirely from the structure, and reapply the finish coating after surface preparation until achieving the desired finished product. Do not allow the average thickness of the completed finish coating to exceed 1/8 inch.

400-15.2.6.6 Material Tests and Certification: Before any portion of any shipment of finish coating is applied on the project, submit to the Engineer a certificate from the manufacturer attesting that the commercial product furnished conforms to the same formula as that previously subjected to the tests specified in Section 975. In addition, submit the following product analysis, obtained from the manufacturer, for each batch of the material used:

1. Weight per gallon.
2. Consistency (Krebs Units).
3. Weight percent pigment.
4. Weight percent vehicle solids.
5. Infra-red spectra of vehicle solution.

400-15.2.7 Final Straightedging for Surfaces to Receive Asphalt Concrete Surface: Test the slab surfaces of poured-in-place decks which are to be surfaced with an asphalt concrete wearing course for trueness with a 10 foot straightedge, as specified above. As an exception, correct only irregularities of more than 1/4 inch measured as an ordinate (either above or below the general contour of the surface). The Engineer will not require belting or brooming of slabs that are to be surfaced with an asphalt concrete wearing course. For curing, meet the requirements specified for other deck slabs.

400-15.2.8 Finishing Bridge Sidewalks: Finish bridge sidewalks in accordance with the applicable requirements of Section 522.

400-16 Curing Concrete.

400-16.1 General: Cure cast-in-place and precast (non-prestressed) concrete as required herein for a minimum duration of 72 hours. If forms are loosened or removed before the 72 hour curing period is complete, expand the curing to cover these surfaces by either coating with curing compound or extending the continuous moist cure area.

Until curing has begun, retain concrete surface moisture at all times by maintaining a surface moisture evaporation rate less than 0.1 pound per square foot per hour. Periodically, at the site of concrete placement prior to and during the operation, measure the ambient air temperature, relative humidity and wind velocity with industrial grade weather monitoring instruments to determine the on-site evaporation rate. If the evaporation is, or is likely to become 0.1 pound per square foot per hour or greater, employ measures to prevent moisture loss such as application of evaporation retarder, application of supplemental moisture by fogging or reduction of the concrete temperature during batching. Compute the evaporation

rate by using the nomograph in the ACI manual of Concrete Practice Part 2, Section 308R Guide to Curing Concrete, or by using an evaporation rate calculator approved by the Engineer.

400-16.2 Methods: Except where other curing methods are specified, select from the following options the chosen method(s) for curing all concrete components.

1. Continuous Moisture: Place burlap on the surface and keep it continuously saturated for the curing period by means of soaker hoses or automatic sprinklers. Water flow may be metered to cycle repetitively for five minutes on and five minutes off during the 72 hour curing period. Do not apply moisture manually. If side forms are loosened or removed during the curing period, extend the burlap so as to completely shield the sides of the members.

2. Membrane Curing Compound: Apply a white Type 2 curing compound to all surfaces at a uniform coverage as recommended by the manufacturer but not less than 0.06 gallon per square yard. Allow surfaces covered by the membrane curing compound to remain undisturbed for the curing period. Recoat any cracks, checks or other defects in the membrane seal which are detected during the curing period within one hour. If side forms are loosened during the curing period, maintain surface moisture and remove the forms within one hour and immediately coat the formed surfaces with a membrane curing compound. Bottom surfaces shall be similarly coated after removal of or from the forms.

If curing compound is to be applied by spraying, use a compressor driven sprayer of sufficient size to provide uniform mist. Standby equipment is required in case of mechanical failure and hand held pump-up sprayers may be used only as standby equipment.

3. Curing Blankets: Curing blankets may be used for curing the top surfaces of members while the member side forms remain in place. Do not use curing blankets which have been torn or punctured. Securely fasten all edges to provide as tight a seal as practical. Should the system fail to maintain a moist condition on the concrete surface, discontinue use of the blankets and continue curing using another method. Keep curing blankets in place for the duration of the curing period.

4. Accelerated Cure:

a. General: Accelerated curing of the concrete can be achieved by use of either low pressure steam curing, radiant heat curing or continuous moisture and heat curing. If accelerated curing is completed before the 72 hour curing period has elapsed, continue curing for the remaining part of the 72 hour curing period in accordance with one of the curing methods listed above.

If accelerated curing is used, furnish temperature recording devices that will provide accurate, continuous and permanent records of the time and temperature relationship throughout the entire curing period. Provide one such recording thermometer for each 200 feet of placement length or part thereof. Initially calibrate recording thermometers and recalibrate at least annually.

The preheating period shall equal or exceed the time of initial set as determined by ASTM C403 and shall not be less than 4 hours. When the ambient air temperature is above 50ºF, allow the member to remain undisturbed in the ambient air for the preheating period. If the ambient air temperature is below 50ºF, apply heat during the preheating period to hold the air surrounding the member at a temperature of 50 to 90ºF.

To prevent moisture loss from exposed surfaces during the preheating period, enclose members as soon as possible after casting or keep the surfaces wet by fog mist or wet blankets. Use enclosures for heat curing that allow free circulation of heat about

the member with a minimum moisture loss. The use of tarpaulins or similar flexible covers may be used provided they are kept in good repair and secured in such a manner to prevent the loss of heat and moisture. Use enclosures that cover the entire placement.

During the application or removal of the heat, do not allow the temperature rise or fall within the enclosure to exceed 40ºF per hour. Do not allow the curing temperature throughout the enclosure to exceed 160ºF. Maintain the curing temperature within a temperature range of 130 to 160ºF until the concrete has reached the required form removal strength for precast and cast-in-place components or the required release strength for prestressed concrete components.

b. Low-Pressure Steam: The steam used shall be in a saturated condition. Do not allow steam jets to impinge directly on the concrete, test cylinders, or forms. Cover control cylinders to prevent moisture loss and place them in a location where the temperature is representative of the average temperature of the enclosure.

c. Curing with Radiant Heat: Apply radiant heat by means of pipes circulating steam, hot oil or hot water, or by electric heating elements. Do not allow the heating elements to come in direct contact with the concrete or the forms. Distribute sources of heat in a manner that will prevent localized high temperatures above 160ºF. To prevent moisture loss during curing, keep the exposed surfaces wet by fog mist or wet blankets.

d. Continuous Moisture and Heat: This method consists of heating the enclosure in combination with the continuous moisture method described above.

In addition to the curing blankets, an auxiliary cover for retention of the heat will be required over the entire placement. Support this cover at a sufficient distance above the placement being cured to allow circulation of the heat.

400-16.3 Silica Fume Concrete: Cure silica fume concrete a minimum of 72 hours using continuous moisture cure. No substitution of alternative methods nor reduction in the time period is allowed. After completion of the 72 hour curing period, apply a membrane curing compound to all concrete surfaces. Apply curing compound according to 400-16.2.

400-16.4 Bridge Decks and Approach Slabs: Cure bridge decks and approach slabs for a duration of seven days. Apply a membrane curing compound to the top surface in accordance with 400-16.2 using a compressor driven sprayer. In general, apply curing compound when the surface is damp and after all pooled water has evaporated. For Short bridges, begin applying curing compound immediately after the initially placed concrete has been floated, straightedged, textured and a damp surface condition exists and continue applying compound as concrete placement progresses with as little interruption as possible until the entire top surface has been coated with compound. For Long bridges, begin applying curing compound to the initially placed concrete as soon as a damp surface condition exists and continue applying compound as concrete placement progresses with as little interruption as possible until the entire top surface has been coated with compound. For all bridges, the elapsed time between the initial placement of deck or approach slab concrete and the completed application of curing compound must not exceed 120 minutes. The 120 minute limit may be extended by the Engineer if project specific factors (cool temperatures, high humidity, retarding admixtures, etc.) prolong wet surface conditions.

Prior to the first deck or approach slab placement, submit to the Engineer the method that will be used to periodically measure the rate of application of curing compound in, gallons per square foot as the concrete placement progresses. Prior to the placement of each deck or approach slab, submit to the Engineer the anticipated quantity of curing compound in gallons

along with the corresponding square feet of concrete to be covered to meet the coverage rate in 400-16.2. Compute the actual quantity of curing compound applied at the conclusion of each concrete placement and submit the quantity to the Engineer. Apply the curing compound from a work platform.

Place curing blankets on all exposed surfaces which are not formed as soon as possible with minimal effect on the surface texture. Place the curing blankets with sufficient overlapping seams to form an effective moisture seal. Before using curing blankets, mend tears, splits, or other damage that would make them unsuitable. Discard curing blankets that are not repairable. Wet all curing blankets immediately after satisfactorily placing them and maintain them in a saturated condition throughout the seven day curing period. Supply sufficient quantity of water meeting the requirements of Section 923 at the job site for wetting the blankets.

Where a bridge deck or approach slab is to be subjected to walking, wheeling or other approved construction traffic within the seven day curing period, protect the curing blankets and the concrete surface from damage by placing wooden sheeting, plywood or other approved protective material in the travel areas.

When the ends of the curing blankets are rolled back to permit screeding of adjacent concrete, keep the exposed surfaces wet throughout the period of exposure.

Bridge deck bottom and side forms may be removed after 72 hours upon compliance with 400-14. Approach slab side forms may be removed after 72 hours. Apply membrane curing compound to all surfaces stripped of forms within one hour of loosening. Apply curing compound according to 400-16.2.

400-16.5 Construction Joints: Cure construction joint areas using either the continuous moisture or curing blankets method.

400-16.6 Traffic Barriers, Railings, Parapets and End Post: Ensure concrete is cured in accordance with 400-16.2(2), except that a clear Type 1-D curing compound that must contain a fugitive dye may be used in lieu of Type 2. If Type 1-D is used, its removal per 400-15.1 during finishing is not required. When construction is by the slip form method, coat all concrete surfaces with a curing compound that meets the requirements of 925-2, either within 30 minutes of extrusion or before the loss of water sheen, whichever occurs first. Ensure a curing compound coating period of not less than seven days after application. Prior to each concrete placement, submit to the Engineer the method that will be used to periodically measure the rate of application in gallons per square foot. Also, prior to each placement, submit to the Engineer the anticipated quantity of curing compound in gallons that will be used to meet the coverage rate specified in 400-16.2 along with the corresponding square footage of barriers, railings, parapets and end posts to be coated with that quantity. Measure the actual quantity of curing compound that is applied during each concrete placement and submit the quantity to the Engineer. Applied finish coatings, that are on the APL and that are flagged as permitted for use as a curing compound, may be used in lieu of a curing compound. If an applied finish coating is used in lieu of a curing compound, have a backup system that is in full compliance with 400-16.2(2) available at all times to ensure that an effective alternative system will be immediately available if the applied finish coating cannot be applied within 30 minutes of extrusion or before the loss of water sheen.

400-16.7 Removal of Membrane Curing Compounds: Provide the longest possible curing duration; however, remove curing compound on portions of members to be bonded to other concrete. Compounds may be removed by either sand or water blasting. Water blasting

requires the use of water meeting the requirements of Section 923 and a minimum nozzle pressure of 2,900 psi.

400-17 Protection of Concrete.

400-17.1 Opening to Traffic: Do not open concrete bridge decks, approach slabs, or culverts to traffic for at least 14 days after concrete placement. During placement operations, concrete may be wheeled across previously placed slabs after they have set for 24 hours and plank runways are used to keep the loads over the beams.

400-17.2 Storing Materials on Bridge Slabs: Do not store heavy equipment or material, other than light forms or tools, on concrete bridge slabs or approach slabs until 14 days after they have been placed. Obtain approval from the Engineer prior to storing materials, tools or equipment on bridge decks at any time. Disperse any such loads to avoid overloading the structure.

400-17.3 Time of Placing Superstructure: Do not place the weight of the superstructure or beams on concrete substructure elements for at least 10 days after placement.

400-17.4 Alternate Procedure: As an alternative to the time delay periods set forth in 400-17.1 and 400-17.3, test cylinders may be prepared and tested by the Contractor in accordance with 346-5 and a determination made using one of the following methods:

1. When the cylinder test results indicate the minimum 28 day compressive strength shown in the Plans, concrete bridge decks, approach slabs, and culverts may be opened to traffic or the superstructure and beams may be placed on caps.

2. Submit signed and sealed calculations, prepared by a Specialty Engineer, demonstrating that the concrete caps can safely support the weight of the girders for the current concrete strength to the Engineer for approval.

In any event, comply with the curing provisions of 400-16.

400-18 Precast Planks, Slabs, and Girders.

400-18.1 General: Where so shown in the Contract Documents, the Contractor may construct concrete planks, slabs, girders, and other structural elements by precasting. In general, use a method that consists of casting structural elements in a casting yard, curing as specified in 400-16, transporting them to the site of the work, installing them on previously prepared supports and, where so shown in the Plans, joining them with poured-in-place slabs or keys. Handle and install precast prestressed members as specified in Section 450.

400-18.2 Casting: Cast precast elements on unyielding beds or pallets. Use special care in casting the bearing surfaces on both the elements and their foundations in order that these surfaces shall coincide when installing the elements. Check bearing surfaces on casting beds with a level and a straightedge prior to the casting. Similarly check corresponding surfaces on the foundations during finishing operations.

400-18.3 Poured-in-Place Keys: Where precast elements are to be joined with poured-in-place keys, carefully align the elements prior to pouring the keys.

400-18.4 Surface Finish: Finish the surface as specified in 400 15, except that where precast slabs and poured-in-place keys form the riding surface, give the entire surface a broomed finish.

400-18.5 Moving, Placing, and Opening to Traffic: Reinforced precast members may be moved from casting beds, placed in the structure, and opened to traffic at the ages shown in the following table:

Handling from casting beds to storage areas..... 7 days
Placing in structure ..... 14 days

Opening to traffic:

Precast elements..... 14 days
Cast-in-place slabs over precast girders..... 14 days
Cast-in-place keys joining precast slabs ..... 7 days

As an alternate procedure, in lieu of the time delay periods set forth above, test beams may be cast from representative concrete, and cure them identically with the concrete in the corresponding structural component. Test the test beams in accordance with ASTM C31 and ASTM C78. When the test results indicate a flexural strength of 550 psi, or more, any of the operations listed above may proceed without completing the corresponding time delay period.

400-18.6 Setting Prestressed Slabs: Before permitting construction equipment on the bridge to erect slab units, submit sketches showing axle loads and spacing and a description of the intended method of setting slab units to the Engineer for approval. Do not use axle loads, spacing, and methods of setting which produce stresses in the slab units greater than the allowable stress.

400-18.7 Protection of Precast Elements: The Contractor is responsible for the safety of precast elements during all stages of construction. The Engineer will reject any precast elements that become cracked, broken, seriously spalled, or structurally impaired. Remove rejected precast elements from the work at no expense to the Department.

400-18.8 Form Material: Form material used to form hollow cores may be left in place. Ensure that the form material is neutral with respect to the generating of products harmful to the physical and structural properties of the concrete. The Contractor is responsible for any detrimental effects resulting from the presence of the form material within the precast element.

400-19 Cleaning and Coating Concrete Surfaces of Existing Structures.

For the purposes of this article, an existing structure is one that was in service prior to the start of the project to which this specification applies. For existing structures, clean concrete surfaces that are designated in the Contract Documents as receiving Class 5 applied finish coating by pressure washing prior to the application of coating. Use pressure washing equipment producing a minimum working pressure of 2,500 psi when measured at or near the nozzle. Do not damage or gouge uncoated concrete surfaces or previously coated concrete surfaces during cleaning operations. Remove all previously applied coating that is no longer adhering to the concrete or that is peeling, flaking or delaminating. Ensure that after the pressure wash cleaning and the removal of non-adherent coating, that the cleaned surfaces are free of efflorescence, grime, mold, mildew, oil or any other contaminants that might prevent proper adhesion of the new coating. After cleaning has been successfully completed, apply Class 5 Applied Finish Coating in accordance with 400-15.2.6 or as otherwise specified in the Plans.

400-20 Approach Slabs.

Construct approach slabs at the bridge ends in accordance with the applicable requirements of Section 350 using Class II (Bridge Deck) concrete. Place the reinforcement as specified in 350-7 and Section 415.

400-21 Disposition of Cracked Concrete.

400-21.1 General: The disposition of cracked concrete is described in this Article and applies to all cast-in-place concrete members, and once installed, to the precast and prestressed concrete members that are produced in accordance with 410, 450, 521, 534, 548 and 641.

400-21.2 Investigation, Documentation and Monitoring: The Engineer will inspect concrete surfaces as soon as surfaces are fully visible after casting, with the exception of surfaces of precast concrete products produced in offsite plants, between 7 and 31 days after the component has been burdened with full dead load, and a minimum of 7 days after the bridge has been opened to full unrestricted traffic. The Engineer will measure the width, length and depth of each crack and establish the precise location of the crack termination points relative to permanent reference points on the member. The Engineer will determine if coring of the concrete is necessary when an accurate measurement of crack depth cannot be determined by use of a mechanical probe. The Engineer will monitor and document the growth of individual cracks at an inspection interval determined by the Engineer to determine if cracks are active or dormant after initial inspection. The Engineer will perform all final bridge deck crack measurements once the deck is free of all debris and before transverse grooves are cut and after planing is complete for decks that require planing.

Provide the access, equipment and personnel needed for the Engineer to safely perform this work at no expense to the Department. Core cracks for use by the Engineer in locations and to depths specified by the Engineer at no expense to the Department.

400-21.3 Classification of Cracks: The Engineer will classify cracks as either nonstructural or structural and determine the cause. In general, nonstructural cracks are cracks 1/2 inch or less deep from the surface of the concrete; however, the Engineer may determine that a crack greater than 1/2 inch deep is nonstructural. In general, structural cracks are cracks that extend deeper than 1/2 inch. As an exception, all cracks in concrete bridge decks that are supported by beams or girders will be classified as nonstructural and repair will be in accordance with 400-21.5.1. However, if the Engineer determines that repair under 400-21.5.1 is unacceptable, repair in accordance with 400-21.5.2.

A crack that is fully or partially underwater at any time during its service life will be classified as a structural crack unless the Environment note on the General Notes sheet in the Plans categorizes the substructure as slightly aggressive, in which case, the nonstructural crack criteria may apply as determined by the Engineer.

Review and comment on the Engineer’s crack classification; however, the Engineer will make the final determination.

400-21.4 Nonstructural Cracking Significance: The Engineer will determine the Cracking Significance. The Cracking Significance will be determined on the basis of total crack surface area as a percentage of total concrete surface area. Cracking significance will be categorized as Isolated, Occasional, Moderate or Severe according to the criteria in Tables 1 and 2. Cracking Significance will be determined on a LOT by LOT basis. A LOT will typically be made up of not more than 100 square feet and not less than 25 square feet of concrete surface area for structures other than bridge decks or typically not more than 400 square feet or not less than 100 square feet for bridge decks. A LOT will not extend beyond a single Elevation Range as shown in Table 1 or 2.

Review and comment on the Engineer’s determination of Cracking Significance; however, the Engineer will make the final determination.

400-21.5 Repair Method: Repair or remove and replace cracked concrete as directed by the Engineer. Additional compensation or a time extension will not be approved for repair or removal and replacement of cracked concrete when the Engineer determines the cause to be the responsibility of the Contractor.

400-21.5.1 Nonstructural Cracks: Repair each crack using the method as determined by the Engineer for each LOT in accordance with Table 1 or 2. When further investigation is required to determine repair or rejection, either remove and replace the cracked concrete or submit a structural evaluation signed and sealed by the Contractor's Engineer of Record that includes recommended repair methods and a determination of structural capacity and durability to the Engineer. Upon approval by the Engineer, repair the cracked concrete. Upon approval by the Engineer use epoxy injection in accordance with Section 411 to repair cracks in a member inside a dry cofferdam prior to flooding of the cofferdam. "Reject and Replace" in Table 1 or 2 means there is no acceptable repair method.

400-21.5.2 Structural Cracks: Submit a structural evaluation signed and sealed by the Contractor's Engineer of Record that includes recommended repair methods and a determination of structural capacity and durability to the Engineer. Upon approval by the Engineer, repair the cracked concrete. Complete all repairs to cracks in a member inside a cofferdam prior to flooding the cofferdam.

Table 1
DISPOSITION OF CRACKED CONCRETE OTHER THAN BRIDGE DECKS
[see separate Key of Abbreviations and Footnotes for Tables 1 and 2]

Elev. Range	Crack Width Range (inch) [2] x = crack width	Cracking Significance Range per LOT [1]											
		Isolated Less than 0.005%			Occasional 0.005% to<0.017%			Moderate 0.017% to<0.029%			Severe 0.029% or gtr.		
		Environment Category											
		SA	MA	EA	SA	MA	EA	SA	MA	EA	SA	MA	EA
Elevation: 0 to 6 ft AMHW	x ≤ 0.004	NT	NT	PS (6)	NT	PS (6)	PS (6)	PS (6)	PS (6)				
	0.004< x ≤ 0.008	NT	PS (6)	EI (3)	PS (6)	EI (3)	EI (3)	PS (6)					
	0.008< x ≤ 0.012	NT	PS (6)	EI									
	0.012< x ≤ 0.016	PS (6)	Investigate to Determine Appropriate Repair [4, 5] or Rejection										
	0.016< x ≤ 0.020												
	0.020< x ≤ 0.024									Reject and Replace			
	0.024< x ≤ 0.028												
	x > 0.028												
Elev.: More Than 6 ft to 12 ft AMHW	Crack Width	SA	MA	EA	SA	MA	EA	SA	MA	EA	SA	MA	EA
	x ≤ 0.004	NT	NT	PS (6)	NT	PS (6)	PS (6)	PS (6)	PS (6)	PS (6)	PS (6)		
	0.004< x ≤ 0.008	NT	PS (6)	EI (3)	PS (6)	PS (6)	EI (3)	PS (6)	EI (3)				
	0.008< x ≤ 0.012	NT	PS (6)	EI	EI	EI							
	0.012< x ≤ 0.016	PS (6)	EI	EI	EI								
	0.016< x ≤ 0.020	EI											
	0.020< x ≤ 0.024		Investigate to Determine Appropriate Repair [4, 5] or Rejection							Reject and Replace			
	0.024< x ≤ 0.028												
	x > 0.028												
Elev.: Over Land or	Crack Width	SA	MA	EA	SA	MA	EA	SA	MA	EA	SA	MA	EA
	x ≤ 0.004	NT	NT	NT	NT	PS (6)	PS (6)	PS (6)	PS (6)	PS (6)	PS (6)		
	0.004< x ≤	NT	PS	PS	PS	PS	EI	PS	EI	EI	PS		

	0.008		(6)	(6)	(6)	(6)	(3)	(6)	(3)	(3)	(6)		
	0.008< x ≤ 0.012	NT	PS (6)	EI	EI	EI	EI	EI	EI				
	0.012< x ≤ 0.016	PS (6)	EI	EI	EI	EI	EI						
	0.016< x ≤ 0.020	EI	EI	EI	EI								
	0.020< x ≤ 0.024	EI	Investigate to Determine Appropriate Repair (4, 5) or Rejection										
	0.024< x ≤ 0.028										Reject and Replace		
	x > 0.028												

Table 2
DISPOSITION OF CRACKED CONCRETE BRIDGE DECKS
[see separate Key of Abbreviations and Footnotes for Tables 1 and 2]

Elev. Range	Crack Width Range (inch) [2] x = crack width	Cracking Significance Range per LOT [1]											
		Isolated less than 0.005%			Occasional 0.005% to<0.017%			Moderate 0.017% to<0.029%			Severe 0.029% or gtr.		
		Environment Category											
		SA	MA	EA	SA	MA	EA	SA	MA	EA	SA	MA	EA
Elevation: 12 feet or Less AMHW	x ≤ 0.004	NT	NT	NT	NT	NT	NT	NT	NT	NT			
	0.004< x ≤ 0.008	NT	NT	EI/M	NT	NT	EI/M	EI/M	EI/M	EI/M			
	0.008< x ≤ 0.012	NT	NT	EI/M	NT	EI/M	EI/M	EI/M	EI/M				
	0.012< x ≤ 0.016	NT	NT	EI/M	NT	EI/M							
	0.016< x ≤ 0.020	EI/M	EI/M	EI	EI								
	0.020< x ≤ 0.024	EI/M	EI	EI		Investigate to Determine Appropriate Repair [4, 5] or Rejection					Reject and Replace		
	0.024< x ≤ 0.028	EI/M	EI										
	x > 0.028												
Elevation: Over Land or More Than 12 feet AMHW	Crack Width	SA	MA	EA	SA	MA	EA	SA	MA	EA	SA	MA	EA
	x ≤ 0.004	NT	NT	NT	NT	NT	NT	NT	NT	NT			
	0.004< x ≤ 0.008	NT	NT	NT	NT	NT	EI/M	NT	EI/M	EI/M			
	0.008< x ≤ 0.012	NT	NT	EI/M	NT	NT	EI/M	EI/M	EI/M				
	0.012< x ≤ 0.016	NT	NT	EI/M	NT	EI/M							
	0.016< x ≤ 0.020	NT	EI/M	EI	EI/M								
	0.020< x ≤ 0.024	NT	EI/M	EI		Investigate to Determine Appropriate Repair [4, 5] or Rejection					Reject and Replace		
	0.024< x ≤ 0.028	NT	EI/M										
	x > 0.028												

Key of Abbreviations and Footnotes for Tables 1 and 2		
Type Abbreviation	Abbreviation	Definition
Repair Method	EI	Epoxy Injection
	M	Methacrylate
	NT	No Treatment Required
	PS	Penetrant Sealer
Environment Category	EA	Extremely Aggressive
	MA	Moderately Aggressive
	SA	Slightly Aggressive
Reference Elevation	AMHW	Above Mean High Water

Footnotes

(1) Cracking Significance Range is determined by computing the ratio of Total Cracked Surface Area (TCSA) to Total Surface Area (TSA) per LOT in percent [(TCSA/TSA) x 100] then by identifying the Cracking Significance Range in which that value falls. TCSA is the sum of the surface areas of the individual cracks in the LOT. The surface area of an individual crack is determined by taking width measurements of the crack at 3 representative locations and then computing their average which is then multiplied by the crack length.

(2) Crack Width Range is determined by computing the width of an individual crack as computed in (1) above and then identifying the range in which that individual crack width falls.

(3) When the Engineer determines that a crack in the 0.004 inch to 0.008 inch width range cannot be injected then for Table 1 use penetrant sealer unless the surface is horizontal, in which case, use methacrylate if the manufacturer's recommendations allow it to be used and if it can be applied effectively as determined by the Engineer.

(4) (a) Perform epoxy injection of cracks in accordance with Section 411. Seal cracks with penetrant sealer or methacrylate as per Section 413. (b) Use only methacrylate or penetrant sealer that is compatible, according to manufacturer's recommendations, with previously applied materials such as curing compound or paint or remove such materials prior to application.

(5) When possible, prior to final acceptance of the project, seal cracks only after it has been determined that no additional growth will occur.

(6) Methacrylate shall be used on horizontal surfaces in lieu of penetrant sealer if the manufacturer's recommendations allow it to be used and if it can be applied effectively as determined by the Engineer.

(7) Unless directed otherwise by the Engineer, repair cracks in bridge decks only after the grinding and grooving required by 400-15.2.5 is fully complete.

400-22 Method of Measurement.

400-22.1 General: The quantities of concrete to be paid for will be the volume, in cubic yards, of each of the various classes shown in the Plans, in place, completed and accepted. The quantity of precast anchor beams to be paid for will be the number in place and accepted. The quantity of bridge deck grooving to be paid for will be the area, in square yards of bridge deck and approach slab, completed and accepted. The quantity of bridge deck grooving and planing to be paid for will be the area, in square yards of bridge deck and approach slab, completed and accepted.

Except for precast anchor beams, for any item of work constructed under this Section and for which measurement for payment is not to be made by the volume of concrete, measurement and payment for such work will be as specified in the Section under which the work is specified in detail.

No separate payment will be made for obtaining the required concrete finish.

400-22.2 Calculation of Volume of Concrete:

400-22.2.1 Dimensions: The quantity will be computed by the plan dimensions of the concrete, within the neat lines shown in the Plans, except that no deduction will be made for

weep holes, deck drains, or encroachment of inlets and pipes in box culverts, and no chamfers, scorings, fillets, or radii 1 1/2 in^2 or less in cross-sectional area will be taken into account.

400-22.2.2 Pay Quantity: The quantity to be paid for will be the original plan quantity, measured as provided in 400-22.2.1, except that where the Plans call for an estimated quantity of miscellaneous concrete for contingent use, the contingent concrete will be measured as the actual quantity in place and accepted.

400-22.2.3 Items not Included in Measurement for Payment: No measurements or other allowances will be made for work or material for forms, falsework, cofferdams, pumping, bracing, expansion-joint material, etc. The volume of all materials embedded in the concrete, such as structural steel, pile heads, etc., except reinforcing bars or mesh, will be deducted when computing the volume of concrete to be paid for. For each foot of timber pile embedded, 0.8 cubic feet of concrete will be deducted. The cost of furnishing and placing dowel bars shall be included in the Contract unit price for the concrete.

400-22.2.4 Deck Girders and Beam Spans: In computing the volume of concrete in deck girders and beam spans, the thickness of the slab will be taken as the nominal thickness shown on the drawings and the width will be taken as the horizontal distance measured across the roadway. The volume of haunches over beams will be included in the volume to be paid for.

400-22.2.5 Stay-in-Place Metal Forms: When using stay-in-place metal forms to form the slab of deck girder and beam spans, the volume of concrete will be computed in accordance with the provisions of 400-22.2.4 except that the thickness of the slab over the projected plan area of the stay-in-place metal forms will be taken as the thickness shown on the drawings above the top surface of the forms. The concrete required to fill the form flutes will not be included in the volume of concrete thus computed.

400-22.3 Bridge Deck Grooving: The quantity to be paid for will be plan quantity in square yards, computed, using the area bound by the gutter lines (at barrier rails, curbs and median dividers) and the beginning and end of the bridge or the end of approach slabs, whichever is applicable, constructed, in place and accepted.

400-22.4 Bridge Deck Grooving and Planing: The quantity to be paid for will be plan quantity in square yards, computed, using the area bound by the gutter lines (at barrier rails, curbs and median dividers) and the beginning and end of the bridge or the end of approach slabs, whichever is applicable, constructed, in place and accepted.

400-22.5 Composite and Plain Neoprene Bearing Pads: The quantity to be paid for will be the original plan quantity, computed using the dimensions of the pads shown in the Plans.

400-22.6 Cleaning and Coating Concrete Surfaces: The quantity to be paid for will be the plan quantity in square feet for the areas shown in the Plans.

400-23 Basis of Payment.

400-23.1 Concrete:

400-23.1.1 General: Price and payment will be full compensation for each of the various classes of concrete shown in the Contract Documents.

400-23.1.2 Concrete Placed below Plan Depth: Authorized concrete placed in seal or footings 5 feet or less below the elevation of bottom of seal or footing as shown in the Plans will be paid for at the Contract price set forth in the Contract Documents under the pay items for substructure concrete.

Authorized concrete used in seal (or in the substructure where no seal is used) at a depth greater than 5 feet below the bottom of seal or footing as shown in the Plans will be paid for as Unforeseeable Work.

Such payment will be full compensation for the cofferdam construction, for excavation, and for all other expenses caused by the lowering of the footings.

400-23.1.3 Seal Concrete Required but Not Shown in Plans: When seal concrete is required as provided in 400-8 and there is no seal concrete shown in the Plans, it will be paid for as Unforeseeable Work.

400-23.2 Precast Anchor Beams: Price and payment will be full compensation for the beams, including all reinforcing and materials necessary to complete the beams in place and accepted.

No separate prices will be allowed for the various types of anchor beams.

400-23.3 Reinforcing: Reinforcing bars, wires and mesh will be measured and paid for as provided in Section 415, except that no separate payment will be made for the welded wire reinforcement used in concrete jackets on steel piles or reinforcement contained in traffic railings, barriers, traffic separators or parapets. Where so indicated in the Plans, the Department will not separately pay for reinforcing used in incidental concrete work, but the cost of such reinforcement shall be included in the Contract unit price for the concrete.

400-23.4 Bridge Deck Grooving: Price and payment will be full compensation for all grinding, grooving, equipment, labor, and material required to complete the work in an acceptable manner.

400-23.5 Bridge Deck Grooving and Planing: Price and payment will be full compensation for all grooving, planing, equipment, labor, and material required to complete the work in an acceptable manner.

400-23.6 Composite and Plain Neoprene Bearing Pads: Price and payment will be full compensation for all work and materials required to complete installation of the pads.

400-23.7 Cleaning and Coating Concrete Surfaces: Price and payment will be full compensation for all work and materials required. The cost of coating new concrete will not be paid for separately, but will be included in the cost of the item to which it is applied.

400-23.8 General: The above prices and payments will be full compensation for all work specified in this Section, including all forms, falsework, joints, weep holes, drains, pipes, conduits, bearing pads, setting anchor bolts and dowels, surface finish, and cleaning up, as shown in the Plans or as directed. Where the Plans call for water stops, include the cost of the water stops in the Contract unit price for the concrete.

Unless payment is provided under a separate item in the Contract Documents, the above prices and payments will also include all clearing and grubbing; removal of existing structures; excavation, as provided in Section 125; and expansion joint angles and bolts.

The Department will not change the rate of payment for the various classes of concrete in which steel or FRP may be used due to the addition or reduction of reinforcing.

The Department will not make an allowance for cofferdams, pumping, bracing, or other materials or equipment not becoming a part of the finished structure. The Department will not pay for concrete placed outside the neat lines as shown in the Plans.

When using stay-in-place metal forms to form bridge decks, the forms, concrete required to fill the form flutes, attachments, supports, shoring, accessories, and all miscellaneous

items or work required to install the forms shall be included in the Contract unit price of the superstructure concrete.

400-23.9 Payment Items:

Payment will be made under:

Item No. 400- 0-	Class NS Concrete – per cubic yard.
Item No. 400- 1-	Class I Concrete - per cubic yard.
Item No. 400- 2-	Class II Concrete - per cubic yard.
Item No. 400- 3-	Class III Concrete - per cubic yard.
Item No. 400- 4-	Class IV Concrete - per cubic yard.
Item No. 400- 6-	Precast Anchor Beams - each.
Item No. 400- 7-	Bridge Deck Grooving - per square yard.
Item No. 400- 8-	Class V Concrete - per cubic yard.
Item No. 400- 9-	Bridge Deck Grooving and Planing - per square yard.
Item No. 400- 16-	Class VI Concrete - per cubic yard.
Item No. 400-143-	Cleaning and Coating Concrete Surfaces - per square foot.
Item No. 400-147-	Composite Neoprene Pads - per cubic foot.
Item No. 400-148-	Plain Neoprene Bearing Pads - per cubic foot.

SECTION 410
PRECAST CONCRETE BOX CULVERT

410-1 Description.

Provide precast four-sided concrete box culverts and headwall as shown in the plans. Only monolithic segments, or two-piece segments with three-sided bottom sections and a simple support top slab section, are permitted. Two-piece segments are limited to installations with a minimum of two feet fill height above the top slab.

Construct headwalls, wingwalls and other special features using cast-in-place concrete. Precast wingwalls, cut-off walls or headwalls are not permitted unless otherwise noted in the Contract Documents.

Meet the requirements in FDOT Specs Section 449-1.

410-2 Materials.

Ensure that the materials used for the construction of precast box culverts have certification statements from each source, showing that they meet the applicable requirements of the following:

Portland Cement Concrete	FDOT Specs Section 346
Reinforcing for Concrete	FDOT Specs Section 415
Precast Concrete Drainage Products	FDOT Specs Section 449
Wire for Site Cage Machines	FDOT Specs Section 931
Coarse Aggregate*	FDOT Specs Section 901
Fine Aggregate*	FDOT Specs Section 902
Curing Materials for Concrete	FDOT Specs Section 925
Materials For Concrete Repair**	FDOT Specs Section 930
Non-Shrink Grout**	FDOT Specs Section 934
Liner Repair Systems	FDOT Specs Section 948
Joint Materials	ASTM C443, ASTM C877 or ASTM C990
Geotextile Fabrics	FDOT Specs Section 985

* The gradation requirements of aggregates are not applicable when using dry-cast concrete.

** Use products listed on the Department's Approved Product List (APL).

410-3 Materials Acceptance and Testing of Precast Box Culverts.

410-3.1 General: Meet the requirements of FDOT Specs Section 346, except as modified herein: Prepare, cure, and test the test cylinders in accordance with ASTM C31 and ASTM C39 test methods. Follow the alternative method of compaction, in accordance with ASTM C497, if the consistency of concrete is too stiff for compaction by rodding or internal vibrations. Expose shipping strength test cylinders to the same curing conditions as the precast concrete box sections.

Perform all concrete quality control testing and inspections in accordance with 346-9.2.

For training and other qualifications meet the requirements of Section 105. Test all QC samples for compressive strength in a laboratory meeting the requirements of Section 105.

410-3.2 Quality Assurance Inspection and Testing: The Engineer will perform periodic inspections, sampling, and testing to ensure of the quality and acceptability of the materials, methods, techniques, procedures and processes being utilized by the manufacturing facility in the fabrication of precast concrete box culverts.

410-3.3 Special Requirements for Dry-Cast Concrete: Dry-cast concrete is defined as a very low slump concrete that requires continuous and intense vibration to compact the concrete, enabling immediate removal of the side forms without detrimental effects to the concrete when used in a dry-cast manufacturing process.

The target slump and air content ranges of FDOT Specs Section 346 – Table 2 and the plastic property tolerances of Section 346 – Table 6 are not applicable to dry-cast concrete.

Perform absorption tests on specimens from each LOT of dry-cast production in accordance with the test methods in ASTM C497. The absorption of each specimen must not exceed 9.0 percent of the dry mass for Test Method A procedure or 8.5 percent for Test Method B procedure. All specimens must be free of visible cracks and must represent the full thickness of the product. Test specimens after 28 days of standard curing, or prior to the date of shipping if the precast box sections are to be shipped before the completion of the 28 day curing period.

Core three specimens for Test Method B in accordance with ASTM C42 and meet the sampling location and size requirements of ASTM C497. Prepare or core a minimum of one specimen for Test Method A in accordance with the test cylinder requirements of ASTM C497. When the initial absorption specimen from a concrete box section fails to conform to this Specification, the absorption test may be made on another specimen from the same box section and the results of the retest may be substituted for the original test results for acceptance of the LOT. The manufacturer may test each box section within a LOT and cull the box sections not meeting absorption requirements marking them as deficient with waterproof paint or other approved means. Deficient box sections must not be shipped to the project site. Reduce the frequency of absorption tests to one test every five LOTs when the results of five consecutive LOTs meet the specified limit.

410-4 Design of Precast Concrete Box Sections.

410-4.1 General: In lieu of a cast-in-place concrete box section or if specified in the Contract Documents, provide precast box culverts in accordance with FDPT Standards Plans and the following:

Segment lengths must be between 4 feet and 16 feet. Short-side wall lengths for end segments of skewed culverts, may be less than 4 feet when approved by the Engineer.

Provide tongue and groove joints at the ends of segments. For two-piece box culvert segments, provide keyed joints for the top slab-to-wall connection to prevent lateral displacement at the top of the walls, and double-sided tongue and groove joints in the bottom slab to minimize differential settlement between segments. Alternate methods to prevent differential settlement may be used when included in the Contract Documents or approved by the Engineer. Concrete cover at the joints may be reduced from the nominal cover shown in the Contract Documents, in accordance with the Design Standards, but not less than 1 inch clear to the ends or inside mating surfaces of the joints or 1-1/2 inches clear to the outside surface of the joint for slightly and moderately aggressive environments, or 2 inches clear to the outside surface for extremely aggressive environments.

Meet one of the following design options:

410-4.1.1 Equivalent to Cast-In-Place Designs: Provide precast box segments identical to the plan details, including reinforcing steel grade or FRP reinforcing type, sizes and spacings, concrete cover, concrete class, and slab and wall dimensions. Reinforcing bar sizes and spacings may be reduced provided the equivalent area of reinforcing is provided in each layer. Haunch dimensions may be increased with the approval of the Engineer, but not greater than 8 inches for box culverts with internal spans less than 6 feet, or 12 inches for box culverts with larger internal spans.

410-4.1.2 Standard Precast Designs: Provide precast box segments in accordance with FDOT standard plans with the same hydraulic opening, fill height and reinforcing bar cover as shown in the Plans, for the most critical design loading combination. Perform a bridge load rating in accordance with the Structures Design Guidelines, for any multiple barrel culverts with a total span equal to or greater than 20 feet, when measured between the inside face of end supports, along the centerline of the roadway crossing.

410-4.1.3 Modified or Special Designs: Submit Modified Designs which differ from the standard precast designs in 410-4.1.2 with modifications to the wall and slab thickness haunch dimensions, or the use of FRP reinforcing. Submit Special Designs for sizes, elements and loads other than those referenced in 410-4.1.2. Redesign box culverts using the same AASHTO design specification, live load, hydraulic opening, fill height, minimum concrete class and concrete cover as shown in the Contract Documents. Special Designs will be required for all two-piece concrete box culvert segments. Provide a minimum member thickness not less than 75% of the thickness of the corresponding member of an equivalent FDOT Standard Plans box culvert, but not less than 7 inches for culverts with 2 inch concrete cover or 8 inches for 3 inch concrete cover. Perform a bridge load rating in accordance with the Structures Design Guidelines, for any redesign with a total span equal to or greater than 20 feet, when measure between the inside face of end supports, along the centerline of the roadway crossing.

410-4.2 Design Submittals: Submit shop drawings for all design options in accordance with 410-12. Submit design calculations, revised plans and load rating when required for approval in accordance with Section 5 for Modified or Special Designs. Ensure that a Specialty Engineer performs the design for Modified Designs of the box culvert and signs and seals the calculations.

Ensure that the Contractor's Engineer of Record performs any bridge load rating and the design for any Special Designs and signs and seals the revised plans, calculations and load rating.

410-5 Other Elements of a Precast Box Culvert System.

Extend reinforcing from precast sections to provide adequate splice lengths or utilize a mechanical rebar splicing system (steel reinforcing only) listed on the Department's Approved Product List (APL) for securing reinforcing dowels for headwalls, toe walls and wingwalls.

Cast all elements of the headwalls and wingwalls (footing and stem) in-place, unless otherwise noted in the Contract Documents. Cast all cut-off or toe walls for precast box end segments in-place only. Extend the depth of cut-off or toe walls an additional 6 inches with the limits of the bedding material. Bedding material and compaction requirements for wingwalls are the same as required for precast box sections, except that the granular material may be placed to

the inside edge of the toe wall, unless otherwise specified in the Contract Documents. Bedding material is not required for cast-in-place wingwall footings.

All requirements of FDOT Specs Section 400 and Section 415 apply to the fabrication of these elements. Backfill the locations behind the walls in accordance with the requirements of FDOT Specs Section 125.

410-6 Fabrication.

410-6.1 Casting: Cast precast elements in unyielding beds and forms. Ensure bearing surfaces in casting forms are level and straight, and vertical surfaces are plumb prior to casting. Ensure surfaces within the forms against which concrete will be cast, are clean and free from rust and hardened residual concrete. Provide full concrete cover clearance to all form wires and other miscellaneous pieces of metal, except as permitted by FDOT Specs Section 415. Bend all tie wires away from the form surface to provide maximum concrete cover. Provide inserts and lifting devices in accordance with 450-9.2.1.

410-6.2 Surface Finish: Finish the precast elements in accordance with 400-15.1.

410-6.3 Curing: Perform the curing by any method prescribed in Sections 400 and 450, or by any other Department approved alternate curing method included in the approved Producer QC Plan, or combinations thereof that have provided satisfactory results.

410-6.4 Fabrication Tolerances:

410-6.4.1 Internal Dimensions: Ensure the internal dimensions do not vary more than 1% from the design dimensions, with a maximum of 3/4 inch. Ensure the haunch dimensions do not vary more than 1/4 inch from the design dimensions.

410-6.4.2 Slab and Wall Thickness: Ensure the slab and wall thickness are not be less than that shown in the Plans or approved shop drawings by more than 5 percent or 3/16 inch, whichever is greater. A thickness more than that required in the design will not be a cause for rejection although payment will be for plan quantity only.

410-6.4.3 Length of Opposite Surfaces: Ensure the variations in laying lengths of two opposite surfaces of the box section are not more than 1/8 inch per foot of clear span, with a maximum of 5/8 inches for precast boxes with a clear span of up to 7 feet and a maximum of 3/4 inches for boxes with a clear span greater than 7 feet. The exception to this is when beveled ends, for the purpose of laying curves, or skewed ends are specified by the Engineer.

410-6.4.4 Length of Section: Ensure the under run in length of sections is not more than 1/8 inch per foot of length with a maximum of 1/2 inches in any box section.

410-6.4.5 Tongue and Groove Joints or Ends: Ensure the planes formed by the ends of box sections do not vary perpendicular from the joint axis by more than the following:

1. Profiled Rubber Gasket Joints (ASTM C1677): 1/8 inch per foot of internal span with a maximum 5/8 inches for internal spans or heights less than or equal to 7 feet, and a maximum of 3/4 inches for internal spans greater than 7 feet.
2. Preformed Flexible Joints (ASTM C990): 1/4 inches for internal spans or heights less than 5 feet, or more than 3/8 inches for internal spans or heights of 5 feet or greater.

410-6.4.6 Position of Reinforcement: Meet the requirements of 415-5.10.2 for the maximum variation in the position of slab reinforcing. Meet the requirements of 415-5.8.2 for the maximum variation of wall reinforcing, except that the concrete cover must not be less than 1/4 inches nor more than 1/2 inches from the design dimensions.

410-6.4.7 Area of Reinforcement: Provide the area of reinforcement as indicated in the Plans or approved shop drawings as a minimum. If welded wire reinforcement is utilized in lieu of mild steel reinforcement, the provisions of 415-6 apply.

410-6.5 Removal of Forms: Remove forms after the concrete has attained the minimum compressive strength requirements included as part of the Producer QC Plan, but not less than the following:

Vertically cast walls and slabs for four-sided sections	1000 psi
Three-sided box culvert bottom section	2500 psi
Horizontally cast self-supporting slabs or walls	2500 psi

Products manufactured with dry-cast concrete, are exempt from these requirements.

410-6.6 Lifting and Removal From Casting Area: Handle all products, including those manufactured with dry-cast concrete, after the concrete attains sufficient compressive strength as determined by the manufacturer but not less than the following, unless otherwise approved in the Producer QC Plan:

Vertically cast and stored elements (walls and slabs)	1000 psi
Form/pallet supported elements (walls or slabs)	1000 psi
Self-supporting four-sided sections	1000 psi
Self-supporting horizontal slabs or three-sided sections	2500 psi

Limit the flexural tension stresses from handling to a maximum allowable stress of three times the square root of the concrete compressive strength in psi, prior to the concrete attaining the required 28-day strength.

410-7 Handling, Storage, and Shipping.

Handle, store, and ship precast box culverts in a manner that prevents chipping, cracks, fractures, and excessive bending stress. Do not ship precast box culverts before the concrete attains the required 28-day strength.

The manufacturer is permitted to verify the shipping strength test, before 28 days, by testing compressive strength cylinders that are cured under the conditions similar to the product or by testing temperature match cured cylinders. The manufacturer may use the maturity method, ASTM C-1074, pulse velocity method in accordance with ASTM C-597, or any other approved nondestructive test method to estimate the strength of concrete for determining form removal and handling strengths or before verification of shipping strength by test cylinders.

Curing temperature and cycle must be monitored on a minimum of one box culvert curing cell from each day of production when nondestructive test methods or temperature match cured cylinders are used to determine concrete strengths.

The shipping strength test is the average compressive strength of two test cylinders. Do not ship any products until the QC Manager’s stamp is affixed to the product.

410-8 Repairs and Rejection.

Evaluate cracks, spalls and other deficiencies in accordance with 450-12. Classify fractures and cracks passing through the wall or slab, except for a single end crack with a length that does not exceed the depth of the joint, as major cracks. Walls and slab areas outside the middle half of the internal span will be considered non-critical locations for the purpose of evaluating cracks. Repair cracks and all other deficiencies in accordance with 450-13 or the plant's approved repair methods that are included as part of the Producer QC Plan. Ensure that the original performance and durability of the repaired box culverts are maintained.

Use materials for concrete repair that will meet or exceed the strength requirement of the class of concrete used. Materials meeting the requirements of Section 930 may be substituted for non-shrink grout when required by 450-13. Precast box culvert elements are subject to rejection if they fail to conform to any of the Specification requirements after repair or when damaged ends would prevent making a satisfactory joint.

410-9 Marking.

Ensure each section of Precast Box Culvert has permanently and clear marking on an inside face by indentation, waterproof paint, or as specified in the Producer QC Plan, showing the manufacture date, serial number**,** project number, and manufacturer's name or symbol. The top of the box culvert must also be clearly indicated with waterproof paint or as specified in the Producer QC Plan.

410-10 Trench, Foundation, Laying, and Backfill.

410-10.1 General: Meet the requirements of Section 125 and/or Section 121, for trench excavation, foundation construction, laying and backfilling and the following:

Lay all precast box culvert sections on a dry, slightly yielding foundation, to ensure uniform bearing across the full width of the bottom slab. Provide dewatering devices, if applicable, in accordance with 455-29, capable of maintaining a stable and surface-dry trench bottom. Construct any temporary sheet piling used in cofferdams, retaining walls and to incorporate the Contractor's specific means and methods, in accordance with 125-3.

410-10.2 Bedding: Provide bedding that consists of a minimum 6 inch depth of select material, with not more than 15% fines passing the No. 200 U.S. Standard sieve, in accordance with Design Standards, Index No. 505 or other granular material approved by the Engineer. Place bedding in maximum 6 inch compacted layers below the culvert to a minimum width of 12 inches outside the exterior walls of the culvert and meet the density requirements of 125-9.2. When coarse aggregate is approved for use as an alternate bedding material, wrap the bottom and sides of the coarse aggregate with a layer of Type D-4 geotextile filter fabric as specified in Section 985, and substituted the coarse aggregate with select material within 4 feet of the cut-off or toe walls at each end of the precast box culvert. Obtain the Engineer's approval before using flowable fill for bedding material. Provide other special bedding material, when required by the Contract Documents.

Set grade forms 12 inches outside each exterior wall of the box culvert. Uniformly compact this material and then grade off using the forms. Set the grade forms approximately 1/8 inches to 1/4 inches above the theoretical grade line to allow for soil compression. Adjust this distance to yield the proper grade, but do not use in lieu of the proper compaction of the granular bedding material. Remove the forms after placing the precast box culvert section.

410-10.3 Placement of Precast Box Culvert Sections: Obtain the Engineer's approval of the method of controlling line and grade during culvert installation. Use a method that allows rapid checking of the previously laid sections. Maintain line and grade on sections previously set. The Engineer will consider sections which do not retain the plan line within 0.10 foot or grade within 0.10 foot during laying of subsequent sections, as not having been laid to line and grade. Take up and relay sections not to line and grade without additional compensation.

410-10.4 Placement of Multiple Barrel Culverts: For multiple barrel installations using single-cell precast box sections, provide positive lateral support between the precast box culverts consisting of non-shrink grout, concrete meeting the requirements of Section 347 or non-excavatable flowable fill prior to backfilling. Provide partial height backfill or bracing to maintain alignment, when approved by the Engineer.

410-10.5 Backfilling: Begin backfilling only after the Engineers approval. Seal blockouts and holes provided for lifting or joint restraint by plugging using an epoxy mortar or non-shrink grout in accordance with Sections 926 or 934 and properly cure to ensure a sound and watertight plug, prior to backfilling.

410-10.6 Underdrain and Weep Holes: Provide a continuous underdrain in accordance with FDOT Standard Plans.

410-11 Joints.

410-11.1 General: Make field joints for precast concrete box culvert sections with either profile rubber gaskets or preformed joint sealants, unless otherwise detailed in the Plans or approved shop drawings. Joint openings at the outside face must not exceed 1-1/2 inches in the assembled position at any location along the joint perimeter. Ensure a minimum 50% overlap of the joint tongue and groove around the entire perimeter of the box in the assembled position.

Completely wrap the outside of each joint with Type D-3geotextile filter fabric as specified in Section 985. Provide fabric with a minimum width of 2 feet and a length sufficient to ensure a minimum overlap of 24 inches. The filter fabric must extend a minimum of 12 inches beyond each side of the joint. Secure the fabric tightly against the box culvert sections with metal or plastic strapping. Other methods which will hold the fabric securely against the wall of the culvert until the backfill is placed and compacted, may be used when approved by the Engineer. When specified in the Plans, secure the joint by a suitable device capable of holding the sections to line and grade as well as fully home. Remove these devices and repair locations as necessary if intrusive into the concrete after placing and compacting sufficient backfill to secure the sections.

410-11.2 Profile Rubber Gaskets: Install field joints in accordance with the joint manufacturer's instructions and meet the following:

1. Meet the requirements of ASTM C1677,
2. Store all gaskets in a cool place prior to use,
3. Submit to the Engineer written details regarding configuration of the joint and gasket required to create a soil-tight seal. Do not apply mortar, joint compound or other filler which would restrict the flexibility of the joint.

410-11.3 Preformed Flexible Joint Sealants: Install field joints in accordance with the joint manufacturer's instructions and meet the following:

1. Meet the requirements of ASTM C990,
2. Submit to the Engineer a written recommendation of the size (cross-sectional area) of joint sealant which will create a soil-tight seal. Ensure that this amount is the minimum

quantity of bitumen sealant used. Do not brush or wipe joint surfaces which are to be in contact with the joint sealant with cement slurry. Fill minor voids with non-shrink grout,

3. Thoroughly clean and dry all joint surfaces which are to be in contact with the sealant material. When recommended by the sealant manufacturer, apply a primer of the type recommended to all joint surfaces which are to be in contact with the sealant material.

4. Apply sealant to form a continuous seal around each joint. The sealant must be protected by a removable wrapper. Do not remove the paper wrapper on the exterior surface of the preformed flexible joint sealant until immediately prior to joining the precast sections. Apply the joint sealant only to dry surfaces. When the atmospheric temperature is below 60°F, either store the joint sealant in an area above 70°F, or artificially warm the joint sealant to 70°F in a manner satisfactory to the Engineer. After assembly, ensure that there is full contact and compression of the sealant for the entire perimeter of the joint, as evidenced by the presence of minor bulging along any visible edges of the sealant. Neatly trim any extruded sealant flush with the concrete surface.

410-11.4 Water-tight Joint Treatment: Provide water-tight joints when shown in the Contract Documents. Utilize an external sealing band in accordance with ASTM C877 in addition to the requirements of 410-11.2 or 410-11.3. Determine the minimum width of sealing bands by substituting the larger of the clear rise or span of the precast concrete box section, for the equivalent pipe diameter in ASTM C877 Tables 1 and 2. Install external sealing band wrap in accordance with the manufacturer's instructions prior to wrapping the joint with geotextile filter fabric.

410-12 Shop Drawings.

Submit details of all precast box culvert elements for approval to the Engineer prior to manufacturing in accordance with FDOT Specs 5-1.4. These shop drawings must include the proposed layout, lifting devices, and a note describing the casting method for the precast box culverts and details of any modifications to cast-in-place sections or connections thereto. All details must be submitted as a complete package including modifications to cast-in-place sections.

410-13 Basis of Payment.

Price and payment will be full compensation for all work specified in this Section, including the cost of special bedding material and its placement, additional cut-off or toe wall depth, temporary sheet piling, graded forms, joint materials, filter fabric material, attachment of the filter fabric, dewatering, excavation, channel excavation and lining, backfilling, restraining devices, engineering/design, geotechnical investigation, and any other materials or equipment necessary to make a complete and accepted
installation.

The cost of all items associated above with the box culvert will be included in the lump sum price of the box culvert.

SECTION 425
INLETS, MANHOLES, AND JUNCTION BOXES

425-1 Description.

Construct inlets, manholes, and junction boxes from reinforced concrete as shown in the Standard Plans and the Plans. Furnish and install the necessary metal frames and gratings. Construct yard drains from concrete meeting the requirements of FDOT Specs Section 347. Adjust structures shown in the Plans to be adjusted or requiring adjustment for the satisfactory completion of the work.

For precast structures, meet the requirements in FDOT Specs 449-1.

425-2 Composition and Proportioning.

425-2.1 Concrete: For inlets, manholes, and junction boxes, use Class II or IV concrete, as designated in the Plans and Standard Plans and as specified in Section 346. For yard drains use concrete as specified in FDOT Specs Section 347.

425-2.2 Mortar: For brick masonry, make the mortar by mixing one part cement to three parts sand. Miami Oolitic rock screenings may be substituted for the sand, provided the screenings meet the requirements of 902 except for gradation requirements. Use materials passing the No. 8 sieve that are well graded from coarse to fine. Submit documentation, from a Department approved mine or a Department approved concrete plant, confirming the sand or sand substitute meets the requirements of FDOT Specs 902-3.2.

Preblended masonry cement mortar may be used in lieu of the above-specified mortar. Deliver the product in original and unopened packages properly identified by brand name of manufacturer, net weight of package, and type. Store the material in full compliance with the manufacturer's recommendations. Material must be used within manufacturer's recommended shelf life.

425-3 Materials.

425-3.1 General: Meet the following requirements:

Sand (for mortar)	FDOT Specs Section 902
Portland Cement	FDOT Specs Section 921
Water	FDOT Specs Section 923
Reinforcing Steel	FDOT Specs Sections 931 and 415
Liner Repair Systems	FDOT Specs Section 948
Brick and Concrete Masonry Units	FDOT Specs Section 949
Castings for Frames and Gratings	FDOT Specs Section 962
Masonry Cement, Type M or S	ASTM C91
Preblended Dry Masonry Cement Mortar, Type M or S	ASTM C1714

425-3.2 Gratings□ Covers□ and Frames: Use gratings and frames fabricated from structural steel or cast iron as designated in the appropriate Standard Plans Index. When "Alt. G" grates are specified in the Plans, provide structural steel grates that are galvanized in accordance with the requirements of ASTM A123.

Use rigid frames and covers either 24 inches or 36 inches or optional three-piece adjustable frames and covers as indicated in FDOT Standard Plans, Index 425-001.

For three-piece adjustable frames, the inner frame may include replaceable resilient seats to support the cover. In addition, the inner frame shall indicate it is adjustable, by clearly having the word “adjustable” imprinted into the exposed portion of the inner frame so “adjustable” is visible from the roadway after installation.

425-3.3 Skimmer: Include 1.5% by weight of carbon black with plastic skimmers on french drain systems.

425-4 Forms.

Design and construct wood or metal forms so that they may be removed without damaging the concrete. Build forms true to line and grade and brace them in a substantial and unyielding manner. Obtain the Engineer’s approval before filling them with concrete.

425-5 Precast Inlets□ Manholes□ and Junction Boxes.

Precast inlets, manholes, and junction boxes, designed and fabricated in accordance with the Plans, the FDOT Standard Plans and FDOT Specs Section 449 may be substituted for cast-in-place units.

425-6 Skimmers.

Furnish and install skimmers in accordance with the Plans and Standard Plans.

425-7 Construction Methods.

425-7.1 Excavation: Excavate as specified in FDOT Specs Section 125.

Where unsuitable material for foundations is encountered, excavate the unsuitable material and backfill with suitable material prior to constructing or setting inlets, manholes and junction boxes.

As an option to the above and with the Engineer’s approval, the Contractor may carry the walls down to a depth required for a satisfactory foundation, backfill to 8 inches below the flowline with clean sand and cast a non-reinforced 8 inch floor.

425-7.2 Placing and Curing Concrete: Place the concrete in the forms, to the depth shown in the Plans, and thoroughly vibrate it. After the concrete has hardened sufficiently, cover it with suitable material and keep it moist for a period of three days. Finish the traffic surface in accordance with 522-7.2, or with a simulated broom finish approved by the Engineer.

425-7.3 Setting Manhole Castings: After curing the concrete as specified above, set the frame of the casting in a full mortar bed composed of one part portland cement to two parts of fine aggregate.

425-7.3.1 Standard Castings: Set manhole frames in a mortar bed and adjust to grade using brick or concrete grade rings, with a maximum 12 inch adjustment.

425-7.3.2 Optional Ad□ustable Castings: When using a three-piece adjustable frame and cover, install the frame and cover with brick or concrete grade rings to the base course height. Make adjustments using the inner frame in accordance with the manufacturer’s installation recommendations so the inner frame and cover meet the grade and slope of the pavement surface opened to traffic.

425-7.4 Reinforcing Steel: Follow the construction methods for the steel reinforcement as specified in Section 415.

425-7.5 Laying Brick: Brick masonry may be used if the structure is circular and constructed in place, or for adjustments of rectangular risers up to a maximum 12 inches in height. Saturate all brick with water before laying. Bond the brick thoroughly into the mortar using the shove-joint method to lay the brick. Arrange headers and stretchers so as to bond the

mass thoroughly. Finish the joints properly as the work progresses and ensure that they are not less than 1/4 inch or more than 3/4 inch in thickness. Do not use spalls or bats except for shaping around irregular openings or when unavoidable at corners.

425-7.6 Backfilling: Backfill as specified in FDOT Specs Section 125, meeting the specific requirements for backfilling and compaction around inlets, manholes, and junction boxes detailed in 125-8.1 and 125-8.2. However for outfall lines beyond the sidewalk or future sidewalk area, where no vehicular traffic will pass over the pipe, inlets, manholes, and junction boxes, compact backfill as required in FDOT Specs 125-9.2.2.

425-7.7 Ad□usting Structures: Adjust existing manholes, catch basins, inlets, valve boxes, etc., within the limits of the proposed work, to meet the finished grade of the proposed pavement, or if outside of the proposed pavement area, to the finished grade designated in the Plans for such structures. Adjust structures prior to placement of final asphalt pavement surface layer. Adjust structures to match final pavement surface cross-slope. Use materials and construction methods which meet the requirements specified above to adjust the existing structures.

The Contractor may extend manholes needing to be raised using adjustable extension rings of the type which do not require the removal of the existing manhole frame. Use an extension device that provides positive locking action and permits adjustment in height as well as diameter and meets the approval of the Engineer. When adjusting structures in flexible pavement, restore final road surface in accordance with Standard Plans, Index 125-001.

425- Method of Measurement.

The quantities to be paid for will be the number of inlets, manholes, junction boxes, and yard drains, completed and accepted□ and the number of structures of these types (including also valve boxes) satisfactorily adjusted.

425- Basis of Payment.

425-.1 New Structures: Price and payment will be full compensation for furnishing all materials and completing all work described herein or shown in the Plans, including all clearing and grubbing outside the limits of clearing and grubbing as shown in the Plans, all excavation except the volume included in the measurement designated to be paid for under the items for the grading work on the project, all backfilling around the structures, the disposal of surplus material, and the furnishing and placing of all gratings, frames, covers, and any other necessary fittings.

425-9.2 Adjusted Structures: When an item of payment for adjusting manholes, valve boxes, or inlets is provided in the proposal, price and payment will be full compensation for the number of such structures designated to be paid for under such separate items, and which are satisfactorily adjusted, at the Contract unit prices each for adjusting inlets, adjusting manholes, and adjusting valve boxes.

For any of such types of these structures required to be adjusted but for which no separate item of payment is shown in the proposal for the specific type, payment will be made under the item of adjusting miscellaneous structures.

425-9.3 Payment Items: Payment will be made under:

Inlets - each.

Manholes - each.

Junction Boxes - each.

SECTION 02211

SODDING

1.1 DESCRIPTION OF WORK

This work consists of sodding areas cleared during construction and not paved, or as otherwise shown on the Construction Plans. All material and construction methods shall be in accordance with the Florida Department of Transportation Standard Plans, Latest Edition. Sodding: All disturbed areas shall be sodded.

1.2 MATERIAL

Sod species shall be consistent with species that exists in front of residences. Other species may be used upon approval by owner or engineer. The sod shall have live, fresh, and uninjured at the time of planting and shall have a thick mat of roots with enough adhering soil to assure growth. Apply sod within 48 hours of cutting or stack and keep moist. Do not plant dormant sod or if ground is frozen.

1.2.1 Placement: Prepare the ground by loosening the soil. Place sod on the prepared soil to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to avoid a continuous downhill seam. Tamp or roll lightly to ensure contact with subgrade. Tamp the outer edges of the sodded area to produce a smooth contour. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grass. Immediately after planting, water sod thoroughly with a fine spray.

1.2.2 Watering: Keep sod continuously moist to a depth below the root zone for three weeks after placement. If there is not water available to the site, the Contractor shall provide the water for the sod.

1.2.3 Maintenance: Maintain sod by watering, fertilizing, weeding, mowing, trimming and other operations such as rolling, re-grading, and re-planting as required to establish a lawn free of eroded or bare areas and acceptable to the Engineer. Where inspected work and materials do not comply with requirements, replace rejected work and continue maintenance until re-inspected by Engineer and found to be acceptable. Remove rejected materials promptly from the project site.

1.3 WARRANTY

Contractor shall warranty all work and material for a period of 12 months beginning from date of acceptance of substantial completion.

1.4 MEASUREMENT AND PAYMENT:

1.4.1 Sodding shall be measured for payment in square yards or by lump sum only for areas indicated on the plans, or as provided in the proposal and contract.

1.4.2 When not listed as a separate contract pay item, sodding shall be considered as incidental work, and the cost thereof shall be included in such contract pay items as are provided in the proposal contract.

1.4.3 Compensation, whether by contract pay item or incidental work will be for furnishing all materials, labor, equipment, tools and incidentals required for the work, all in accordance with the plans and these specifications.

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, apply to this Section.

B. Florida Department of Transportation, Standard Specifications for Road and Bridge Construction (FDOT Specs), Section 120, latest edition. Work shall comply with requirements of FDOT Specs as modified herein.

C. GENERAL EXCEPTIONS: Any reference to FDOT Standard Specifications for Road and Bridge Construction (latest edition) Division I General Requirements & Covenants shall be excluded and not applicable to any specification referred herein, or otherwise listed in this document.

1.2 SUMMARY

A. This Section includes preparing and grading sub-grades for pavements and curbs.

B. Related Sections: The following Sections contain requirements that relate to this Section.

1. Section 2230 "Clearing & Grubbing" for clearing, grubbing, and tree protection.
2. Section 2600 “Stormwater System” for installation of stormwater systems.

1.3 DEFINITIONS

A. Excavation consists of the removal of material encountered to sub-grade elevations and the reuse or disposal of materials removed.

B. Sub-grade: The uppermost surface of an excavation or the top surface of a fill or backfill immediately below sub-base, base, drainage fill, or topsoil materials.

C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavations.

D. Subbase Course: The layer placed between the subgrade and base course in a paving system or the layer placed between the subgrade and surface of a pavement or sidewalk or the existing layer beneath this base.

E. Base Course: The layer placed between the subbase and surface pavement in a paving system.

F. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Engineer.

Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.

H. Utilities include on-site above ground utilities, overhead utilities and underground utilities including: pipes, conduits, ducts, and cables, as well as related appurtenances and underground services within building lines.

I. Unsuitable Material: Any material such as muck, wood, rock, organic peat, garbage, very fine soil particles unsuitable for compaction, and any other material that is considered unsuitable by the County or its representative shall be considered unsuitable.

J. Topsoil: Topsoil is defined as friable clay loam surface soil found normally to a depth of at least 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Section 1300, "Submittals and the General Conditions."

B. Product Data and Samples of the following:

1. 1-lb representative samples of each proposed fill and backfill soil material from borrow sources as selected by the Engineer.
2. 12-by-12-inch sample of filter fabric.

C. Test Reports: In addition to test reports required under field quality control, submit the following original copy directly to the Engineer from the testing services, with a copy to the Contractor:

1. Laboratory analysis of each soil material proposed for fill and backfill from borrow sources.
2. One optimum moisture-maximum density curve for each soil material.
3. Report of actual unconfined compressive strength and/or results of bearing tests of each stratum tested.

1.5 QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork complying with all requirements of authorities having jurisdiction. All material and construction methods shall be in

accordance with the Standard Specifications for Road and Bridge Construction, State of Florida, Department of Transportation, latest edition.

B. Testing and Inspection Service: During earthwork operations employ, at the Contractor's expense, a qualified independent geotechnical engineering testing agency, under the direction of a Professional Engineer, licensed in the State of Florida to classify, perform soil tests, and provide inspection services for quality control. All proposed borrow soils will require the testing agency to verify that soils comply with specified requirements and to perform required field and laboratory testing. Contractor shall replace materials removed for testing purposes. Should any work or materials fail to meet the requirements set forth in the plans and specifications, contractor shall pay for re-testing of same.

C. Testing Laboratory Qualifications: To qualify for acceptance, the geotechnical testing laboratory must demonstrate to the Engineer’s satisfaction, based on evaluation of laboratory-submitted criteria, that it has the experience and capability to conduct required field and laboratory geotechnical testing without delaying the progress of the work.

1.6 PROJECT CONDITIONS

A. Site Information: Data in the subsurface investigation report was used for the basis of the design and are available to the contractor for information only. Conditions are not intended as representations or warranties of accuracy or continuity between soil borings. The Engineer/ Owner will not be responsible for interpretations or conclusions drawn from this data by the contractor.

B. Existing Utilities: Contractor is responsible for contacting all utility companies to obtain locations of all existing utilities or obstructions that he may encounter during construction. After location of utilities by the appropriate utility company, it is the Contractor's liability to protect all such utility lines, including service lines and appurtenances, and to replace at his own expense any that may be damaged by the Contractor's equipment or forces during construction of the Project.

1. Provide a minimum of 48-hours' notice to the Engineer and receive written notice to proceed before interrupting any utility.
2. The contractor is responsible for contacting all utility companies to verify locations of all existing utilities, utility-related obstructions, or utility relocations that he may encounter during construction.
3. Adequate provision shall be made for the flow of existing sewers, drains, and water courses encountered during construction, and structures which may be disturbed shall be satisfactorily restored by the Contractor.

C. Should uncharted, or incorrectly charted, piping or other utilities be encountered during the course of the work, consult Engineer immediately for directions.

Cooperate with owner and utility companies in keeping respective services and facilities in operation.

PART 2 – PRODUCTS

2.1 SOIL MATERIALS

A. General: Soils used as fill shall be clean sands, similar to existing site soil, with less than 5% passing the number 200 sieve when existing subgrade conditions are considered wet as per the County and/or its representative. Soils as described above with less than 12% passing the number 200 sieve and meeting the requirements of Section 902-6 of the FDOT Specifications may be used when existing subgrade conditions are considered dry as per the County and/or its representative. The sand shall have a maximum dry density of at least 100 pounds per cubic foot, according to the Standard Proctor compaction test, AASHTO T-99, ASTM D698. Provide approved borrow soil materials from off-site when sufficient satisfactory soil materials are not available from excavations. Provide laboratory certification that soils meet requirements of specifications.

If the Contractor elects to import any materials other than that excavated on site, then he will do so only with Engineer's approval and at his own expense, unless separate payment for such items are called for in these specifications.

B. Sub-base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand, ASTM D 2940, with at least 95 percent passing a 1-1/2-inch sieve, and not more than 8 percent passing a No. 200 sieve.

PART 3 – EXECUTION

3.1 DEWATERING

A. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding project site and surrounding area.

B. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

C. The Contractor shall prevent the accumulation of water in excavated areas, and shall remove by pumping or other means any water that accumulates in the excavation. The Contractor shall prevent the accumulation of water in both structural and trench excavations and shall remove by well point system or by other means water which accumulates. The Contractor shall provide, install and operate a suitable and satisfactory dewatering system. The contractor shall include the cost of this pumping equipment and work in the unit price bid for the work.

D. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collection or runoff areas. Do not use trench excavations as temporary drainage ditches.

3.2 EXCAVATION

A. Explosives: Not permitted.

B. Unclassified Excavation: Excavation is unclassified and includes excavation to required subgrade elevations regardless of the character of materials and obstructions encountered.

C. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root systems.

3.3 STABILITY OF EXCAVATIONS

A. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.

B. All excavation work shall conform to all applicable OSHA Publications, latest editions. The Contractor's method of providing protective support to prevent cave-ins shall conform to OSHA requirements. Slope excavations, shoring, and trench box usage in the field must be based on tabulated data and designed by the Contractor. The contractor is solely responsible for job site safety.

3.4 EXCAVATION FOR STRUCTURES

Excavate to indicated elevations and dimensions within a tolerance of plus or minus 0.10 foot. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, installing services and other construction, and for inspections.

1. Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Pile Foundations: Stop excavations from 6 inches to 12 inches above bottom of footing before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.
3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Appurtenances: Excavate to elevations and dimensions indicated within a

tolerance of plus or minus 0.10 foot. Do not disturb bottom of excavations intended for bearing surface.

3.5 EXCAVATION FOR WALKS AND PAVEMENTS

Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

3.6 EXCAVATION FOR STORMWATER SYSTEMS

Excavate and compact the backfill of trenches to the densities specified for embankment or subgrade, as applicable, and in accordance with the requirements of Section 2600.

3.7 STORAGE OF SOIL MATERIALS

Stockpile excavated materials acceptable for backfill and fill soil materials, including acceptable borrow materials. Stockpile soil materials without intermixing. Place, grade and shape stockpiles to drain surface water. Cover to prevent wind-blown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
2. Stockpile topsoil and other reusable soils in storage piles in areas indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, if required, to prevent erosion.

3.8 BACKFILL

A. Backfill excavations promptly, but not before completing the following:

1. Acceptance of construction below finish grade including, where applicable, filter fabric, installation, and gravel bedding.
2. Surveying locations of underground utilities for record documents.
3. Testing, inspecting, and approval of underground utilities.
4. Removal of trash and debris from excavation.
5. Removal of temporary shoring, bracing, and sheeting unless specified to remain.

B. No backfill material shall be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by heavy rain, backfill operations shall not be resumed until the moisture content and density of the fill are as previously specified.

3.9 FILL

A. Preparation: Remove vegetation, topsoil, debris, wet and unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to

placing fills. Plow strip, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing surface. In order to insure proper bond and prevent slipping between the original ground and fill, the surface of the original ground shall be scarified to a depth of at least three inches. Each layer of fill material shall be compacted until the required density is achieved.

B. When sub grade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface to depth required, pulverize, moisture-condition or aerate soil and re-compact to required density.

C. Place fill material in layers to required elevations for each location listed below.

1. Under grass, use satisfactory excavated or borrow soil material.
2. Under walks and pavements, steps, ramps, building slabs, footings, and foundations use subbase or base material, or satisfactory excavated or borrow soil material.

3.10 MOISTURE CONTROL

Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill material on surfaces that contain excessive moisture.
2. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density. Stockpile or spread and dry removed wet satisfactory soil material.

3.11 COMPACTION

A. 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 in loose depth for material compacted by hand-operated tampers. The Contractor may construct embankments in successive layers of not more than 12” compacted thickness, if he can demonstrate with field tests that he has compacting equipment efficient to achieve required density for the full depth of a thicker lift. The Engineer reserves the right to terminate the Contractor's use of thick lift construction and have him revert to the 8” loose lifts whenever it is determined that satisfactory results are not being achieved.

B. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.

C. Percentage of Maximum Dry Density Requirements:
Compact soil to not less than the following percentages of maximum dry density according to ASTM D698 (Standard Proctor):

1. Under structures, building slabs, steps, and pavements, compact each layer of backfill or fill material at 100 percent maximum dry density.
2. Under lawn or unpaved areas, compact each layer of backfill or fill material at 95 percent maximum dry density.

3.12 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between existing adjacent grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 0.10 foot.
2. Walks: Plus or minus 0.10 foot.
3. Pavements: Plus or minus ½ inch.

3.13 STABILIZED SUBGRADE

A. For stabilized subgrade the type of materials, commercial or local, is at the Contractor's option and no separate payment for stabilizing materials will be made (other than as may be paid for as borrow).

B. When stabilizing is designated as Type B, compliance with the bearing value requirements will be determined by the Lime rock Bearing Ratio Method. Minimum LBR shall be 40.

C. It is the Contractor's responsibility that the finished roadbed section meets the bearing value requirements, regardless of the quantity of stabilizing materials necessary to be added. Also, full payment will be made for any areas where the existing subgrade materials meet the design bearing value requirements without the addition of stabilizing additives, as well as areas where the Contractor may elect to place select highbearing materials from other sources, within the limits of the stabilizing.

D. After the roadbed grading operations have been substantially completed, the Contractor shall make his own determination as to the quantity (if any) of stabilizing material, of the type selected by him, necessary for compliance with the bearing value requirements. The contractor shall notify the Engineer of the approximate quantity to be added, and the spreading and mixing-in of such

quantity of materials shall meet the approval of the Engineer as to uniformity and effectiveness.

3.14 FIELD QUALITY CONTROL

A. Testing Agency Services: Allow testing agency to inspect and test each subgrade and each fill or backfill layer. Do not proceed until test results for previously completed work verify compliance with requirements.

1. Perform field in-place density tests according to ASTM D 1556 (sand cone method), ASTM D 2167 (rubber balloon method), or ASTM D 2937 (drive cylinder method), as applicable.

   a. Field in-place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. With each density calibration check, check the calibration curves furnished with the moisture gauges according to ASTM D 3017.
   b. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gauges at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.

2. Paved Areas: Make at least one field density test of subgrade, base, and each compacted fill layer for every 300 linear feet of roadway or equivalent area, but in no case less than three tests. Tests shall be staggered to ensure representative sampling.

3. Unpaved Areas: Make at least one field density test of each compacted fill layer or subgrade for every 1000 square yards of area, but in no case less than three tests.

4. Other tests may be required at Engineer’s discretion.

B. If in the opinion of the Engineer, based on testing service reports and inspection, sub grades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, re-compact, and re-test until required density is obtained at no additional expense.

3.15 REPAIR & CORRECTIONS

A. Protecting Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction due to subsequent construction operations or weather conditions. Scarify or remove and replace material to depth directed by

the Engineer; reshape and re-compact at optimum moisture content to the required density.

B. Settling: Where settling occurs during the warranty period, remove finished surfacing, backfill with additional approved material, compact, and reconstruct surfacing. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

C. When traffic must cross open trenches, the contractor shall provide suitable bridges. (See Section 4060 for additional requirements.)

D. Erosion Control: The Contractor shall be responsible for the prevention of erosion from the site and for maintaining filled and graded surfaces for the duration of the project. This includes, but is not limited to, the erection of a silt fence and hay bale barricade as per Florida Department of Transportation Design Standard indexes 102 and 104, as shown in the construction plans. The Contractor shall take whatever steps necessary to prevent erosion and sedimentation, and will be responsible for any damages which might occur to down-land properties as a result of run-off from the site during sitework construction. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

Surplus excavated material becomes the property of the Contractor unless otherwise noted. Waste materials, including unsatisfactory soils, trash and debris shall be removed and legally disposed of, off the Owner’s property.

3.17 CLEAN-UP AND FINAL INSPECTION

Before final inspection and acceptance the Contractor shall clean ditches, shape shoulders and restore all disturbed areas, including street crossings, grass plots, re-grassing if necessary, to as good a condition as existed before work started.

PART 4 - MEASUREMENT/PAYMENT

4.1 BASIS OF PAYMENT

A. EXCAVATION

Payment shall be included in the cost of the associated item of work.

B. EMBANKMENT

Payment shall be included in the cost of the associated item of work.

END OF SECTION 02300

SECTION 02340
RIPRAP

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

1.1.1 Drawings and general provisions of Contract, including General and Supplementary Conditions and other Specification Sections, apply to work of this Section.

1.1.2 Florida Department of Transportation, Standard Plans for Road and Bridge Construction (FDOT Specs), latest edition. Work shall comply with requirements of FDOT Specs as modified herein.

1.2 DESCRIPTION OF WORK

1.2.1 This section shall cover the work of furnishing and constructing the Riprap which shall consist of a protective course of stone or other approved materials on embankment slopes, in channels, or other work as shown on the plans or directed, with or without a Filter Blanket, all in accordance with these Specifications and in conformity with the lines and grades noted in the plan details.

PART 2 – PRODUCTS

2.1 MATERIALS

2.1.1 Rubble\Stone Riprap shall comply with Florida Department of Transportation Standard Specification 530-2.2

2.1.1.1 Banks and shore protection shall comply with Florida Department of Transportation Standard Specification 530-2.2.1.

2.1.1.2 Ditch lining shall comply with Florida Department of Transportation Standard Specification 530-2.2.2.

2.1.1.3 Broken stone and broken concrete shall comply with Florida Department of Transportation Standard Specification 530-2.2.3.

2.1.1.4 Geotextile fabric shall comply with Florida Department of Transportation Standard Specification 514 and Florida Department of Transportation Design Standards, Index No. 199 according to its application.

2.1.1.5 Bedding stone shall comply with Florida Department of Transportation Standard Specification 530-2.3.

2.1.1.6 Sand/Cement Riprap: Materials and placement shall comply with Florida Department of Transportation Standard Specification 530-2.1.

PART 3 – EXECUTION

3.1 EXECUTION

3.1.1 Construction Requirements:

3.1.1.1 General: All slopes to be treated with riprap shall be trimmed to the lines and grades indicated by the plans or directed, loose material shall be compacted by methods approved by the Engineer or removed. Slopes that require a filter blanket under the riprap shall, in addition to the above, be prepared as noted below. Placement of any riprap on a filter blanket shall be by such means that will not damage or destroy the blanket. Any damage to the blanket shall be repaired without additional compensation. If directed by the Engineer or shown by plan details, all outer edges and the top of riprap where the riprap terminates shall be formed so that the surface of the riprap will be embedded and even with the surface of the ground and/or slope. All riprap construction shall begin at the bottom of the slope and progress upward.

3.1.1.2 Filter Blanket: Unless otherwise specified by the plans or ordered in writing, a fabric blanket will not be allowed for soils with 85% by weight passing the No. 200 sieve (U.S. Std.). The bedding stone shall be constructed in accordance with Florida Department of Transportation Specification 530-3.3.

3.1.1.3 Foundation Preparation: Areas on which filter fabrics are to be placed shall be uniformly trimmed and dressed to conform to cross-sections shown by the plans.

3.1.2 Plastic Filter Fabric:

3.1.2.1 Plastic filter fabric shall be placed in the manner and at the locations shown in the plans or as directed by the Engineer. At the time of installation, fabric shall be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacturer, transportation or storage. The fabric shall be placed with the long dimension parallel to the centerline of the channel or shoreline unless otherwise directed by the Engineer, and shall be laid smooth and free of tension, stress, folds, wrinkles or creases. The strips shall be placed to provide a minimum width of 24 inches of overlap for each joint with the upstream strip of fabric overlapping the downstream strip. Overlap joints and seams shall be measured as a single layer of cloth. Securing pins with washers shall be

inserted through both strips of overlapped cloth at not greater than the following intervals along a line through the midpoint of the overlap:

Pin Spacing	Slope
2 ft.	Steeper than 3:1
3 ft.	3:1 to 4:1
5 ft.	Flatter than 4:1

The fabric shall be turned down and buried two feet at all exterior limits except where a stone-filled key is provided below natural ground. Additional pins regardless of location shall be installed as necessary to prevent any slippage of the filter fabric. Overlaps in the fabric shall be placed so that any upstream strip of fabric will overlap the downstream strip. Should the Engineer direct that the fabric be placed with the long dimension perpendicular to the centerline of the channel or shoreline, the lower strip of fabric shall underlap the next higher strip. Each securing pin shall be pushed through the fabric until the washer bears against the fabric and secures it firmly to the foundation. The fabric shall be protected at all times during construction from contamination by surface runoff and any fabric so contaminated shall be removed and replaced with uncontaminated fabric. Any damage to the fabric during its installation or during placement of riprap shall be replaced by the Contractor. The work shall be scheduled so that 5 days does not expire between placement of the fabric and the covering of the fabric with riprap.

3.2 STONE AND CONCRETE RUBBLE RIPRAP

3.2.1 General: Unless otherwise shown by plan details or directed, stone or concrete shall not be placed on slopes steeper than the natural angle or repose of the riprap material. Placement of stone or concrete may, unless otherwise noted hereinafter, be placed by methods and equipment approved by the Engineer suitable for the purpose of placing the riprap in accordance with the requirements for the class riprap involved without damaging any existing facility or construction feature. The stone or concrete shall be placed in such a manner as to produce a reasonably well graded mass of rock with the minimum practical percentage of voids. Stone or concretes shall be laid with close broken joints and resting on the embankment slope. The riprap shall be constructed to the lines, grades and thickness shown by the plans or as directed. Riprap shall be placed to its full course thickness in one operation and in such a manner as to avoid displacing or damaging the filter blanket material. The larger stone or concretes shall be well distributed and the entire mass of stone or concretes in their final position shall conform to a reasonable uniform gradation. The finished riprap shall be free from objectionable pockets of small stone or concretes and clusters of larger stone or concretes. Open joints shall be filled with spalls, or small stone or concretes in such manner that all stone or concretes are tightly wedged or keyed. Placing riprap by dumping into chutes or by other methods likely to cause segregation of sizes will not be

permitted. The desired distribution of the various sizes of stone or concretes throughout the mass shall be obtained by selective loading of the material at the source, by controlled dumping of successive loads during final placing, or by other methods of placement which will produce the specified results. The individual pieces of stone or concrete in each horizontal course shall be laid so that they will break away from embankment. Rearranging of individual stone or concretes by mechanical equipment, or by hand, will be required to the extent necessary to obtain a reasonably well graded distribution of stone or concrete as specified above.

3.3 SAND/CEMENT RIPRAP

3.3.1 Placing: Immediately following mixing, the mixture shall be placed in the bags, tied (so that when laid in position, they will flatten out and give a thickness of not less than six inches) and placed flat on the area designed. Bags shall be layered and rammed against each other to form closed joints, with tied ends of sacks all laid in the same direction. Sacks ripped or torn in placing shall be removed and replaced with sound, unbroken sacks. When required to be placed under water, special care shall be taken to see that bags are closely jointed to give the same tight joints as required on dry slopes. After the riprap is placed, it shall be sprinkled with water as directed and kept damp for not less than three days. No sand/cement riprap shall be mixed in freezing weather.

3.3.2 Grouting: Immediately after watering, all openings between sacks shall be filled with dry grout composed of one part portland cement and five parts sand.

3.3.3 Pinned Bags: Bags shall be pinned when called for on drawings.

3.3.4 Maintenance: The Contractor shall maintain all riprap until the contract work is accepted, and shall replace, without additional compensation, any damaged or lost riprap.

3.3.5 Clean Up: Before final inspection and acceptance, the Contractor shall remove all excess material from site and restore all disturbed areas to as good a condition as existed before work started.

PART 4 – Measurement / Payment

4.1 METHOD OF MEASUREMENT

4.1.1 Sand-Cement: The quantity to be paid for will be the volume, in cubic yards, of sand actually used in the sand cement mixture and grout, satisfactorily placed and accepted. If sand is proportioned by volume, the sand will be measured loose in an approved measure prior to mixing with cement. If sand cement is proportioned by weight, approved scales will be used for this purpose and the volume will be calculated using a standard conversion factor for sand of 85lbs./cubic feet. No

adjustment of batch weights to allow for varying moisture content of the sand will be made.

4.1.2 Rubble and Bedding Stone: The quantities to be paid for will be the weight in tons, in surface dry natural state, by railroad scales, truck scales, or barge displacement. The Contractor shall determine the weights as follows:

4.1.2.1 Railroad Weights: The Contractor shall weigh railroad cars on railroad scales, before and after loading or before and after unloading. If weighed by other than the Engineer, a certified statement of weights will be required. Certificates of weight, furnished by the railroad company, will be accepted without further certification.

4.1.2.2 Truck Weights: The Contractor shall weigh trucks on certified scales, loaded and empty, as prescribed above for railroad weights. The Contractor shall weigh trucks in presence of the Engineer, or furnish certificates of weights.

4.1.2.3 Barge Displacement: The Engineer will measure each barge. The Contractor shall fit each barge with gauges graduated in tenths of a foot increment. The Contractor shall locate a gauge at each corner of the barge near the lower end of the rake. The Contractor shall furnish additional gauges amidships, if the Engineer deems necessary. The Engineer will review and check all computed weights.

4.2 BASIS OF PAYMENT

4.2.1 Sand-Cement: Price and payment will be full compensation for all work specified in the Section, including all materials, labor, hauling, excavation, and backfill. The Contractor shall include the cost of dressing and shaping the existing fills (or subgrade) for placing riprap in the Contract unit price for Riprap (Sand-Cement).

4.2.2 Rubble: Price and payment will be full compensation for all work specified in this Section, including all materials, hauling, excavation, and backfill. The Contractor shall include the cost of dressing and shaping the existing fill (or subgrade) for placing riprap in the Contract unit price for Riprap (Rubble).

4.2.3 Bedding Stone: Price and payment will be full compensation for all work specified in this Section, including all materials and hauling. The Contractor shall include the cost of dressing and shaping the existing fills (or subgrade) for placing bedding stone in the Contract unit price for Riprap (Rubble).

END OF SECTION 02340

SECTION 02505

EROSION/POLLUTION CONTROL

1.1 SCOPE

The work consists of installing measures or performing work to control erosion and minimize the production of sediment and other pollutants to water and air from construction activities.

1.2 MATERIAL

All materials used for erosion control shall meet federal, state and local requirements and shall conform with the requirements of FDEP erosion and sediment control manual.

1.3 EROSION AND SEDIMENT CONTROL MEASURES AND WORKS

The measures and works shall include temporary sodding, silt fence, turbidity barriers, inlet protection, but are not limited to, the following:

Staging of earthwork activities—The excavation and moving of soil materials shall be scheduled to minimize the size of areas disturbed and unprotected from erosion for the shortest reasonable time.

Sodding—Sodding to protect disturbed areas shall occur as soon as reasonably possible following completion of that earthwork activity.

Straw Mulching—Straw mulching to provide temporary protection of the soil surface from erosion.

Diversions—Diversions to divert water from work areas and to collect water from work areas for treatment and safe disposition. They are temporary and shall be removed and the area restored to its near original condition when the diversions are no longer required or when permanent measures are installed.

Stream crossings—Culverts or bridges where equipment must cross streams. They are temporary and shall be removed and the area restored to its near original condition when the crossings are no longer required or when permanent measures are installed.

Sediment basins—Sediment basins collect, settle, and eliminate sediment from eroding areas from impacting properties and streams below the construction site(s). These basins are temporary and shall be removed and the area restored to its original condition when they are no longer required or when permanent measures are installed.

Sediment filters—Straw bale filters or geotextile sediment fences trap sediment

from areas of limited runoff. Sediment filters shall be properly anchored to prevent erosion under or around them. These filters are temporary and shall be removed and the area restored to its original condition when they are no longer required or when permanent measures are installed.

Waterways—Waterways for the safe disposal of runoff from fields, diversions, and other structures or measures. These works are temporary and shall be removed and the area restored to its original condition when they are no longer required or when permanent measures are installed.

Other—Additional protection measures as specified in section 8 of this specification or required by Federal, State, or local government.

1.4 CHEMICAL POLLUTION

The contractor shall provide watertight tanks or barrels or construct a sump sealed with plastic sheets to dispose of chemical pollutants, such as drained lubricating or transmission fluids, grease, soaps, concrete mixer washwater, or asphalt, produced as a by-product of the construction activities. At the completion of the construction work, sumps shall be removed and the area restored to its original condition as specified in section 8 of this specification. Sump removal shall be conducted without causing pollution.

Sanitary facilities, such as chemical toilets, or septic tanks shall not be located next to live streams, wells, or springs. They shall be located at a distance sufficient to prevent contamination of any water source. At the completion of construction activities, facilities shall be disposed of without causing pollution as specified in section 8 of this specification.

1.5 AIR POLLUTION

The burning of brush or slash and the disposal of other materials shall adhere to state and local regulations.

Fire prevention measures shall be taken to prevent the start or spreading of wildfires that may result from project activities. Firebreaks or guards shall be constructed and maintained at locations shown on the drawings.

All public access or haul roads used by the contractor during construction of the project shall be sprinkled or otherwise treated to fully suppress dust. All dust control methods shall ensure safe construction operations at all times. If chemical dust suppressants are applied, the material shall be a commercially available product specifically designed for dust suppression and the application shall follow manufacturer's requirements and recommendations. A copy of the product data sheet and manufacturer's recommended application procedures shall be provided to the engineer 5 working days before the first application.

1.6 MAINTENANCE, REMOVAL, AND RESTORATION

All pollution control measures and temporary works shall be adequately maintained in a functional condition for the duration of the construction period. All temporary measures shall be removed, and the site restored to near original condition.

1.7 MEASUREMENT AND PAYMENT

The cost of all erosion control devices including installation, maintenance, NPDES permits, replacement shall be made at the lump sum price for erosion control, lump sum.

TECHNICAL NOTE

Minimum and Maximum Cover Heights for Corrugated HDPE Pipe (per ASTM F2648)

TN 2.02
January 2016

Introduction

The information in this document is designed to provide answers to general cover height questions; the data provided is not intended to be used for project design. The design procedure described in the *Structures* section (Section 2) of the Drainage Handbook provides detailed information for analyzing most common installation conditions. This procedure should be utilized for project specific designs.

The two common cover height concerns are minimum cover in areas exposed to vehicular traffic and maximum cover heights. Either may be considered "worst case" scenario from a loading perspective, depending on the project conditions.

Minimum Cover in Traffic Applications

Pipe diameters from 4- through 48-inch (100-1200 mm) installed in traffic areas (AASHTO H-25 or HS-25 loads) must have at least one foot (0.3m) of cover over the pipe crown, while 60-inch (1500 mm) pipe must have at least 24 inches (0.6m) of cover. The backfill envelope must be constructed in accordance with the *Installation* section (Section 5) of the Drainage Handbook and the requirements of ASTM D2321. The backfill envelope must be of the type and compaction listed in Appendix A-5, Table A-5-2A of the Drainage Handbook. In Table 1 below, this condition is represented by a Class II material compacted to 90% standard Proctor density, although other material can provide similar strength at slightly lower levels of compaction. Structural backfill material should extend six inches (0.15m) over the crown of the pipe; the remaining cover should be appropriate for the installation and as specified by the design engineer. If settlement or rutting is a concern, it may be appropriate to extend the structural backfill to grade. Where pavement is involved, sub-base material can be considered in the minimum burial depth. While rigid pavements can be included in the minimum cover, the thickness of flexible pavements should not be included in the minimum cover.

Additional information that may affect the cover requirements is included in the *Installation* section (Section 5) of the Drainage Handbook. Some examples of what may need to be considered are temporary heavy equipment, construction loading , paving equipment and similar loads that are less than the design load, the potential of pipe flotation, and the type of surface treatment which will be installed over the pipe zone. Please note that Table 1 and 3 are based on the installation of N-12 and MEGA GREEN (per ASTM F2648) pipe under pavement using a uniform backfill type and compaction level, as depicted in Figure 1.

Table 1
Minimum Cover Requirements for N-12® and MEGAGREEN™ Pipes (per ASTM F2648) with AASHTO H-25 or HS-25 Load

Inside Diameter, ID, inches (mm)	Minimum Cover feet (m)
4 (100) – 48 (1200)	1 (0.3)
60 (1500)	2 (0.6)

Note: Minimum covers presented here were calculated assuming Class II backfill material compacted to 90% standard Proctor density around the pipe and a minimum of 6-inches (0.15m) structural backfill over the pipe crown, as recommended in Section 5 of the Drainage Handbook, with an additional layer of compacted traffic lane sub-base for a total cover as required. In shallow traffic installations, especially where pavement is involved, a good quality compacted material to grade is required to prevent surface settlement and rutting.

Maximum Cover

Wall thrust generally governs the maximum cover a pipe can withstand and conservative maximum cover heights will result when using the information presented in the *Structures* section (Section 2) of the Drainage Handbook.

The maximum burial depth is highly influenced by the type of backfill and level of compaction around the pipe. General maximum cover limits for N-12 and MEGA GREEN (per ASTM F2648) pipe are shown in Table 3 for a variety of backfill conditions.

Table 3 was developed assuming pipe is installed in accordance with ASTM D2321 and the *Installation* section (Section 5) of the Drainage Handbook. Additionally, the calculations assume no hydrostatic load around the pipe, incorporate the maximum safety factors represented in Structures section of the Drainage Handbook, use material properties consistent with the expected performance characteristics for N-12 and MEGA GREEN (per ASTM F2648) materials as shown in Table 2 below, and assume the native soil (in-situ) is of adequate strength and is suitable for installation. For applications requiring fill heights greater than those shown in Table 3 or where hydrostatic pressure due to groundwater is present, contact an ADS engineering representative.

Figure 1

ADS N-12 and MEGAGREEN (per ASTM F2648) Trench Detail Under Pavement

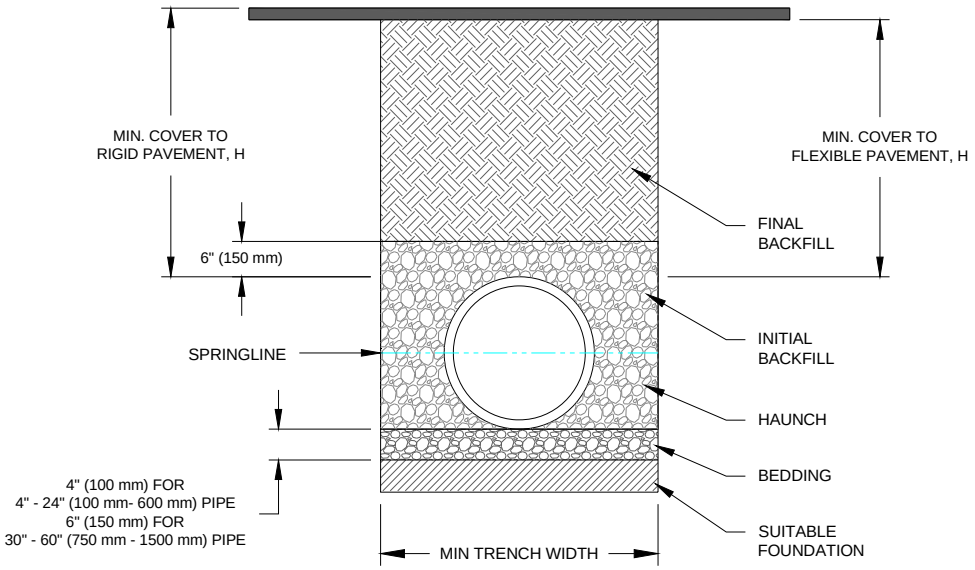


Table 2
ADS N-12 and MEGAGREEN (per ASTM F2648) Mechanical Properties

Cell Class	Design Compressive Strain (%)	Design Tensile Strain (%)	Initial		50-Year	
			Fu (psi)	E (psi)	Fu (psi)	E (psi)
ASTM D3350 424420C – 4-10” 435420C – 12-60”	3.7	4.0	3,000	110,000	800	21,000

Table 3
Maximum Cover for ADS N-12 and MEGAGREEN Pipes (per ASTM F2648), ft (m)

Diameter in. (mm)	Class 1				Class 2				Class 3	
	Compacted		Dumped		95%		90%		95%	
4 (100)	34	(10.4)	16	(4.9)	23	(7.0)	16	(4.9)	17	(5.2)
6 (150)	40	(12.2)	19	(5.8)	27	(8.2)	19	(5.8)	20	(6.1)
8 (200)	30	(9.1)	14	(4.3)	21	(6.4)	14	(4.3)	15	(4.6)
10 (250)	34	(10.4)	16	(4.9)	23	(7.0)	16	(4.9)	17	(5.2)
12 (300)	35	(10.7)	17	(5.2)	24	(7.3)	17	(5.2)	18	(5.5)
15 (375)	37	(11.3)	18	(5.5)	25	(7.6)	18	(5.5)	19	(5.8)
18 (450)	32	(9.8)	15	(4.6)	22	(6.7)	15	(4.6)	16	(4.9)
24 (600)	27	(8.2)	13	(4.0)	19	(5.8)	13	(4.0)	14	(4.3)
30 (750)	22	(6.7)	11	(3.4)	16	(4.9)	11	(3.4)	11	(3.4)
36 (900)	26	(7.9)	12	(3.7)	18	(5.5)	12	(3.7)	13	(4.0)
42 (1050)	24	(7.3)	11	(3.4)	17	(5.2)	11	(3.4)	12	(3.7)
48 (1200)	23	(7.0)	11	(3.4)	16	(4.9)	11	(3.4)	12	(3.7)
60 (1500)	26	(7.9)	12	(3.7)	18	(5.5)	12	(3.7)	13	(4.0)

Notes:

1. *Results based on calculations shown in the Structures section of the ADS Drainage Handbook(v20.6). Calculations assume no hydrostatic pressure and a density of 120 pcf (1926 kg/m^3) for overburden material.*
2. *Installation assumed to be in accordance with ASTM D2321 and the Installation section of the Drainage Handbook.*
3. *Material must be adequately "knifed" into haunch and in between corrugations. Compaction and backfill material is assumed uniform throughout entire backfill zone.*
4. *Compaction levels shown are for standard Proctor density.*
5. *Installations of pipe manufactured per ASTM F2648 are only applicable to the fill heights, type of embedment materials and compaction levels listed above.*
6. *For projects where cover exceeds the maximum values listed above, contact ADS for specific design considerations.*
7. *Calculations assume no hydrostatic pressure. Hydrostatic pressure will result in a reduction in allowable fill height. Reduction in allowable fill height must be assessed by the design engineer for the specific field conditions.*

TECHNICAL NOTE

Post Installation Testing for HDPE Pipe

TN 5.07
August 2016

Introduction

HDPE pipe is often tested after or during installation to ensure a sound installation was accomplished. Types of post installation field testing include deflection testing and joint testing. Specific testing required for the project will be found in the project specifications. This technical note is not meant to supersede any project specification, but should be used in conjunction with the project specification and national testing standards as it relates specifically to HDPE pipe.

Deflection Testing

An important feature of any flexible pipe is its ability to deflect, or oval, under load without structural distress. Flexible pipe *must* deflect in order to mobilize the strength of the surrounding backfill. Deflection allows the load to be transferred from the pipe to the surrounding backfill. As a result, flexible pipe can withstand very high loads as a relatively light structure.

According to current thermoplastic design procedures, deflection is defined as a service limit. The designer, considering all site conditions, will set this service limit in order to perform a proper design evaluation. Deflection in excess of this service limit does not necessarily result in strength limits being exceeded, i.e. system failure. For more information on service and strength limit states, see the *Structures* section of the Drainage Handbook. HDPE can be expected to perform satisfactorily in most applications with 5% or 7.5% deflection and so it is typical of designers to choose a service limit in this range.

When testing for allowable deflection limits, the minimum inside diameter should be used when establishing mandrel sizing. The minimum inside diameter accounts for the allowable manufacturing tolerances. Table 1 lists the inside diameters that result from 5% and 7.5% deflection from the minimum inside diameter. Values listed in Table 1 should be used for sizing mandrels for deflection testing. Mandrels may be obtained from a variety of commercial suppliers.

Table 1
Base Inside Diameters for HDPE Pipe

Nominal Pipe Diameter (in.)	Base Inside Diameter (in.)	Base Inside Diameter with 5% Deflection (in.)	Base Inside Diameter with 7.5% Deflection (in).
4	3.88	3.68	3.59
6	5.82	5.53	5.38
8	7.76	7.37	7.17
10	9.69	9.21	8.97
12	11.63	11.05	10.76
15	14.54	13.82	13.45
18	17.45	16.58	16.14
24	23.27	22.10	21.52
30	29.08	27.63	26.90
36	34.90	33.16	32.28
42	40.72	38.68	37.66
48	46.54	44.21	43.05
54	52.35	49.73	48.43
60	58.17	55.26	53.81

*Value is per AASHTO M252[1] (4"-10" dia.) and AASHTO M294[2] (12" – 60" dia.).
If designing to a specific standard, please review allowable minimum diameter.

It is important to understand that mandrel testing is a go/no-go test. If any line were to not pass a mandrel, it is important to determine the cause. Obstructions in the line, not associated with deflection, may influence the test. Visual inspection is recommended in the event of a no-go result.

Joint Testing

Joint testing is an important part of any gravity sewer system, both in testing for infiltration and exfiltration. Infiltration aids to estimate the amount of sewer water that will be conveyed to, and ultimately treated by, the waste water treatment plant. Exfiltration aids to estimate the loss of sewage water into the surrounding soil. The two primary ways of testing sewer pipe joints for infiltration and/or exfiltration is using air or water to create a constant pressure within the system.

Exfiltration Testing with Air

Air is a compressible gas and so it is extremely important one adheres to the appropriate safety regulations outlined in OSHA and project specifications. There are two primary national testing standards that may be applied to joint testing HDPE: ASTM F1417 *Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air*, and ASTM F3058 *Preliminary Field Testing of Thermoplastic Pipe Joints for Gravity Flow (Non-Pressure) Sewer Lines*. When either standard is specified by the project plans, one should review the standards carefully and follow the testing procedure and safety precautions outlined. The below commentary on the ASTM testing procedures should be considered a summary and does not replace the testing procedures outlined in their respective specifications.

ASTM F1417 entails testing a run of pipe from one manhole to the next adjacent manhole. Inflatable plugs are positioned into the manholes and secured. Air is introduced into the pipe line and gradually builds pressure. Once the line has been pressurized and is stable at 4.0-psi, the pressure is decreased to 3.5-psi at which time the line must not lose more than 0.5- or 1.0-psi (whichever is specified by the design engineer) in the specified amount of time. Table 2 below summarizes the minimum time that must be reached for less than 0.5- or 1.0-psi of pressure drop, depending on the diameter and length of pipe being tested.

Table 2
Time to Pressure Drop for HDPE (per ASTM F1417)

Pipe Diameter	Pressure Drop (psi)	Minimum Test Time (min:sec)	Length for Minimum Time, (ft)	Time for Longer Lengths, (sec)	Time for Length Shown, (min:sec)							
					100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
12	0.5	5:40	199	1.709 L	5:40	5:40	5:42	7:08	8:33	9:58	11:24	12:50
	1.0	11:20		3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	0.5	7:05	159	2.671 L	7:05	7:05	8:54	11:08	13:21	15:35	17:48	20:02
	1.0	14:10		5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	0.5	8:30	133	3.846 L	8:30	9:37	12:49	16:01	19:14	22:26	25:38	28:51
	1.0	17:00		7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
24	0.5	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
	1.0	22:40		13.764 L	22:47	34:11	43:34	56:58	68:22	79:46	91:10	102:33
30	0.5	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
	1.0	28:20		21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15

Data taken from ASTM F 1417[3] and Uni-Bell, Uni-B-6-98[5].
It may not be necessary to hold the test for the entire time period listed above when it is evident that the rate of air loss is zero or less than the allowable pressure drop and authorized by the approving authority[1].

When the pipe is large enough to be physically accessed, it may be desirable to test individual joints for safety reasons. In these cases, one may consider joint testing in accordance with ASTM F3058, also known as a joint isolation test. ADS recommends a joint isolation test, in lieu of a full line test, for testing pipe diameters 36” and larger for safety reasons. This test is typically done with air, though water may also be used, and involves the use of special testing

equipment. The equipment consists of two inflatable bladders, placed on each side of the joint, creating an open center cavity between them. The bladders are inflated and then the center cavity is pressurized to 3.5 psi. The joint passes the test if the pressure is held for 5 seconds without dropping more than 1.0-psi. For all practical purposes, this is a go/no-go test. Final acceptance of the pipeline per this testing method shall be at the discretion of the Design Engineer. One advantage of this type of test is the ability for the installer to quickly test the joint immediately after installation, allowing for any corrective measures to be taken early on in the project.

Infiltration/Exfiltration with Water

Testing gravity sewer joints via water infiltration or exfiltration is a common practice. For HDPE, this testing should be conducted in accordance with ASTM F2487 *Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Corrugated High Density Polyethylene Pipelines*. These standards entail first observing the ground water conditions and, if applicable, measuring the infiltration rate of the ground water through the joints. If ground water is not applicable, then the line is filled with water and the leakage is observed through exfiltration.

Manholes shall be tested separately and independently of the pipe line to the requirements established in the project specifications. When water level is measured in the manhole for the exfiltration test, the leakage associated with the manhole shall be subtracted from the overall leakage of the test section to establish a pass or fail grade for the pipe.

Allowable Leakage

The allowable leakage rate for HDPE is 200 gallons/in-dia/mi-pipe/day for both infiltration and exfiltration when tested in accordance with ASTM F2487

Conclusion

HDPE pipe is intended for gravity flow drainage applications and may be tested for deflection and joint tightness as discussed in this technical document. It is important to note that the testing procedures are no different than for other gravity flow drainage products currently being used in the market. This document does not purport to address the safety concerns associated with testing HDPE pipe. Any questions associated with testing HDPE pipe can be directed to your local representative.

References

1. AASHTO M252, *Standard Specification for Corrugated Polyethylene Pipe Drainage Pipe*, AASHTO, 2012
2. AASHTO M294, *Standard Specification for Corrugated Polyethylene Pipe, 300 to 1500 mm (12 to 60 in.) Diameter*, AASHTO, 2015
3. ASTM F1417, *Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air*, ASTM, 2005
4. *F3058, Preliminary Field Testing of Thermoplastic Pipe Joints for Gravity Flow (non-Pressure) Sewer Lines*, ASTM, 2016.
5. Uni-B-6-98, *Recommended Practice for Low-Pressure Air Testing of Installed Sewer Pipe,* Uni-Bell PVC Pipe Association, 1998
6. ASTM F2487, *Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Corrugated High Density Polyethylene Pipelines,* ASTM, 2006

TECHNICAL NOTE

Thermoplastic Pipe and Utility Crossings

TN 5.09
November 2013

Introduction

Underground utilities include storm sewer, electric, sanitary sewer, gas, water, telephone and cable. Utility conflicts are typically avoided during the design process. However, in some cases, existing utilities are not properly identified or located during the design process. In other instances, the location of the utility is known, but adequate construction controls are not in place. Both can result in a negative impact to an existing utility when installing a new utility. The purpose of this Technical Note is to provide additional information on the impact of utility crossings. While the discussion centers on the use of thermoplastic (high density polyethylene, HDPE and polypropylene, PP, specifically) pipe, there are documented cases of all types of pipes being affected, and in some cases damaged, by subsequent utility activity nearby.

Design Considerations

Many issues associated with utility disturbances can be avoided during the design process. The design will depend on the type of utility that is installed which may also dictate the depth. Typically, sanitary sewers are buried the deepest and located outside the roadway section. Water lines are generally the next deepest utility and usually are placed a minimum of 5 feet horizontally from sanitary sewers to prevent contamination. Some municipalities locate sanitary and water utilities on opposite sides of the roadway to minimize the potential for disturbance and contamination. Gas, electric and telephone utilities are generally located outside the pavement section on one side of the street in a utility corridor and are usually shallower than water and sanitary utilities. Storm sewer depth can be shallow depending on the terrain and outlet locations. Storm sewers can be located in the roadway or parallel to the roadway. The associated outfalls and area drains can be located outside the right of way in an easement. Since storm sewers are gravity flow drainage, their depth can vary more than other utilities. Most municipalities have ordinances or standards on utility locations and separate distances to minimize and prevent conflicts.

Excavation Considerations

For most municipalities, a statewide one-call utility location system is in place to locate the presence of existing utilities. It is extremely important in the case of electrical, gas and high-pressure water lines that contractors exercise care to avoid cutting these utilities, as the results can be catastrophic, even fatal. Although not catastrophic, the cutting of sanitary and storm sewers can cause maintenance and flooding concerns.

Construction organizations typically recommend that a utility survey be conducted prior to construction activities. The utility survey is conducted to accurately locate all existing (active and abandoned) utilities within the area of interest that could conflict with the planned construction. The Engineer, using records and drawings from various utility owners as a starting point, may conduct the survey. It is advisable to use specialty underground survey firms to confirm the locations and characteristics of the utilities shown on the drawings. It is especially important to search for abandoned utilities and note their locations and characteristics.[(1)]

Once construction begins, the type of equipment that is utilized can have an impact on the potential for utility damage. The use of traditional excavation equipment, such as backhoes or excavators, is very common for the installation of utilities. The use of traditional equipment can provide the best opportunity to locate an existing utility that has not been previously identified. This type of equipment can damage all pipe types if contacted. However, it also offers the operator the opportunity to periodically inspect the excavation for signs of existing utilities. The location of an existing utility location can often be identified before it is impacted by excavation equipment.

Trenching equipment is common for a small diameter pipe or cable installation and can be designed specifically for rock installations. This equipment is operated continuously with little opportunity for inspection of the excavation for

other utilities. Lastly, the equipment operates at a very high decibel level further impeding the operator's ability to determine if an existing utility has been encountered. As a result, the use of trenching equipment can impact all pipe types with little to no awareness by the operator.

Directional boring or drilling is being used more frequently for the installation of utilities. It is a steerable trenchless method of installing utilities along a prescribed subsurface bore path by using a surface launched drilling rig, with minimal impact on the surrounding area. Directional boring is used when excavating or trenching is not practical. The technique has been used extensively in urban areas as it eliminates the need for open cut trenches. To be successful, the operator must have thorough knowledge of existing utilities so that he can plan ole alignment and avoid damaging those utilities. In the case of small diameter utility installation, it is difficult to identify the nature and type of underground obstructions. Furthermore, certain directional equipment is designed to bore through rock and can operate at pressures of up to 30,000 psi. In this instance, an underground utility, regardless of material of construction, would be negatively impacted. Since uncontrolled drillings can lead to such damages, various agencies/government authorities owning the urban 'right-of-way' or the utilities that have authority over underground installations have formed their own rules for safe work execution when using this technology.

The other installation procedure that can have an impact to an existing utility are those that entail "driving" an object from the surface. This typically applies to fencepost or guard rail. In this application, the operator needs to be fully aware of subsurface utilities. The equipment involved with this installation can operate with enough force to damage an underground utility regardless of pipe type. As a result, equipment manufacturers of this type recommend that all underground utilities be properly located so as to avoid potential damage to those utilities.

Installation Considerations

The preferable method of thermoplastic pipe storm sewer installation is to prepare a suitable trench or embankment installation in accordance with recommended depths, widths, soil types and compaction levels. When working adjacent to existing utilities, appropriate pipe spacing needs to be maintained to ensure the stability of the trench and the overall long term performance of the thermoplastic pipe storm sewer. The required pipe spacing will depend on pipe diameter, pipe depth and backfill type.

In some cases, the proximity of an existing utility prevents the use of traditional backfill materials due to lack of adequate clearance for compaction to occur. In this case, controlled low strength material (CLSM) or flowable fill is an appropriate alternative. This is a low strength (120 psi) material that when installed, does not require any compactive effort. Due to its consistency, the material is self forming and self compacting. However, when it dries, it forms an encasement type backfill material that can be excavated if necessary. The use of flowable fill still requires a certain minimum distance between utilities to provide the necessary structural support. As with traditional backfill, this will depend on pipe diameter and pipe depth.

In situations in which a utility crosses too closely or comes in contact with a HDPE or PP storm sewer, CLSM may not be sufficient to provide the necessary structural support. For this condition, concrete encasement is recommended.

Slope/Soil Considerations

Effects of adjacent excavation and response of pipe materials are issues of soil stability until the excavation encroaches on the pipe embedment zone. The long term performance characteristics of any pipe material can be compromised in cases where slope failure occurs. If the pipe is within the failure plane, it will most likely be impacted as a result of the slope failure. The potential for this situation increases as the depth of the installation increases. If an installation was deep enough to cause concerns regarding slope stability and possible failure, it is likely that OSHA regulations would require shoring, trench box or another protective system. For trench installation, Federal regulations mandate an adequate protective system be required at depths greater than five feet [(2)] and some state safety codes reduce this limit to four feet. The use of a protective system would limit the impact of an adjacent installation on an existing utility regardless of pipe material.

For installations that occur beneath existing HDPE or PP pipe, exposure of pipe or loss of material must be avoided. Typically, if a minimum of 12 inches of stable, compacted material is maintained between the existing thermoplastic pipe and the proposed utility, the thermoplastic pipe will have adequate structural support. There are several options available for installations of this type. In order to address the specific site conditions, please contact and ADS representative for additional information on this type of installation.

When dealing with slope/soil stability while excavating next to an existing utility, the most extreme circumstance that can occur is slope failure resulting in exposure of the existing pipe. The complete exposure of the sidewall of a buried HDPE or PP pipe should and can be avoided with proper installation procedures, utility corridors, shoring etc. Long term exposure of this type should be avoided for any material and is not specific to thermoplastics. The exposed condition should be corrected and the pipe returned to a backfilled condition as soon as possible. To avoid long term performance issues, the exposed pipe should be backfilled to conditions equal to or better than the original installation. To avoid uncertainty, an agency may prescribe CLSM material be used when existing pipe is exposed.

Methods of Identifying Utilities

Certain construction practices can be helpful in preventing damage by subsequent utility installation. These include but are not limited to:

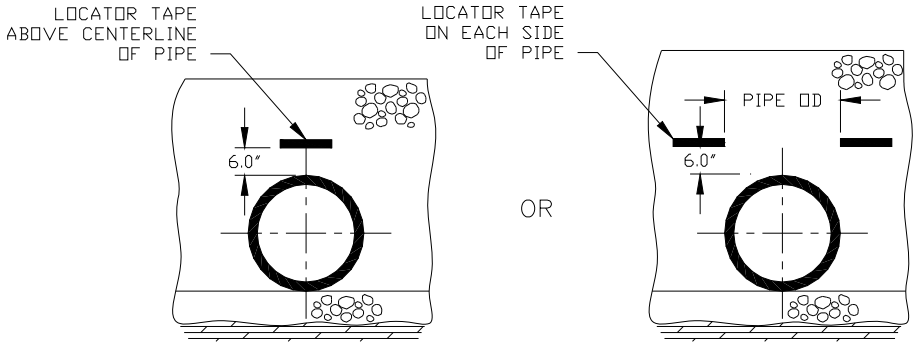
Backfill Materials

Using a select backfill can alert the operator of the possibility of a utility before it is impacted. A stone or sand backfill in areas where native soils are clayey or silty could be used in this case. It should be noted that the use of such material is strictly for utility location and not for structural purposes and can apply to all pipe material types.

Locator Tape

Locator tape is an inexpensive way to notify an operator of a utility. Placing locator tape above the pipe trench would notify the operator of a utility conflict prior to damaging the pipe. Figure 1 provides two examples of the application of locator tape for a utility installation.

Figure 1
Use of Locator Tape with Underground Utilities



Ordinances

The most effective way of preventing utility cuts is to enforce ordinances for the phasing and spacing of utility locations as discussed previously. Furthermore, the ordinances need to be worded such that individual utility contractors are responsible for damages they create. Some agencies have enforced their ordinances by requiring utility contractors to repair utility cuts within a specified time frame after the damage is identified or the agency will do the repair and charge the utility contractor. It may also be necessary to prescribe standards for re-establishing backfill conditions if the pipe envelope of an existing utility is compromised.

Repair of Utility Cuts for HDPE & PP Pipe

One of the many benefits of HDPE and PP pipe is the ability to easily repair damage. The type of repair will depend on the nature and extent of the damage. Repair will typically fall into one of three categories which are discussed further below. More specific information on repair methods can be found in Technical Note 5.03 *HDPE Pipe Repair Options,* Technical Note 5.12 *HP STORM Drainage Pipe Repair Options,* Technical Note 5.13 *SaniTite HP Repair Options*.

Split Couplers

For relatively small utility cuts (3-4” long cuts perpendicular to the centerline of the pipe), repairs can be made by uncovering the damaged section and placing a split coupler over it. The split coupler can then be backfilled in place covering the damaged portion of pipe. This can be enhanced by wrapping the repair with fabric. Another option in lieu of a split coupler is a Mar-Mac® Polyseal coupler. A Mar-Mac coupler should be used when repairing triple wall pipe and a soil-tight joint is allowed by project specifications.

Pipe Sections

For larger utility cuts (greater than 4” along the pipe axis) the damaged section can be uncovered and removed to a point where there is no longer any damage. The cuts should be made in the valleys of the corrugations (Figure 2) and a new section of pipe cut to length and joined to the existing pipe with split couplers (Figure 3). The split coupler can be enhanced by wrapping the repair with fabric. Another option in lieu of a split coupler with fabric is the use of a Mar-Mac Polyseal coupler. A Mar-Mac coupler should be used when repairing triple wall pipe and a soil-tight joint is allowed by project specifications.

Figure 2
Pipe Cut Location

Figure 3
Split Band Installation

Internal Seals

For small utility cuts (3-4” long holes), it is often economical to seal the pipe internally. Several commercially available internal seals are available. Internal seals use polyisoprene rubber membranes that are secured to the inside of the pipe with expanding stainless steel bands. Generally, internal seals are only appropriate for larger diameter (24” or greater) pipes since internal access is necessary. Additional information can be found in the repair method technical notes for the respective ADS pipe product.

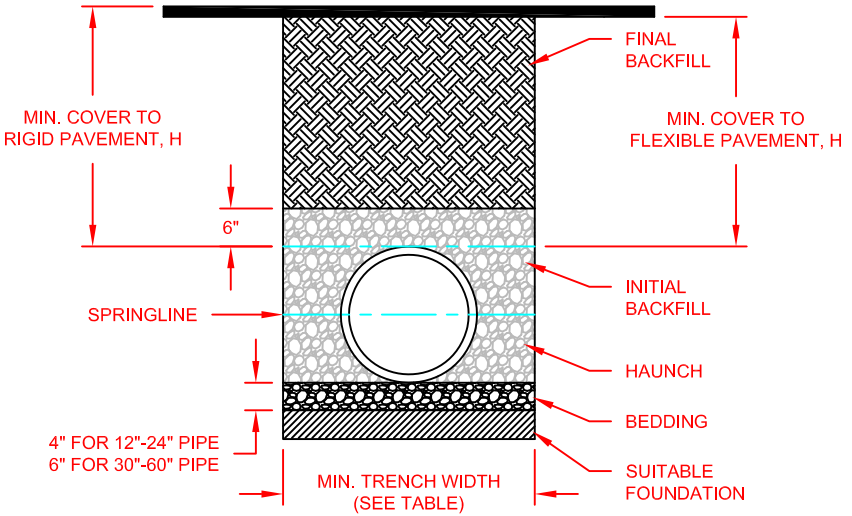
Conclusions

All pipe types are susceptible to damage from the installation of adjacent utilities. Damage can be prevented during the design phase with proper utility location and phasing or during the construction phase with proper utility location. If utility location is not exact, further damage can be minimized through the selection of installation equipment and the use of trench boxes or shoring. Furthermore, in the event that HDPE or PP pipe is physically damaged during the construction process, repair is relatively simple and inexpensive.

Footnotes

[1] Chapter 4 – Planning, Horizontal Directional Drilling, Good Practices and Guidelines, Horizontal Directional Drilling Consortium, 2004
[2] 29 CFR 1926.652(a).

Section 02650 - ADS Pipe



RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4" (100mm)	21" (533mm)
6" (150mm)	23" (584mm)
8" (200mm)	26" (660mm)
10" (250mm)	28" (711mm)
12" (300mm)	30" (762mm)
15" (375mm)	34" (864mm)
18" (450mm)	39" (991mm)
24" (600mm)	48" (1219mm)
30" (750mm)	56" (1422mm)
36" (900mm)	64" (1626mm)
42" (1050mm)	72" (1829mm)
48" (1200mm)	80" (2032mm)
60" (1500mm)	96" (2438mm)

MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS**

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-25	HEAVY CONSTRUCTION (75T AXLE LAOD) *
12" - 48" (300mm - 1200mm)	12" (305mm)	48" (1219mm)
60" (1500mm)	24" (610mm)	60" (1524mm)

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER
**SEE BACKFILL REQUIREMENTS IN NOTE 6.

MAXIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

PIPE DIAM.	CLASS I		CLASS II		CLASS III
	COMPACTED	DUMPED	95%	90%	95%
4" (100mm)	34 (10.4m)	16 (4.9m)	23 (7.0m)	16 (4.9m)	17 (5.2m)
6" (150mm)	40 (12.2m)	19 (5.8m)	27 (8.2m)	19 (5.8m)	20 (6.1m)
8" (200mm)	30 (9.1m)	14 (4.3m)	21 (6.4m)	14 (4.3m)	15 (4.6m)
10" (250mm)	34 (10.4m)	16 (4.9m)	23 (7.0m)	16 (4.9m)	17 (5.2m)
12" (300mm)	35 (10.7m)	17 (5.2m)	24 (7.3m)	17 (5.2m)	18 (5.5m)
15" (375mm)	37 (11.3m)	18 (5.5m)	25 (7.6m)	18 (5.5m)	19 (5.8m)
18" (450mm)	32 (9.8m)	15 (4.6m)	22 (6.7m)	15 (4.6m)	16 (4.9m)
24" (600mm)	27 (8.2m)	13 (4.0m)	19 (5.8m)	13 (4.0m)	14 (4.3m)
30" (750mm)	22 (6.7m)	11 (3.4m)	16 (4.9m)	11 (3.4m)	11 (3.4m)
36" (900mm)	26 (7.9m)	12 (3.7m)	18 (5.5m)	12 (3.7m)	13 (4.0m)
42" (1050mm)	24 (7.3m)	11 (3.4m)	17 (5.2m)	11 (3.4m)	12 (3.7m)
48" (1200mm)	23 (7.0m)	11 (3.4m)	16 (4.9m)	11 (3.4m)	12 (3.7m)
60" (1500mm)	26 (7.9m)	12 (3.7m)	18 (5.5m)	12 (3.7m)	13 (4.0m)

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
NO HYDROSTATIC PRESSURE,
UNIT WEIGHT OF SOIL (Ys) = 120 PCF

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-1500mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. FOR TRAFFIC APPLICATIONS WITH LESS THAN FOUR FEET OF COVER, EMBEDMENT OF THE PIPE SHALL BE USING ONLY A CLASS I OR CLASS II BACKFILL.

REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
4	ADDED CLASS 3 MAX COVER COLUMN	RJS	01/27/17	

TRENCH INSTALLATION DETAIL (ASTM F2648)

DRAWING NUMBER: STD-101A

ADS
ADVANCED DRAINAGE SYSTEMS, INC.
4640 TRUEMAN BLVD
HILLIARD, OHIO 43026

DRAWN BY: JLE
DATE: 8/15/13
CK'D BY:
SCALE: NTS
SHEET 1 OF 1

TRAFFIC SIGNS

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Specifications Sections, apply to work of this section.

B. Unless otherwise specified on the work orders, plan sheets, or in other sections of this contract, all materials and work shall conform to the applicable requirements in the following document:

1. USDOT, Federal Highway Administration, *Manual on Uniform Traffic Control Devices for Streets and Highways*, *Latest Edition*.

2. USDOT, Federal Highway Administration, *Standard Alphabets for Highway Signs and Pavement Markings*, *Latest Edition.*

3. Florida Department of Transportation, *Design Standards for Design, Construction, Maintenance and Utility Operations on the State Highway System*, *Latest Edition*.

4. Florida Department of Transportation, *Standard Specifications for Road and Bridge Construction*, section 700, *Latest Edition*.

C. GENERAL EXCEPTIONS: Any reference to FDOT *Standard Specifications for Road and Bridge Construction, Latest Edition*, *Division I General Requirements & Covenants* shall be excluded and not applicable to any specification referred here in, or otherwise listed in this document.

1.2 DESCRIPTION OF WORK

The work under this section includes the removal and reinstallation of standard and special traffic signs (warning, regulatory, and guide). The Contractor shall furnish all labor, materials, post, tools, supplies, equipment, and machinery necessary to fully complete the work shown in the plans and in these specifications.

1.3 PRODUCTS

1.3.1 MATERIALS

All materials shall be new and of good quality unless otherwise specified. The Contractor, at his own expense and if requested by County Contract Administrator, shall furnish samples of material and/or shall certify that the material meets all FDOT requirements. All material or work that has been rejected shall be remedied by the Contractor at his own expense and without delay. If the Contractor fails to promptly remove and/or dispose of rejected material and replace the same, the Engineer may remove and replace the same and deduct the cost of the work from the contract amount.

If the Contractor chooses to use material other than specified herein, a sample of the material with supporting manufacturer's literature and specifications must be submitted to the County Contract Administrator for prior approval.

1.4 EXECUTION

1.4.1 UTILITY SPOTS

All street name signs shall be fabricated and installed in accordance with the plans and related documents. Contractor shall contact Sunshine State One Call of Florida at least two working days prior to digging or driving posts.

1.4.2 SIGN INSTALLATION

A. Signs shall be placed at the locations illustrated and/or specified in the plans or related documents. The soil around the post shall be solidly tamped so that the sign will stand vertically.

B. If a sign cannot be placed where indicated due to a conflict, the Contractor shall immediately notify the County Contract Administrator. The County Contract Administrator will specify an alternate location.

C. The date when each sign is installed shall be marked in permanent ink on the rear side of each sign.

1.5 MEASUREMENT

1.5.1 METHOD OF MEASUREMENT

The quantity to be paid for will be plan quantity, unless otherwise provided.

1.5.2 BASIS OF PAYMENT

Price and payment will constitute full compensation for all work specified in this section. Payment for all items relating to traffic signs will be a lump sum quantity.

SECTION 03300 – PORTLAND CEMENT CONCRETE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

B. Florida Department of Transportation, Standard Specifications for Road and Bridge Construction (FDOT Specs) latest edition.

C. GENERAL EXCEPTIONS: Any reference to FDOT Standard Specifications for Road and Bridge Construction (latest edition) Division I General Requirements & Covenants shall be excluded and not applicable to any specification referred herein, or otherwise listed in this document.

1.2 SUMMARY

This Section includes concrete work for the following:

1. Roadways.
2. Parking lots.
3. Curbs and gutters.
4. Walkways.
5. Pads.
6. Flumes.
7. Curb Ramps

1.3 SUBMITTALS

A. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, joint systems, curing compounds, dry-shake finish materials, and others if requested by Engineer.

B. Design mixes for each class of concrete. Include revised mix proportions when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

C. Material certificates in lieu of material laboratory test reports when permitted by Engineer. Material certificates shall be signed by manufacturer and Contractor certifying that each material item complies with or exceeds requirements. Provide certification from admixture manufacturers that chloride content complies with requirements.

1.4 PROJECT CONDITIONS

A. Traffic Control: Comply with requirements of Section, "Maintenance of Traffic."

B. Utilize flagmen, barricades, warning signs and warning lights as required, as shown on plans, or as directed by the Engineer.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Concrete shall conform to requirements of FDOT Specs, for curbs, gutters, walks, structures and miscellaneous concrete.

B. Concrete for pavement shall conform to requirements of FDOT Specifications.

C. Curb Ramps shall conform to FDOT Standard Plans.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars and Tie Bars: ASTM A 615, Grade 60, deformed.

B. Welded Steel Wire Fabric: ASTM A 185.

1. Furnish in flat sheets, not rolls, unless otherwise acceptable to Engineer.

C. Deformed-Steel Welded Wire Fabric: ASTM A 497.

D. Fabricated Bar Mats: Welded or clip-assembled steel bar mats, ASTM A 184. Use ASTM A 615, Grade 60 steel bars, unless otherwise indicated.

E. Joint Dowel Bars: Plain steel bars, ASTM A 615, Grade 60. Cut bars true to length with ends square and free of burrs.

F. Hook Bolts: ASTM A 307, Grade A bolts, internally and externally threaded. Design hook bolt joint assembly to hold coupling against pavement form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

G. Supports for Reinforcement: Chairs, spacers, dowel bar supports and other devices for spacing, supporting, and fastening reinforcing bars, welded wire fabric, and dowels in place. Use wire bar-type supports complying with CRSI specifications. Use supports with sand plates or horizontal runners where base material will not support chair legs.

2.3 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I.

1. Use one brand of cement throughout Project unless otherwise acceptable to Engineer.
2. All concrete shall develop a 28-day compressive strength of 3000 psi. If any concrete should fail to meet the strength requirement the structure shall be removed as necessary to remove the defective concrete and shall then be rebuilt at the contractor's expense.

B. Fly Ash: ASTM C 618, Type F.

C. Normal-Weight Aggregates: ASTM C 33, Class 4, and as follows. Provide aggregates from a single source unless otherwise approved by the Engineer.

1. Maximum Aggregate Size: 1-1/2 inches.
2. Do not use fine or coarse aggregates that contain substances that cause spalling.
3. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Engineer.

D. Water: Potable.

E. Fiber Reinforcement: Synthetic fibers engineered and designed for secondary reinforcement of concrete slabs, complying with ASTM C 1116, Type III.

2.4 ADMIXTURES

A. Provide concrete admixtures that contain not more than 0.1 percent chloride ions.

B. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

C. Water-Reducing Admixture: ASTM C 494, Type A.

D. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.

E. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.

F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

2.5 CONCRETE MIX

A. Prepare design mixes for each type and strength of normal-weight concrete per FDOT Standard Specifications. Use a qualified independent testing laboratory for preparing and reporting proposed mix designs. Do not use the Owner's field quality-control testing laboratory as the independent testing laboratory.

B. Fiber Reinforcement: Add to mix at rate of 1.5 lb per cu. yd., unless manufacturer recommends otherwise.

C. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, project conditions, weather, test results, or other circumstances warrant.

2.6 CONCRETE MIXING

Ready-Mixed Concrete: Comply with requirements of FDOT Standard Specifications.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Proof-roll prepared base or subgrade surface to check for unstable areas and verify need for additional compaction. Do not begin concrete work until such conditions have been corrected and are ready to receive paving.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for paving to required lines, grades, and elevations. Install sufficient forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

B. Check completed formwork and screeds for grade and alignment to following tolerances:

1. Top of Forms: Not more than 1/8 inch in 10 feet.
2. Vertical Face on Longitudinal Axis: Not more than 1/4 inch in 10 feet.

C. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.

3.3 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars" for placing and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces. Maintain minimum cover to reinforcement.

D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities or replace units as required before placement. Set mats for a minimum 2-inch overlap to adjacent mats.

3.4 JOINTS

A. General: Construct contraction, construction, and isolation joints true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to the centerline, unless indicated otherwise. When joining existing paving, place transverse joints to align with previously placed joints, unless indicated otherwise.

B. Contraction Joints: Provide weakened-plane contraction joints, sectioning concrete into areas as shown on Drawings. If not specified on drawings intervals shall be not greater than 10 feet or less than 5 feet. Construct contraction joints for a depth equal to at least 1/4 of the concrete thickness, as follows:

1. Tooled Joints: Form contraction joints in fresh concrete by grooving and finishing each edge of joint with a radiused jointer tool.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into hardened concrete when cutting action will not tear, abrade, or otherwise damage surface and before development of random contraction cracks.
3. Inserts: Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strips into fresh concrete until top surface of strip is flush with paving surface. Radius each joint edge with a jointer tool. Carefully remove strips or caps of two-piece assemblies after concrete has hardened. Clean groove of loose debris.

C. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than ½ hour, unless paving terminates at isolation joints.

1. Provide preformed galvanized steel or plastic keyway-section forms or bulkhead forms with keys, unless indicated otherwise. Embed keys at least 1-1/2 inches into concrete.
2. Continue reinforcement across construction joints unless indicated otherwise.

D. Expansion Joints: Form expansion joints of preformed joint filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 30 feet, unless indicated otherwise.
2. Extend joint fillers full width and depth of joint, not less than ½ inch or more than 1 inch below finished surface where joint sealant is indicated. Place top of joint filler flush with finished concrete surface when no joint sealant is required.
3. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required, lace or clip joint filler sections together.
4. Protect top edge of joint filler during concrete placement with a metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

E. Filler and Sealants: Submit specifications to Engineer for approval.

F. Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one half of dowel length to prevent concrete bonding to one side of joint.

3.5 CONCRETE PLACEMENT

A. Comply with requirements of FDOT Standard Specification for placing concrete.

B. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place. No concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. Deposit concrete as nearly as practical to its final location to avoid segregation. When concrete placing is interrupted for more than ½ hour, place a construction joint.

C. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

D. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete complying with FDOT Standard Specifications.

E. Screed paved surfaces with a straightedge and strike off. Use bull floats or darbies to form a smooth surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces prior to beginning finishing operations.

F. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed. Remove and replace portions of bottom layer of concrete that have been placed more than 15 minutes without being covered by top layer or use bonding agent if acceptable to Engineer.

G. Curbs and Gutters: Shall be constructed in accordance with FDOT Specs. When automatic machine placement is used for curb and gutter placement, submit revised mix design and laboratory test results that meet or exceed requirements. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete. If results are not acceptable, remove and replace with formed concrete.

H. Slip-Form Pavers: When automatic machine placement is used for paving, submit revised mix design and laboratory test results that meet or exceed requirements. Produce paving to required thickness, lines, grades, finish, and jointing as required for formed paving. Compact subgrade of sufficient width to prevent displacement of paver machine during operations.

I. When adjoining pavement lanes are placed in separate pours, do not operate equipment on concrete until pavement has attained 85 percent of its 28-day compressive strength, or sufficient strength to carry loads without damage or injury.

J. Cold-Weather Placement: Comply with provisions of FDOT Standard Specifications. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

K. Hot-Weather Placement: Place concrete complying with FDOT Standard Specification and as specified when hot weather conditions exist.

3.6 CONCRETE FINISHING

A. Float Finish: Begin floating when bleed water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Finish surfaces to true planes within a tolerance of 1/8 inch in 10 feet as determined by a 10-foot-long straightedge placed anywhere on the surface in any direction. Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular texture.

1. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across concrete surface perpendicular to line of traffic to provide a uniform fine line texture finish.
2. Tine Finish: Apply to curb cut ramps and other areas as noted on the drawings. Finish shall be applied by an approved hand method and shall consist of transverse grooves which are 0.03 to 0.12 inch in width and 0.10 to 0.15 inch in depth, spaced at approximately ½ inch center to center.

B. Final Tooling: Tool edges of paving, gutters, curbs, and joints formed in fresh concrete with a jointing tool to the following radius. Repeat tooling of edges and joints after applying surface finishes. Eliminate tool marks on concrete surfaces. Radius: ½ inch.

3.7 CONCRETE PROTECTION AND CURING

General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with the recommendations of FDOT Standard Specification 350-13 curing.

3.8 FIELD QUALITY CONTROL TESTING

A. A qualified independent testing and inspection laboratory, under the direction of a Professional Engineer, licensed in the State of Florida, shall sample materials, perform tests, and submit test reports during concrete placement as follows:

1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

    a. Slump: ASTM C 143; one test at point of placement for each compressive-strength test but no less than one test for each day's pour of each type of concrete. Additional tests will be required when concrete consistency changes.
    b. Air Content: ASTM C 231, pressure method; one test for each compressive-strength test but no less than one test for each day's pour of each type of air-entrained concrete.
    c. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.
    d. Compression Test Specimens: ASTM C 31; one set of three standard cylinders for each compressive- strength test, unless directed otherwise. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

e. Compressive-Strength Tests: ASTM C 39; one set for each day's pour of each concrete class, plus one set for each additional 50 cu. yd. Test two specimens at 28 days, and retain one specimen in reserve for earlier or later testing if required.

f. Contractor shall replace materials removed for testing purposes. Should any work or materials fail to meet the requirements set forth in the plans and specifications, contractor shall pay for retesting of same.

2. Basis for acceptance of concrete will be per FDOT Section 346-10 and 346-11.

B. Test results will be reported in writing to Engineer, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing laboratory, concrete type and class, location of concrete batch in the work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day and 28-day tests.

C. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.

D. Additional Tests: The testing laboratory will make additional tests of the concrete when test results indicate slump, air entrainment, concrete strengths, or other requirements have not been met, as directed by Engineer. Testing laboratory may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete work that is broken, damaged, or defective, or does not meet the requirements of this Section.

B. Drill test cores where directed by Engineer when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory concrete areas with Portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from concrete pavement for at least 14 days after placement. When construction traffic is permitted, maintain concrete as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete work free of stains, discoloration, dirt, and other foreign material. Sweep concrete paving not more than 2 days prior to date scheduled for Substantial Completion inspections.

PART 4 MEASUREMENT / PAYMENT

4.1 METHOD OF MEASUREMENT

The quantities to be paid for will be the plan quantity, in square yards, of Plain Cement Concrete Pavement, Reinforced Cement Concrete Pavement, square yards of sidewalk, and linear feet of curb and/or gutter.

4.2 JOINTS AND CRACKS

The Contractor shall include the cost for Cleaning and Sealing Joints in the cost of the newly constructed pavement for: (1) transverse and longitudinal joint construction for new pavement; and (2) abutting joints between existing pavement and new pavement. For replacing joint seals and sealing random cracks in existing Portland cement concrete pavement, the quantity to be paid for will be as specified below:

A. The length of pavement joint that have been satisfactorily cleaned and sealed in existing Portland cement concrete pavement, as determined by field measurement along the joints, will be paid for at the Contract unit price per foot for Cleaning and Resealing Joints.

B. The length of random cracks in existing Portland cement concrete pavement that have been satisfactorily cut, cleaned, and sealed, as determined by field measurement along the joints, will be paid for at the Contract unit price per foot for Cleaning and Sealing Random Cracks.

4.3 BASIS OF PAYMENT

Prices and payment will be full compensation for all work specified in this Section, including any preparation of the subgrade not included in the work to be paid for under another Contract item; all transverse and longitudinal joint construction, including tie-bars and dowel bars; the furnishing of test specimens; repair of core holes; and all incidentals necessary to complete the work.

END OF SECTION 03300

PAVEMENT MARKINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Specifications Sections, apply to work of this section.

B. Unless otherwise specified on the plan sheets or in other sections of this contract, all materials and work shall conform to the applicable requirements in the following documents:

1. Florida Department of Transportation Standard Plans, Latest Edition.

2. Florida Department of Transportation Standard Specifications for Road and Bridge Construction, Latest Edition.

3. USDOT, Federal Highway Administration Manual on Uniform Traffic Control Devices for Streets and Highways, Latest Edition.

1.2 DESCRIPTION OF WORK

The work under this section includes the installation and removal of temporary and permanent pavement markings, textured pavement, reflective markers, galvanized posts, flex posts, delineators, wheel stops, and audible and vibratory pavement markings. The Contractor shall furnish all labor, materials, tools, supplies, equipment, and machinery necessary to fully complete the work shown in the plans and in these specifications. Pavement marking notes on plan sheets shall take precedence over and modify conflicting Technical Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

All materials shall be new and of good quality unless otherwise specified. The Contractor, at his own expense and if requested, shall furnish samples of material and/ or shall certify that the material meets all FDOT requirements. All material or work that has been rejected shall be remedied by the Contractor at his own expense and without delay. If the Contractor fails to promptly remove and/or dispose of rejected material and replace the same, the client may remove and replace the same and deduct the cost of the work from the contract amount.

2.2 TEMPORARY PAVEMENT MARKINGS

Materials for temporary pavement marking shall meet all requirements of FDOT Specs, *Latest Edition.*

2.3 PERMANENT PAVEMENT MARKINGS

Materials for permanent pavement markings shall meet all requirements of FDOT Specs, *Latest Edition*.

2.4 REFLECTIVE PAVEMENT MARKERS

Materials for reflective pavement markers shall meet all requirements of FDOT Specifications, *Latest Edition*.

2.5 OBJECT MARKERS AND DELINEATORS

Materials for object markers shall meet all requirements of FDOT Specifications, *Latest Edition*.

2.6 AUDIBLE AND VIBRATORY PAVEMENT MARKINGS

Materials for audible and vibratory pavement markings shall meet all requirements of FDOT Specifications, *Latest Edition*.

PART 3 – EXECUTION

3.1 GENERAL

All pavement markings shall be applied in accordance with FDOT requirements.

3.2 TEMPORARY PAVEMENT MARKINGS

Temporary pavement markings shall be installed at the end of each day on new pavement surfaces and shall be maintained until permanent markings are installed.

3.3 PERMANENT PAVEMENT MARKINGS

All permanent pavement markings, including stripes, shall be thermoplastic. Materials and installation shall conform to applicable standards in the documents referenced in Section 1.1. Installation of permanent markings on al l final asphaltic concrete surfaces shall not be accomplished prior to 14 calendar days, nor later than 30 calendar days, after placement of the final surfaces.

3.4 RETROREFLECTIVITY

The Contractor shall, within thirty days of completion, furnish retroreflectivity readings certifying the materials meet all FDOT requirements.

PART 4 – MEASUREMENT/PAYMENT

4.1 METHOD OF MEASUREMENT

The engineer or project manager may specify a lump sum or measurement of quantities.

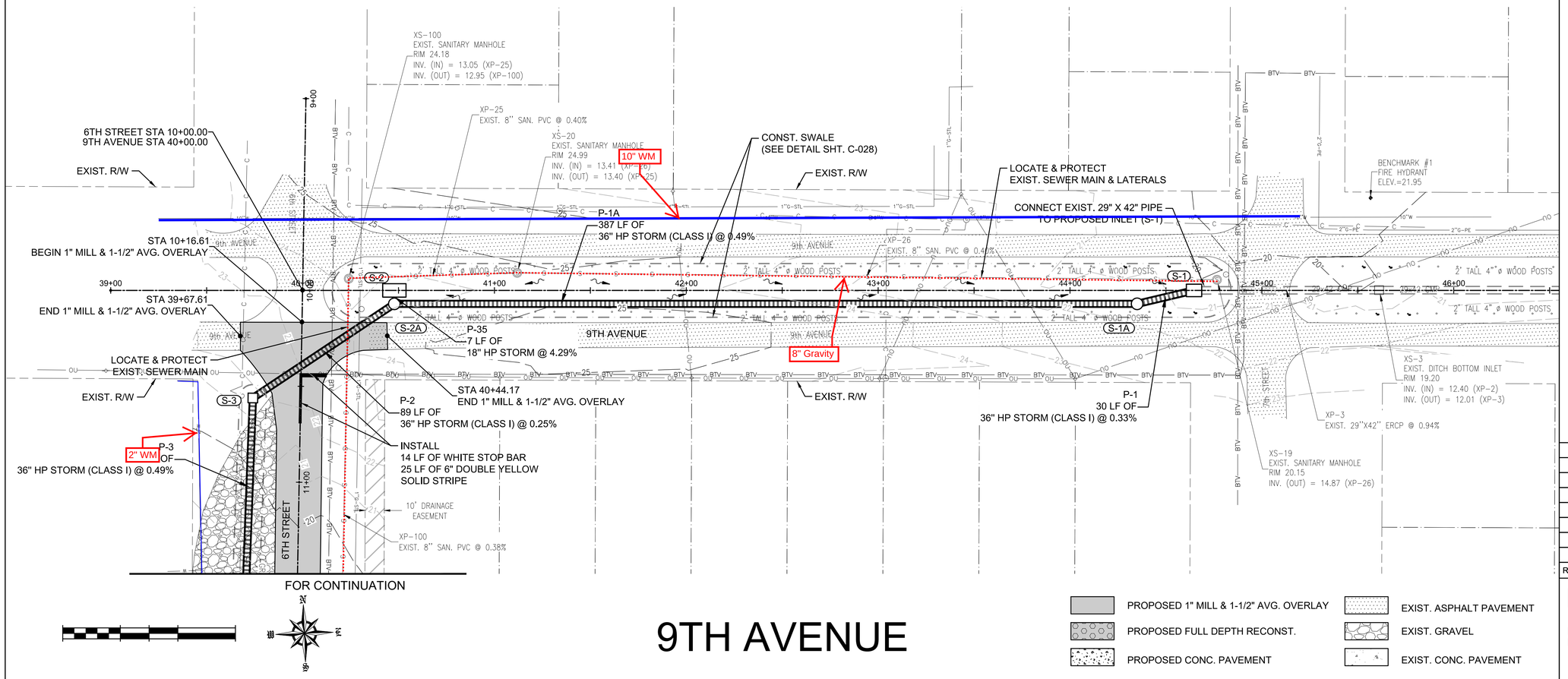
4.2 BASIS OF PAYMENT

Prices and payment will be full compensation for all work specified in this Section, including, all cleaning and preparing of surfaces, furnishing all materials, application, curing and protection of all items, protection of traffic, furnishing of all tools, machines and equipment, and all incidentals necessary to complete the work. Final payment will be withheld until all deficiencies are corrected.

END OF SECTION - 04040

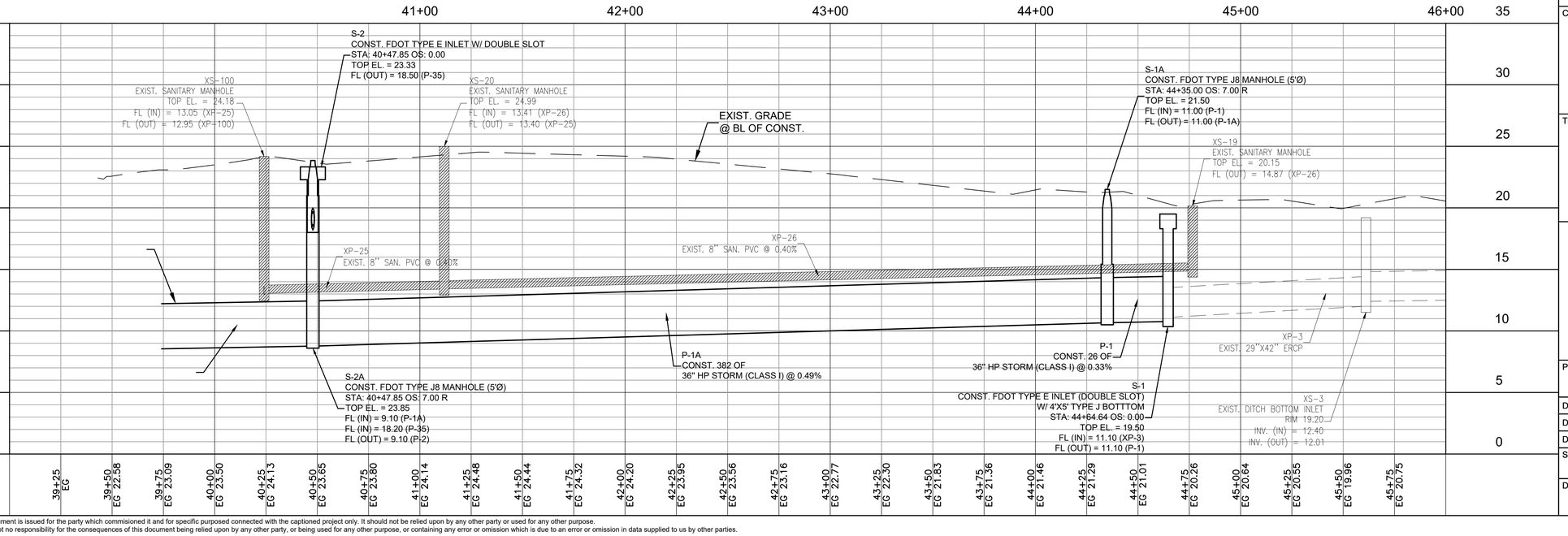
TABLE OF CONTENTS

UTILITY RELOCATION DOCUMENTS



9TH AVENUE

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



NOTE:
CONTRACTOR SHALL LOCATE AND PROTECT ALL WATER AND SEWER LATERALS WITHIN THE LIMITS OF CONSTRUCTION.

Rev	Date	Drawn	Description	Ch'k'd	App'd

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United States of America
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Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783

Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 9TH AVENUE
STA: 39+00 - 46+00

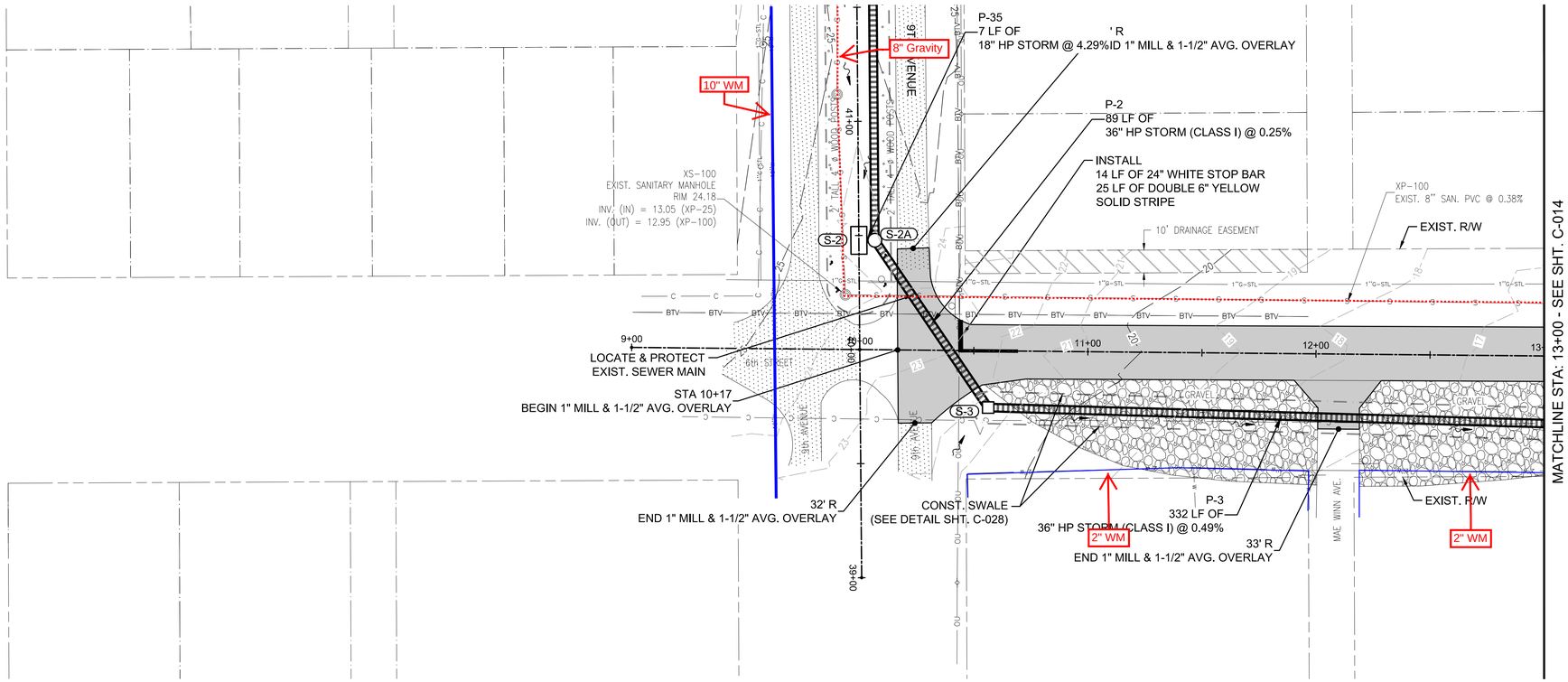
THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	10	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

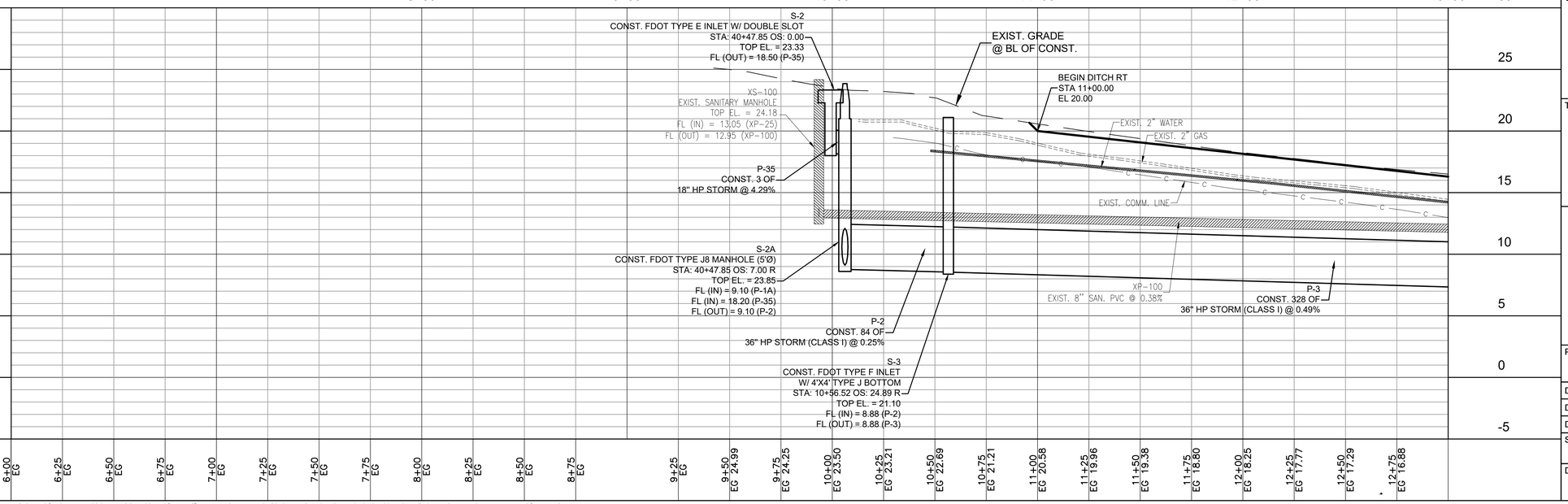
Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-010



6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



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AA - C0000035 EB - 0000155 LB - 0006783

Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET

STA: 6+00 - 13+00

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	13	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

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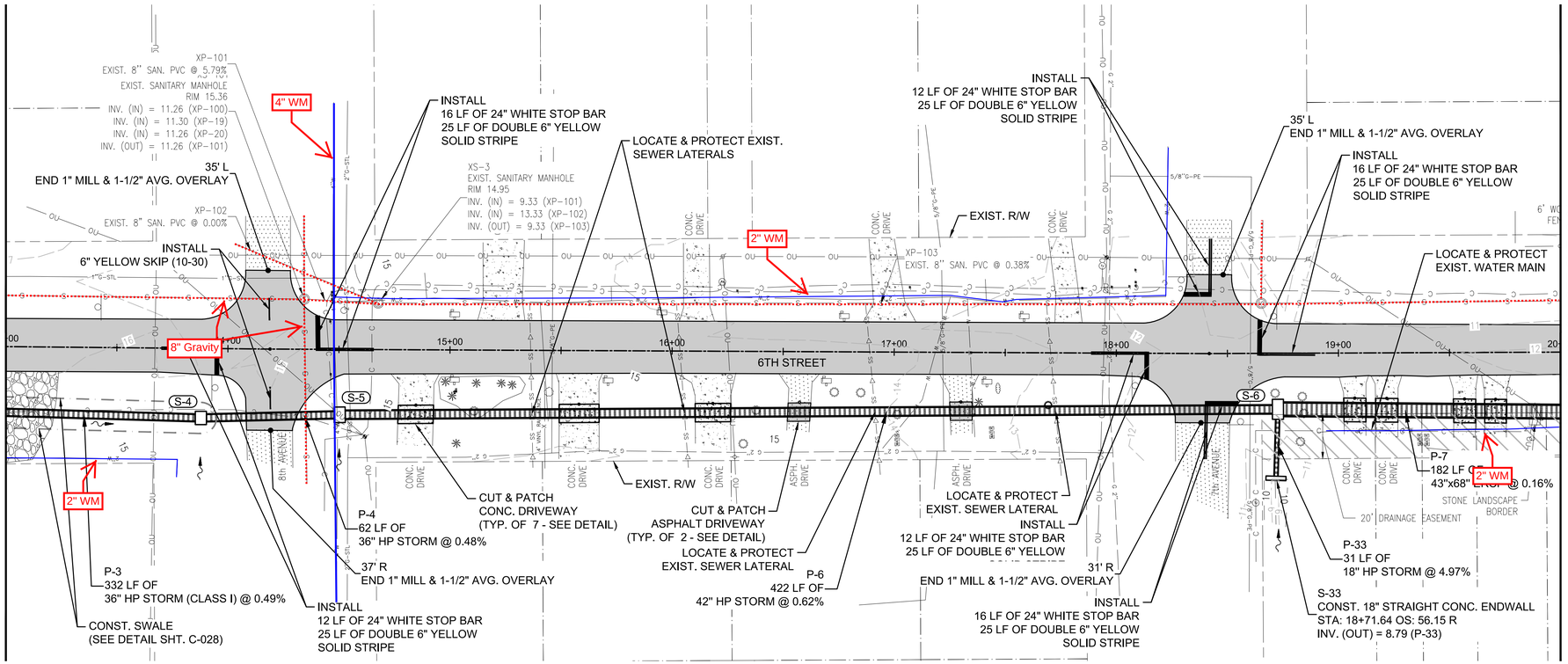
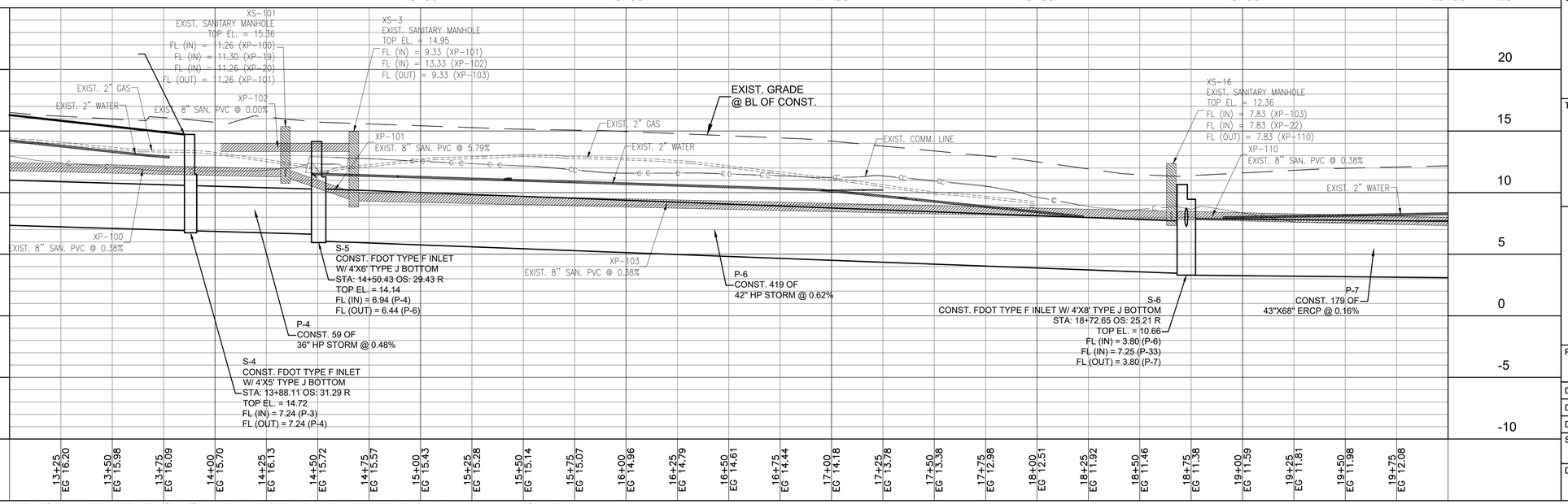


6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 13+00 - 20+00

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	14	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
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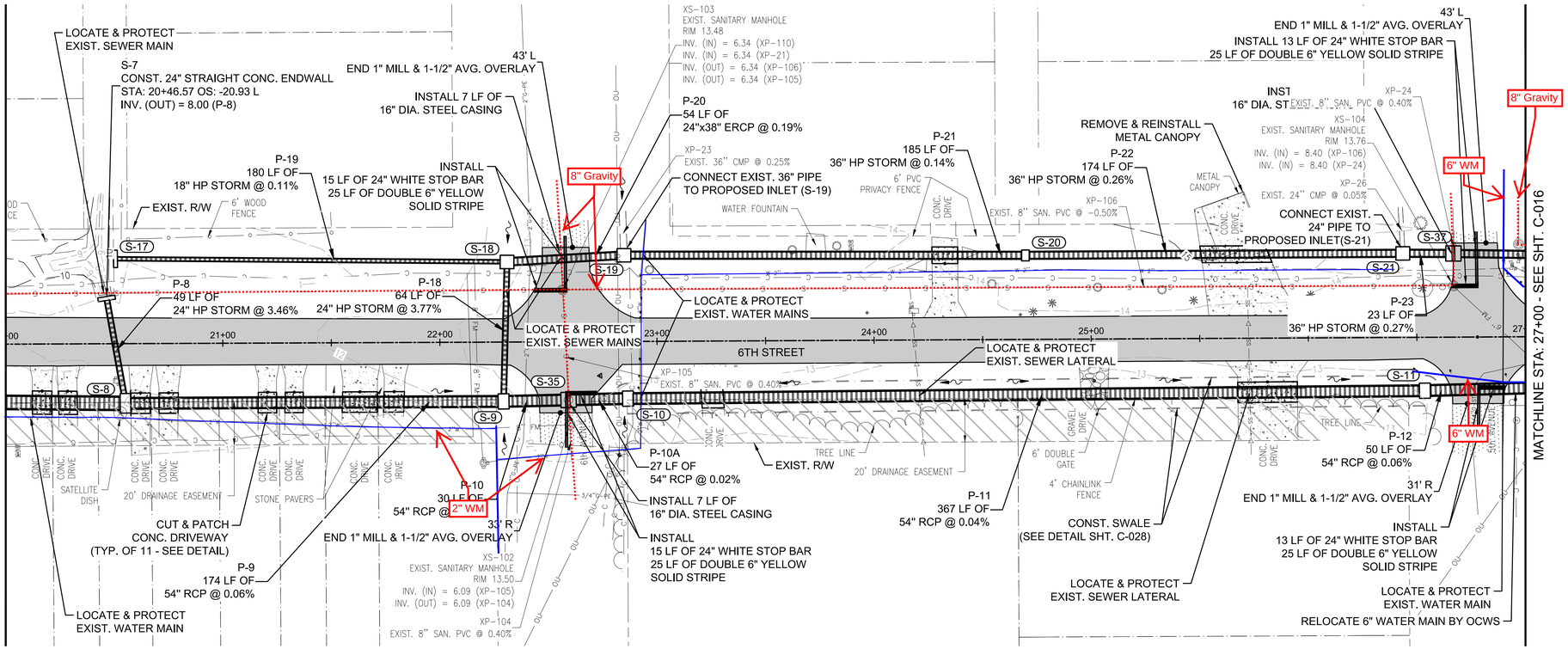
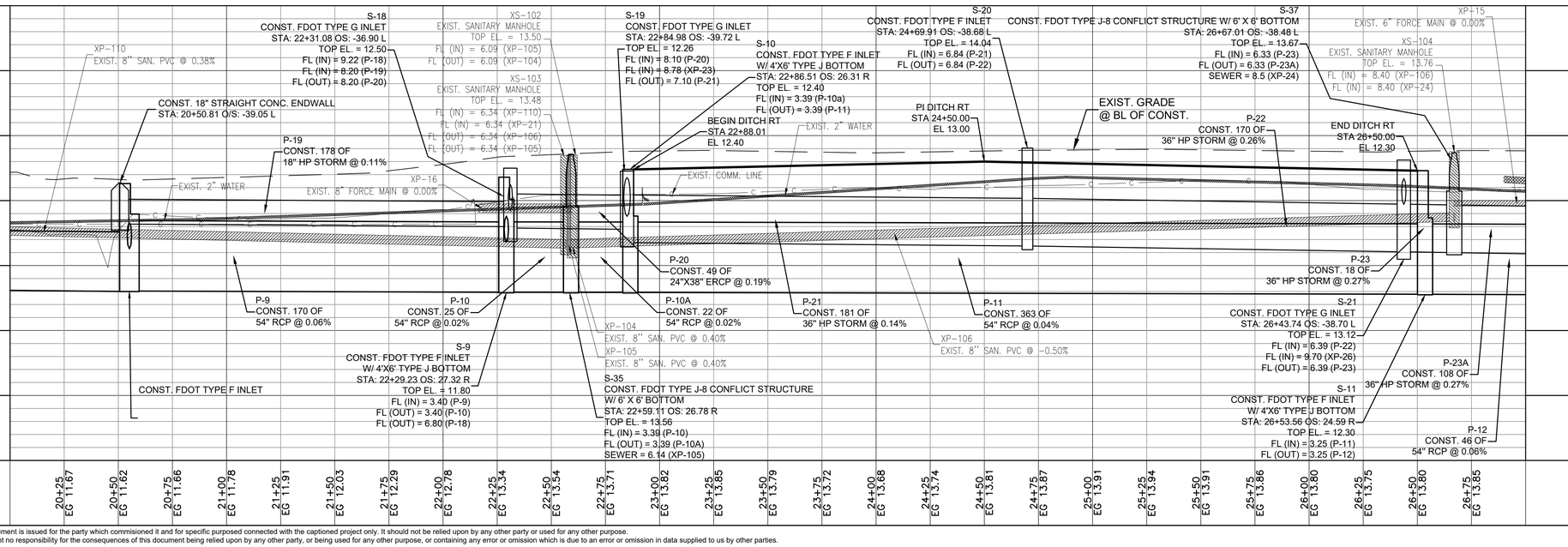


6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 20+00 - 27+00

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number			B/O	Total
390762			15	30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
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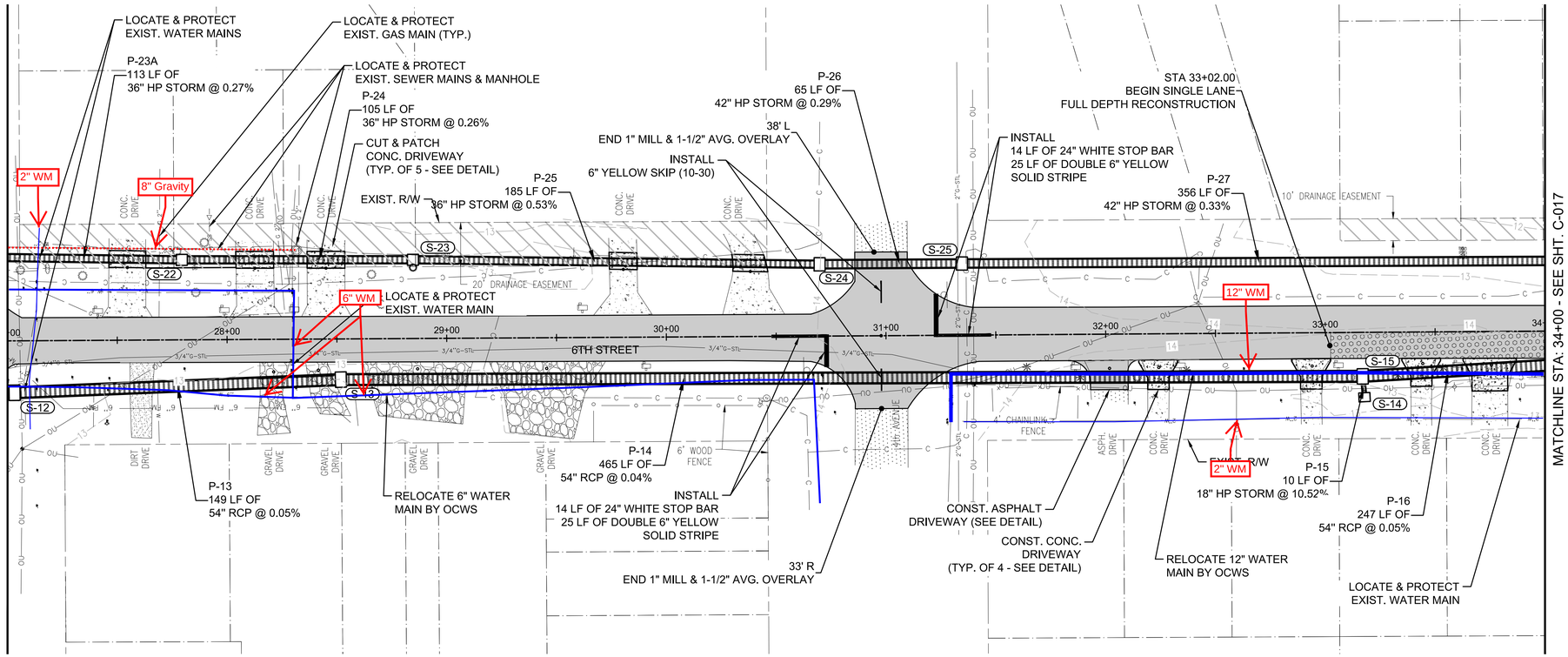

6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
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PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
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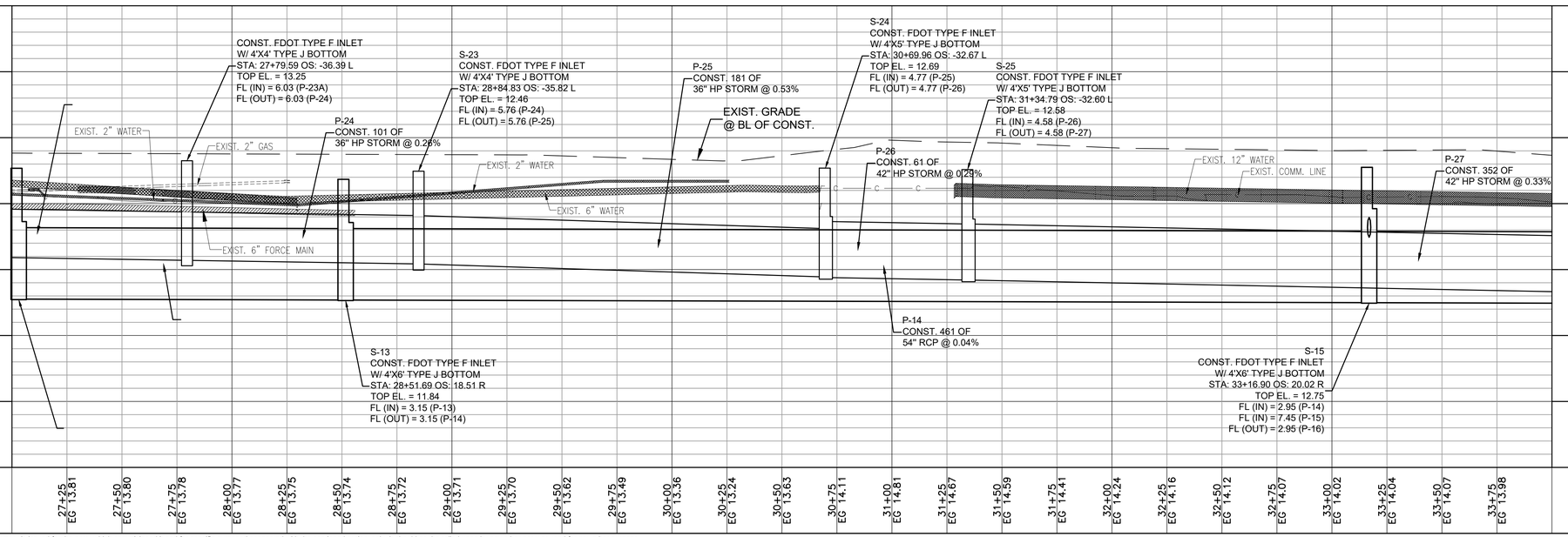

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AA - C0000035 EB - 0000155 LB - 0006783

Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 27+00 - 34+00

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	16	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
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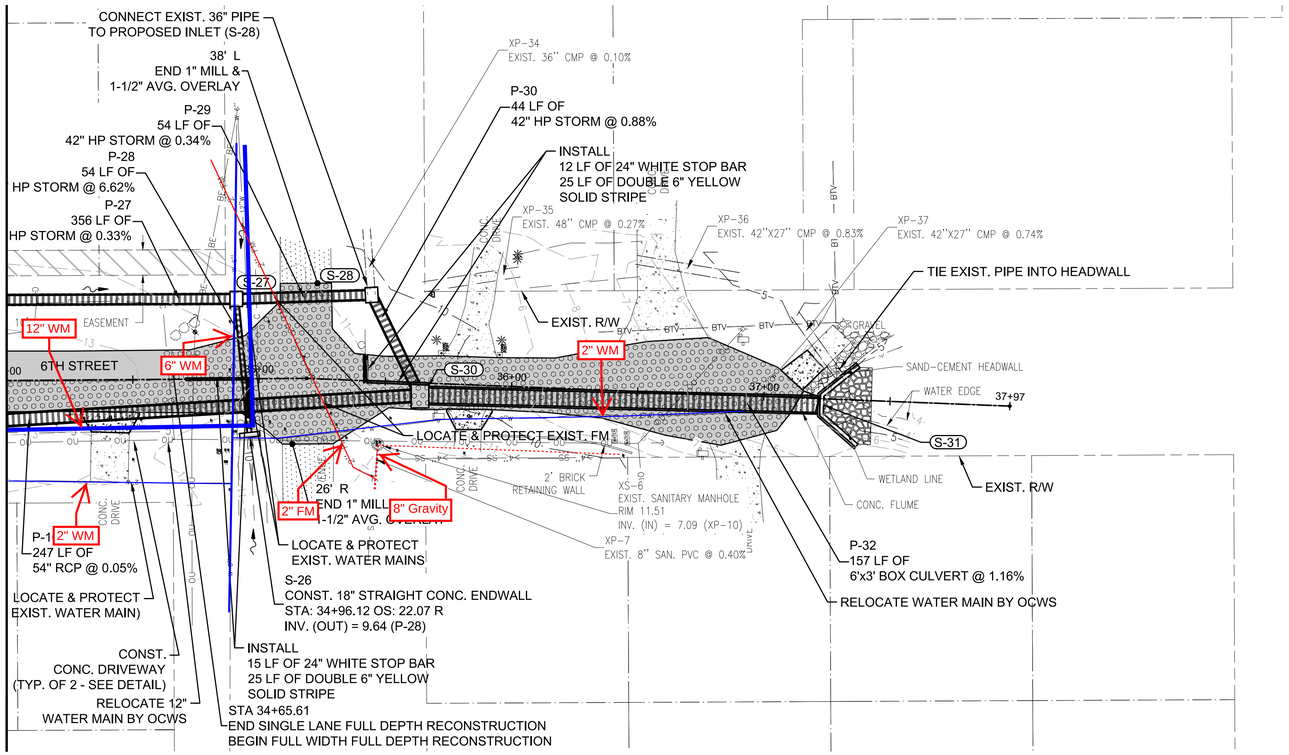
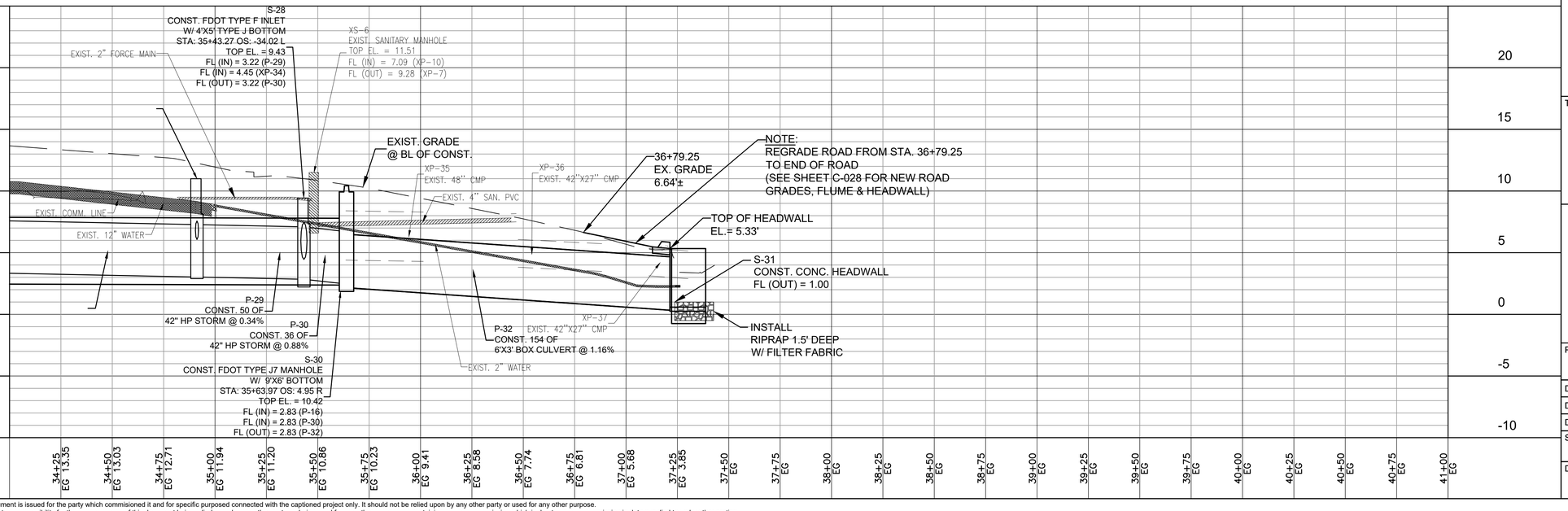
Drawing Number
C-016



6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



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AA - C0000035 EB - 0000155 LB - 0006783

Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 34+00 - 41+00

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	17	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-017

CONSTRUCTION PLANS
FOR

6TH STREET DRAINAGE IMPROVEMENTS

OKALOOSA COUNTY, FLORIDA

MAY 2019

LOCATION MAP
SCALE: 1" = 15,000'

BOARD OF COUNTY COMMISSIONERS
OKALOOSA COUNTY, FLORIDA

MOTT MACDONALD PROJECT NO.

OKALOOSA COUNTY
COMMISSIONERS

GRAHAM FOUNTAIN -DISTRICT 1
CAROLYN KETCHEL -DISTRICT 2
NATHAN BOYLES -DISTRICT 3
TREY GOODWIN -DISTRICT 4
KELLY WINDES -DISTRICT 5

100% REVIEW PLANS

Mott MacDonald Florida, LLC.
220 West Garden Street
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United States of America
T +1 (850) 484 6011
www.mottmac.com/americas

Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783

INDEX

CenturyLink®

09/20/19
RGB Mark-Up
(Preliminary Design)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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AA - C0000035 EB - 0000155 LB - 0006783

Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

COVER SHEET

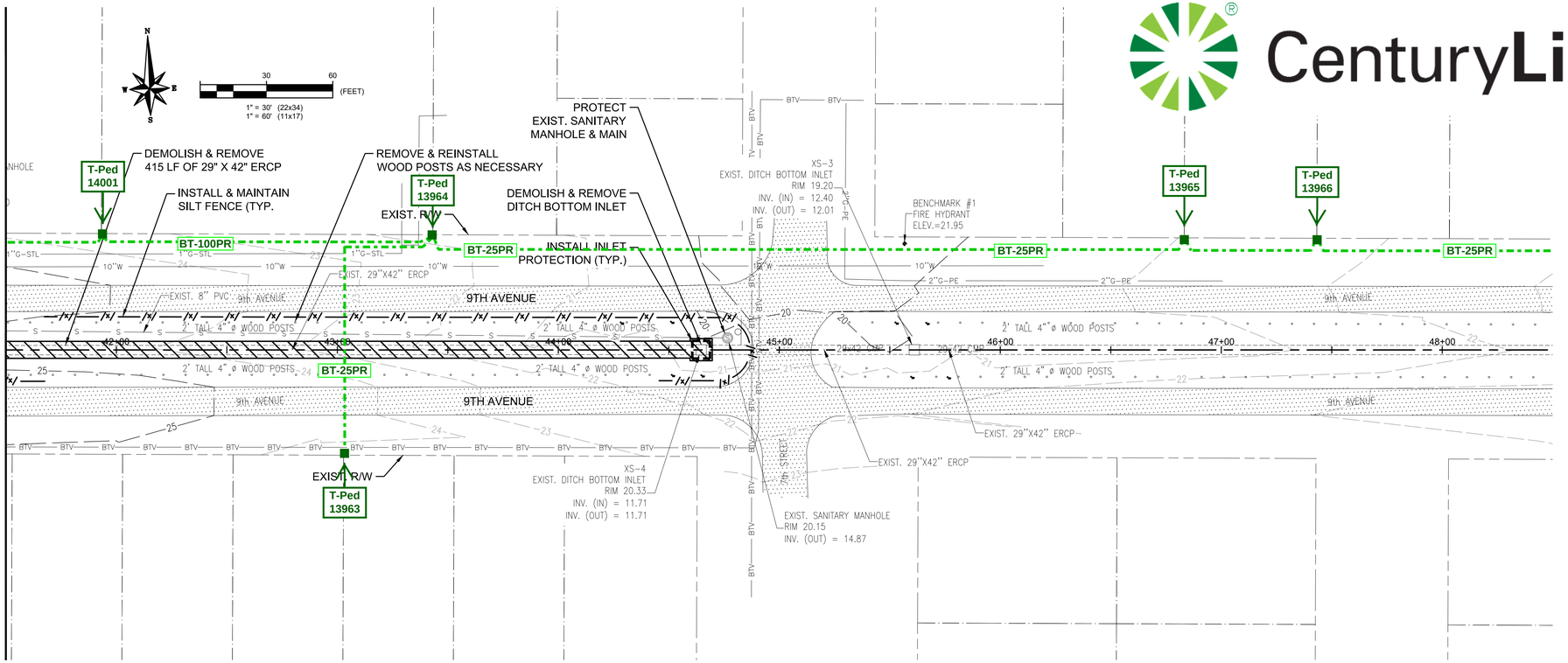
THIS DRAWING IS NOT FOR CONSTRUCTION

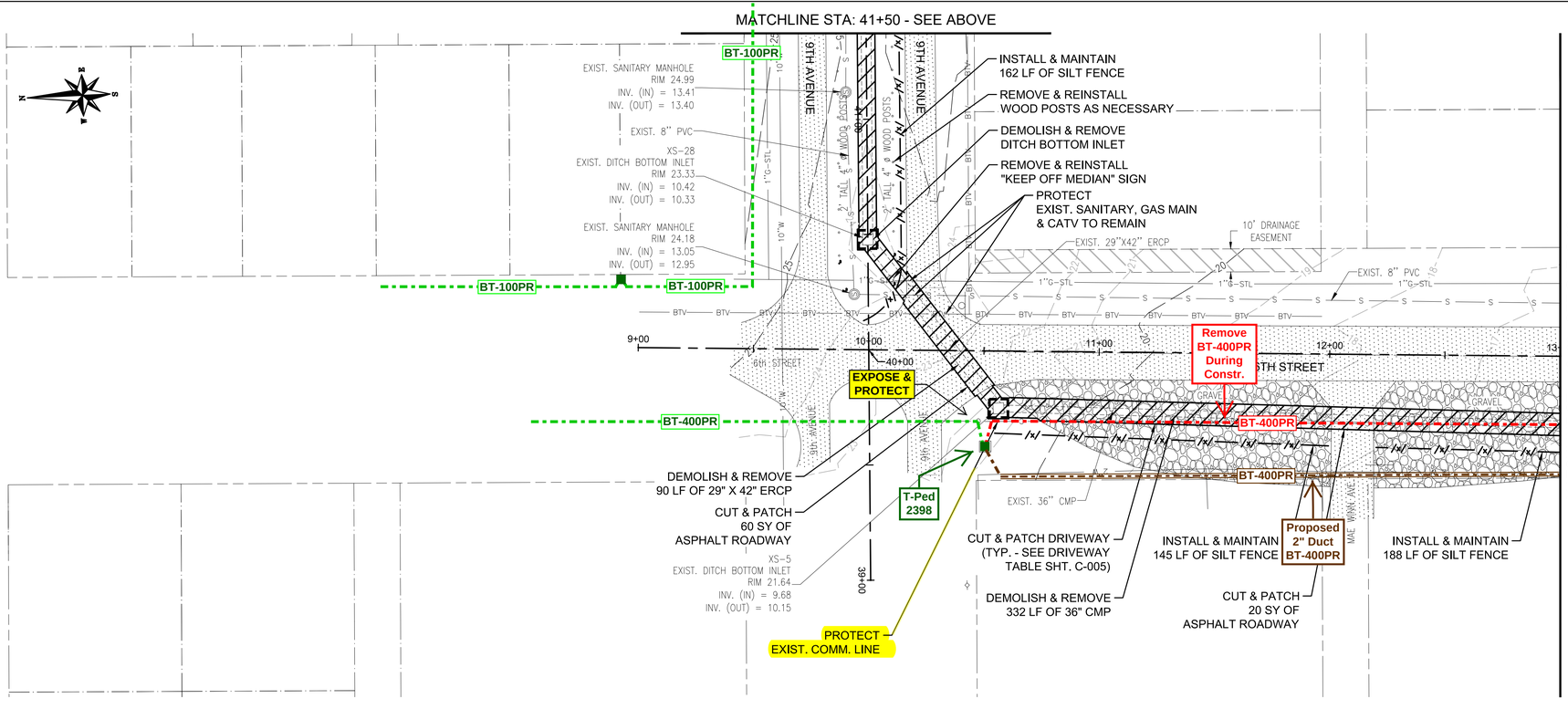
Project Number	B/O	Total
390762	1	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
NTS	PRE	P1	STD

Drawing Number
C-001





LEGEND:

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING GRAVEL
- AREA OF DEMOLITION

NOTE: EROSION CONTROL MEASURES SHOWN HERE ON ARE TO BE CONSIDERED THE MINIMUM INSTALLATION REQUIREMENTS.

Red = To be Removed
Green = To Remain
Brown = New Proposed

AT-25PR AERIAL TELEPHONE (25 Pair)
BT-25PR BURIED TELEPHONE (25 Pair)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

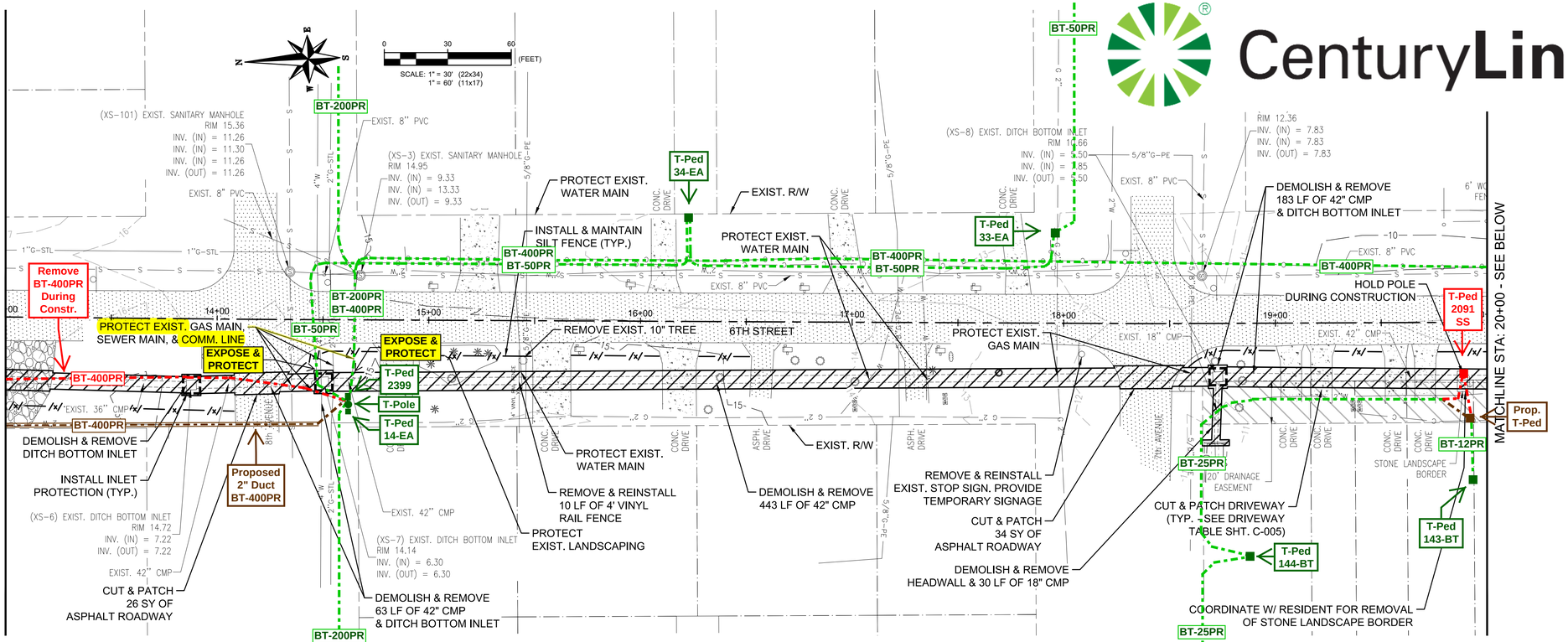
Title
6th Street Drainage Improvements

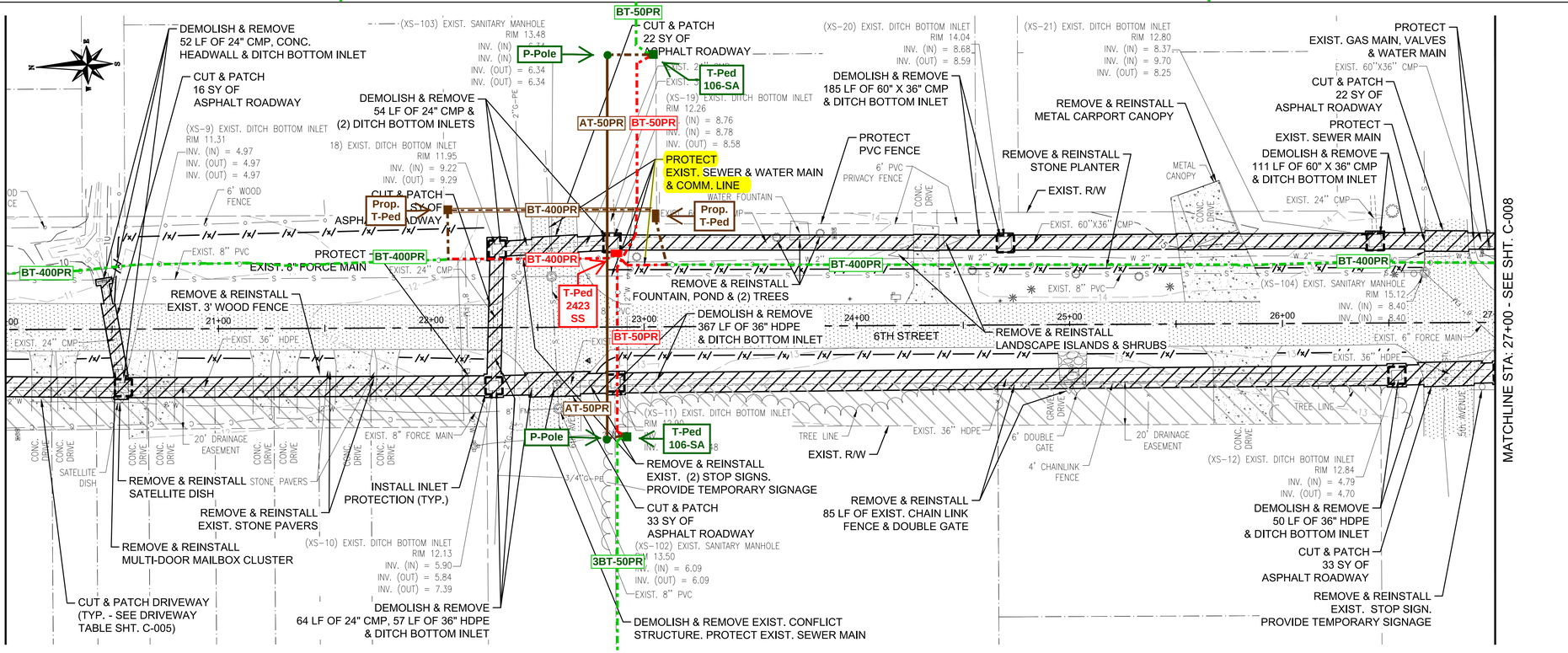
EXISTING SITE, DEMOLITION
& EROSION CONTROL PLAN

THIS DRAWING IS
NOT FOR
CONSTRUCTION

Project Number		B/O	Total
390762		6	30
Designed	B. CANNON	Eng check	S. WHITE
Drawn	C. RILEY	Coordination	B. CANNON
Dwg check	S. WHITE	Approved	K. MORGAN
Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-006





LEGEND:

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING GRAVEL
- AREA OF DEMOLITION

NOTE: EROSION CONTROL MEASURES SHOWN HERE ON ARE TO BE CONSIDERED THE MINIMUM INSTALLATION REQUIREMENTS.

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AT-25PR AERIAL TELEPHONE (25 Pair)
BT-25PR BURIED TELEPHONE (25 Pair)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

EXISTING SITE, DEMOLITION & EROSION CONTROL PLAN

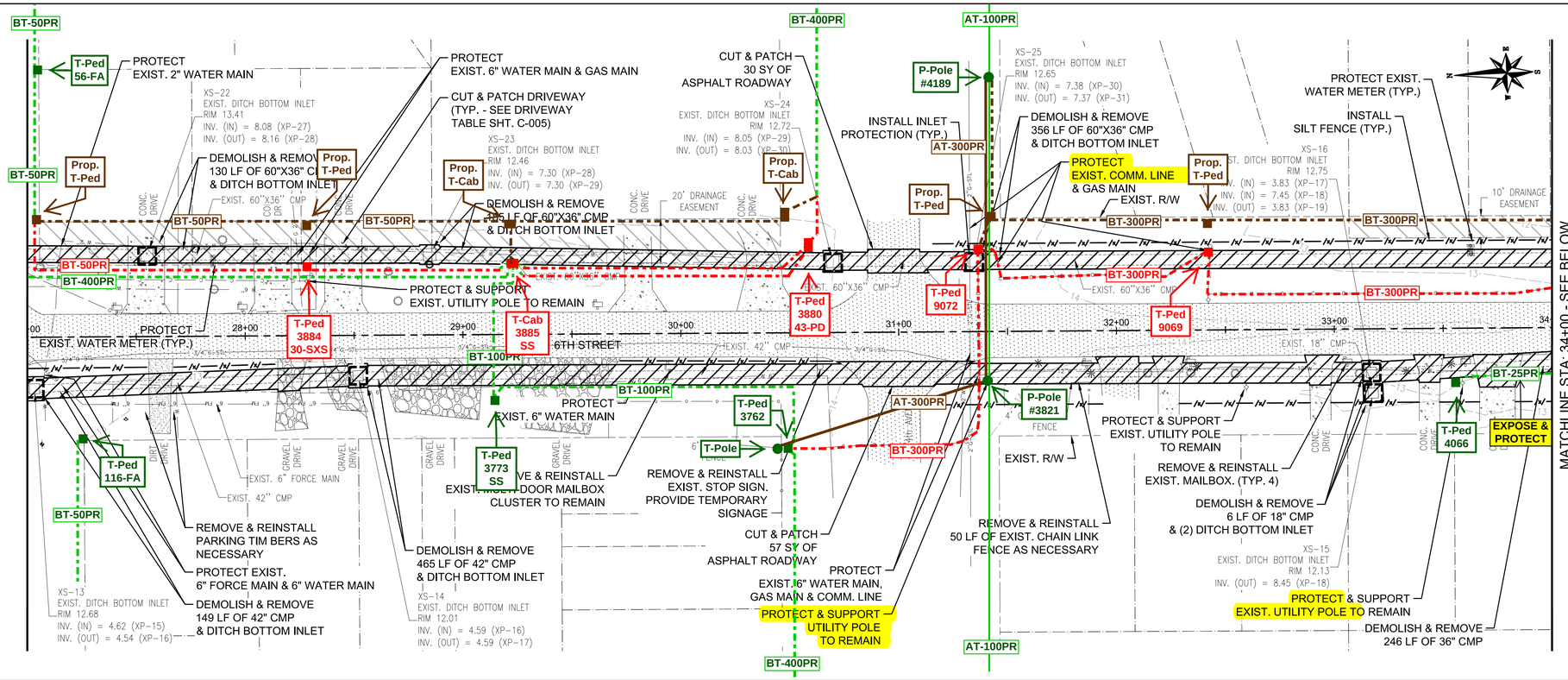
THIS DRAWING IS NOT FOR CONSTRUCTION

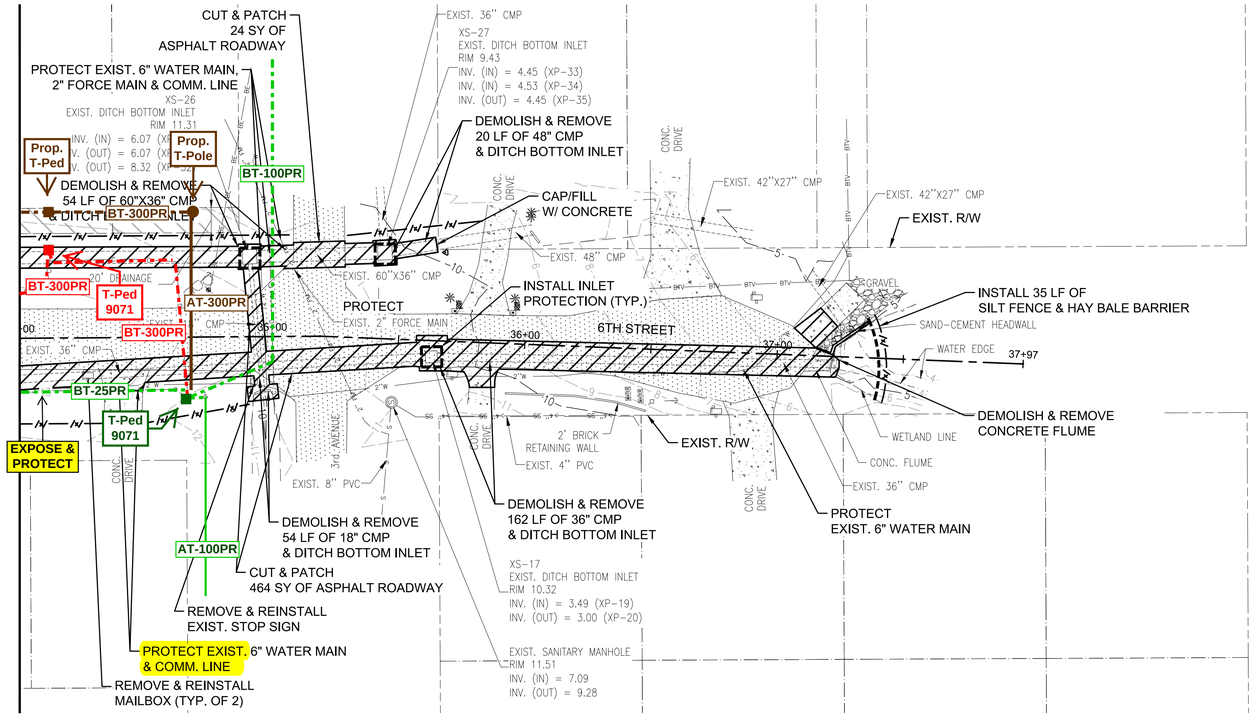
Project Number	B/O	Total
390762	7	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-007





CenturyLink®

LEGEND:

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING GRAVEL
- AREA OF DEMOLITION

NOTE: EROSION CONTROL MEASURES SHOWN HERE ON ARE TO BE CONSIDERED THE MINIMUM INSTALLATION REQUIREMENTS.

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AT-25PR AERIAL TELEPHONE (25 Pair)
BT-25PR BURIED TELEPHONE (25 Pair)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

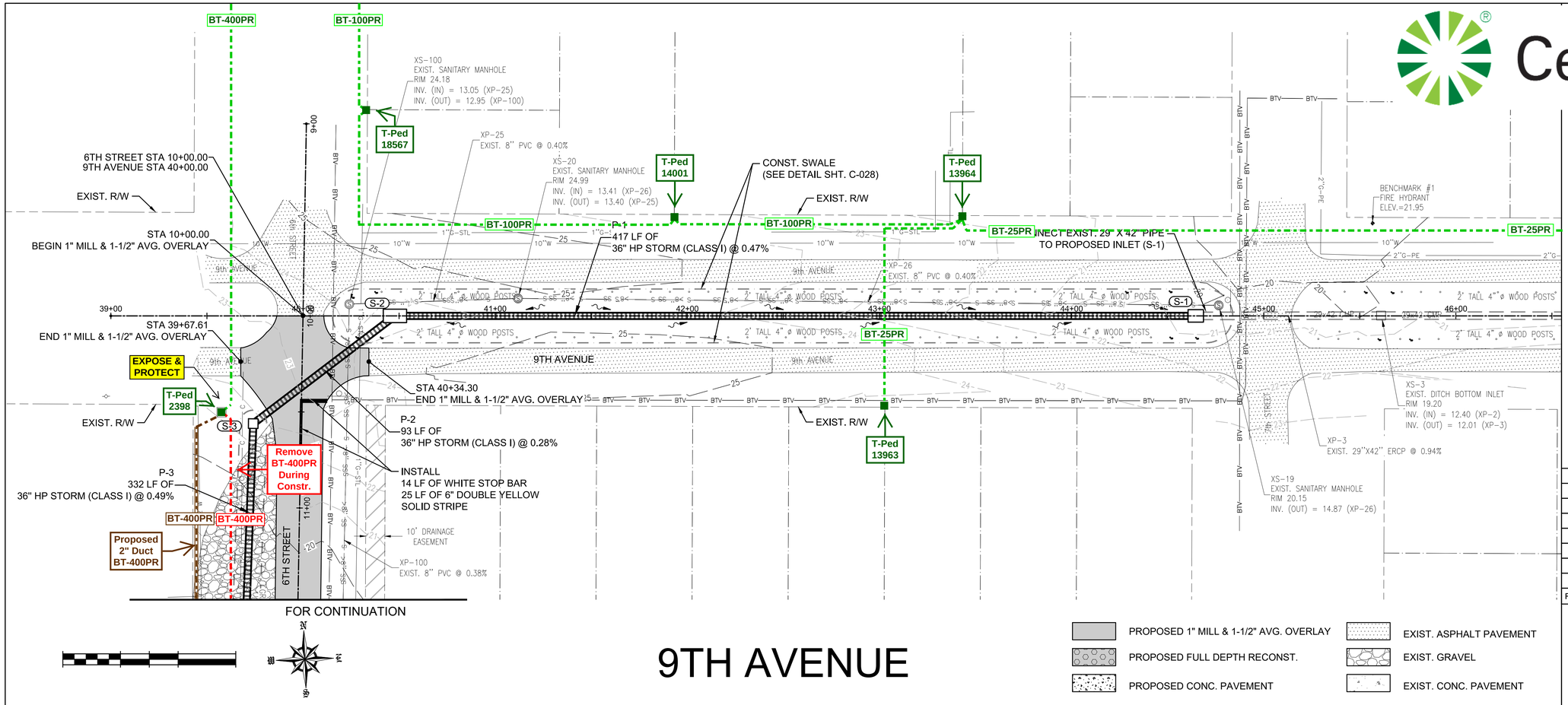
Title
6th Street Drainage Improvements

EXISTING SITE, DEMOLITION & EROSION CONTROL PLAN

THIS DRAWING IS NOT FOR CONSTRUCTION

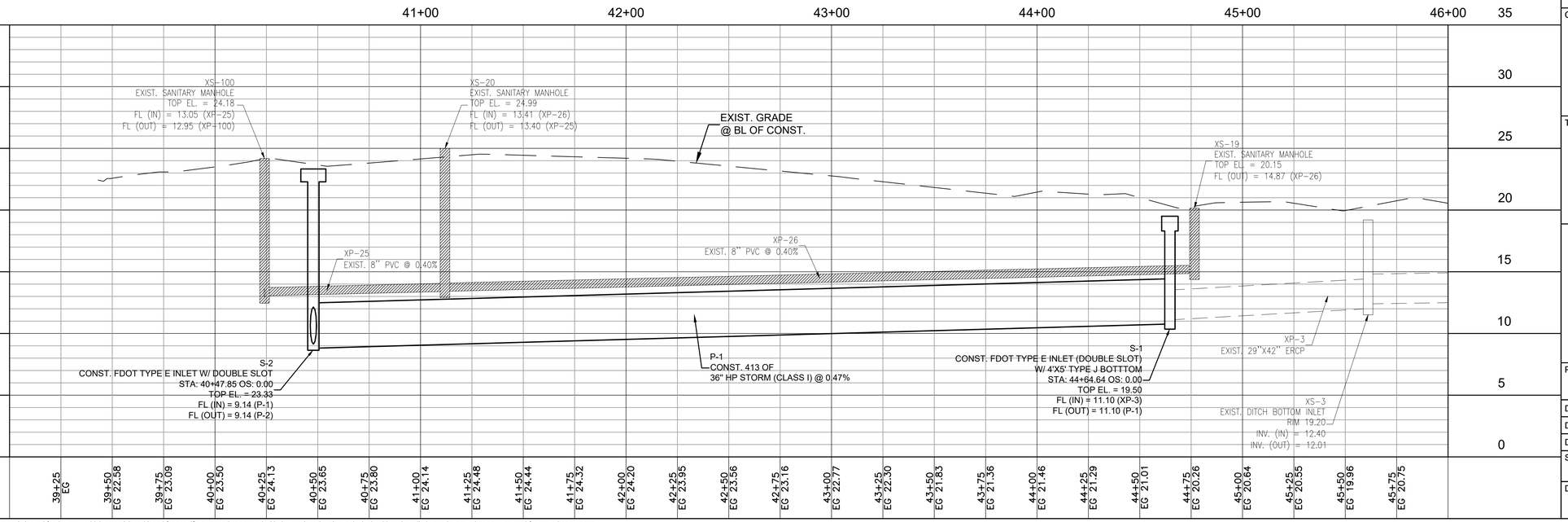
Project Number		B/O	Total
390762		8	30
Designed	B. CANNON	Eng check	S. WHITE
Drawn	C. RILEY	Coordination	B. CANNON
Dwg check	S. WHITE	Approved	K. MORGAN
Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-008



9TH AVENUE

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



CenturyLink®

Red = To be Removed
Green = To Remain
Brown = New Proposed

AT-25PR AERIAL TELEPHONE (25 Pair)
BT-25PR BURIED TELEPHONE (25 Pair)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 9TH AVENUE
STA: 39+00 - 46+00

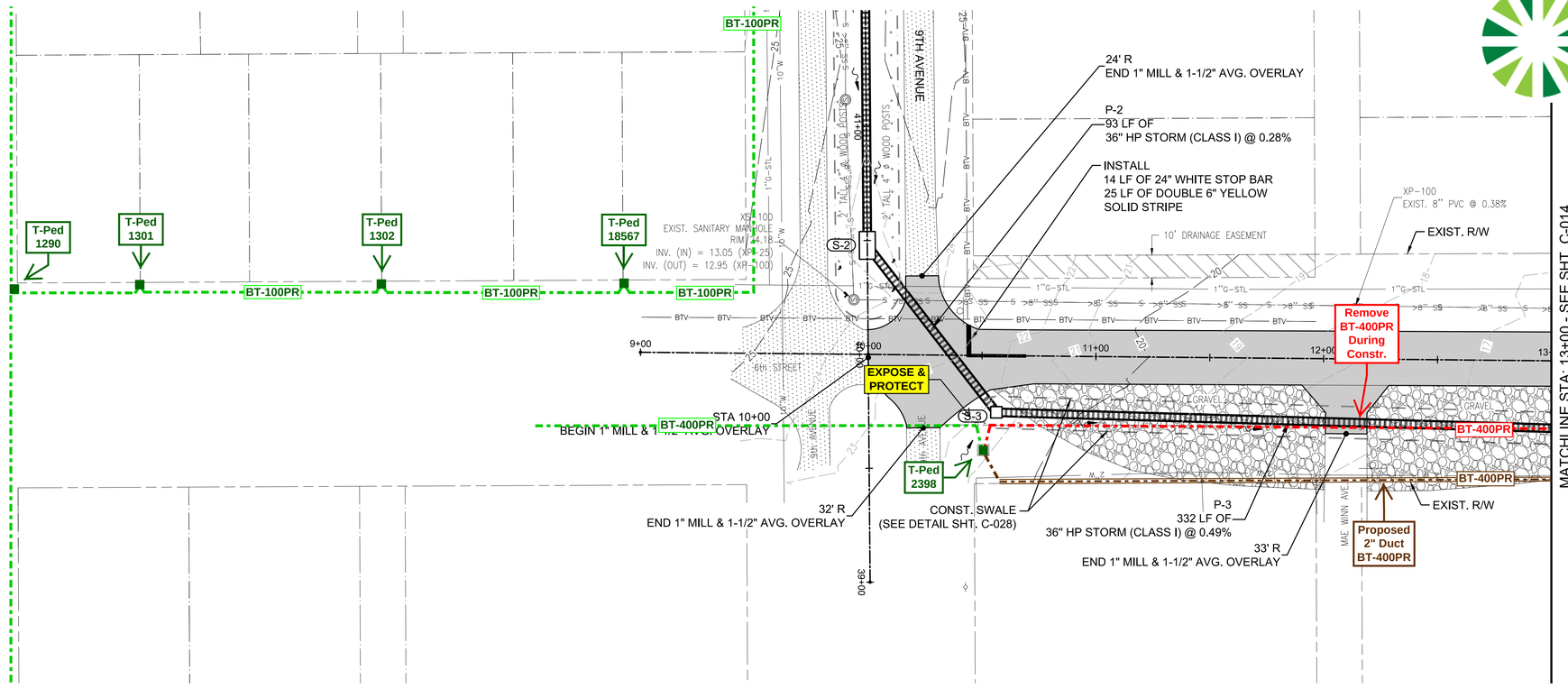
THIS DRAWING IS NOT FOR CONSTRUCTION

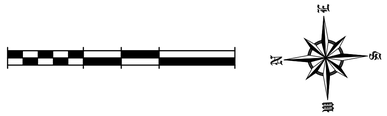
Project Number	B/O	Total
390762	10	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

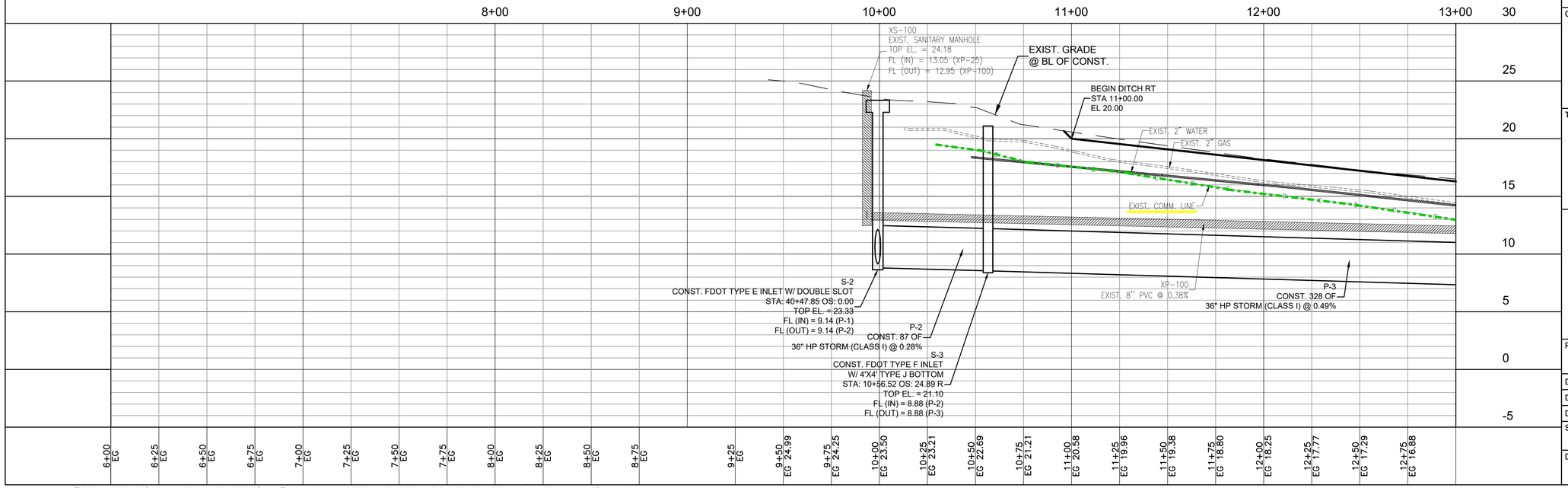
Drawing Number
C-010





6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



CenturyLink®

Red = To be Removed
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Brown = New Proposed

AT-25PR AERIAL TELEPHONE (25 Pair)
BT-25PR BURIED TELEPHONE (25 Pair)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 6+00 - 13+00

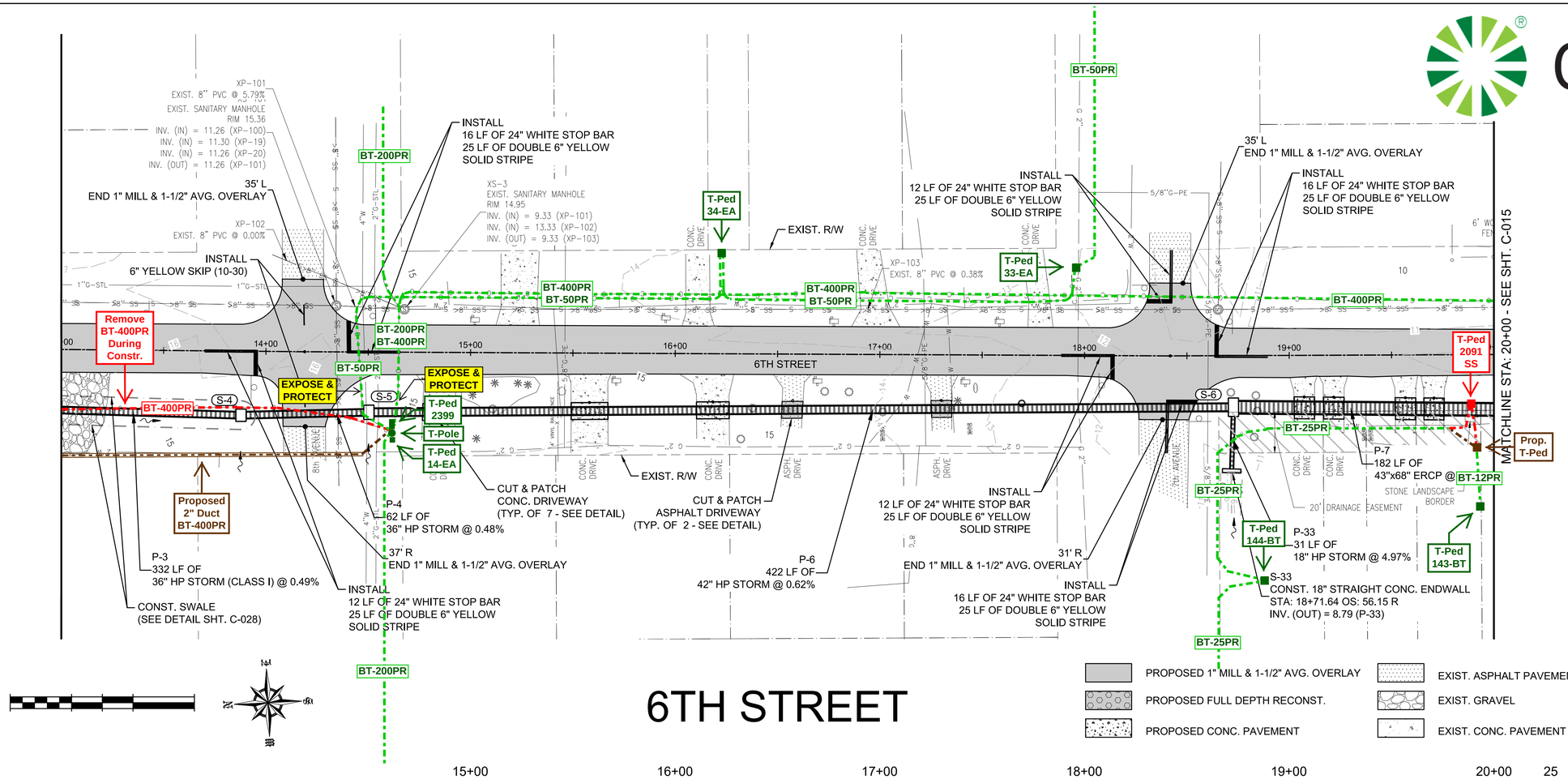
THIS DRAWING IS
NOT FOR
CONSTRUCTION

Project Number	B/O	Total
390762	13	30

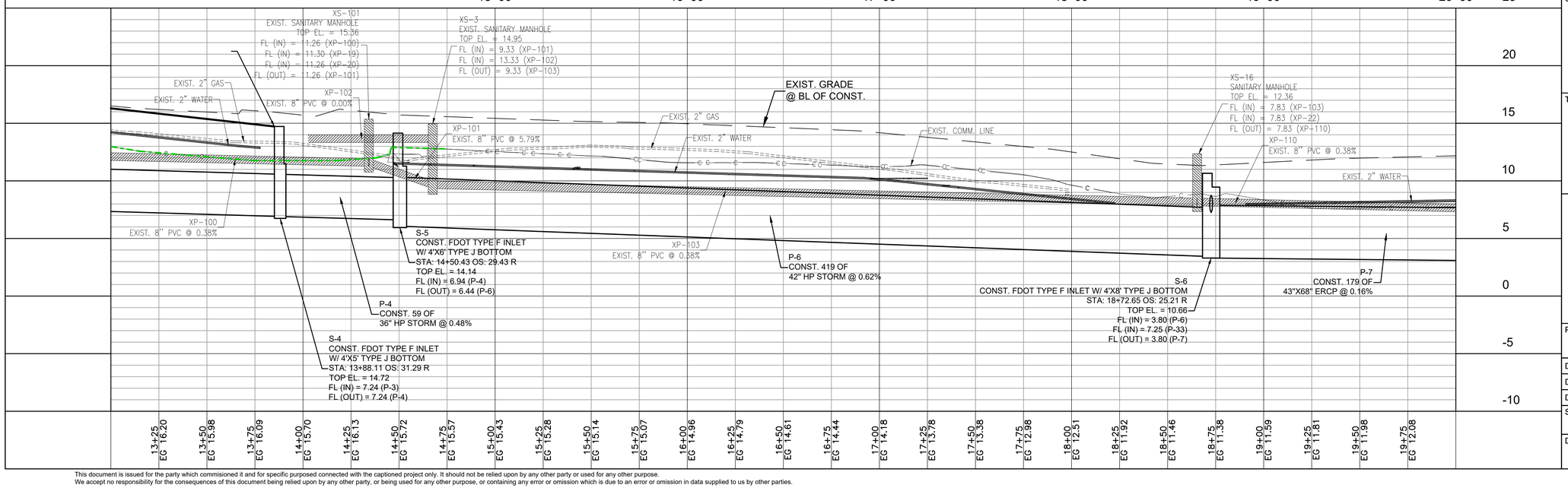
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-013



6TH STREET



CenturyLink®

Red = To be Removed
Green = To Remain
Brown = New Proposed

AT-25PR AERIAL TELEPHONE (25 Pair)
BT-25PR BURIED TELEPHONE (25 Pair)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 13+00 - 20+00

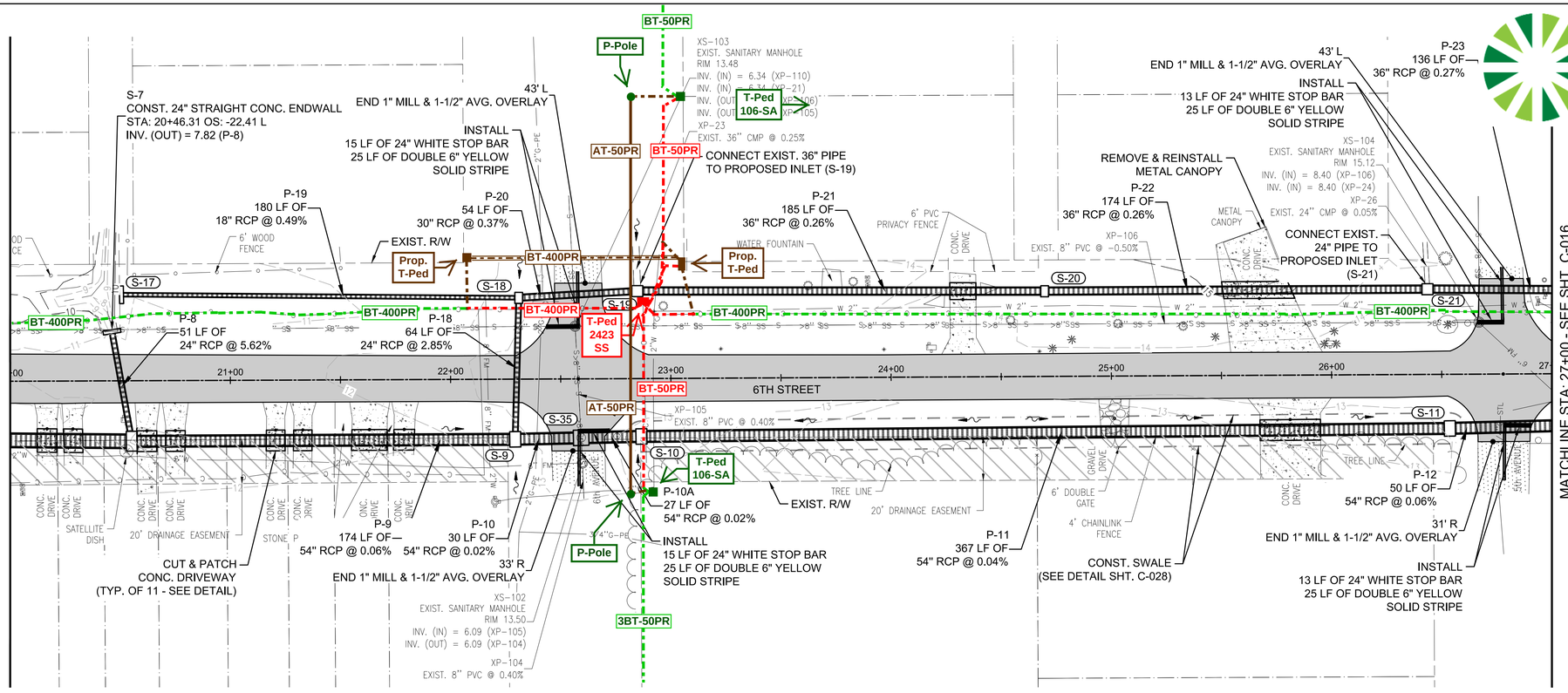
THIS DRAWING IS
NOT FOR
CONSTRUCTION

Project Number	B/O	Total
390762	14	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

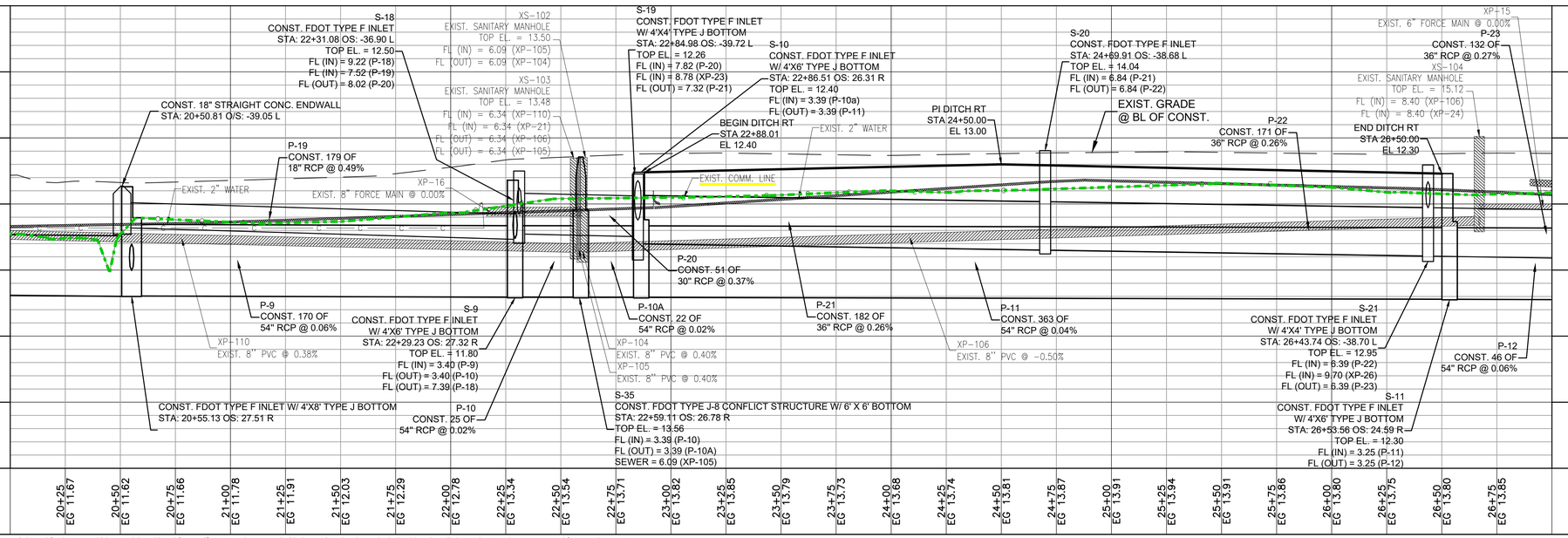
Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-014



6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



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Green = To Remain
Brown = New Proposed

AT-25PR AERIAL TELEPHONE (25 Pair)
BT-25PR BURIED TELEPHONE (25 Pair)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

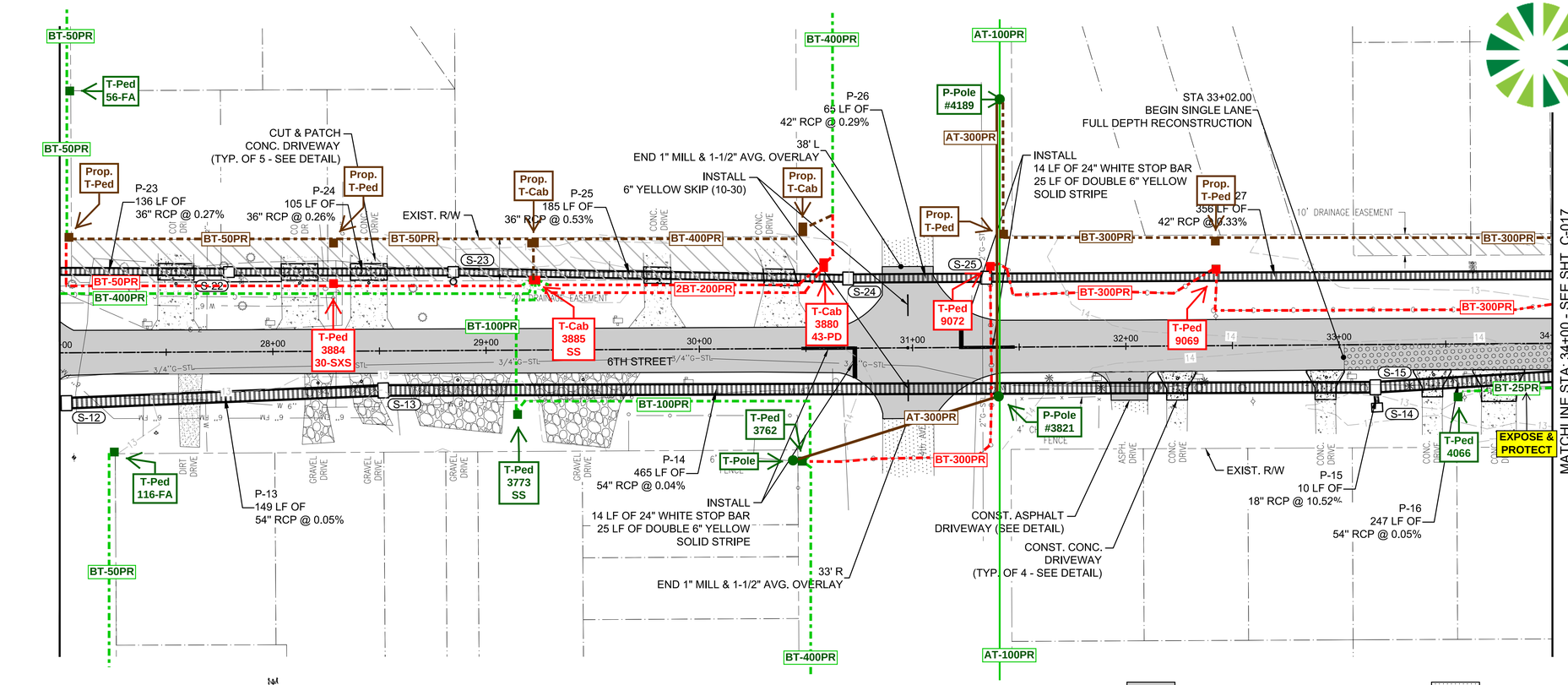
Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 20+00 - 27+00

THIS DRAWING IS NOT FOR CONSTRUCTION

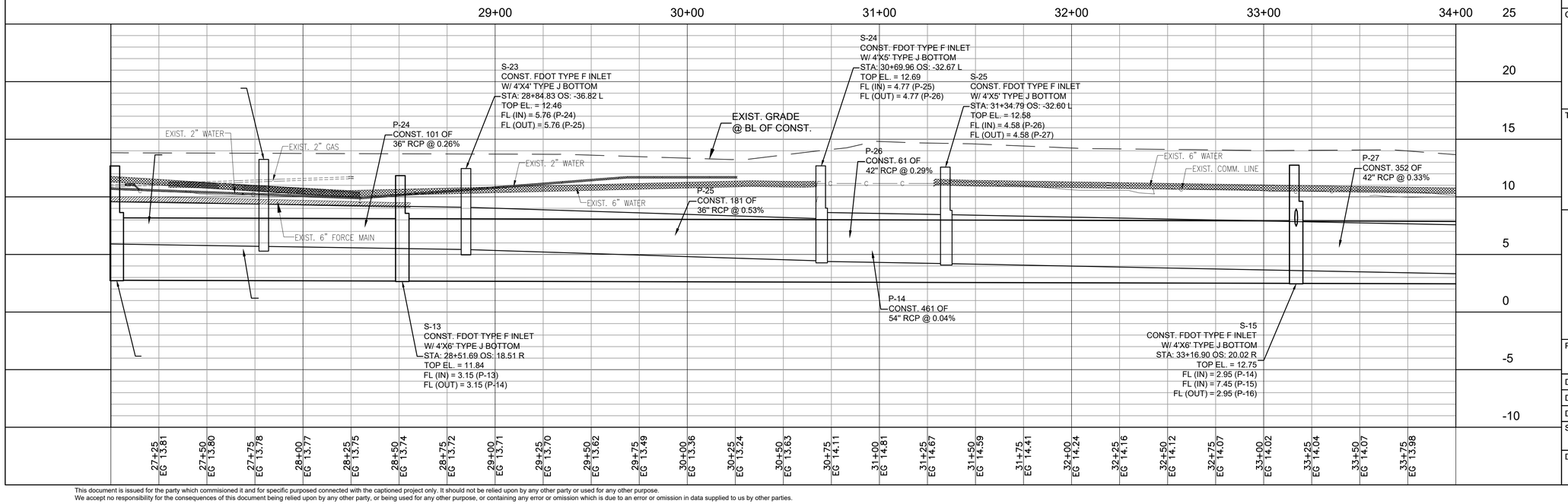
Project Number			B/O		Total
390762			15		30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev		Security
1:30	PRE		P1		STD

Drawing Number
C-015



6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



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AT-25PR AERIAL TELEPHONE (25 Pair)
BT-25PR BURIED TELEPHONE (25 Pair)

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 27+00 - 34+00

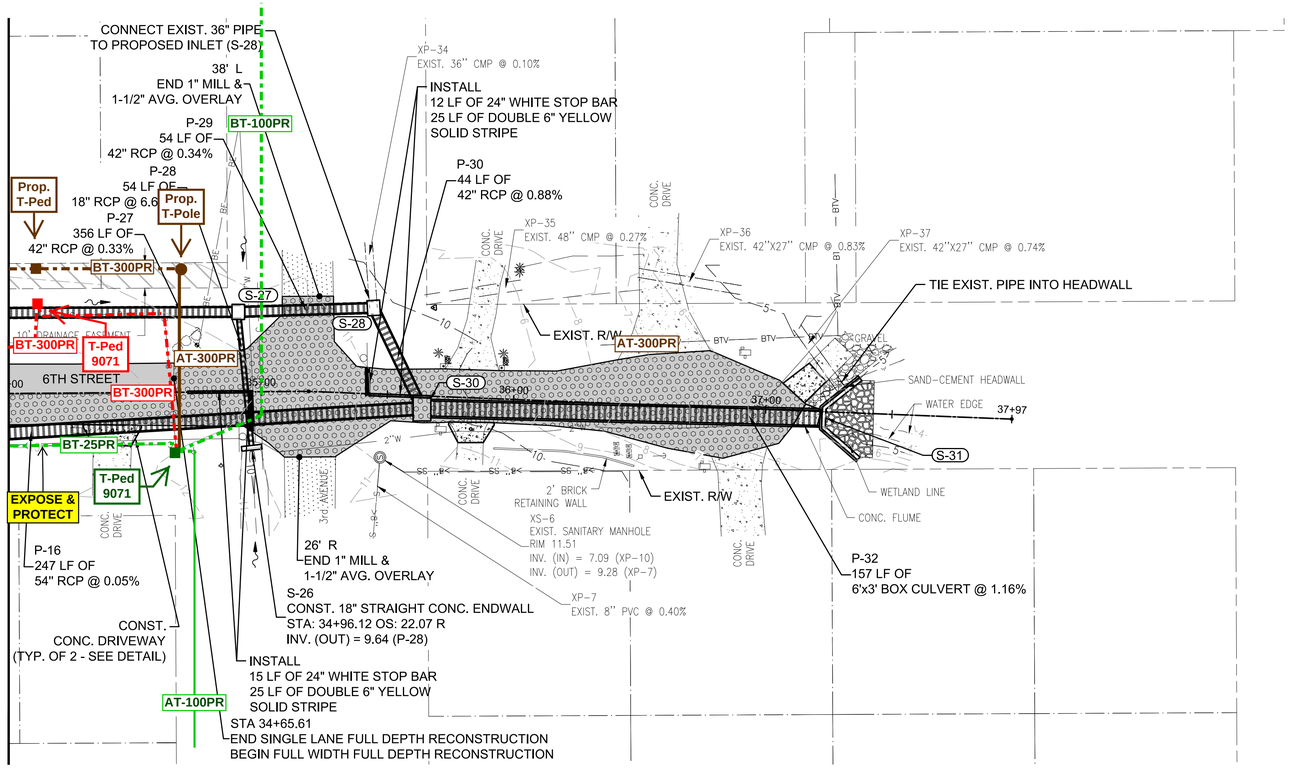
THIS DRAWING IS NOT FOR CONSTRUCTION

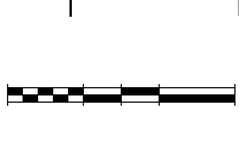
Project Number	B/O	Total
390762	16	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

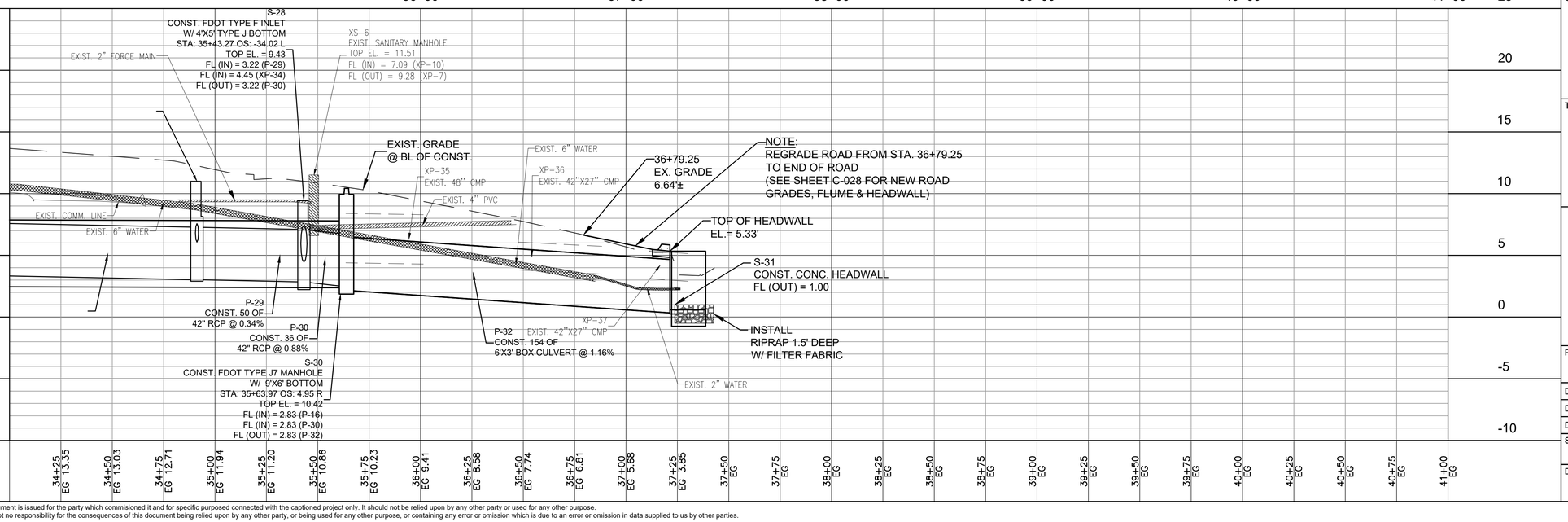
Drawing Number
C-016





6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



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AT-25PR AERIAL TELEPHONE (25 Pair)
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Rev	Date	Drawn	Description	Ch'k'd	App'd

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Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 34+00 - 41+00

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	17	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-017

CONSTRUCTION PLANS
FOR

6TH STREET DRAINAGE IMPROVEMENTS

OKALOOSA COUNTY, FLORIDA

APRIL 2020

LOCATION MAP
SCALE: 1" = 15,000'

BOARD OF COUNTY COMMISSIONERS
OKALOOSA COUNTY, FLORIDA

MOTT MACDONALD PROJECT NO.

OKALOOSA COUNTY
COMMISSIONERS

GRAHAM FOUNTAIN -DISTRICT 1
CAROLYN KETCHEL -DISTRICT 2
NATHAN BOYLES -DISTRICT 3
TREY GOODWIN -DISTRICT 4
KELLY WINDES -DISTRICT 5

100% REVIEW PLANS

MOTT MACDONALD

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COVER SHEET

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Project Number	B/O	Total
390762	1	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
NTS	PRE	P1	STD

Drawing Number
C-001

1. THE CONTRACTOR AND ALL SUBCONTRACTORS, HEREINAFTER REFERRED TO AS "CONTRACTOR", SHALL HAVE SOMEONE TO RECEIVE CALLS AND DISPATCH PROPER PERSONNEL AND EQUIPMENT ON A TWENTY-FOUR

2. THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT AS REQUIRED TO ACCOMPLISH THE SPECIFIED WORK.

3. THE CONTRACTOR IS ADVISED NOT TO SCALE FROM DRAWINGS BUT TO FIELD VERIFY ALL DIMENSIONS. THE DIMENSIONS OF SPECIFIED AND FURNISHED PRODUCTS AND MATERIALS TAKE PRECEDENCE OVER

4. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE "FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION," HEREINAFTER

5. ALL ASPECTS OF THE STORM WATER, DRAINAGE AND/OR TRANSPORTATION COMPONENTS SHALL BE

6. NO DEVIATIONS OR REVISIONS FROM THESE PLANS BY THE CONTRACTOR SHALL BE ALLOWED WITHOUT PRIOR APPROVAL FROM BOTH THE DESIGN ENGINEER AND OKALOOSA COUNTY. ANY DEVIATIONS MAY RESULT

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COORDINATION OF ALL CONSTRUCTION SCHEDULES. ALL COSTS INCURRED BY THE CONTRACTOR FOR THE COORDINATION EFFORTS WILL BE INCIDENTAL TO EXISTING

2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS, ALL APPROVED

3. DRAWING GEOMETRY, INCLUDING ALL DIMENSIONS GIVEN, IS APPROXIMATE AND DOES NOT PURPORT TO BE ABSOLUTELY CORRECT. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL

4. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES

6. THE CONTRACTOR IS DIRECTED TO PERFORM HIS OWN SITE INSPECTION TO HIS SATISFACTION PRIOR TO BID AND ACQUAINT HIMSELF THOROUGHLY WITH ALL EXISTING FACILITIES AND CONDITIONS AND TO INCLUDE ANY

7. THE LOCATIONS OF NEW UTILITIES AND STRUCTURES SHOWN ARE APPROXIMATE. FINAL PROJECT LOCATION MAY REQUIRE FIELD ADJUSTMENT BY THE ENGINEER UPON THE CONTRACTOR'S VERIFICATION OF ALL

8. IN NO CASE SHALL THE CONTRACTOR RECEIVE ADDITIONAL COMPENSATION TO FINAL GRADES AND LINES

10. ANY DAMAGE TO STREET SURFACING OR DRIVEWAYS CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER. ACCEPTANCE OF SUCH REPAIRS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. FAILURES OF BASE AND SURFACING DUE TO NORMAL USE OF STREET

11. EARTHWORK IS BASED ON ESTIMATED QUANTITIES AND THE ENGINEER SHALL DETERMINE THE FINAL

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS WORK OPERATIONS TO

13. THE CONTRACTOR, AT HIS EXPENSE, MAY TAKE ADDITIONAL TEST BORINGS AND EXPLORATORY INVESTIGATIONS PRIOR TO BIDDING AND DURING THE LIFE OF THE CONTRACT. COORDINATION WITH THE

14. THE CONTRACTOR SHALL FIELD VERIFY EXISTING UTILITIES, (SIZE, MATERIAL OF CONSTRUCTION,

15. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BECOME FAMILIAR WITH THE OSHA EXCAVATION

17. WHEN THE CONTRACT DOES NOT INCLUDE A PAY ITEM FOR A REQUIRED EFFORT, PERFORMANCE OF SUCH EFFORT IS CONSIDERED AN INCIDENTAL (LABOR AND MATERIAL) TO THE MAIN EFFORT. PAYMENT FOR SUCH

18. WHEN THE CONTRACT DOES NOT INCLUDE A PARTIAL PAYMENT METHOD FOR COMPUTING A LUMP SUM ITEM, THE PARTIAL PAYMENT SHALL BE LIMITED TO THE ENGINEER'S ESTIMATED PERCENT COMPLETE OF THE WORK REQUIRED UNDER THIS ITEM. WHEN THE EFFORT IS SPREAD THROUGHOUT THE CONTRACT DURATION. THE PERCENT OF WORK COMPLETED SHALL NOT EXCEED THE PERCENT COMPLETE OF THE TOTAL CONTRACT.

19. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER

1. GRADE ALL AREAS WITHIN THE CONSTRUCTION LIMITS TO PROVIDE UNIFORM CONTOURS AND GRADES SO THAT DRAINAGE FLOW, GRASS MOWING AND CUTTING OPERATIONS ARE NOT HINDERED BY TERRAIN IRREGULARITY. PERFORM THIS WORK REGARDLESS OF WHETHER THE IRREGULARITIES WERE THE RESULT OF

2. ANY DAMAGE TO THE EXISTING GROUNDS IN AREAS OUTSIDE OF THE LIMITS OF CONSTRUCTION FOR THIS PROJECT WILL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE AS DIRECTED BY THE PROJECT ENGINEER.

3. ALL AREAS TO BE CUT OR FILLED SHALL BE CLEARED AND GRUBBED. ALL RIGHT-OF-WAYS AND EASEMENTS ARE TO BE CLEARED AND GRUBBED. CLEARING AND GRUBBING SHALL BE AS PER SECTION 110 OF THE FDOT

4. EXISTING UTILITIES AND STRUCTURES WITHIN CONSTRUCTION LIMITS SHALL REMAIN UNLESS OTHERWISE

5. CONTRACTOR SHOULD PREVENT DAMAGE TO TREES OUTSIDE OF, BUT WITHIN CLOSE PROXIMITY TO THE PROJECT'S LIMITS OF CONSTRUCTION. GRADING AROUND TREES DESIGNATED TO REMAIN SHALL BE PERFORMED IN A MANNER THAT WILL NOT CAUSE ANY DAMAGE TO THE TREES. AT A MINIMUM, WORK AROUND

6. NO DIRECT PAYMENT SHALL BE MADE FOR THE INCIDENTAL REMOVAL AND DISPOSAL OF TREES, SHRUBS AND DEBRIS. ALL DISPOSALS SHALL BE IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAWS.

7. WHEN TREE REMOVAL IS AUTHORIZED BY THE ENGINEER FOR TREES DESIGNATED TO REMAIN BEING LESS THAN SIX (6') FEET TALL, OR TWO (2") INCH IN DIAMETER, SUCH TREES SHALL BE REMOVED, CAREFULLY PRESERVED AND REPLANTED BY THE CONTRACTOR. RESTORATION OF TREES WITHIN THE CONSTRUCTION SERVITUDE SHALL NOT BE CONSIDERED A WARRANTY ITEM. RESTORATION OF TREES OUTSIDE THE

8. ALL ROADSIDE DITCHES AND AREAS DISTURBED BY THE CONTRACTOR OUTSIDE THE CONSTRUCTION SERVITUDE ARE TO BE SLOPED TO DRAIN, GRADED AND SODDED WITHIN 30 DAYS AFTER CONSTRUCTION IS

9. WITHIN THIRTY- (30) DAYS OF THE INSTALLATION OF PAVEMENT ALL FINAL DRESS UP AND RESTORATION WORK MUST BE COMPLETED. ALL CONSTRUCTION AND CLEAN UP WORK MUST BE COMPLETED BY THE CONTRACTOR AT THE SAME TIME. FAILURE TO MEET THIS REQUIREMENT SHALL CAUSE ALL WORK TO CEASE

10. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ALL OBSTRUCTIONS WITHIN THE LIMITS OF WORK SUCH AS STREET SIGNS, STOP SIGNS, SATELLITE, CARPORT, IRRIGATION (MAIL BOXES WHEN DIRECTED BY THE ENGINEER) AND MISCELLANEOUS OBSTRUCTIONS. ANY SUCH OBJECTS REMOVED SHALL BE REPLACED WITHIN A 24-HOUR PERIOD. IF A TRAFFIC SIGN, MAILBOX OR OTHER OBSTRUCTION IS REMOVED AND TEMPORARILY RELOCATED UNTIL THE PERMANENT SIGN CAN BE REPLACED, PAYMENT FOR THIS EFFORT SHALL BE UNDER "REMOVAL OF STRUCTURES AND OBSTRUCTIONS" PAY ITEM. THE COST OF REMOVING AND REPLACING FENCE SHALL BE INCLUDED IN THE COST OF REMOVAL AND REPLACING FENCE PAY ITEM.

11. RELOCATION OF THE OBSTRUCTIONS OWNED BY PRIVATE PROPERTY OWNER, SUCH AS MAILBOXES, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WHO MUST COORDINATE WITH THE PROPERTY OWNER.

12. PROPERTY OBSTRUCTIONS WHICH ARE TO REMAIN IN PLACE, SUCH AS BUILDINGS, SEWER, STORM DRAINS, WATER OR GAS PIPES, ELECTRICAL CONDUITS, POLES, WALLS, POSTS, ETC., ARE TO BE CAREFULLY PROTECTED & ARE NOT TO BE DISPLACED, UNLESS NOTED.

13. ANY EXCESS MATERIALS REMOVED DURING CONSTRUCTION AND DEEMED REUSABLE BY THE ENGINEER SHALL BE STOCKPILED AS DIRECTED BY THE ENGINEER AND BECOME THE PROPERTY OF THE OWNER. ALL OTHER MATERIALS SHALL BE HAULED OFF BEYOND THE LIMITS OF THE PROJECT AT NO ADDITIONAL EXPENSE TO THE OWNER.

14. BEGIN EXCAVATION AND CLEARING OPERATIONS AT THE DOWNSTREAM END OF CHANNELS, STREAMS OR DITCHES AND PROCEED UPSTREAM, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

15. ALL TRANSVERSE JOINTS SHALL BE SAW CUT.

16. ANY EXISTING AREAS WHICH ARE DISTURBED AS A RESULT OF CONSTRUCTION SHALL BE SHAPED, AS NECESSARY, SO THAT IT SHALL NOT IMPEDE STORM WATER RUNOFF. CONTRACTOR TO ENSURE ALL GROUND COVER TO BE FULLY ESTABLISHED PRIOR TO FINAL COMPLETION.

17. ALL EXISTING STORM WATER DRAINAGE PATTERNS AND CHANNELS ARE TO BE MAINTAINED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE WORK APPEARS TO INTERRUPT AN EXISTING STORM WATER DRAINAGE PATTERN. THE CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES AND DITCHES DURING ALL PHASES OF CONSTRUCTION AND SHALL USE BEST MANAGEMENT PRACTICES TO MANAGE STORM WATER SUCH THAT IMPACT TO CONSTRUCTION AND/OR SURROUNDING FACILITIES IS MINIMIZED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EROSION, SEDIMENT TRANSPORT, DISTURBED FOUNDATIONS, TEMPORARY DRAINAGE AND IMPACT TO STRUCTURES, AND ANY OTHER DAMAGE CAUSED DURING CONSTRUCTION.

18. ALL WALKWAY PATHS AND INTERSECTIONS SHALL MEET ADA REQUIREMENTS (LATEST EDITION).

19. ALL SIDEWALK, CURB, ROADWAY AND BASE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH FDOT SPECIFICATIONS, LATEST EDITION.

20. CONTRACTOR SHALL NOTIFY THE PROJECT OWNER AND ENGINEER OF ALL DISCOVERED UNDERGROUND STRUCTURES WHICH ARE IN CONFLICT WITH THE INSTALLATION OF THE PROPOSED IMPROVEMENTS AND ARE NOT INDICATED ON THE CONTRACT PLANS OR LOCATED IN THE FIELD BY UTILITIES IN ACCORDANCE WITH NOTES HEREON.

21. EXISTING IRRIGATION SYSTEMS THAT MUST BE REMOVED SHALL BE REPLACED WITH EQUAL OR BETTER MATERIAL. UNLESS NOTED OTHERWISE CONTRACTOR SHALL REMOVE AND REINSTALL/RELOCATE ORNAMENTAL LANDSCAPING WHICH IS DISTURBED AS A RESULT OF THEIR OPERATIONS. IRRIGATION AND LANDSCAPING REPLACEMENT SHALL BE PAID FOR UNDER THE LANDSCAPING ALLOWANCE.

22. CONTRACTOR IS ADVISED THAT WORK INVOLVES REPLACEMENT OF ACTIVE STORMWATER COLLECTION/TRANSMISSION COMPONENTS. CONTRACTOR SHALL PROVIDE STORMWATER BYPASS PUMPING TO MAINTAIN STORMWATER FLOWS THROUGHOUT CONSTRUCTION. STORMWATER BYPASS EFFORTS SHALL BE INCLUDED IN PRICE BID FOR STORMWATER PIPE INSTALLATION.

23. ALL STRUCTURES DEEPER THAN 5' FEET SHALL HAVE AN ACCESS LADDER . THE COST OF THE ACCESS LADDER SHALL BE INCLUDED IN THE DRAINAGE STRUCTURE PAY ITEM.

24. CONTRACTOR SHALL PHOTOGRAPH AND VIDEO EXISTING SITE CONDITIONS IN ORDER TO DOCUMENT EXISTING DRIVEWAYS LANDSCAPING, TREES, FENCING, AND OTHER FEATURES LOCATED WITHIN THE RIGHT-OF-WAY. THE COST ASSOCIATED WITH THIS ACTIVITY SHALL BE INCLUDED IN THE MOBILIZATION PAY ITEM.

25. CONTRACTOR SHALL GRADE AREA SURROUNDING FLOW TOWARDS THE DITCH BOTTOM INLETS.

IV. UTILITY NOTES

1. THE CONTRACTOR IS ADVISED THAT EXISTING OVERHEAD AND UNDERGROUND UTILITIES SUCH AS (BUT NOT LIMITED TO) ELECTRICAL LINES AND POLES, TELEPHONE CABLES, TELEVISION CABLES, GAS LINES, WATER LINES, AND SANITARY SEWERS MAY EXIST IN THE CONSTRUCTION LIMITS WHERE THE PROPOSED IMPROVEMENTS ARE REQUIRED. UTILITY FACILITIES SHOWN ON THE PLANS ARE APPROXIMATE LOCATIONS (NOT SCALEABLE) AND DO NOT INCLUDE SERVICE LOCATIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR LOCATING & PROTECTING EXISTING UTILITIES DURING THE PERFORMANCE OF WORK TO BE INSTALLED UNDER THIS CONTRACT. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES, PROBE OR EXPOSE THEM BY HAND EXCAVATION, AND FOLLOW ALL APPLICABLE OSHA REGULATIONS AT NO COST TO THE OWNER. FAILURE OF THE PLANS TO SHOW THE EXISTENCE OF ANY UNDERGROUND UTILITIES, STRUCTURES, ETC., SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF LOCATING, PRESERVING & PROTECTING SAID UTILITY OR STRUCTURES.

2. THE CONTRACTOR SHALL FIELD LOCATE AND INCLUDE CONSIDERATION OF EXISTING UTILITIES IN PLANNING AND PRIOR TO EXECUTION OF WORK. THE LOCATION OF UNDERGROUND FACILITIES SHOWN ON THESE PLANS ARE BASED ON INFORMATION PROVIDED BY THE UTILITIES AND SHALL BE CONSIDERED APPROXIMATE. IT SHALL BE THE CONTRACTOR'S FULL RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES TO LOCATE THEIR FACILITIES PRIOR TO THE STARTING OF CONSTRUCTION. NO ADDITIONAL COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR DAMAGE AND REPAIR TO THESE FACILITIES CAUSED BY HIS WORK FORCE.

3. ANY DAMAGE TO EXISTING UTILITIES CAUSED BY THE EXECUTION OF WORK UNDER THIS CONTRACT SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR INCREASE TO CONTRACT TIME. THE OWNER DOES NOT ASSUME OR IMPLY TO ANY LIABILITY FOR THE LOCATION, PROTECTION, AND/OR REPAIR OF ANY EXISTING UTILITIES THAT MAY OCCUPY JOINT RIGHT-OF-WAY OR OTHERWISE CONFLICT WITH THE CONSTRUCTION OF THE WORK TO BE INSTALLED UNDER THIS CONTRACT.

4. THERE SHALL BE NO DIRECT PAYMENT FOR LOCATING, EXPOSING, AND BRACING EXISTING UTILITY LINES WHERE REQUIRED. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN TRENCHING IN AREAS NEAR UTILITIES. SHOULD CONFLICTS OCCUR WHICH CAUSE THE LOCATION OF LINES AND GRADES, STORM DRAIN, MAINS OR SERVICES REQUIRED UNDER THIS CONTRACT TO BE CHANGED; THE SAME CONTRACT UNIT PRICES SHALL PREVAIL.

5. WHEN IT IS NECESSARY TO PERFORM WORK ACROSS A STREET BY OPEN CUT METHODS, THE PAVEMENT SHALL BE REPAIRED WITHIN SEVEN (7) DAYS AFTER BACKFILL HAS BEEN COMPLETED TO THE BASE OF THE PAVEMENT. APPROVAL SHALL BE OBTAINED FROM THE COUNTY AT LEAST 48 HOURS BEFORE CUTTING ANY STREET.

6. TEMPORARY SHEATHING OR TRENCH BOXES WILL BE REQUIRED ON ALL EXCAVATIONS (WHERE REQUIRED BY OSHA) INCLUDING, OR AS OTHERWISE DIRECTED BY THE ENGINEER. TEMPORARY SHEATHING MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH SPECIFICATIONS. SHEATHING INSTALLED AND SUBSEQUENTLY REMOVED SHALL BE AT NO DIRECT PAY. TEMPORARY SHEATHING AND TRENCH BOXES SHALL BE INCLUDED IN THE COST OF THE DRAINAGE PIPE OR STRUCTURE.

7. ANY OPEN EXCAVATION NEAR A RESIDENCE OR THE EDGE OF A ROADWAY SHALL BE BACKFILLED OR PROPERLY SECURED WITH BARRICADES. IN ADDITION, THE CONTRACTOR SHALL PLACE AND MAINTAIN ADEQUATE BARRICADES, CONSTRUCTION SIGNS AND FLAGMAN DURING PROGRESS OF CONSTRUCTION WORK, IN ACCORDANCE WITH APPLICABLE MUTCD INDEX.

8. PROVIDE MATTING OVER ALL BURIED PIPELINES TO PROTECT UTILITIES FROM CONSTRUCTION TRAFFIC.

9. UNLESS NOTED OTHERWISE, UTILITIES SHALL BE RELOCATED OR ADJUSTED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH THE RESPECTIVE UTILITIES AS REQUIRED IN THE SPECIFICATIONS.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE TOP ELEVATION OF ALL WATER VALVE BOXES, MANHOLES, AND INLETS AS REQUIRED TO MATCH NEW GRADES (TO A TOLERANCE OF ¼" ± FROM FINISHED GRADE).

11. ALL PROPOSED UNDERGROUND UTILITIES WITHIN R/W OR UTILITY CONDUIT FOR ROAD CROSSINGS SHALL BE INSTALLED PRIOR TO PAVING.

12. THE CONTRACTOR SHALL NOTIFY THE SUPERINTENDENTS OF THE WATER, GAS, SEWER, TELEPHONE & POWER COMPANIES 10 DAYS IN ADVANCE THAT HE INTENDS TO START WORK IN A SPECIFIC AREA. THE CONTRACTOR SHALL NOT BE ALLOWED TO TRENCH UNTIL ALL EXISTING UTILITIES ARE LOCATED.

13. THE OWNER DISCLAIMS ANY RESPONSIBILITY FOR THE SUPPORT & PROTECTION OF SEWERS, DRAINS, WATER PIPES, GAS PIPES, CONDUITS OF ANY KIND, UTILITIES OR OTHER STRUCTURES OWNED BY THE CITY, COUNTY, STATE OR BY PRIVATE OR PUBLIC UTILITIES LEGALLY OCCUPYING ANY STREET, ALLEY, PUBLIC PLACE OR RIGHT-OF-WAY.

14. ALL UTILITY WORK WITHIN WETLANDS, WILDLIFE HABITAT OR ASSOCIATED BUFFER ZONE SHALL BE PERFORMED IN COMPLETE AND MOST RESTRICTIVE ADHERENCE TO THE APPLICABLE PERMITS. IN ABSENCE OF A SPECIFIC PERMIT, ALL UTILITY ABANDONMENT SHALL BE IN PLACE AND ALL NEW WORK SHALL BE BY DIRECTIONAL BORINGS.

15. THE CONTRACTOR SHALL ADHERE TO THE LATEST NATIONAL ELECTRICAL CODE (NEC). SERVICES RUN EXPOSED, SHOULD BE RUN IN RIGID GALVANIZED STEEL CONDUIT (RGS) OR PVC SCHEDULE 80 IF NOT SUBJECT TO PHYSICAL DAMAGE.

16. THE CONTRACTOR SHALL NOTIFY SUNSHINE 811 (1-800-432-4770), 48 HOURS IN ADVANCE TO ANY DIGGING RELATED TO THIS PROJECT.

17. TEMPORARY EXCAVATION SUPPORT MAY BE NECESSARY TO PROTECT ADJACENT PROPERTY, UTILITIES, AND THE WORK SITE WHERE STORM SEWER INSTALLATION IS AT A DEPTH GREATER THAN THAT DEFINED UNDER OSHA (29 CFR 1926.650 SUBPART P.) LATEST REVISION. IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT ADJACENT PROPERTY, UTILITY AND WORK SITE ARE ADEQUATELY PROTECTED IN ACCORDANCE WITH ALL APPLICABLE REGULATORY AGENCY REQUIREMENTS. MANUFACTURED AND SITE SPECIFIC EXCAVATION SUPPORT AND PROTECTION SYSTEMS SHALL BE DESIGNED BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER. THE COST ASSOCIATED WITH EXCAVATION SUPPORT AND PROTECTION IS TO BE INCLUDED IN THE UNIT COST BID FOR EACH ITEM OF WORK REQUIRING THE SAME.

18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING ACCEPTABLE MEANS AND METHODS, AS NECESSARY TO PLACE AND COMPLETELY BACKFILL TO FINISHED GRADE NEW MAINS AND STRUCTURES IN A WATER FREE EXCAVATION. THE MEANS AND METHODS OF DE-WATERING THE EXCAVATION SHALL COMPLY WITH ALL REGULATORY REQUIREMENTS FOR TEMPORARY DIVERSION OF GROUNDWATER AND ITS DISCHARGE. THE COST ASSOCIATED WITH EXCAVATION DE-WATERING IS TO BE INCLUDED IN THE UNIT COST BID FOR EACH ITEM OF WORK REQUIRING THE SAME.

19. CONTRACTOR TO COORDINATE WITH RESPONSIBLE UTILITY FOR PROTECTION/HOLDING OF UTILITY POLES, GUY WIRES, AND GUY ANCHORS IN AREAS OF CONSTRUCTION.

20. CONTRACTOR IS ADVISED THAT ALL PIPE IS SUBJECT TO CAMERA INSPECTION PRIOR TO ACCEPTANCE.

21. THE UTILITY CONTRACTOR SHALL PROVIDE "AS-BUILT" DRAWINGS OF THE SAME SCALE AS THESE CONTRACT DRAWINGS, ONE COPY TO THE ENGINEER AND ONE COPY TO THE COUNTY. THESE DRAWINGS SHALL LOCATE ALL SEWER APPURTENANCES CONSTRUCTED AS PART OF THIS PROJECT. FINAL "AS-BUILT" DRAWINGS TO BE SUBMITTED TO THE ENGINEER WITHIN 30 DAYS AFTER COMPLETION OF WORK.

V. DRIVEWAY/PARKING LOT CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL BE REQUIRED TO COMPACT THE BACKFILL BENEATH ALL COMMERCIAL AND RESIDENTIAL DRIVEWAYS TO 98% OF MAXIMUM DENSITY. SAFE ACCESS TO PRIVATE AND COMMERCIAL PROPERTY MUST BE RESTORED AS SOON AS POSSIBLE AFTER TRENCHING.

2. PROVIDE THICKNESS AND DENSITY TEST FOR SURFACE COURSE; BEARING CAPACITY AND DENSITY TEST FOR BASE AND SUB-BASE AT INTERVALS OF NO MORE THAN 300 FEET; STAGGERED LEFT, RIGHT AND ON CENTERLINE.

3. ENTIRE ROADWAY SUBGRADE SHALL BE PROOF-ROLLED WITH A LOADED DUMP TRUCK FOLLOWING ROUGH GRADING IN THE PRESENCE OF THE PROJECT INSPECTOR. ANY PUMPING AND/OR YIELDING SHALL BE UNDERCUT TO FIRM UNDERLYING SOILS AND BACKFILLED WITH SATISFACTORY MATERIAL SUITABLE FOR SUB-BASE MATERIALS SHALL BE INSTALLED IN MAXIMUM 8 INCH LIFTS AND COMPACTED IN ACCORDANCE WITH FDOT SPECIFICATIONS. WORK TO BE PAID FOR AS REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL (IN PLACE MEASURE). THE REMOVAL REPLACEMENT OF WET MATERIAL, WHICH IS OTHERWISE, CONSIDERED, AS SATISFACTORY SOIL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. SEE GEOTECHNICAL REPORT FOR RECOMMENDATIONS.

4. MECHANICAL SPREADER SHALL BE USED TO APPLY ALL ASPHALT UNLESS OTHERWISE APPROVED BY THE ENGINEER.

5. ALL SUBGRADE MATERIAL DETERMINED TO BE UNSUITABLE SHALL BE REMOVED TO A DEPTH OF AT LEAST 2 FEET BELOW THE PAVEMENT BASE AND BACK FILLED WITH CLEAN SAND AND 6" LIME ROCK BASE MATERIAL. UNSUITABLE MATERIAL REMOVAL SHALL EXTEND A DISTANCE OF AT LEAST ONE FOOT BEYOND THE EDGE OF PAVEMENT ON EACH SIDE OF THE ROADWAY OR PARKING. FOR ADDITIONAL DETAILS, SEE FDOT ROADWAY AND TRAFFIC STANDARD, LATEST EDITION. WORK UNDER THIS ITEM SHALL COMPLY WITH FDOT SPECS DESIGN COMPACTION REQUIREMENTS.

VI. SIGNING & TRAFFIC NOTES

1. BUSINESSES WITHIN THE AREA OF CONSTRUCTION SHALL HAVE ACCESS TO THEIR PROPERTY DURING ALL STAGES OF CONSTRUCTION.

2. THE CONTRACTOR SHALL MAINTAIN THRU TRAFFIC ON EXISTING STREETS AT ALL TIMES BY USING ADEQUATE FLAG MEN AND BARRICADES.

3. ALL SIGNS, BARRICADES, MARKERS, ETC. SHALL CONFORM TO THE LATEST EDITION OF "THE MANUAL ON UNIFORM TRAFFIC AND CONTROL DEVICES", AT NO ADDITIONAL COST TO THE OWNER.

4. THE CONTRACTOR SHALL MINIMIZE THE OCCURRENCE AND DURATION OF ROAD CLOSURES AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO CAUSE THE LEAST POSSIBLE DISRUPTION.

5. SIGNS THAT ARE TO BE REMOVED FROM THE PROJECT SHOULD BE STOCKPILED SEPARATELY FROM THOSE THAT ARE TO BE RELOCATED.

6. THE CONTRACTOR TO READJUST THE LOCATION OF ANY SIGN WITHIN THE PROJECT LIMITS TO ENSURE PROPER VISIBILITY.

7. WHEN DIRECTED BY THE ENGINEER, EXISTING STREET AND ROAD NAME SIGNS WITHIN THE PROJECT VICINITY MAY BE TEMPORARILY RELOCATED DURING CONSTRUCTION AND KEPT VISIBLE AT ALL TIMES FOR THE FACILITATION OF ACCESS BY EMERGENCY VEHICLE TRAFFIC.

8. ALL PAVED AREAS WITHIN THE VICINITY OF THE PROJECT, WHICH ARE DISTURBED AS A RESULT OF CONSTRUCTION SHALL BE REMARKED AND RE-STRIPED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL DOCUMENT THE LAYOUT OF THE EXISTING PAVEMENT MARKINGS AND STRIPING (NOT SHOWN ON THESE DRAWINGS). THE NEW PAVEMENT MARKINGS AND STRIPING SHALL BE INSTALLED IN SUCH A MANNER AS TO MATCH THE EXISTING CONDITIONS. THE CONTRACTOR SHALL EXERCISE CAUTION TO ENSURE ALL STOP BARS AND TURN ARROWS ARE REPLACED IN THEIR EXISTING LOCATIONS EXACTLY.

9. ALL PAVEMENT MARKINGS SHALL CONFORM TO 'FDOT STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION'.

10. THE CONTRACTOR SHALL MAINTAIN TRAFFIC DURING CONSTRUCTION ON ALL STATE, COUNTY, CITY & PRIVATE ROADS IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, FDOT STANDARD PLANS (LATEST EDITION). THE CONTRACTOR SHALL PREPARE AND SUBMIT A MAINTENANCE OF TRAFFIC PLAN FOR APPROVAL BY ENGINEER AND OKALOOSA COUNTY PRIOR TO CONSTRUCTION.

11. EXISTING PAVEMENT STRIPING SHALL BE REPLACED IN AREAS OF ASPHALT OVERLAY.

VII. SURVEYING NOTES

1. GRADES SHOWN ARE FINISHED GRADES.

2. THE CONTRACTOR SHALL EMPLOY A LAND SURVEYOR REGISTERED IN THE STATE OF FLORIDA TO REFERENCE AND RESTORE PROPERTY CORNERS AND LAND MARKERS WHICH MAY BE DISTURBED BY CONSTRUCTION. RESTORATION OF PROPERTY CORNERS AND LAND MARKERS DISTURBED DURING CONSTRUCTION SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.

3. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING & FOR TRANSFERRING AN ADEQUATE NUMBER OF BENCHMARKS TO CONSTRUCT THE PROJECT TO THE LINE & GRADES SHOWN ON THE PLANS.

4. THE CONTRACTOR IS RESPONSIBLE FOR EFFECTIVE CONSTRUCTION LAYOUT & STAKING AS NECESSARY TO CONSTRUCT THE PROJECT ACCORDING TO THE LINES & GRADES AS SHOWN.

VIII. REGULATORY AND PERMITTING REQUIREMENTS:

1. TO COMPLY WITH NPDES REQUIREMENTS, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AFTER EACH 1/4" RAINFALL EVENT OR AT LEAST WEEKLY. THE CONTRACTOR SHALL DOCUMENT SUCH INSPECTIONS AND EROSION CONTROL MAINTENANCE EFFORTS; INSPECTION RECORDS SHALL BE PROVIDED TO THE NPDES PERMIT APPLICANT FOR PROPER RECORDING TO FDEP.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING ACCEPTABLE MEANS AND METHODS, AS NECESSARY TO COMPLETELY BACKFILL TO FINISHED GRADE THE NEW STORMWATER SYSTEM IN A WATER FREE EXCAVATION. THE MEANS AND METHODS OF DEWATERING THE EXCAVATION SHALL COMPLY WITH ALL REGULATORY REQUIREMENTS FOR TEMPORARY DIVERSION OF GROUNDWATER AND ITS DISCHARGE (INCLUDING FAC CHAPTER 62-621 "GENERAL PERMIT FOR THE DISCHARGE OF PRODUCED GROUND WATER FROM ANY NON-CONTAMINATED SITE ACTIVITY"). IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL REQUIRED PERMITTING ASSOCIATED WITH THE INSTALLATION OF A DEWATERING SYSTEM. THE COST ASSOCIATED WITH EXCAVATION DEWATERING IS TO BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEMS OF WORK REQUIRING EACH.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR & COMPLY WITH ANY TESTING REQUIRED BY THE LOCAL GOVERNING AGENCY IN ADDITION TO THE TESTING REQUIREMENTS OUTLINED IN THE SPECIFICATIONS. DENSITY TESTING & CORE SAMPLES WILL BE REQUIRED TO DEMONSTRATE COMPLIANCE WITH STANDARDS PRIOR TO FINAL APPROVAL OF ROADWAY IMPROVEMENTS.

4. THE CONTRACTOR SHALL INSTALL PRIOR TO THE START OF CONSTRUCTION AND MAINTAIN DURING CONSTRUCTION ALL SEDIMENT CONTROL MEASURES AS REQUIRED TO RETAIN ALL SEDIMENTS ON THE SITE IMPROPER SEDIMENT CONTROL MEASURES MAY RESULT IN CODE ENFORCEMENT VIOLATIONS.

5. CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS DURING CONSTRUCTION WHICH WILL SHOW 'AS-BUILT' CONDITIONS OF ALL WORK INCLUDING PIPING, DRAINAGE STRUCTURES, OUTLET STRUCTURES, DIMENSIONS, ELEVATIONS, GRADING, ETC. RECORD DRAWINGS SHALL BE PROVIDED TO THE ENGINEER OF RECORD PRIOR TO REQUESTING FINAL INSPECTION.

6. OWNER OR AUTHORIZED AGENT TO SUBMIT "NOTICE OF CONSTRUCTION COMMENCEMENT" TO NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT A MINIMUM OF 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.

7. CONSTRUCTION FOREMAN SHALL BE RESPONSIBLE FOR PROVIDING DAILY CONSTRUCTION MONITORING.

8. OWNER OR AUTHORIZED AGENT TO SUBMIT "AS-BUILT CERTIFICATION" TO NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT AT COMPLETION OF CONSTRUCTION.

IX. EROSION CONTROL NOTES

1. SEDIMENT & EROSION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. AREAS OF OFF-SITE DISCHARGE DURING CONSTRUCTION SHALL BE PROTECTED WITH A SEDIMENT BARRIER TO PREVENT OFF-SITE DISCHARGE OF SEDIMENTS. TEMPORARY SEED & MULCH SHOULD BE USED TO CONTROL ON-SITE EROSION WHEN IT IS NOT PRACTICAL TO ESTABLISH PERMANENT VEGETATION. PERMANENT VEGETATION SHALL BE PLACED AS EARLY AS POSSIBLE ON ALL SLOPES STEEPER THAN 5-FOOT HORIZONTAL TO 1-FOOT VERTICAL. SOD SHALL BE PINNED AS REQUIRED. ALL EROSION & SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED IN WORKING ORDER THROUGHOUT THE CONSTRUCTION PHASE.

2. PRIOR TO CONSTRUCTION, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PREPARE A DETAILED AND COMPREHENSIVE EROSION AND SILTATION CONTROL PLAN THAT COVERS ALL PHASES OF CONSTRUCTION OF THE PROJECT.

3. EROSION CONTROL PLAN - CONTRACTOR SHALL DESCRIBE IN DETAIL HOW THE CONSTRUCTION EFFORT WILL BE PHASED WITH REGARDS TO MINIMIZING EROSION PROBLEMS BY THE VARIOUS SEQUENCES OF CONSTRUCTION OPERATIONS. ANY MODIFICATIONS TO THIS PLAN MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REPRESENTING THE CONTRACTOR.

4. SLOPE PROTECTION - ANY DISTURBED OR REWORKED SLOPES SHALL BE ADEQUATELY PROTECTED FROM EROSION THROUGH THE USE OF TEMPORARY SLOPE DRAINS, TEMPORARY GRASSING, SODDING, OR EROSION CONTROL MATS UNTIL PERMANENTLY STABILIZED.

5. HAY BALES - THESE SHALL BE PLACED AT THE BASE OF ANY SLOPE WHERE A RAINFALL EVENT COULD ERODE A SLOPE AND TRANSPORT SEDIMENTS. BALES SHOULD BE DOUBLE STAKED IN ACCORDANCE WITH STANDARD INDICES. IF EROSION DEPOSITS REACH ½ THE EXPOSED HEIGHT OF EXISTING BALES, THEN SEDIMENTS SHOULD BE REMOVED. ANY DAMAGED OR INEFFECTIVE BALES ARE TO BE REPLACED WITH NEW ONES.

6. STOCKPILED MATERIALS - THIS MATERIAL SHALL NOT BE LEFT IN EROSION PRONE AREAS UNLESS PROTECTED BY COVER OR HAY BALES.

7. THE CONTRACTOR SHALL USE SEDIMENT AND EROSION CONTROL MEANS/DEVICES INCLUDING BUT NOT LIMITED TO HAY BALES AND SILT FENCES TO PREVENT EROSION AND SEDIMENT TRANSPORT OUTSIDE THE LIMITS OF CONSTRUCTION.

8. ALL DISTURBED AREAS WHICH ARE NOT PAVED SHALL BE STABILIZED WITH FERTILIZER & MULCH, HYDROSEED AND/OR SOD, UNLESS OTHERWISE INDICATED. SODDING OR SEED AND MULCH SHALL BE PLACED, WATERED, FERTILIZED WITH APPROPRIATE SOIL AMENDMENTS IN ACCORDANCE WITH THESE CONSTRUCTION DOCUMENTS.

9. ALL ASPECTS OF THE STORMWATER/DRAINAGE COMPONENTS AND/OR TRANSPORTATION COMPONENTS SHALL BE COMPLETED PRIOR TO REQUESTING A FINAL INSPECTION.

10. AREAS TO BE SODDED SHALL COMPLY WITH SECTION 575 OF THE FDOT SPECS. SOD SHALL BE HELD IN PLACE WITH PEGS DRIVEN INTO THE GROUND WHEN PLACED ON SLOPES EXCEEDING 4:1(HORIZONTAL/VERTICAL).

11. ON SITES GREATER THAN 1 ACRE, IF GREATER THAN 1 CONTIGUOUS ACRE IS CLEARED, A GROUND COVER SUFFICIENT TO PREVENT EROSION SHOULD BE PLANTED OR OTHERWISE STABILIZED WITHIN 10 WORKING DAYS ON THAT PORTION OF THE SITE UPON WHICH FURTHER ACTIVE CONSTRUCTION WILL NOT BE UNDERTAKEN WITHIN 90 DAYS.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SEEDING & MULCHING AND/OR SODDING OF STREET & ROAD SHOULDER AREAS IN ACCORDANCE WITH REQUIREMENTS OF APPLICABLE FDOT STANDARDS ON STATE R/W.

13. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL REQUIRED SOIL EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE AND COMPLY WITH A STORM WATER POLLUTION PREVENTION PLAN. THE CONTRACTOR WILL ENSURE THAT EROSION CONTROL IS INSTALLED AND MAINTAINED FOR THE DURATION OF THE PROJECT AND UNTIL FINAL PROJECT SITE STABILIZATION IS ESTABLISHED. THE CONTRACTOR WILL ENSURE THAT EROSION CONTROL IS IMPLEMENTED AND MAINTAINED FOR ALL WETLANDS, DITCHES, STEEP SLOPES, STORM WATER INLETS AND OTHER ENVIRONMENTAL AND AESTHETIC AREAS ADJACENT TO THE PROJECT. IMPROPER SEDIMENT CONTROL MEASURES MAY RESULT IN CODE ENFORCEMENT VIOLATIONS. COSTS FOR EROSION AND SEDIMENT CONTROL MEASURES AND STORM WATER POLLUTION PREVENTION PLAN COMPLIANCE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ALL ITEMS OF WORK REQUIRING SAME.

14. THE OWNER OR HIS AGENT SHALL ARRANGE/SCHEDULE WITH THE COUNTY ENGINEER AN INSPECTION OF THE EROSION AND SEDIMENT CONTROL DEVICES PRIOR TO CONSTRUCTION, UNDERGROUND DRAINAGE PRIOR TO BURIAL, AND THE FINAL INSPECTION OF THE DEVELOPMENT UPON COMPLETION.

X. DEMOLITION NOTES:

1. ALL ASPHALT AND CONCRETE SHALL BE SAW CUT AT EDGES TO REMAIN.

2. ALL TRANSVERSE JOINTS SHALL BE SAW CUT. SAW CUTS SHALL BE MADE IN A NEAT WORKMAN LIKE MANNER.

3. ALL CONSTRUCTION DEBRIS SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS, AT NO ADDITIONAL COST TO THE OWNER.

4. DRIVEWAY DEMO & RECONSTRUCTION SHALL EXTEND TO THE NEAREST EXPANSION JOINT, EDGE OF ASPHALT OR RIGHT-OF-WAY LINE, WHICHEVER IS ENCOUNTERED FIRST.

5. CONTRACTOR SHALL COORDINATE WITH RESIDENTIAL OR COMMERCIAL PROPERTIES ON THE CLOSING OF DRIVEWAYS.

XI. EROSION CONTROL NOTES:

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONTROL OF SEDIMENTATION AND PREVENTION OF EROSION WITHIN THE LIMITS OF THE PROJECT. CONTRACTOR SHALL PROVIDE ANY MATERIAL ITEM OR WORK EFFORT NECESSARY TO PREVENT EROSION AND TO MAINTAIN SEDIMENT ON-SITE THROUGHOUT THE DURATION OF CONSTRUCTION.

2. SEE GENERAL NOTES FOR ADDITIONAL EROSION CONTROL MEASURES.

LEGEND

	EXIST. TELEPHONE WIRE PULL BOX		EXIST. PIPE/ROD/BAR
	EXIST. POWER POLE		EXIST. CONCRETE MONUMENT
WATER	EXIST. WATER VALVE		EXIST. PINE TREE
WATER	EXIST. WATER METER		EXIST. OAK TREE
	EXIST. GUY WIRE ANCHOR		EXIST. MISCELLANEOUS TREE
	EXIST. FIRE HYDRANT		EXIST. CONIFEROUS TREE
	EXIST. MAILBOX		EXIST. SHRUB
	EXIST. SINGLE SUPPORT SIGN		EXIST. RIGHT-OF-WAY LINE
S	EXIST. SEWER MANHOLE		EXIST. PARCEL LINE
D	EXIST. STORM MANHOLE	1"G-PE	EXIST. GAS MAIN/SIZE/TYPE
	EXIST. BENCHMARK	OHE	EXIST. OVERHEAD UTILITY
	EXIST. NAIL	S	EXIST. GRAVITY SEWER
	EXIST. IRON ROD & CAP	8"W	EXIST. WATER MAIN/SIZE
	EXIST. CONCRETE	C	EXIST. BURIED COMMUNICATIONS
	EXIST. ASPHALT	BE	EXIST. BURIED ELECTRICAL
x	EXIST. CHAIN LINK FENCE	BT	EXIST. TELEPHONE
	EXIST. WOOD FENCE	BTV	EXIST. BURIED CATV
	PROPOSED ASPHALT		PROPOSED SILT FENCE
	PROPOSED CONCRETE		
	PROPOSED DEMOLITION		

NOT ALL NOTES MAY APPLY

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

GENERAL NOTES

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	2	30

Designed	B. CANNON	Eng check	S. WHITE
Drawn	C. RILEY	Coordination	B. CANNON
Dwg check	S. WHITE	Approved	K. MORGAN

Scale at ANSI D	Status	Rev	Security
NTS	PRE	P1	STD

Drawing Number
C-002

Opinion of Probable Construction Cost
6th Street Drainage Improvements
Okaloosa County, FL

Pay Item	Unit	Estimated Quantity
MOBILIZATION	LS	1
MAINTENANCE OF TRAFFIC	LS	1
SEDIMENT BARRIER	LF	3079
INLET PROTECTION SYSTEM (32 LF EACH)	EA	25
CLEARING & GRUBBING	LS	1
REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	1
REMOVE AND RELOCATE FENCING	LF	175
EARTHWORK	LS	1
UNSUITABLE MATERIAL REMOVAL & REPLACE	CY	200
OPTIONAL BASE,BASE GROUP 04	SY	1108
TYPE B STABILIZATION	SY	1462
MILLING EXIST ASPH PAVT 1" AVG DEPTH	SY	7022
SUPERPAVE ASPH CONC, 1.5" AVG	TN	669
CONC CLASS II, CULVERTS	CY	13.2
CONC CLASS I, ENDWALLS	CY	6.92
CONC BOX CULVERT HEADWALL	LS	1
REINFORCING STEEL	LB	1170
FDOT INLETS, DT BOT, TYPE D, <10'	EA	1
FDOT INLETS, DT BOT, TYPE D, >10'	EA	1
FDOT INLETS, DT BOT, TYPE E, J BOT, <10'	EA	1
FDOT INLETS, DT BOT, TYPE E, J BOT, >10'	EA	1
FDOT INLETS, DT BOT, TYPE F, <10'	EA	4
FDOT INLETS, DT BOT, TYPE F, J BOT, <10'	EA	16
FDOT MANHOLES, J-7, <10'	EA	1
FDOT MANHOLES, J-8, >10' (CONFLICT BOX)	EA	1
18" RCP STORMDRAIN PIPE	LF	275
24" RCP STORMDRAIN PIPE	LF	115
30" RCP STORMDRAIN PIPE	LF	54
36" RCP STORMDRAIN PIPE	LF	1689
42" RCP STORMDRAIN PIPE	LF	941
54" RCP STORMDRAIN PIPE	LF	1509
43"x68" (PIPE CULV, OPT MATL, OTHER, 54"S/CD)	LF	182
RIPRAP	TN	33
SUPERPAVE ASPH CONC, 1.5" AVG (DRIVEWAY)	TN	4
CONCRETE DRIVEWAYS, 6"	SY	484
GRAVEL DRIVEWAYS, 6"	SY	143
CONCRETE FLUME, NR, 6"	SY	9
PREPARED SOIL LAYER, FINISH SOIL, 6"	SY	7476
PERFORMANCE TURF, SOD	SY	15355
LANDSCAPING ALLOWANCE	LS	1
PAVEMENT MARKINGS	LS	1

Rev	Date	Drawn	Description	Ch'k'd	App'd

Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

SUMMARY OF PAY ITEMS

Project Number	B/O	Total
390762	3	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
NTS	PRE	P1	STD

Drawing Number
C-003

STRUCTURE TABLE	
DESCRIPTION	CONNECTED PIPE
FDOT Type E Inlet (Double Slot) w/ 4'x5' Type J Botttom	36" HP STORM (CLASS I) (P-1) Exist. 29"x42" ERCP (XP-3)
FDOT Type J8 Manhole (5'Ø)	36" HP STORM (CLASS I) (P-1A) 36" HP STORM (CLASS I) (P-1)
FDOT Type E Inlet w/ Double Slot	18" HP STORM (P-35)
FDOT Type J8 Manhole (5'Ø)	36" HP STORM (CLASS I) (P-2) 36" HP STORM (CLASS I) (P-1A) 18" HP STORM (P-35)
FDOT Type F Inlet w/ 4'X4' Type J Bottom	36" HP STORM (CLASS I) (P-3) 36" HP STORM (CLASS I) (P-2)
FDOT Type F Inlet w/ 4'X5' Type J Bottom	36" HP STORM (P-4) 36" HP STORM (CLASS I) (P-3)
FDOT Type F Inlet w/ 4'X6' Type J Bottom	42" HP STORM (P-6) 36" HP STORM (P-4)
FDOT Type F Inlet w/ 4'X8' Type J Bottom	43"x68" ERCP (P-7) 42" HP STORM (P-6) 18" HP STORM (P-33)
24" Straight Conc. Endwall	24" HP STORM (P-8)
FDOT Type F Inlet w/ 4'X8' Type J Bottom	54" RCP (P-9) 43"x68" ERCP (P-7) 24" HP STORM (P-8)
FDOT Type F Inlet w/ 4'X6' Type J Bottom	54" RCP (P-10) 24" HP STORM (P-18) 54" RCP (P-9)
FDOT Type F Inlet w/ 4'X6' Type J Bottom	54" RCP (P-11) 54" RCP (P-10A)
FDOT Type F Inlet w/ 4'X6' Type J Bottom	54" RCP (P-12) 54" RCP (P-11)
FDOT Type F Inlet w/ 4'X6' Type J Bottom	54" RCP (P-13) 54" RCP (P-12)
FDOT Type F Inlet w/ 4'X6' Type J Bottom	54" RCP (P-14) 54" RCP (P-13)
FDOT Type D Inlet	18" HP STORM (P-15)
FDOT Type F Inlet w/ 4'X6' Type J Bottom	54" RCP (P-16) 54" RCP (P-14) 18" HP STORM (P-15)
18" Straight Conc. Endwall	18" HP STORM (P-19)
FDOT Type G Inlet	24"x38" ERCP (P-20) 24" HP STORM (P-18) 18" HP STORM (P-19)
FDOT Type G Inlet	36" HP STORM (P-21) 24"x38" ERCP (P-20) Exist. 36" CMP (XP-23)

STRUCTURE TABLE					
QTY	STR. #	ST-TION	SIDE	DESCRIPTION	CONNECTED PIPE
P	S-20	24+69.91	L	FDOT Type F Inlet	36" HP STORM (P-22) 36" HP STORM (P-21)
P	S-21	26+43.74	L	FDOT Type G Inlet	36" HP STORM (P-23) 36" HP STORM (P-22) Exist. 24" CMP (XP-26)
P	S-22	27+79.59	L	FDOT Type F Inlet w/ 4'X4' Type J Bottom	36" HP STORM (P-24) 36" HP STORM (P-23A)
P	S-23	28+84.83	L	FDOT Type F Inlet w/ 4'X4' Type J Bottom	36" HP STORM (P-25) 36" HP STORM (P-24)
P	S-24	30+69.96	L	FDOT Type F Inlet w/ 4'X5' Type J Bottom	42" HP STORM (P-26) 36" HP STORM (P-25)
P	S-25	31+34.79	L	FDOT Type F Inlet w/ 4'X5' Type J Bottom	42" HP STORM (P-27) 42" HP STORM (P-26)
P	S-26	34+96.12	R	18" Straight Conc. Endwall	18" HP STORM (P-28)
P	S-27	34+91.20	L	FDOT Type F Inlet w/ 4'X5' Type J Bottom	42" HP STORM (P-29) 42" HP STORM (P-27) 18" HP STORM (P-28)
P	S-28	35+43.27	L	FDOT Type F Inlet w/ 4'X5' Type J Bottom	42" HP STORM (P-30) 42" HP STORM (P-29) Exist. 36" CMP (XP-34)
P	S-30	35+63.97	R	FDOT Type J7 Manhole w/ 9'x6' Bottom	6'x3' BOX CULVERT (P-32) 54" RCP (P-16) 42" HP STORM (P-30)
P	S-33	18+71.64	R	18" Straight Conc. Endwall	18" HP STORM (P-33)
P	S-35	22+59.11	R	FDOT Type J-8 Conflict Structure w/ 6' x 6' Bottom	54" RCP (P-10A) 54" RCP (P-10)
P	S-37	26+67.01	L	FDOT Type J-8 Conflict Structure w/ 6' x 6' Bottom	36" HP STORM (P-23A) 36" HP STORM (P-23)
P	XS-1	50+72.75	L	Exist. Ditch Bottom Inlet	Exist. 29"x42" ERCP (XP-1)
P	XS-2	49+84.95		Exist. Ditch Bottom Inlet	Exist. 29"x42" ERCP (XP-2) Exist. 29"x42" ERCP (XP-1)
P	XS-3	45+61.08	L	Exist. Ditch Bottom Inlet	Exist. 29"x42" ERCP (XP-3) Exist. 29"x42" ERCP (XP-2)

NOTE:
ALL DRAINAGE STRUCTURES SHALL BE BASED ON FDOT STANDARD PLANS LATEST EDITION.

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

SUMMARY OF DRAINAGE STRUCTURES

THIS DRAWING IS
NOT FOR
CONSTRUCTION

Project Number	B/O	Total
390762	4	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

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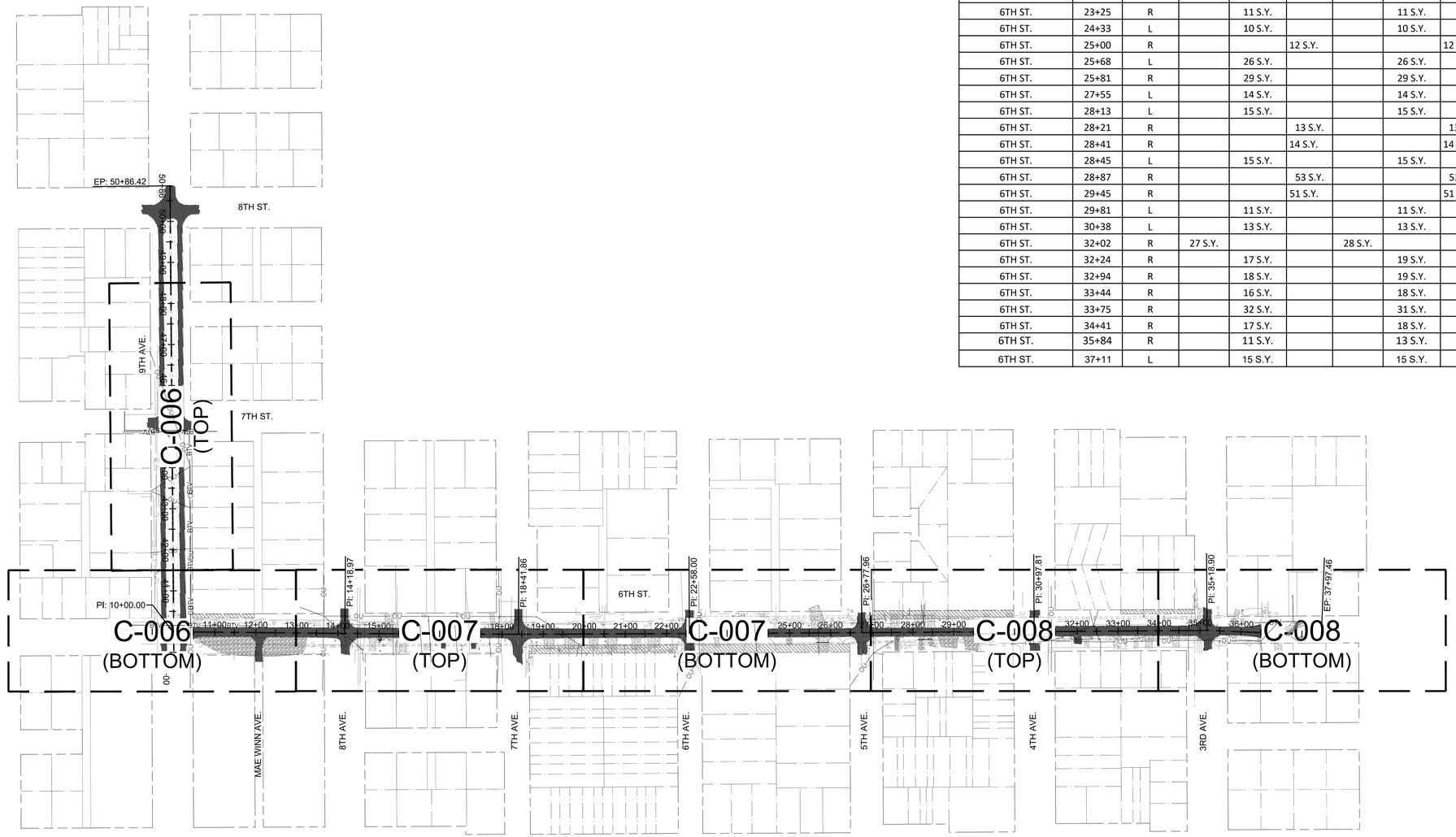
NTS	PRE	P1	STD

Drawing Number
C-004



DRIVEWAY TABLE

			EXISTING CONDITIONS			PROPOSED		
ROADWAY	STA	SIDE	ASPHALT	CONCRETE	GRAVEL	ASPHALT	CONCRETE	GRAVEL
6TH ST.	14+85	R		15 S.Y.			15 S.Y.	
6TH ST.	15+58	R		16 S.Y.			16 S.Y.	
6TH ST.	16+18	R		15 S.Y.			15 S.Y.	
6TH ST.	16+57	R	9 S.Y.			9 S.Y.		
6TH ST.	17+30	R	9 S.Y.			9 S.Y.		
6TH ST.	19+07	R		12 S.Y.			12 S.Y.	
6TH ST.	19+22	R		12 S.Y.			12 S.Y.	
6TH ST.	19+57	R		12 S.Y.			12 S.Y.	
6TH ST.	19+71	R		11 S.Y.			11 S.Y.	
6TH ST.	20+17	R		10 S.Y.			10 S.Y.	
6TH ST.	20+28	R		10 S.Y.			10 S.Y.	
6TH ST.	20+62	R		9 S.Y.			9 S.Y.	
6TH ST.	20+75	R		9 S.Y.			9 S.Y.	
6TH ST.	21+20	R		8 S.Y.			8 S.Y.	
6TH ST.	21+33	R		9 S.Y.			9 S.Y.	
6TH ST.	21+63	R		17 S.Y.			17 S.Y.	
6TH ST.	21+79	R		10 S.Y.			10 S.Y.	
6TH ST.	23+25	R		11 S.Y.			11 S.Y.	
6TH ST.	24+33	L		10 S.Y.			10 S.Y.	
6TH ST.	25+00	R			12 S.Y.			12 S.Y.
6TH ST.	25+68	L		26 S.Y.			26 S.Y.	
6TH ST.	25+81	R		29 S.Y.			29 S.Y.	
6TH ST.	27+55	L		14 S.Y.			14 S.Y.	
6TH ST.	28+13	L		15 S.Y.			15 S.Y.	
6TH ST.	28+21	R			13 S.Y.			13 S.Y.
6TH ST.	28+41	R			14 S.Y.			14 S.Y.
6TH ST.	28+45	L		15 S.Y.			15 S.Y.	
6TH ST.	28+87	R			53 S.Y.			53 S.Y.
6TH ST.	29+45	R			51 S.Y.			51 S.Y.
6TH ST.	29+81	L		11 S.Y.			11 S.Y.	
6TH ST.	30+38	L		13 S.Y.			13 S.Y.	
6TH ST.	32+02	R	27 S.Y.			28 S.Y.		
6TH ST.	32+24	R		17 S.Y.			19 S.Y.	
6TH ST.	32+94	R		18 S.Y.			19 S.Y.	
6TH ST.	33+44	R		16 S.Y.			18 S.Y.	
6TH ST.	33+75	R		32 S.Y.			31 S.Y.	
6TH ST.	34+41	R		17 S.Y.			18 S.Y.	
6TH ST.	35+84	R		11 S.Y.			13 S.Y.	
6TH ST.	37+11	L		15 S.Y.			15 S.Y.	

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

EXISTING SITE KEY PLAN
& DRIVEWAY TABLE

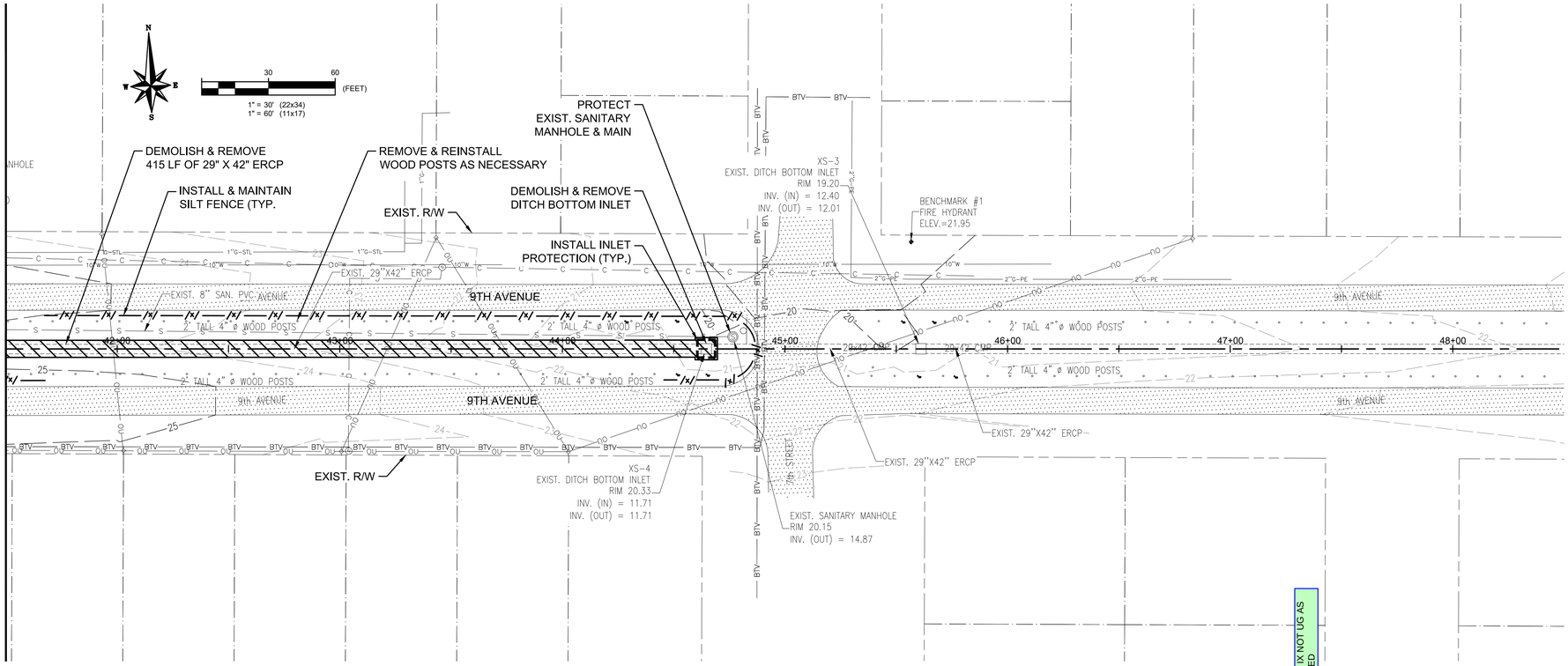
THIS DRAWING IS
NOT FOR
CONSTRUCTION

Project Number	B/O	Total
390762	5	30

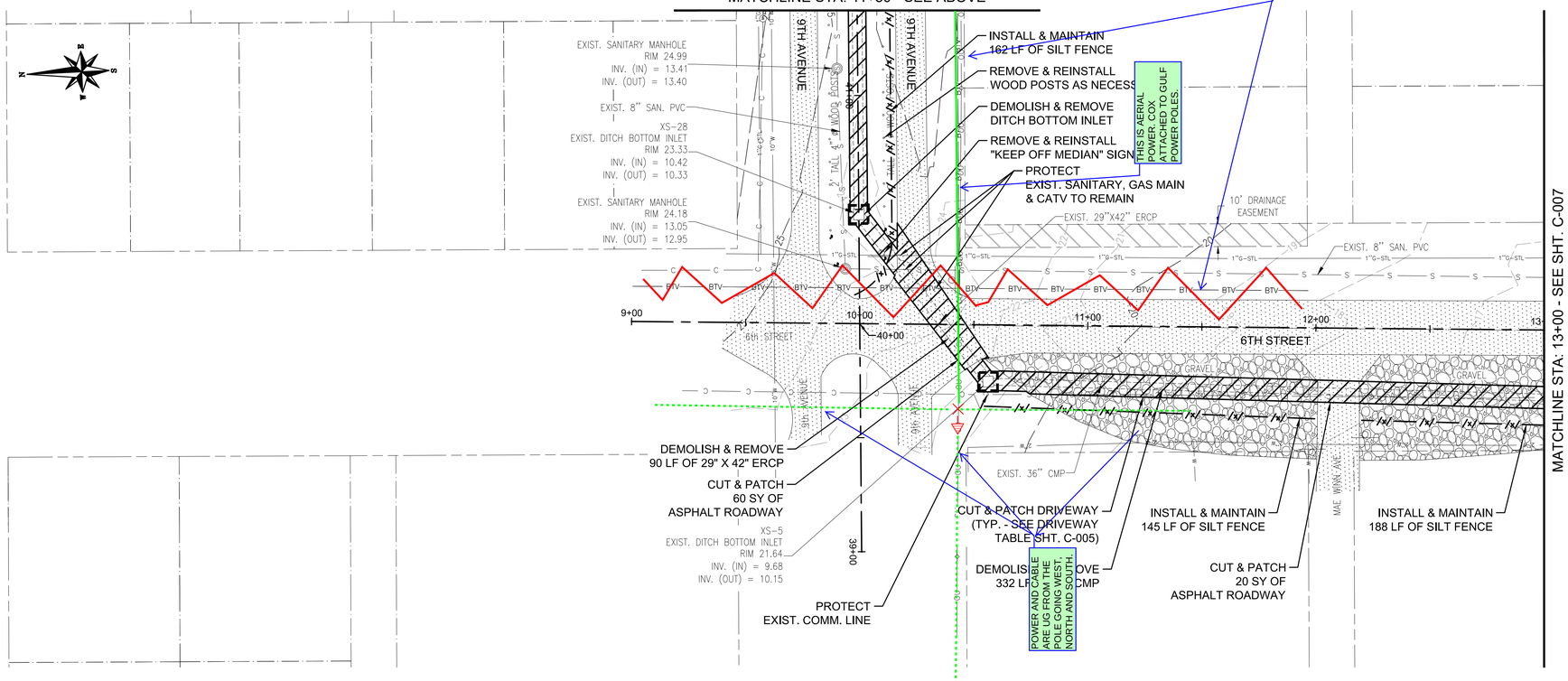
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:150	PRE	P1	STD

Drawing Number
C-005



MATCHLINE STA: 41+50 - SEE ABOVE



LEGEND:

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING GRAVEL
- AREA OF DEMOLITION

NOTE: EROSION CONTROL MEASURES SHOWN HERE ON ARE TO BE CONSIDERED THE MINIMUM INSTALLATION REQUIREMENTS.

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

EXISTING SITE, DEMOLITION
& EROSION CONTROL PLAN

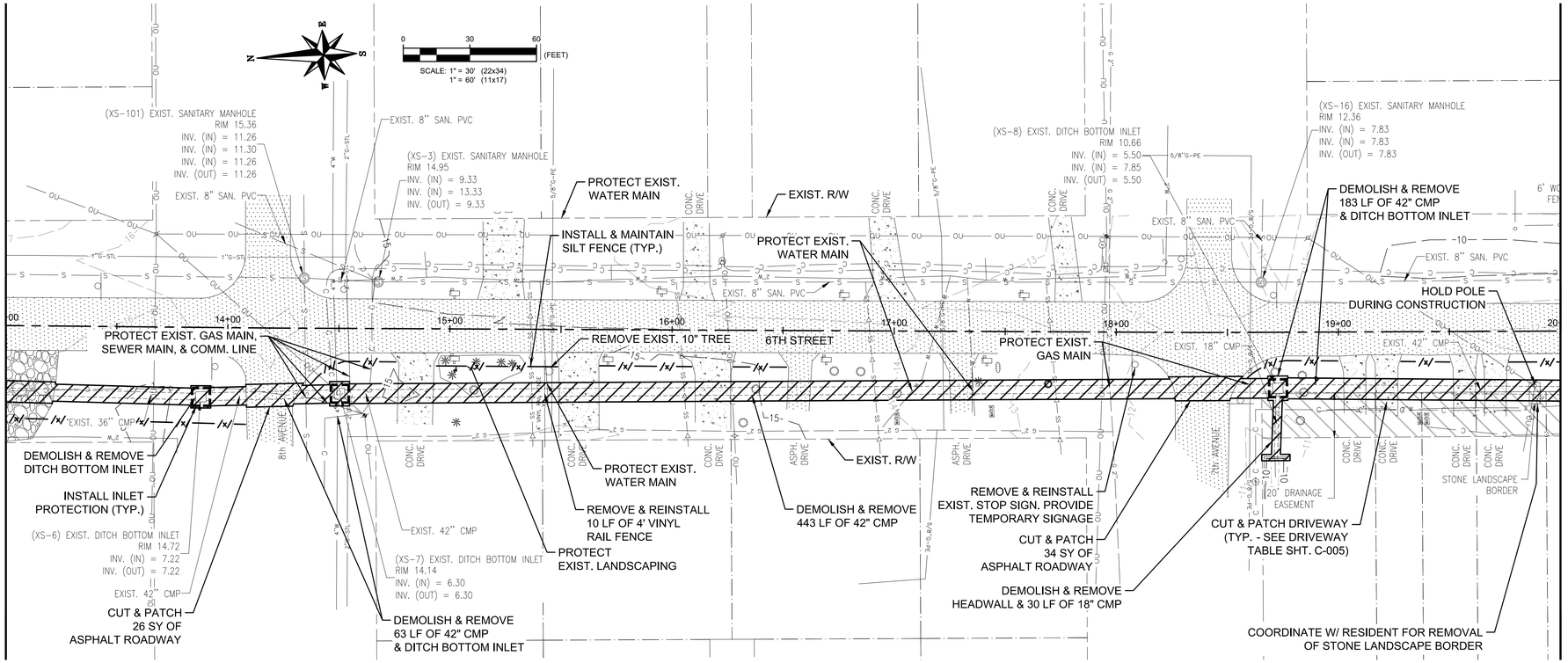
THIS DRAWING IS
NOT FOR
CONSTRUCTION

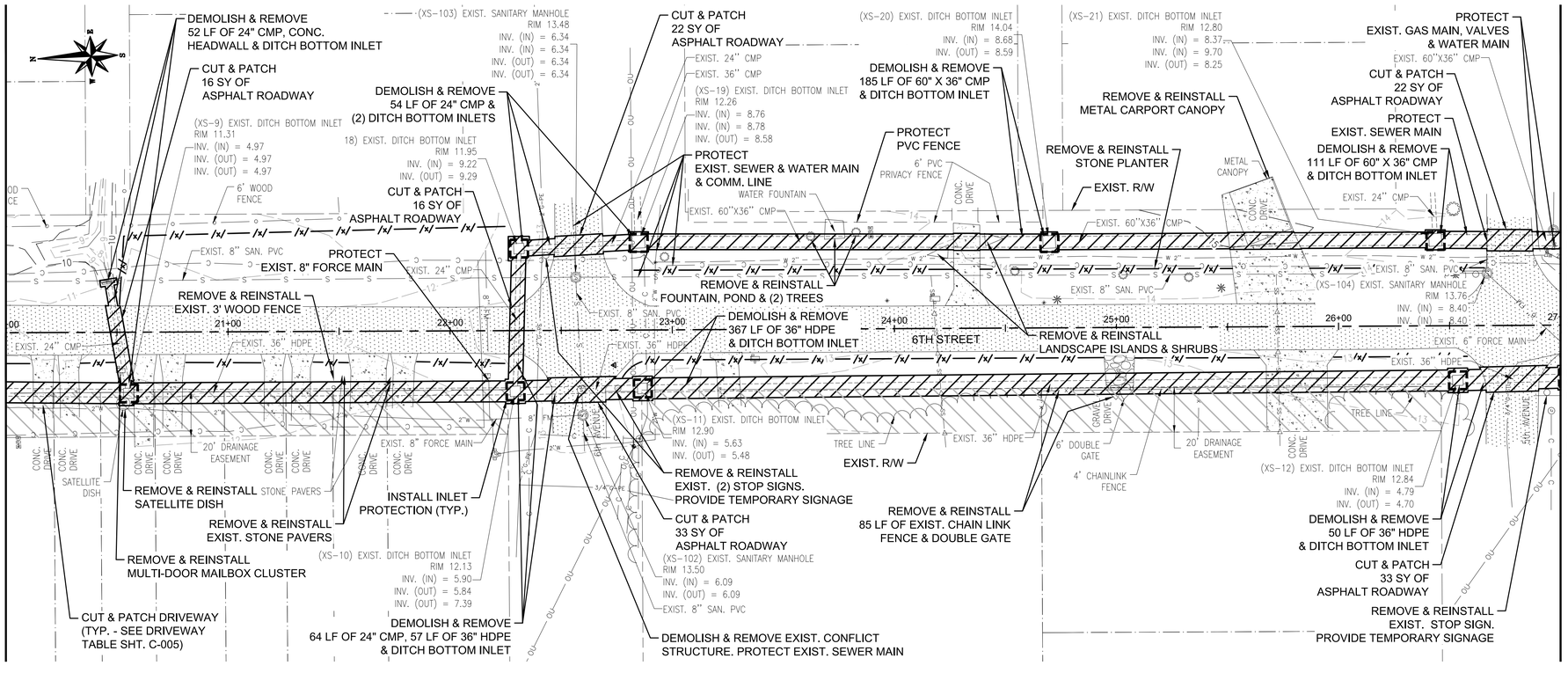
Project Number	B/O	Total
390762	6	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-006





LEGEND:

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING GRAVEL
- AREA OF DEMOLITION

NOTE: EROSION CONTROL MEASURES SHOWN HERE ON ARE TO BE CONSIDERED THE MINIMUM INSTALLATION REQUIREMENTS.

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Okaloosa County
Board of County Commissioners

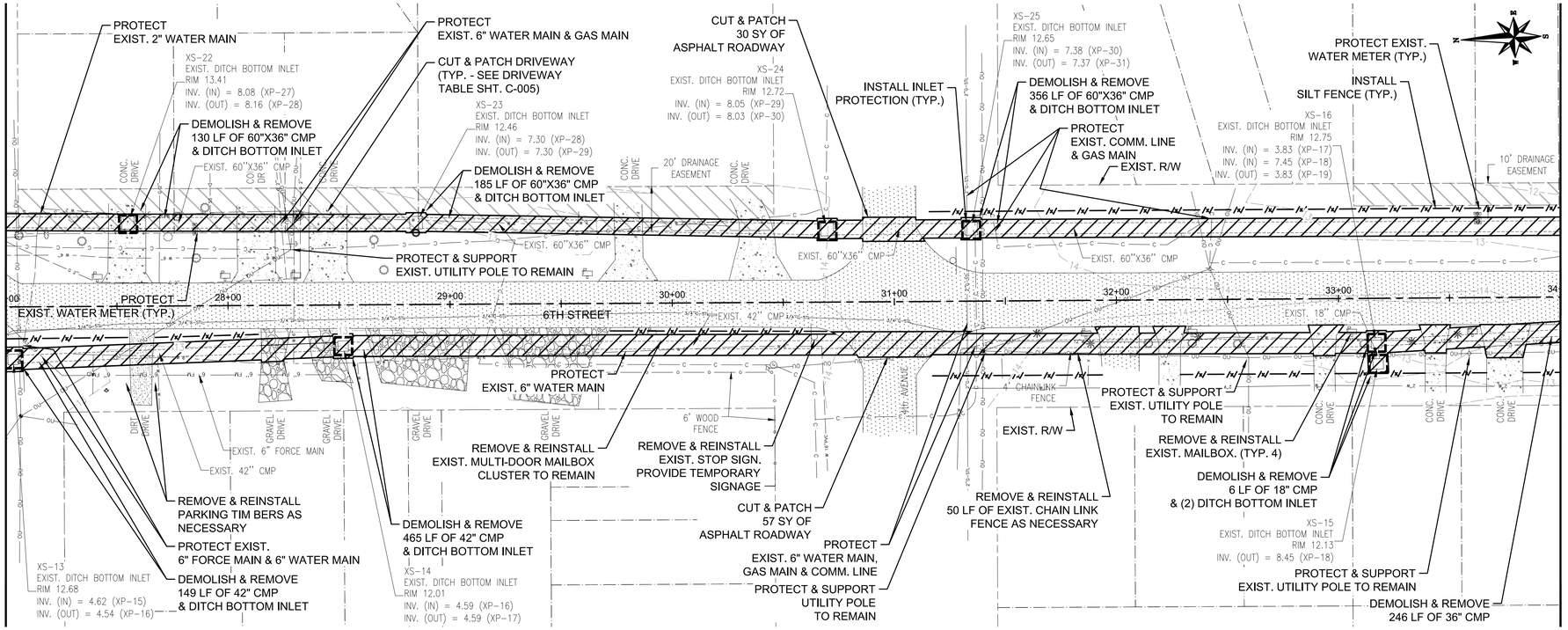
Title
6th Street Drainage Improvements

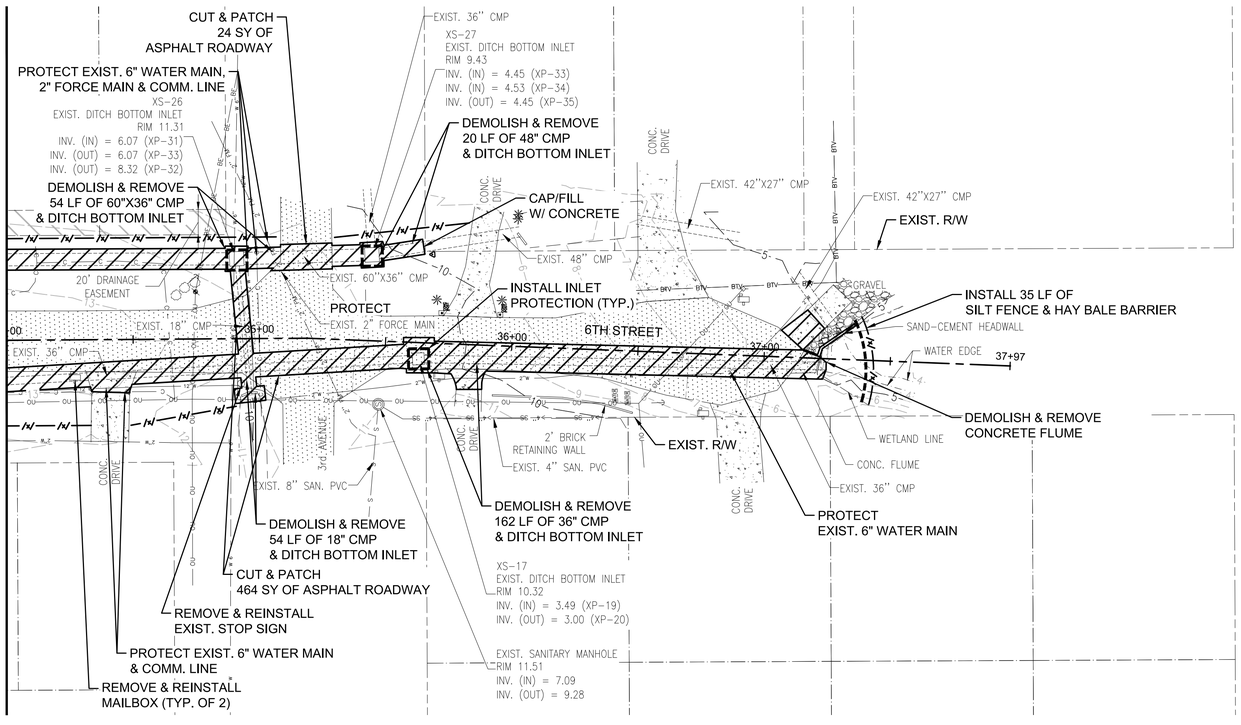
EXISTING SITE, DEMOLITION & EROSION CONTROL PLAN

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number			B/O	Total
390762			7	30
Designed	B. CANNON		Eng check	S. WHITE
Drawn	C. RILEY		Coordination	B. CANNON
Dwg check	S. WHITE		Approved	K. MORGAN
Scale at ANSI D	Status		Rev	Security
1:30	PRE		P1	STD

Drawing Number
C-007





LEGEND:

- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING GRAVEL
- AREA OF DEMOLITION

NOTE: EROSION CONTROL MEASURES SHOWN HERE ON ARE TO BE CONSIDERED THE MINIMUM INSTALLATION REQUIREMENTS.

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

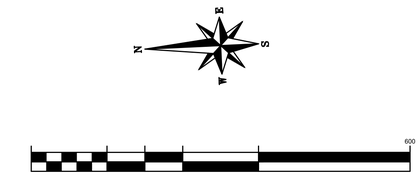
EXISTING SITE, DEMOLITION & EROSION CONTROL PLAN

THIS DRAWING IS NOT FOR CONSTRUCTION

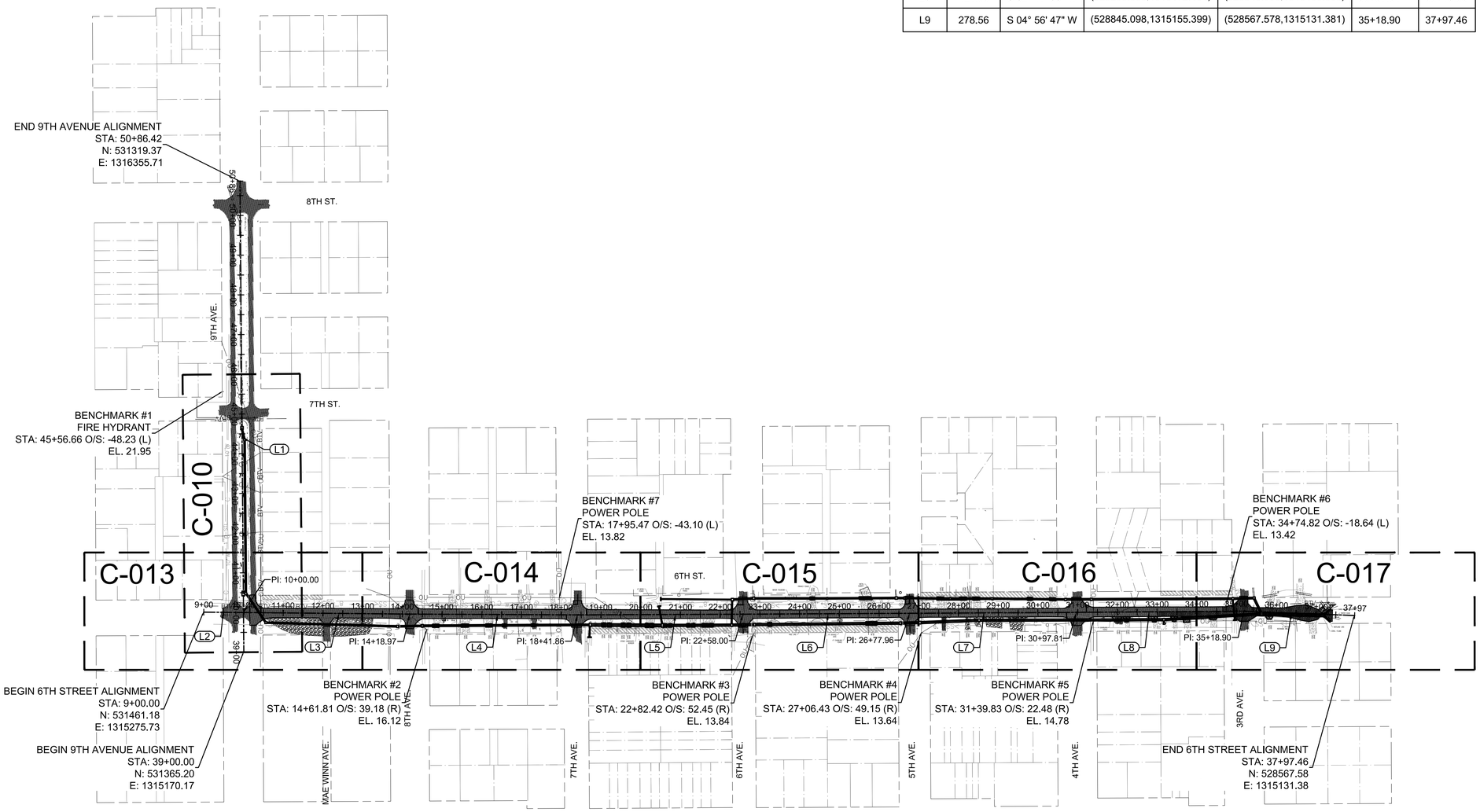
Project Number			B/O		Total
390762			8		30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev		Security
1:30	PRE		P1		STD

Drawing Number

C-008



LINE DATA						
LINE #	LENGTH	DIRECTION	START POINT	END POINT	BEGIN STA	END STA
L1	1186.42	S 87° 47' 10" E	(531365.203,1315170.173)	(531319.372,1316355.709)	39+00.00	50+86.42
L2	100.00	S 03° 13' 33" W	(531461.182,1315275.726)	(531361.340,1315270.098)	9+00.00	10+00.00
L3	418.97	S 03° 13' 33" W	(531361.340,1315270.098)	(530943.038,1315246.522)	10+00.00	14+18.97
L4	422.90	S 02° 57' 44" W	(530943.038,1315246.522)	(530520.705,1315224.668)	14+18.97	18+41.86
L5	416.13	S 02° 26' 55" W	(530520.705,1315224.668)	(530104.953,1315206.889)	18+41.86	22+58.00
L6	419.97	S 02° 23' 07" W	(530104.953,1315206.889)	(529685.352,1315189.411)	22+58.00	26+77.96
L7	419.85	S 02° 21' 00" W	(529685.352,1315189.411)	(529265.856,1315172.194)	26+77.96	30+97.81
L8	421.09	S 02° 17' 09" W	(529265.856,1315172.194)	(528845.098,1315155.399)	30+97.81	35+18.90
L9	278.56	S 04° 56' 47" W	(528845.098,1315155.399)	(528567.578,1315131.381)	35+18.90	37+97.46



Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

PROPOSED SITE KEY PLAN
& PROJECT CONTROL

THIS DRAWING IS
NOT FOR
CONSTRUCTION

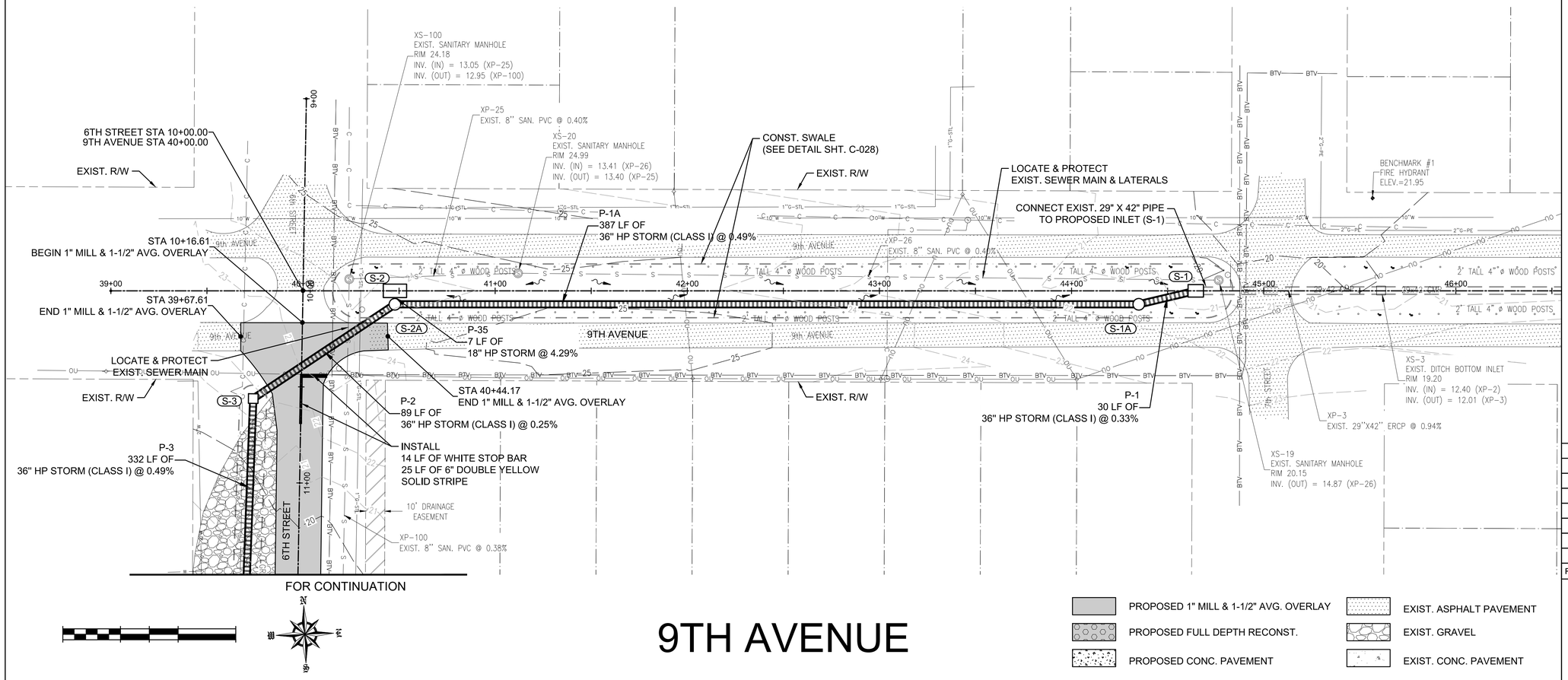
Project Number	B/O	Total
390762	9	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

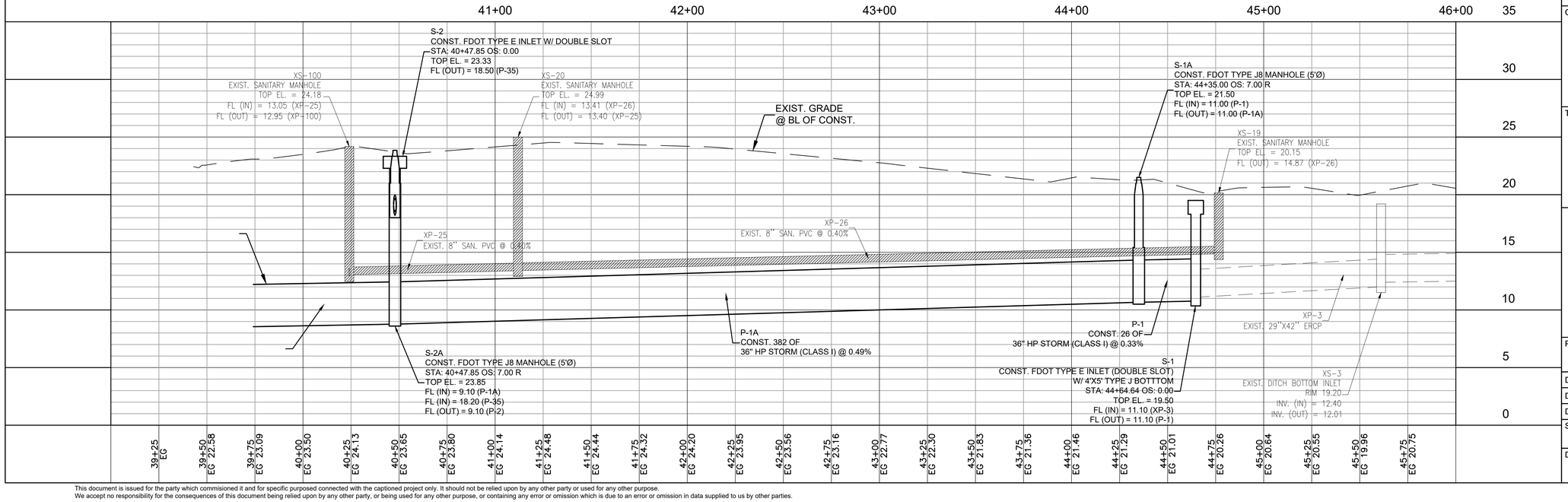
Scale at ANSI D	Status	Rev	Security
1:150	PRE	P1	STD

Drawing Number

C-009



9TH AVENUE



NOTE:
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Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 9TH AVENUE
STA: 39+00 - 46+00

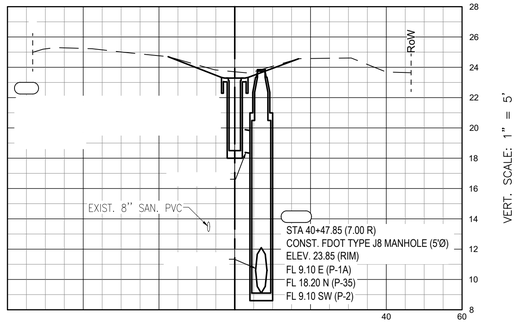
THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	10	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

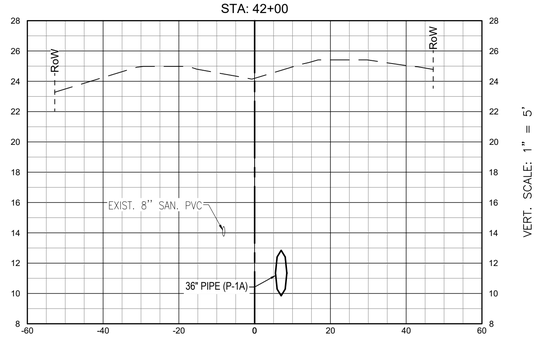
Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-010



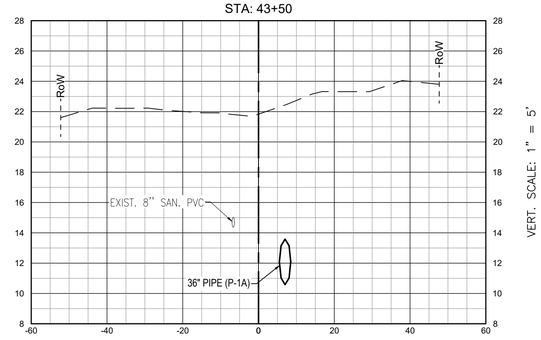
HORZ. SCALE: 1" = 20'

STA: 42+00

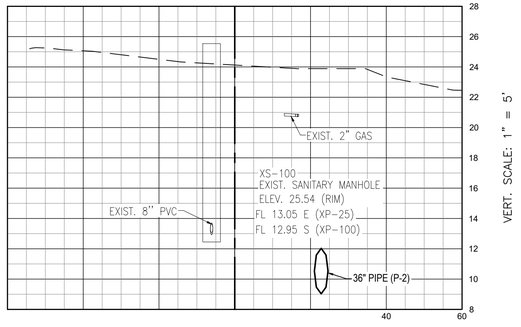


HORZ. SCALE: 1" = 20'

STA: 43+50

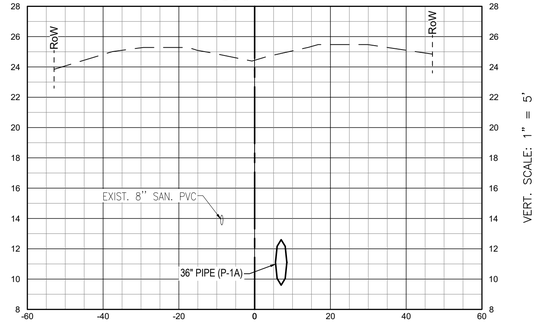


HORZ. SCALE: 1" = 20'



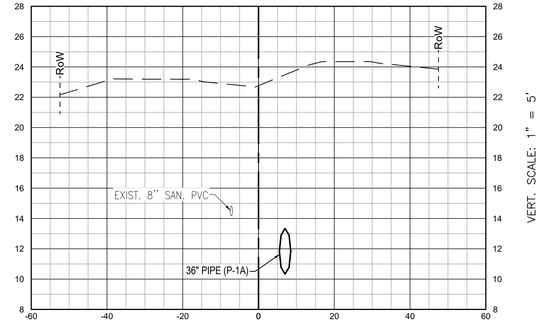
HORZ. SCALE: 1" = 20'

STA: 41+50

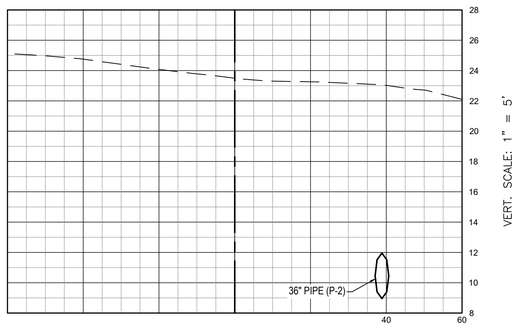


HORZ. SCALE: 1" = 20'

STA: 43+00

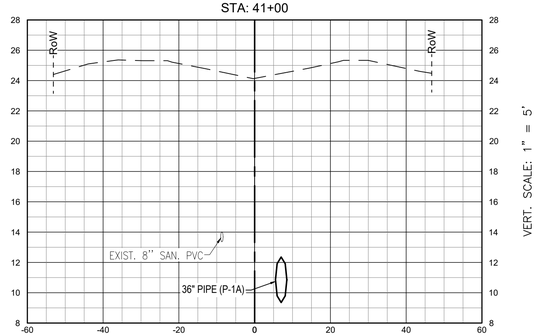


HORZ. SCALE: 1" = 20'



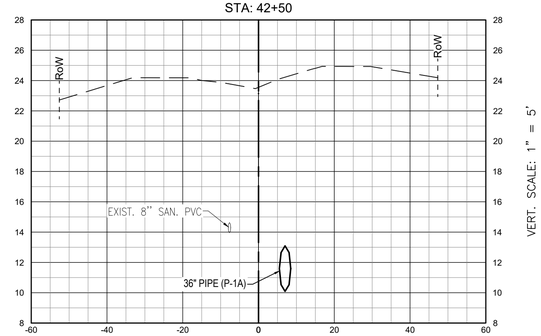
HORZ. SCALE: 1" = 20'

STA: 41+00



HORZ. SCALE: 1" = 20'

STA: 42+50



HORZ. SCALE: 1" = 20'

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Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

CROSS SECTIONS - 9TH AVENUE

THIS DRAWING IS NOT FOR CONSTRUCTION

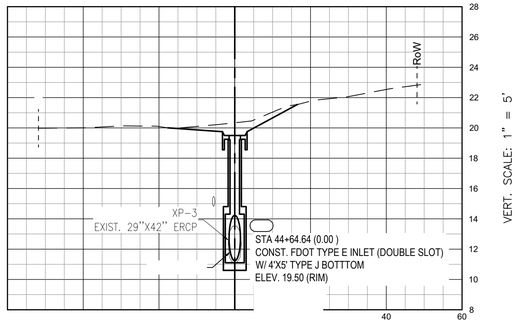
Project Number		B/O	Total
390762		11	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:20	PRE	P1	STD

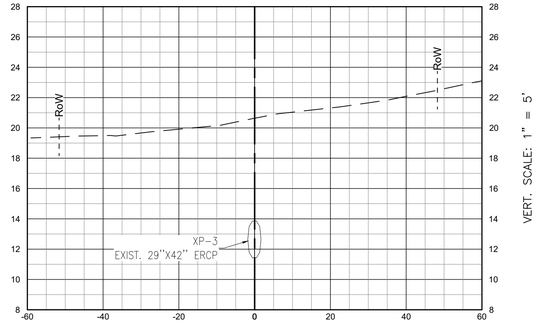
Drawing Number

C-011

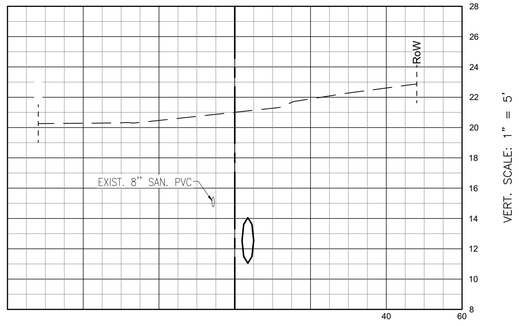


HORZ. SCALE: 1" = 20'

STA: 45+00

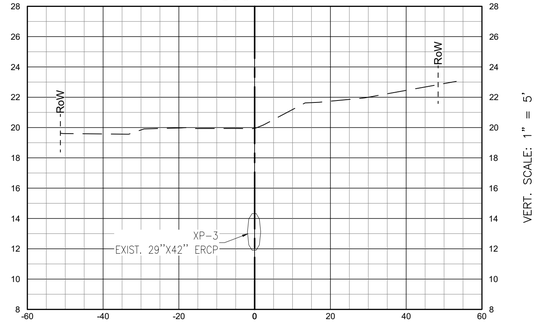


HORZ. SCALE: 1" = 20'

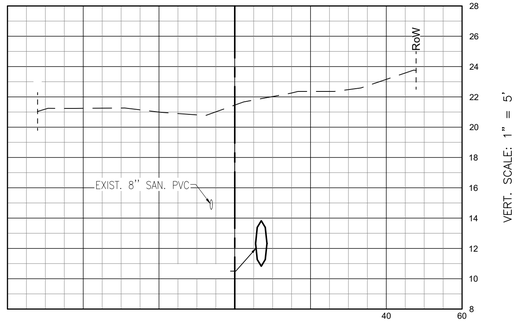


HORZ. SCALE: 1" = 20'

STA: 45+50

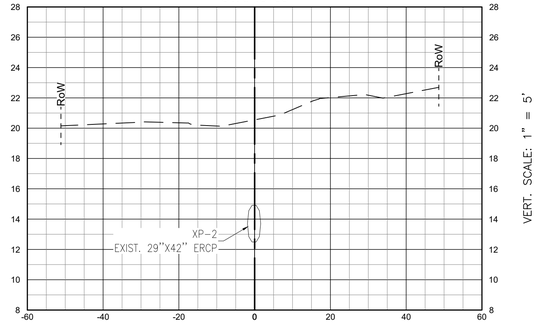


HORZ. SCALE: 1" = 20'



HORZ. SCALE: 1" = 20'

STA: 46+00



HORZ. SCALE: 1" = 20'

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Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

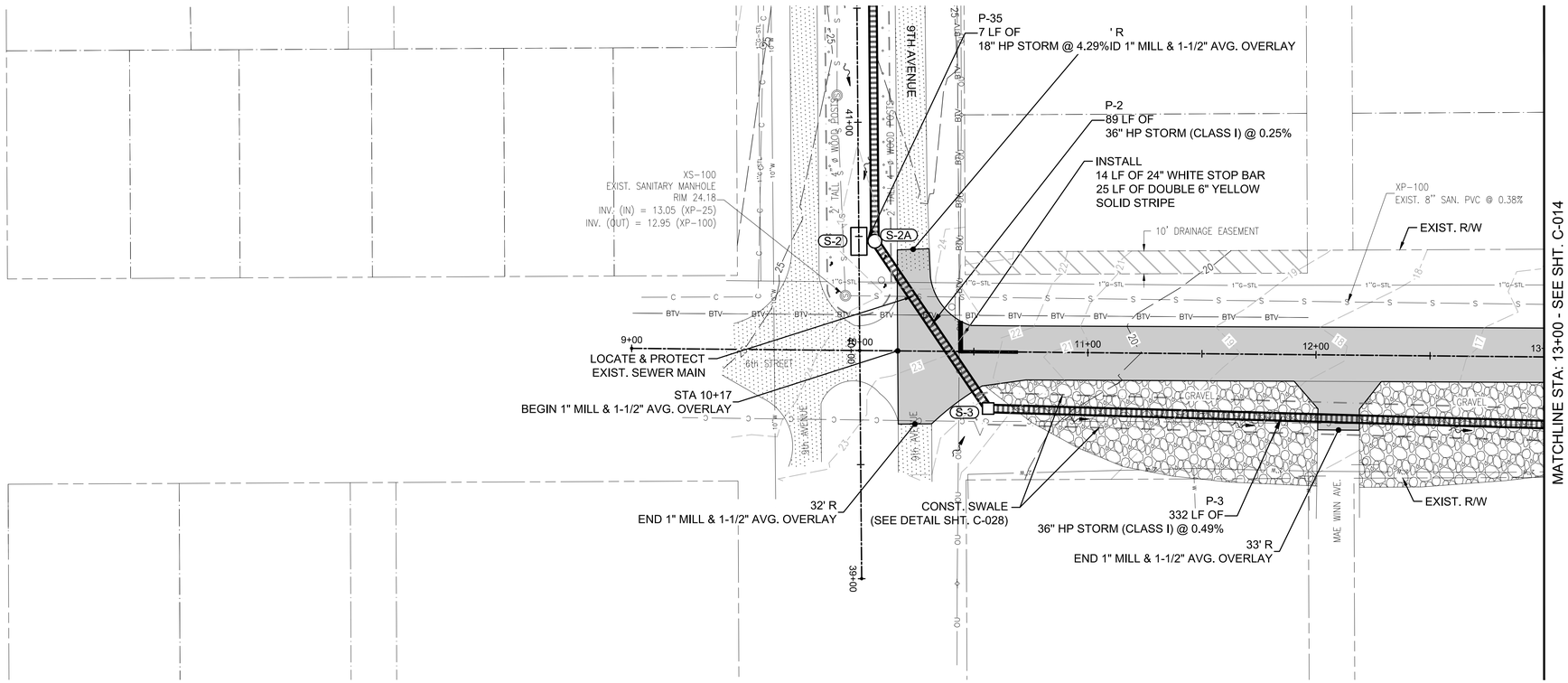
CROSS SECTIONS - 9TH AVENUE

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number			B/O	Total
390762			12	30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev	Security	
1:20	PRE		P1	STD	

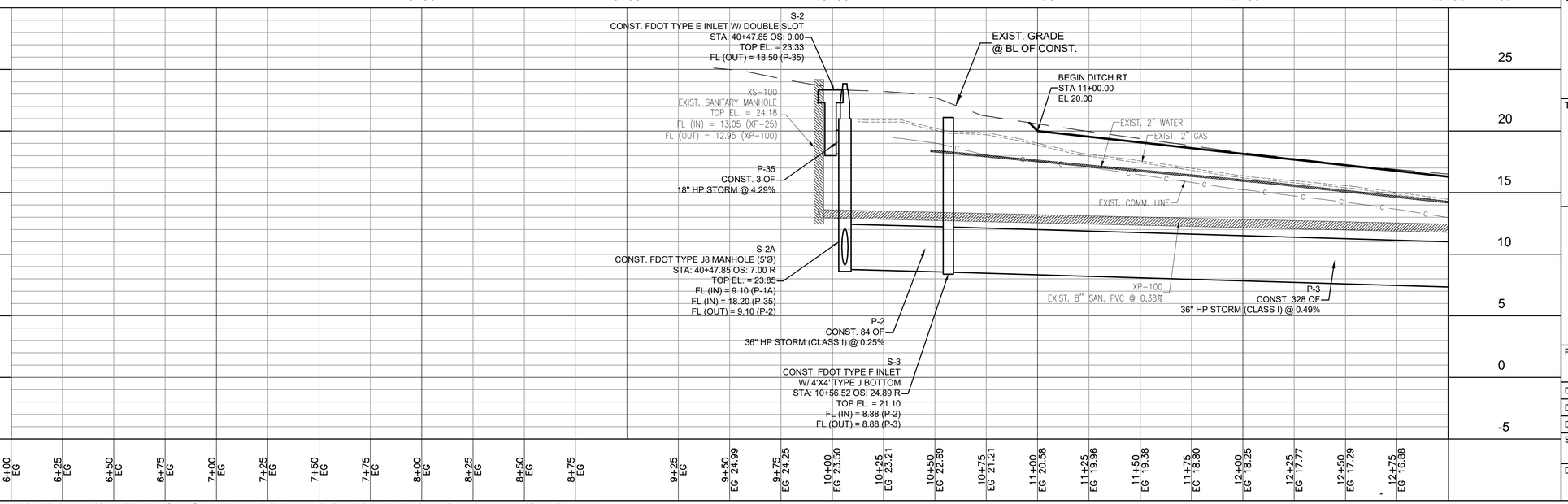
Drawing Number

C-012



6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



NOTE:
CONTRACTOR SHALL LOCATE AND PROTECT ALL WATER AND SEWER LATERALS WITHIN THE LIMITS OF CONSTRUCTION.

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Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET

STA: 6+00 - 13+00

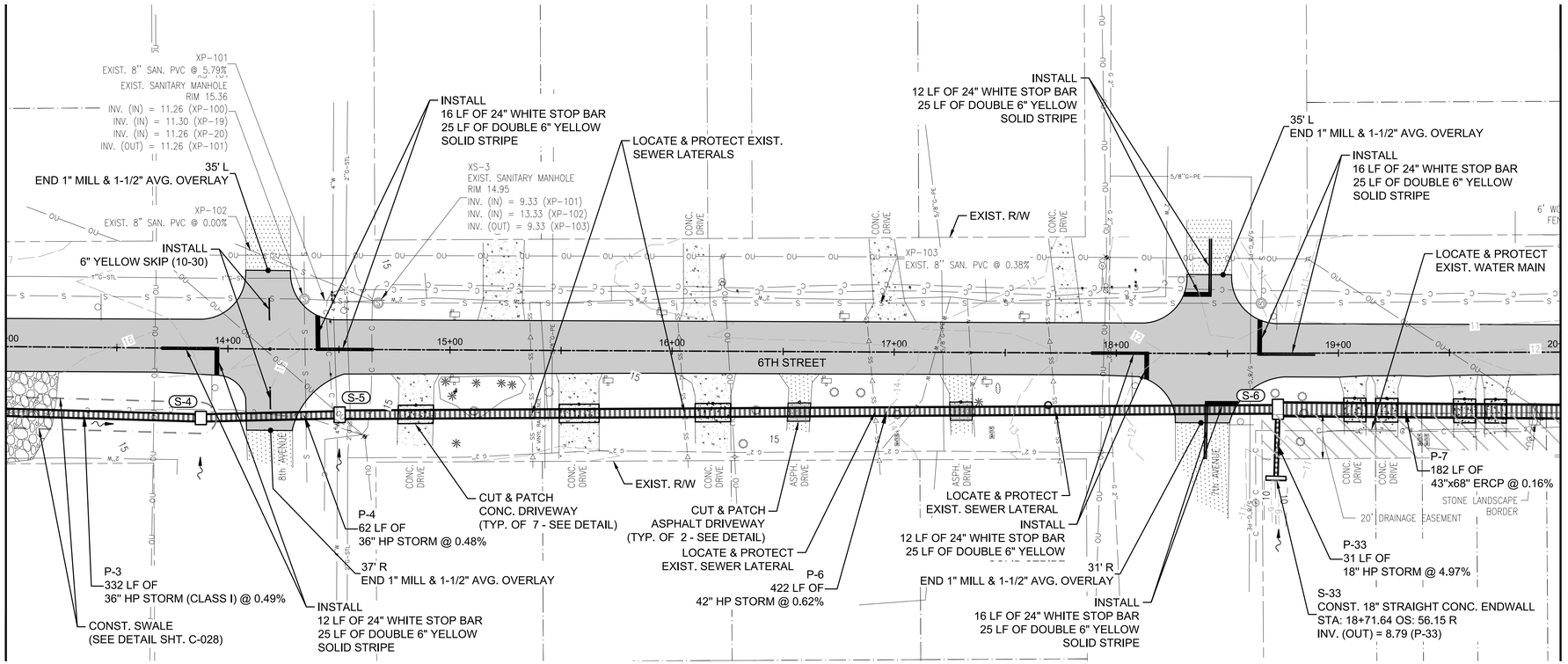
THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	13	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

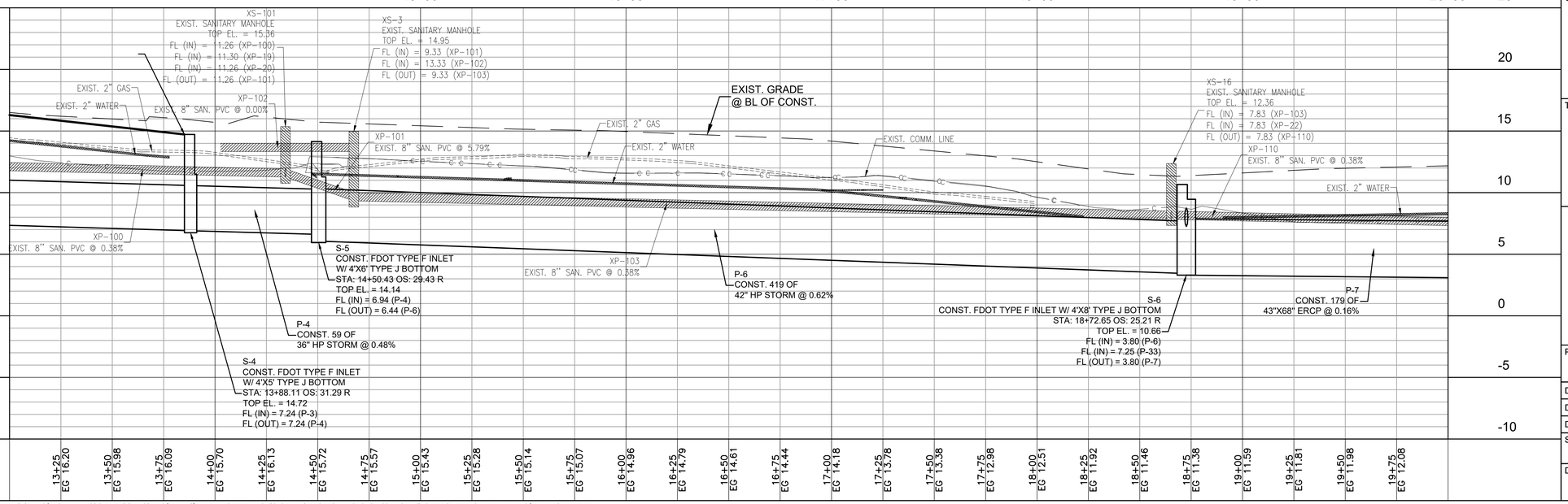
Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-013



6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



NOTE:
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Rev	Date	Drawn	Description	Ch'k'd	App'd

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Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 13+00 - 20+00

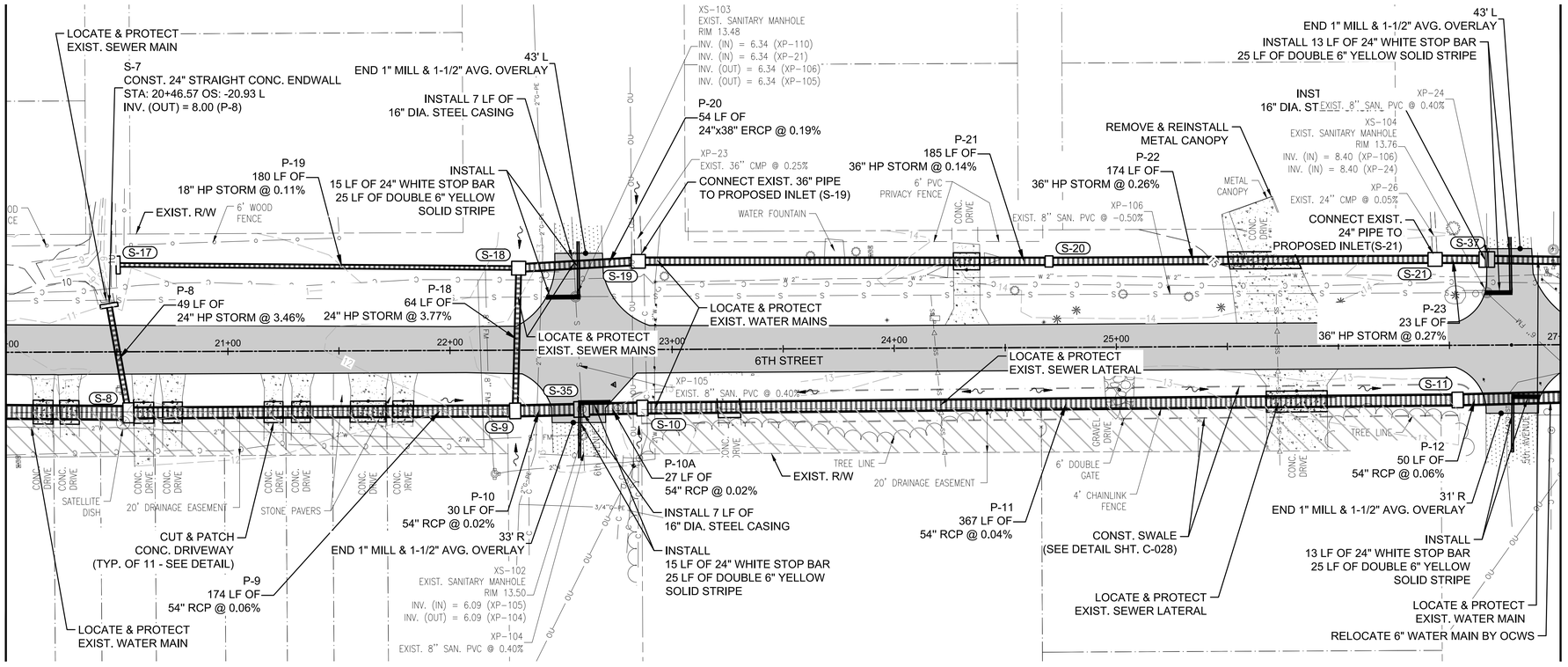
THIS DRAWING IS
NOT FOR
CONSTRUCTION

Project Number	B/O	Total
390762	14	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

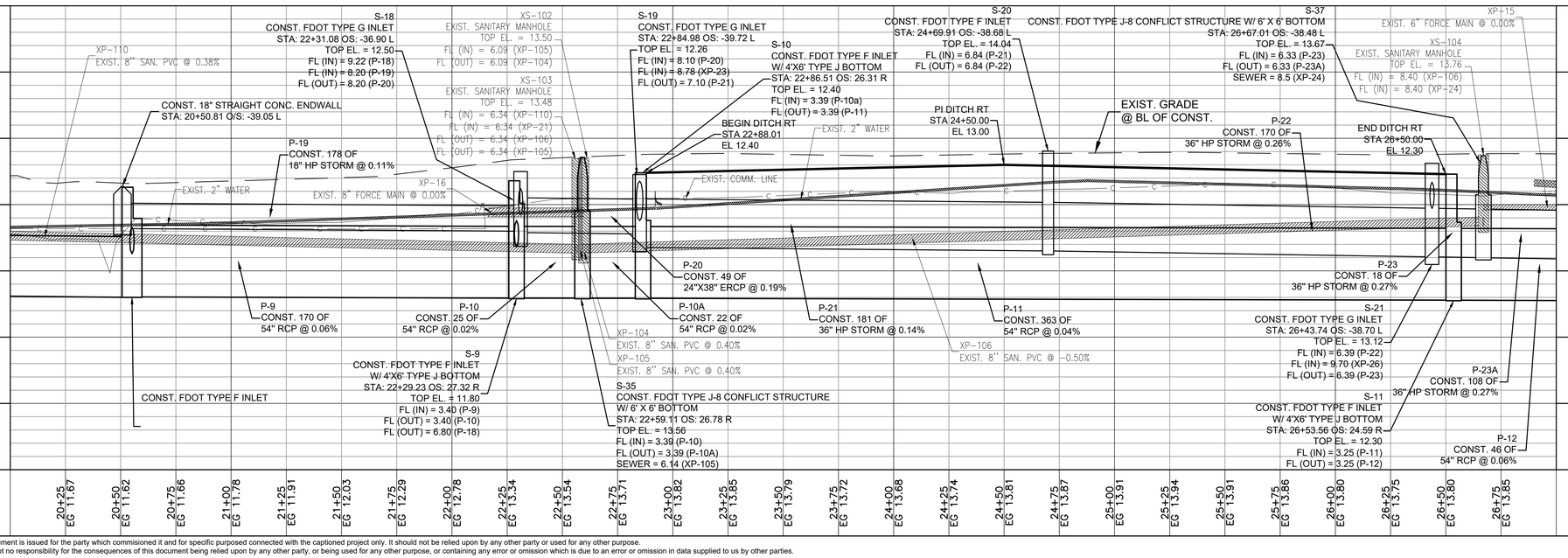
Drawing Number
C-014



NOTE:
CONTRACTOR SHALL LOCATE AND PROTECT ALL WATER AND SEWER LATERALS WITHIN THE LIMITS OF CONSTRUCTION.

6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

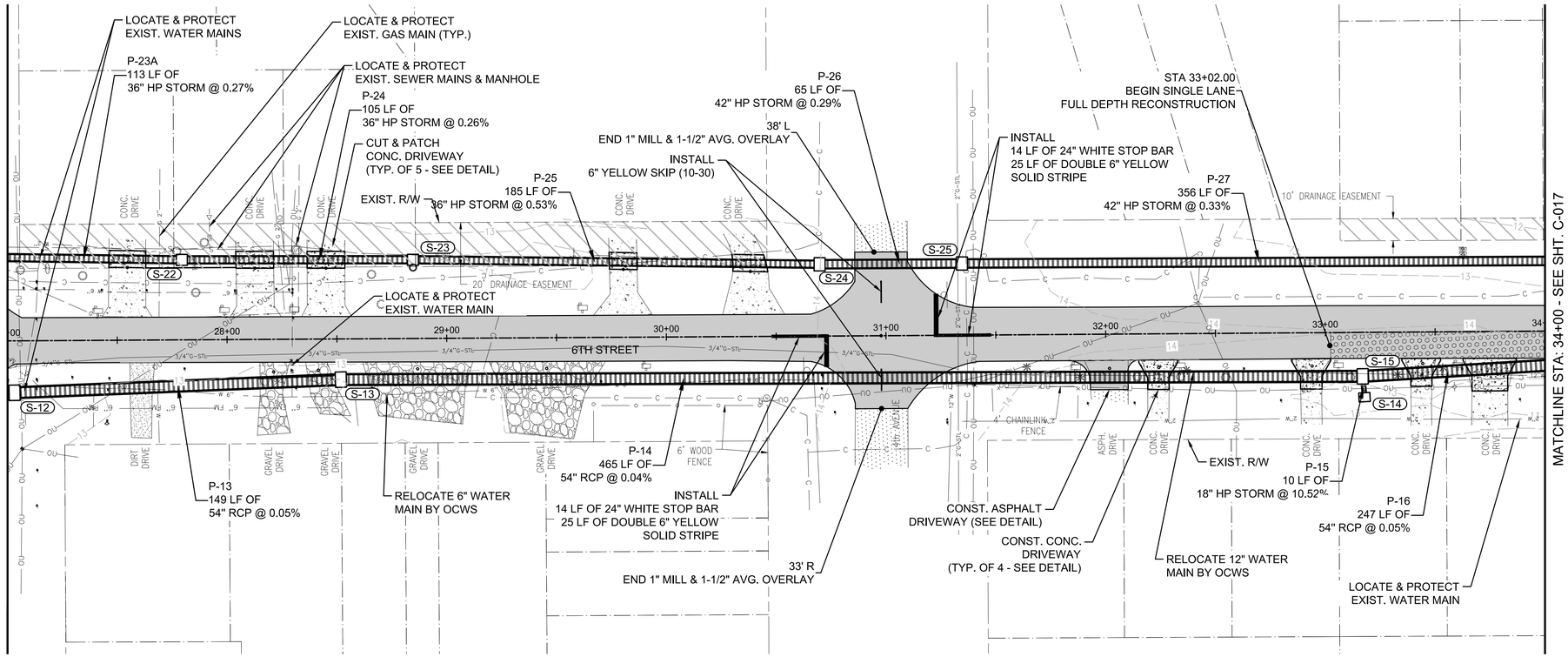
PLAN & PROFILE - 6TH STREET
STA: 20+00 - 27+00

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number			B/O	Total
390762			15	30
Designed	B. CANNON		Eng check	S. WHITE
Drawn	C. RILEY		Coordination	B. CANNON
Dwg check	S. WHITE		Approved	K. MORGAN

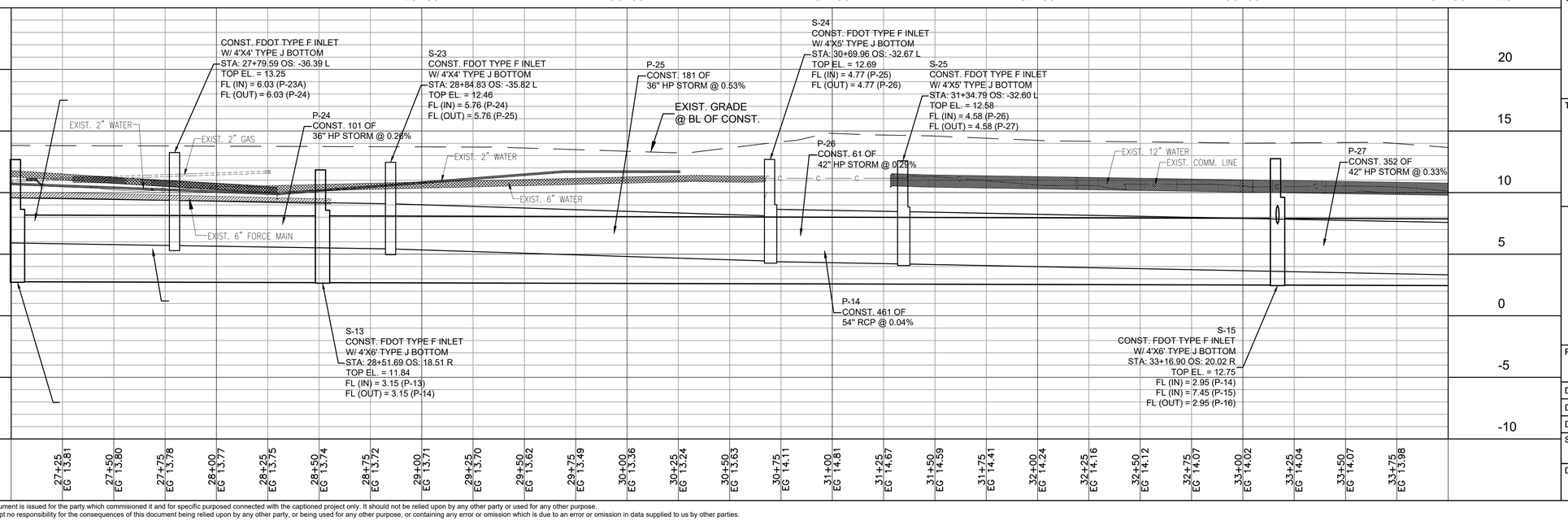
Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-015



6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



NOTE:
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Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

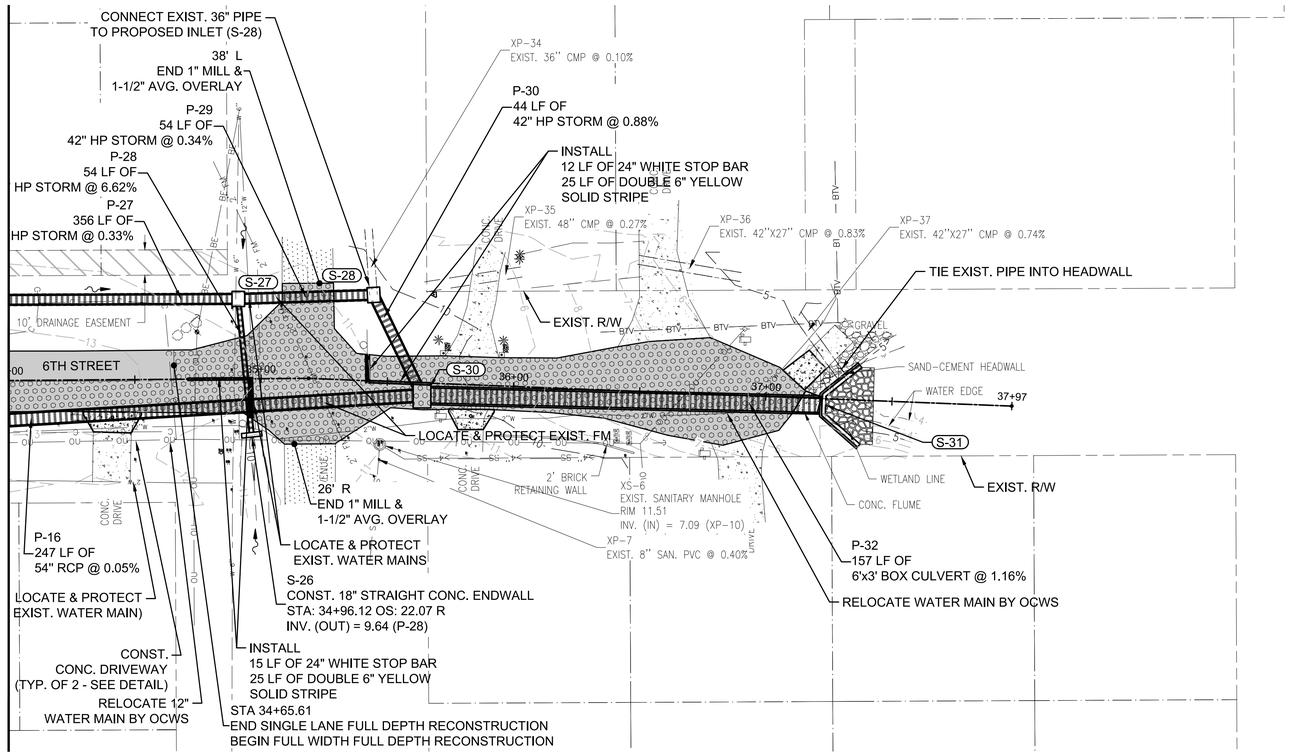
Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 27+00 - 34+00

THIS DRAWING IS NOT FOR CONSTRUCTION

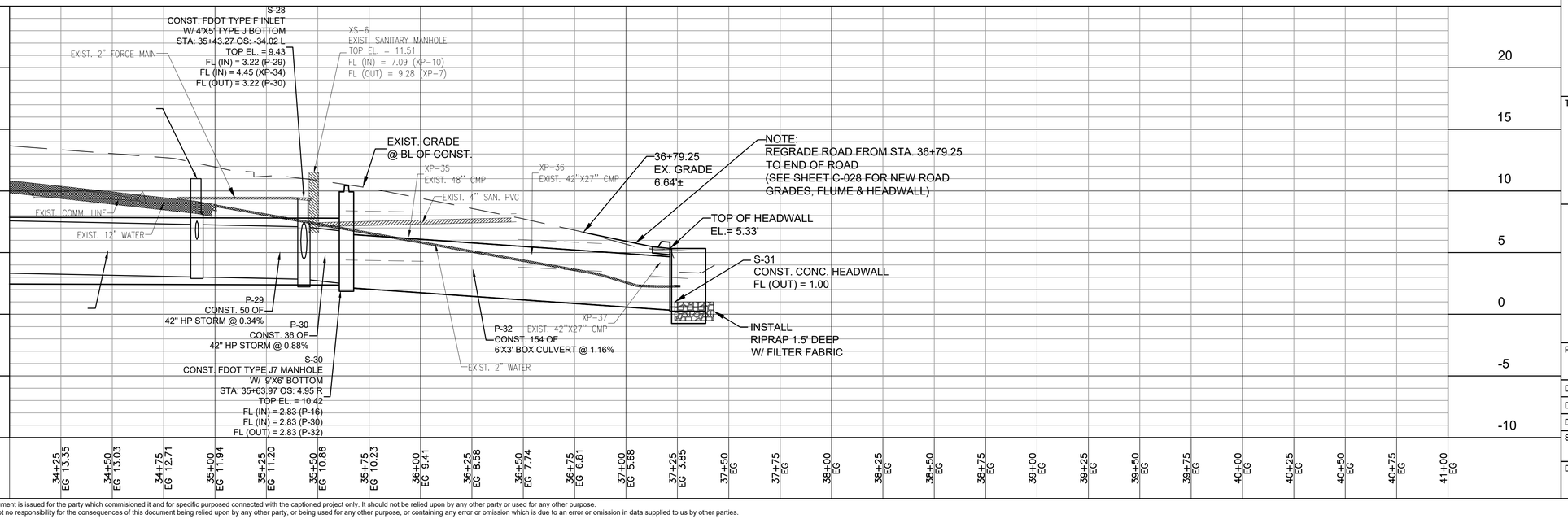
Project Number			B/O	Total
390762			16	30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev	Security
1:30	PRE		P1	STD

Drawing Number
C-016



6TH STREET

PROPOSED 1" MILL & 1-1/2" AVG. OVERLAY
PROPOSED FULL DEPTH RECONST.
PROPOSED CONC. PAVEMENT
EXIST. ASPHALT PAVEMENT
EXIST. GRAVEL
EXIST. CONC. PAVEMENT



NOTE:
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Rev	Date	Drawn	Description	Ch'k'd	App'd

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AA - C0000035 EB - 0000155 LB - 0006783

Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

PLAN & PROFILE - 6TH STREET
STA: 34+00 - 41+00

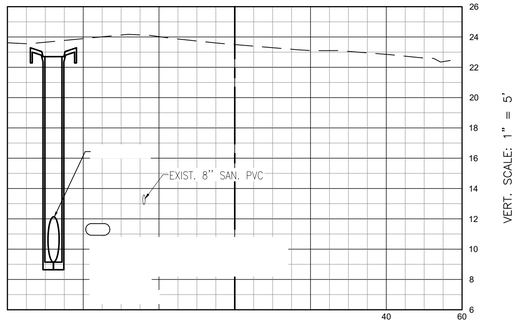
THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	17	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

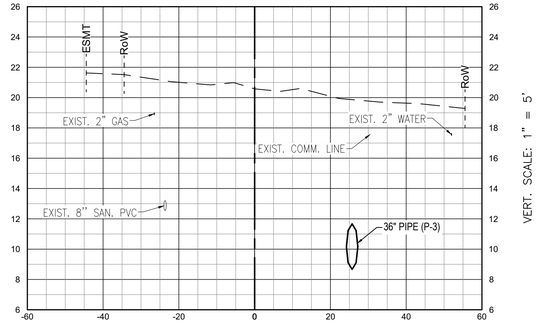
Scale at ANSI D	Status	Rev	Security
1:30	PRE	P1	STD

Drawing Number
C-017



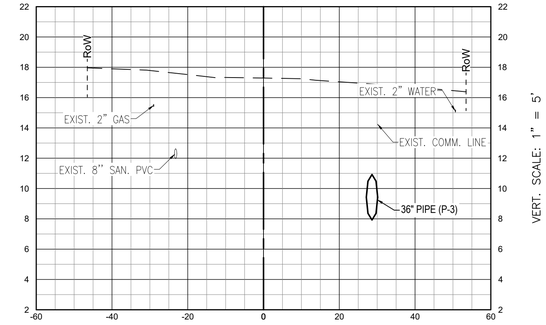
HORZ. SCALE: 1" = 20'

STA: 11+00

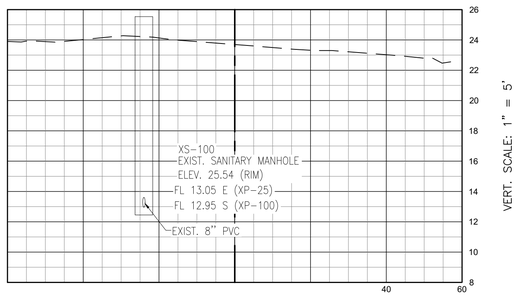


HORZ. SCALE: 1" = 20'

STA: 12+50

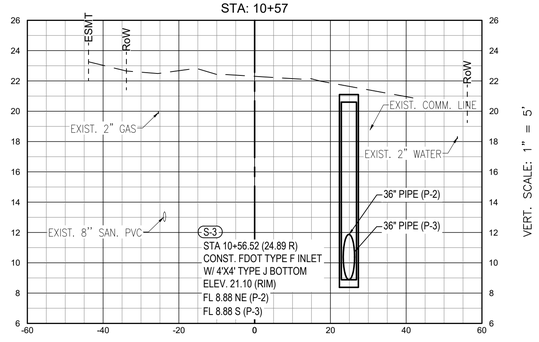


HORZ. SCALE: 1" = 20'



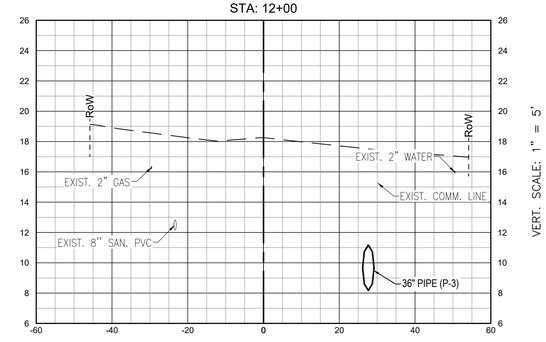
HORZ. SCALE: 1" = 20'

STA: 10+57

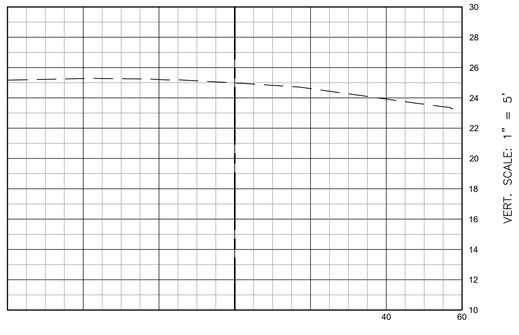


HORZ. SCALE: 1" = 20'

STA: 12+00

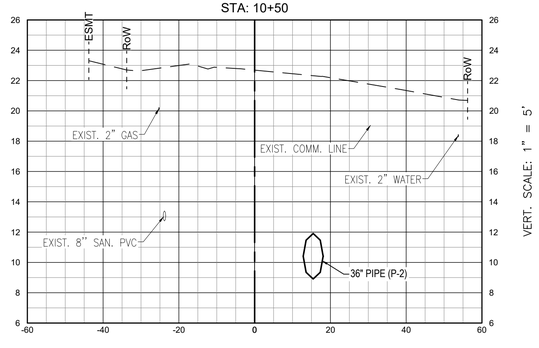


HORZ. SCALE: 1" = 20'



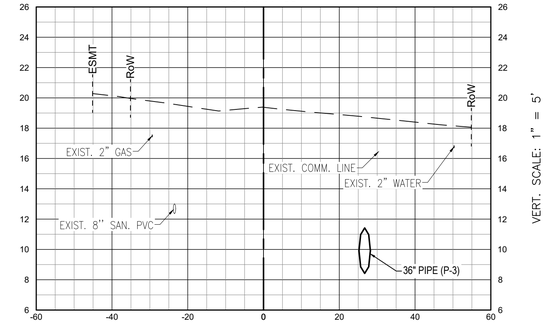
HORZ. SCALE: 1" = 20'

STA: 10+50



HORZ. SCALE: 1" = 20'

STA: 11+50



HORZ. SCALE: 1" = 20'

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783

Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

CROSS SECTIONS - 6TH STREET

THIS DRAWING IS
NOT FOR
CONSTRUCTION

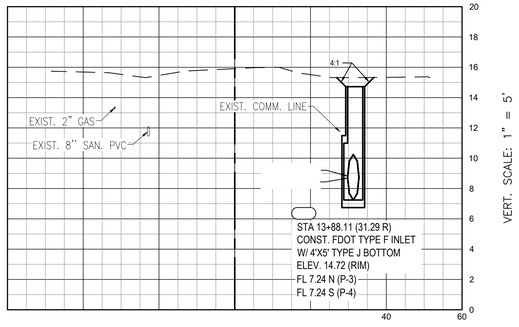
Project Number		B/O	Total
390762		18	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:20	PRE	P1	STD

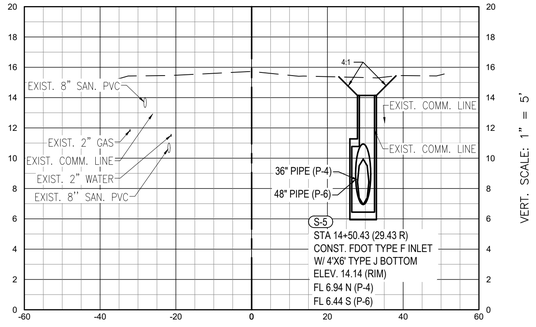
Drawing Number

C-018



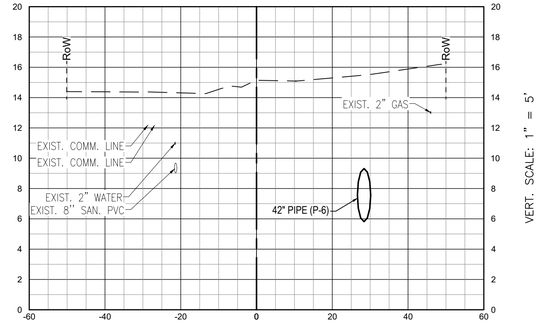
HORZ. SCALE: 1" = 20'

STA: 14+50



HORZ. SCALE: 1" = 20'

STA: 15+50



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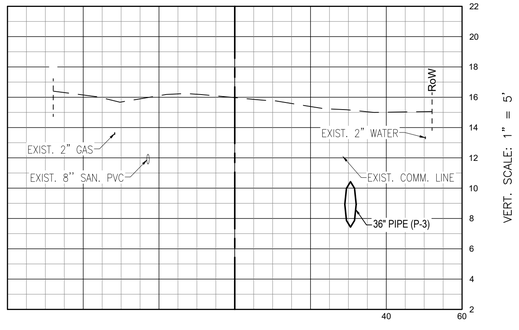
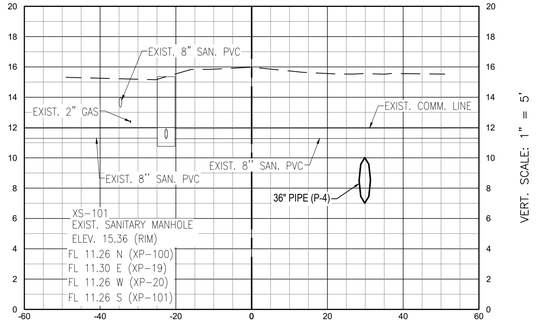


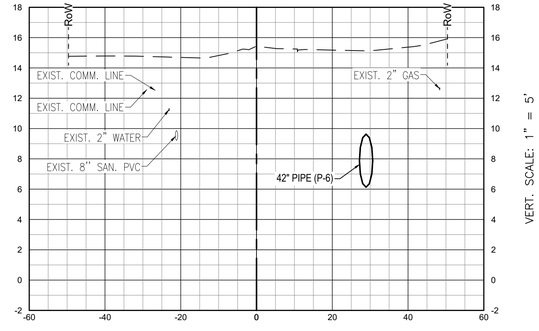
HORZ. SCALE: 1" = 20'

STA: 14+34

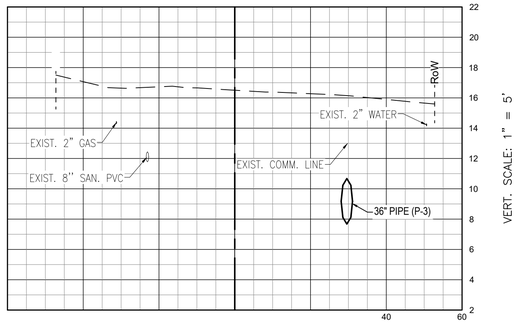


HORZ. SCALE: 1" = 20'

STA: 15+00

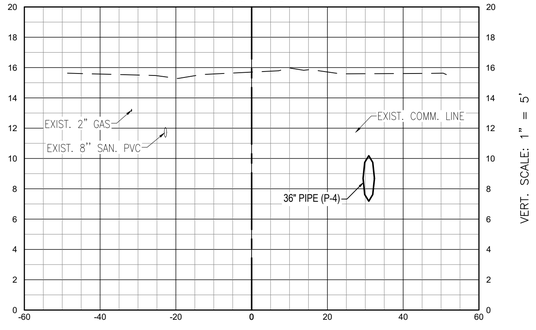


HORZ. SCALE: 1" = 20'



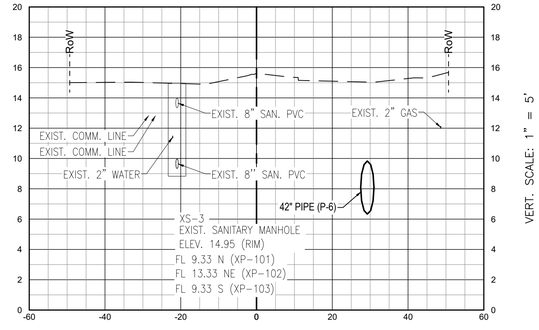
HORZ. SCALE: 1" = 20'

STA: 14+00



HORZ. SCALE: 1" = 20'

STA: 14+68



HORZ. SCALE: 1" = 20'

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Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

CROSS SECTIONS - 6TH STREET

THIS DRAWING IS
NOT FOR
CONSTRUCTION

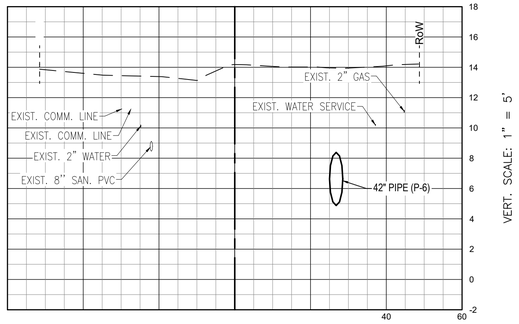
Project Number		B/O	Total
390762		19	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:20	PRE	P1	STD

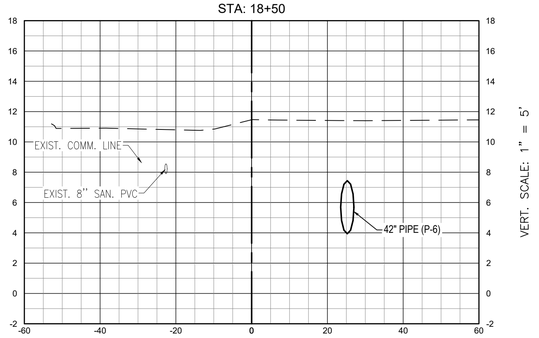
Drawing Number

C-019



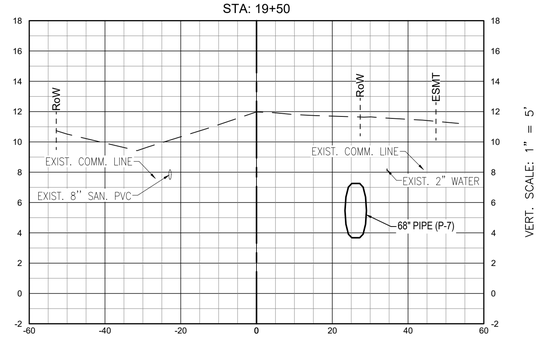
HORZ. SCALE: 1" = 20'

STA: 18+50



HORZ. SCALE: 1" = 20'

STA: 19+50



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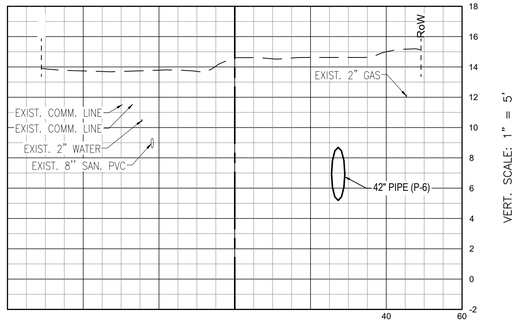
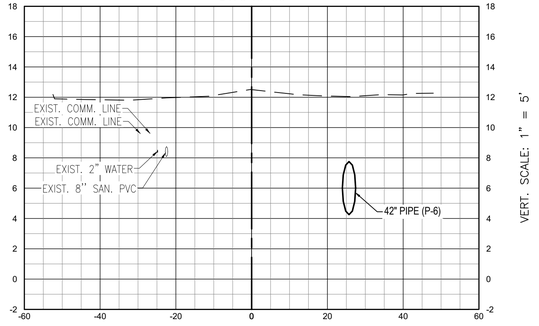


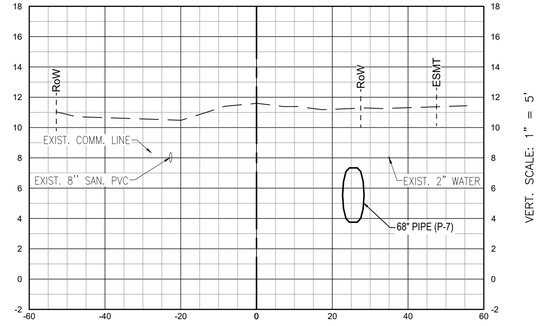
HORZ. SCALE: 1" = 20'

STA: 18+00

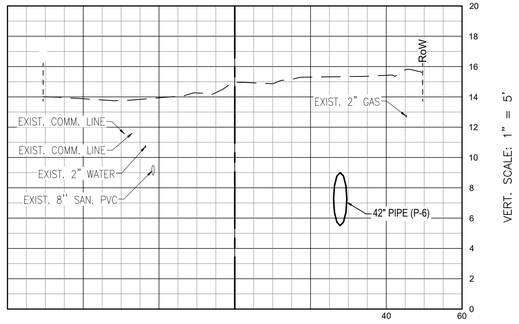


HORZ. SCALE: 1" = 20'

STA: 19+00

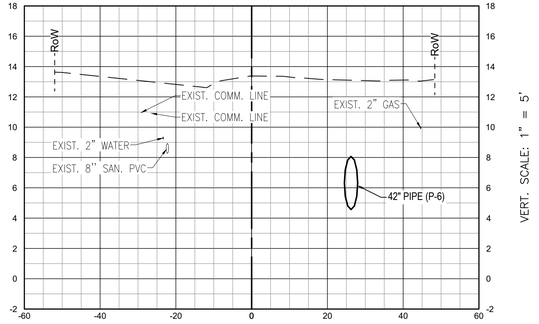


HORZ. SCALE: 1" = 20'



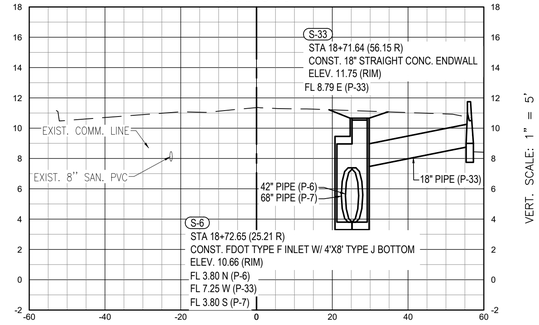
HORZ. SCALE: 1" = 20'

STA: 17+50



HORZ. SCALE: 1" = 20'

STA: 18+73



HORZ. SCALE: 1" = 20'

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

CROSS SECTIONS - 6TH STREET

THIS DRAWING IS NOT FOR CONSTRUCTION

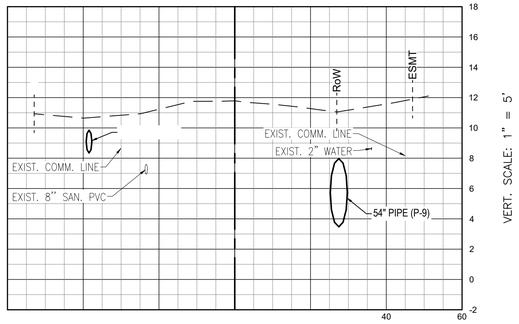
Project Number		B/O	Total
390762		20	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:20	PRE	P1	STD

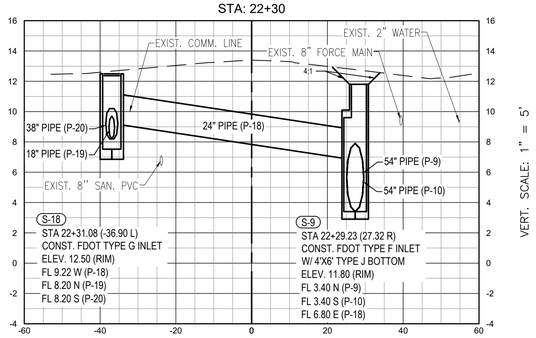
Drawing Number

C-020



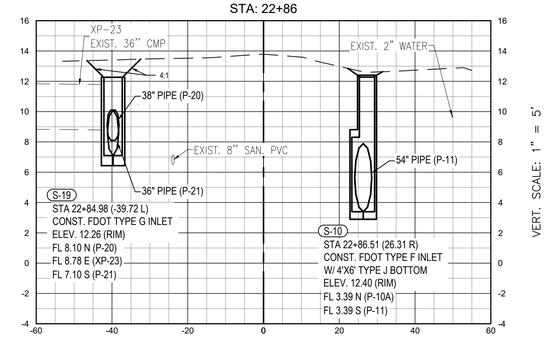
HORZ. SCALE: 1" = 20'

STA: 22+30



HORZ. SCALE: 1" = 20'

STA: 22+86



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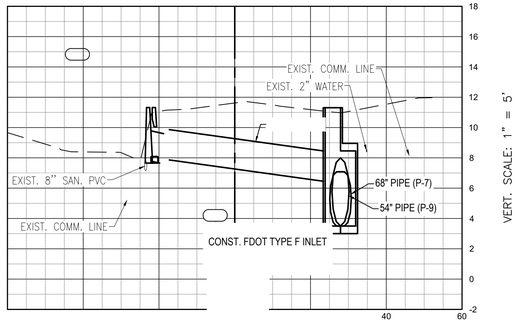
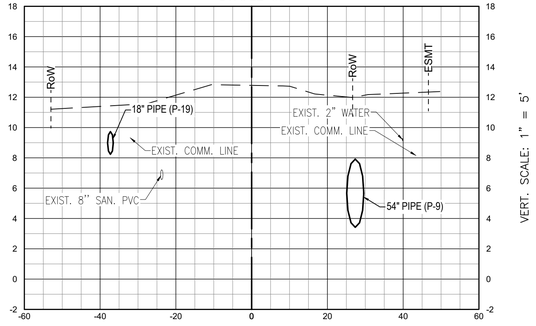


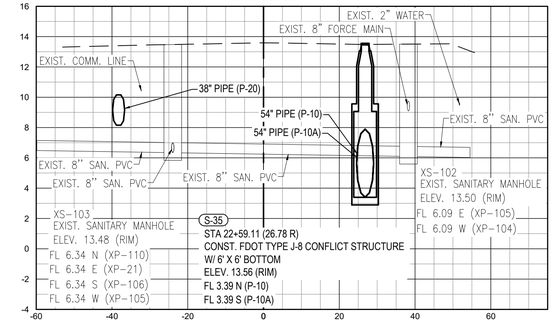
HORZ. SCALE: 1" = 20'

STA: 22+00



HORZ. SCALE: 1" = 20'

STA: 22+58



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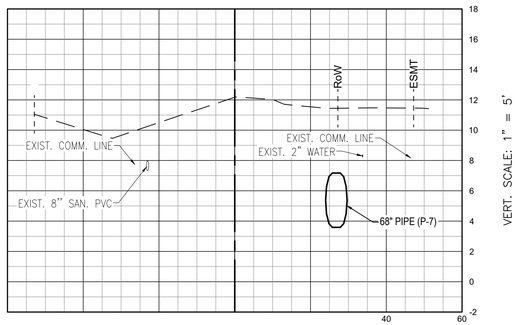
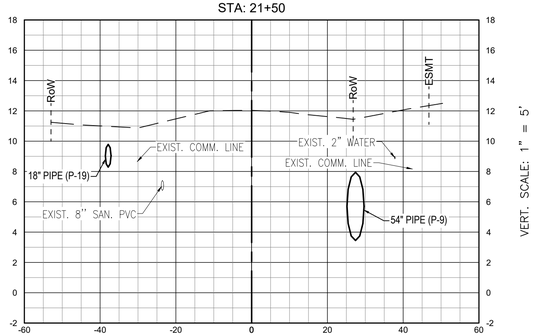


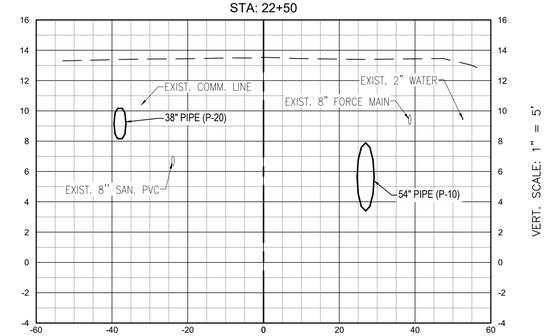
HORZ. SCALE: 1" = 20'

STA: 21+50



HORZ. SCALE: 1" = 20'

STA: 22+50



HORZ. SCALE: 1" = 20'

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client

Okaloosa County
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Title

6th Street Drainage Improvements

CROSS SECTIONS - 6TH STREET

THIS DRAWING IS NOT FOR CONSTRUCTION

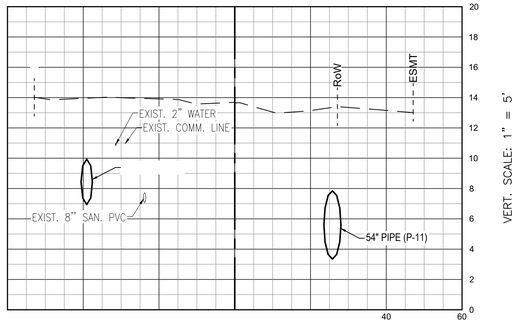
Project Number		B/O	Total
390762		21	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:20	PRE	P1	STD

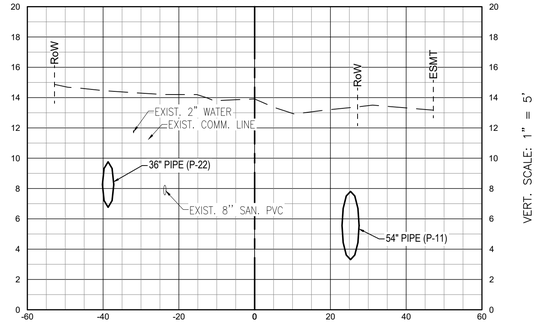
Drawing Number

C-021



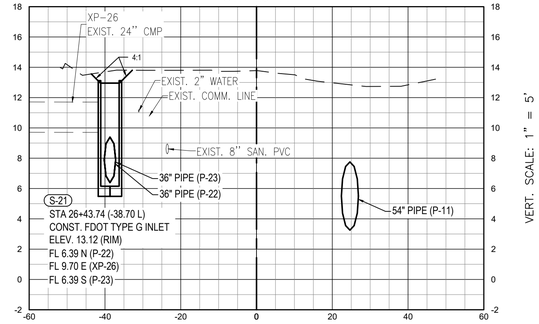
HORZ. SCALE: 1" = 20'

STA: 25+00



HORZ. SCALE: 1" = 20'

STA: 26+44



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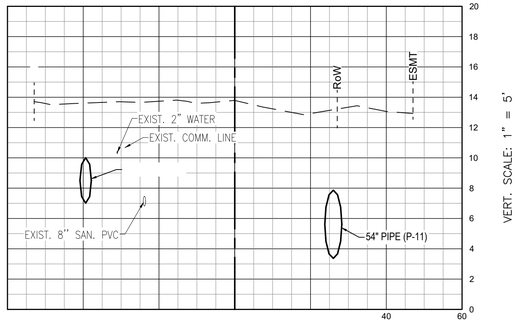
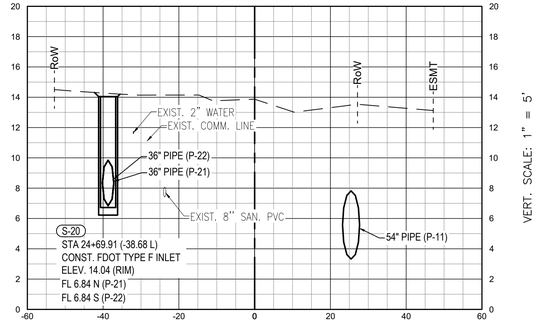


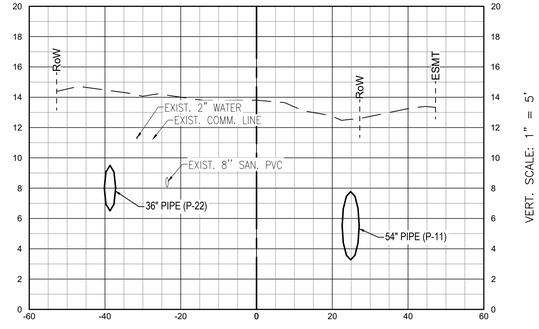
HORZ. SCALE: 1" = 20'

STA: 24+70



HORZ. SCALE: 1" = 20'

STA: 26+00



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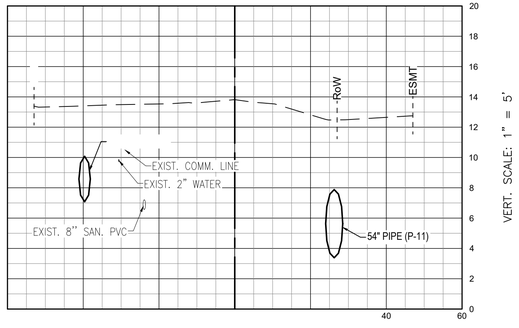
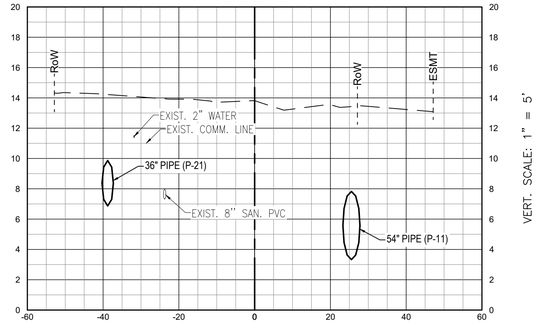


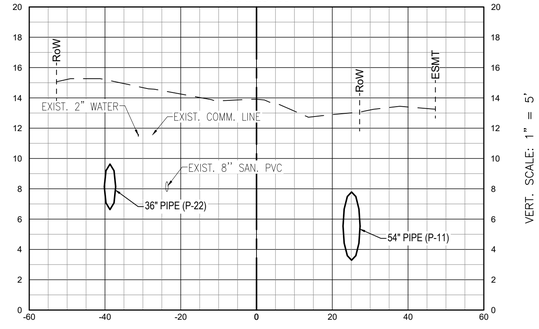
HORZ. SCALE: 1" = 20'

STA: 24+50



HORZ. SCALE: 1" = 20'

STA: 25+50



HORZ. SCALE: 1" = 20'

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client

Okaloosa County
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Title

6th Street Drainage Improvements

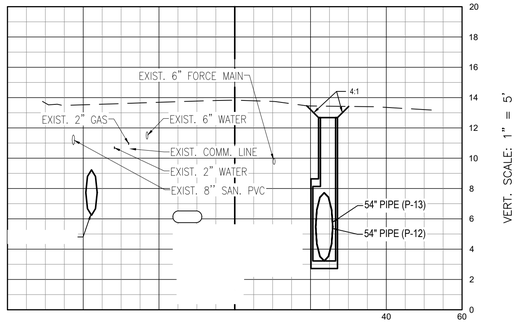
CROSS SECTIONS - 6TH STREET

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number			B/O	Total
390762			22	30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev	Security	
1:20	PRE		P1	STD	

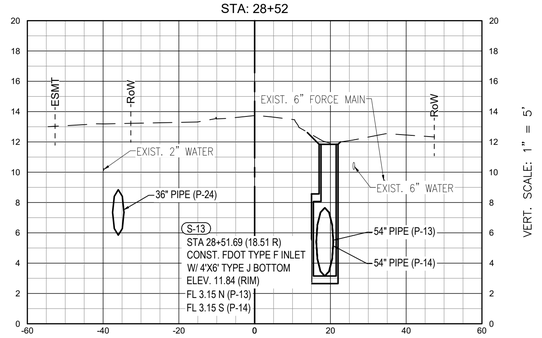
Drawing Number

C-022



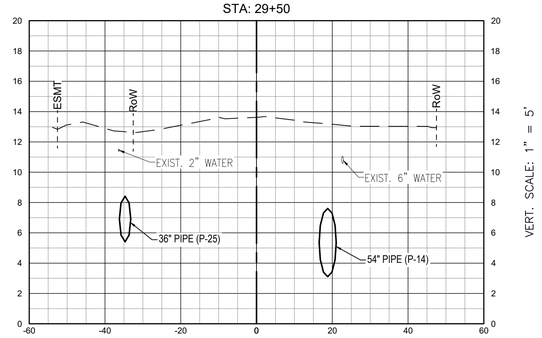
HORZ. SCALE: 1" = 20'

STA: 28+52



HORZ. SCALE: 1" = 20'

STA: 29+50



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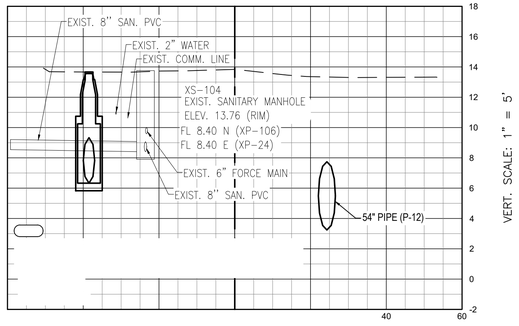
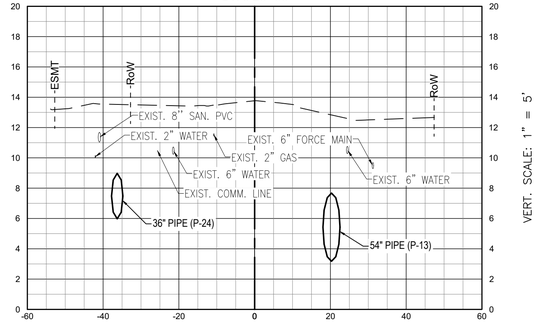


HORZ. SCALE: 1" = 20'

STA: 28+00



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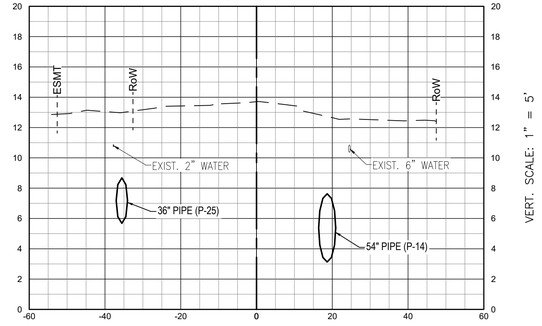
STA: 29+00



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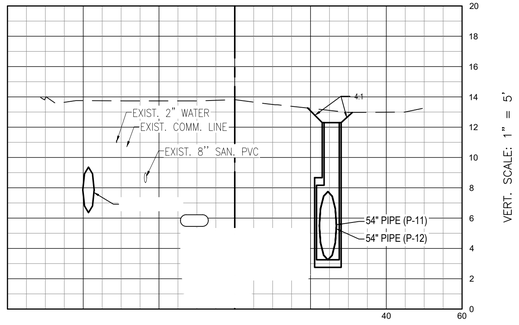

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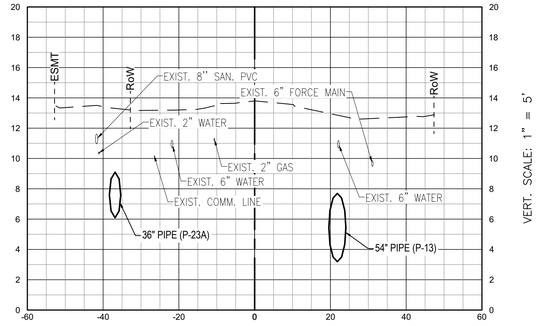
STA: 27+55



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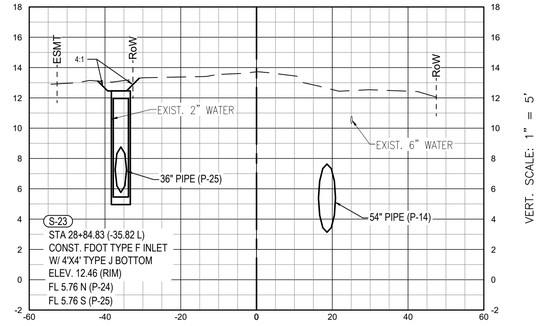
STA: 28+85



HORZ. SCALE: 1" = 20'

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Architects Engineers Surveyors
AA - C0000035 EB - 0000155 LB - 0006783

Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

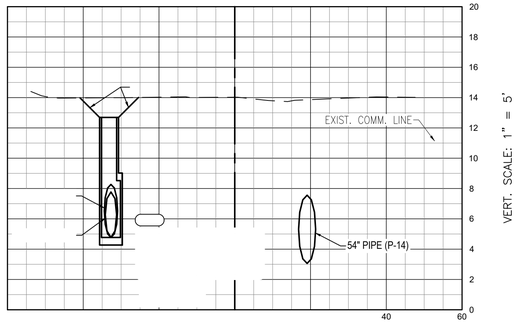
CROSS SECTIONS - 6TH STREET

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number			B/O	Total
390762			23	30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev	Security	
1:20	PRE		P1	STD	

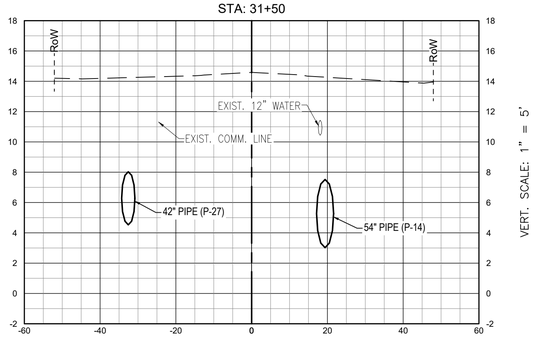
Drawing Number

C-023



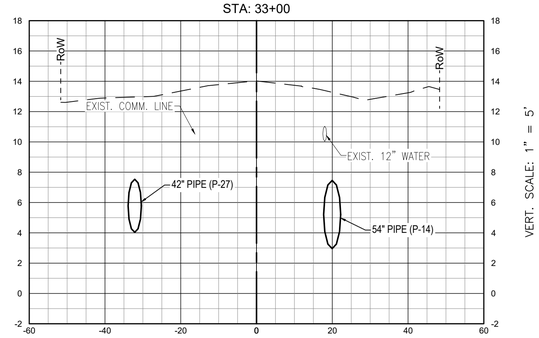
HORZ. SCALE: 1" = 20'

STA: 31+50



HORZ. SCALE: 1" = 20'

STA: 33+00



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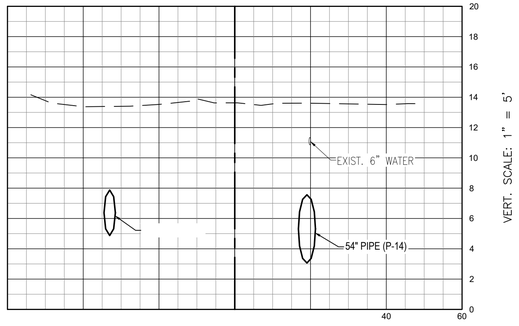

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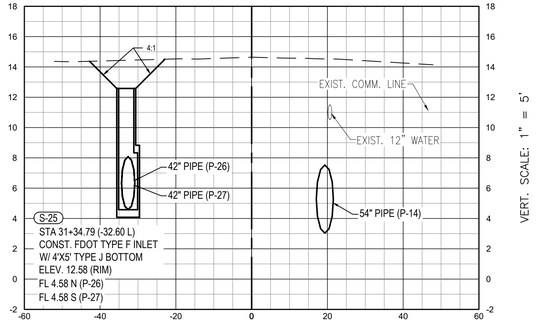
STA: 31+35



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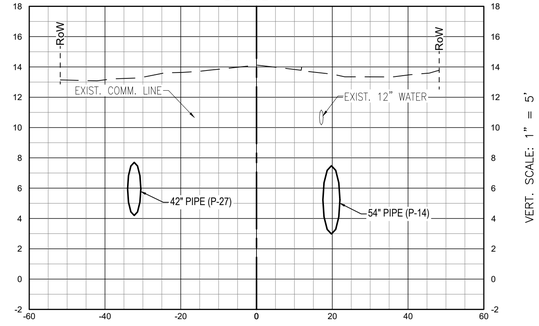
STA: 32+50



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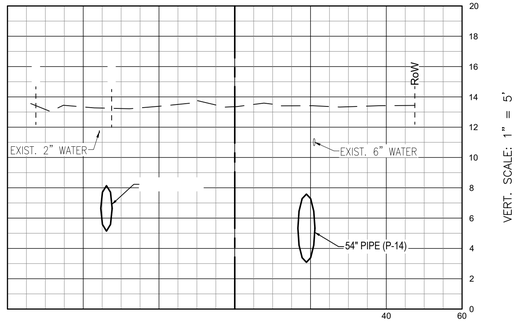
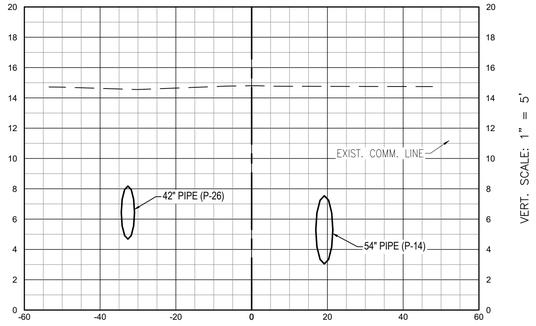


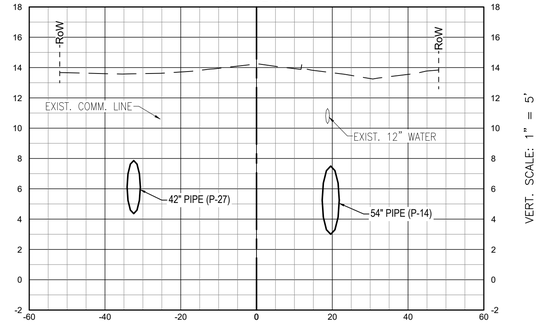
HORZ. SCALE: 1" = 20'

STA: 31+00



HORZ. SCALE: 1" = 20'

STA: 32+00



HORZ. SCALE: 1" = 20'

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Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

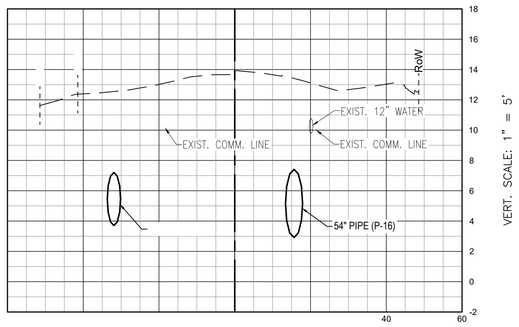
CROSS SECTIONS - 6TH STREET

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number			B/O		Total
390762			24		30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev		Security
1:20	PRE		P1		STD

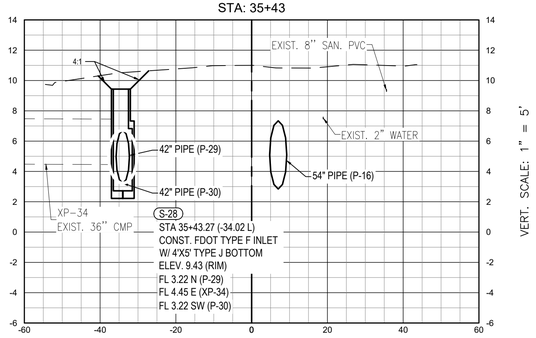
Drawing Number

C-024



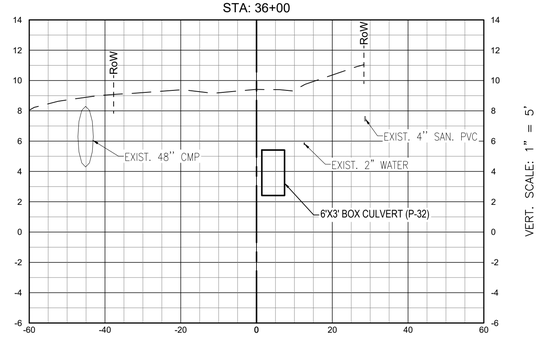
HORZ. SCALE: 1" = 20'

STA: 35+43

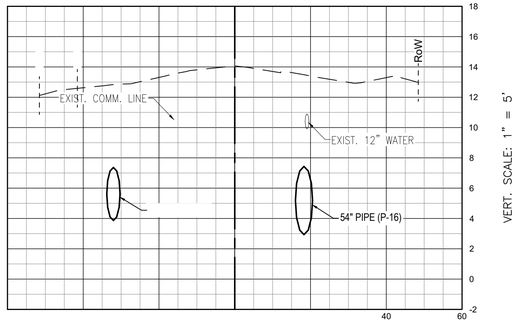


HORZ. SCALE: 1" = 20'

STA: 36+00



HORZ. SCALE: 1" = 20'



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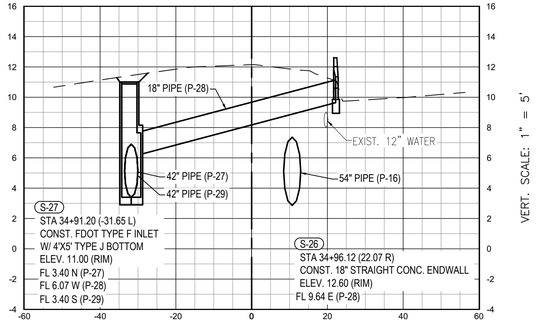
STA: 34+94



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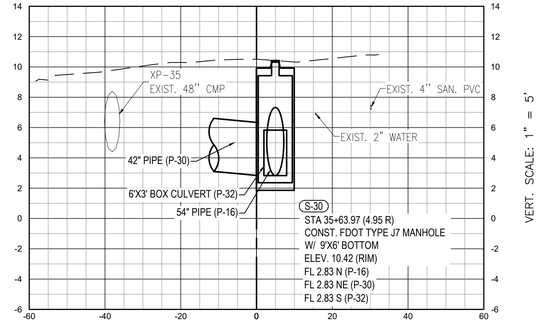
STA: 35+64



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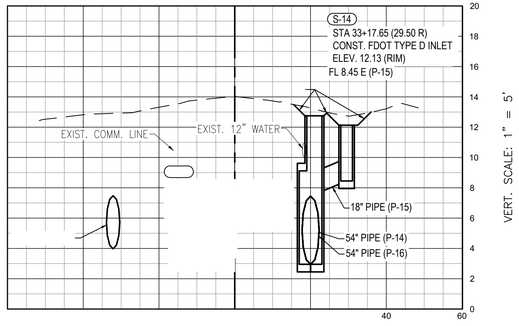

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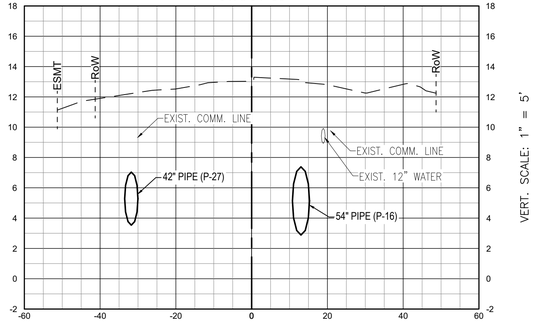
STA: 34+50



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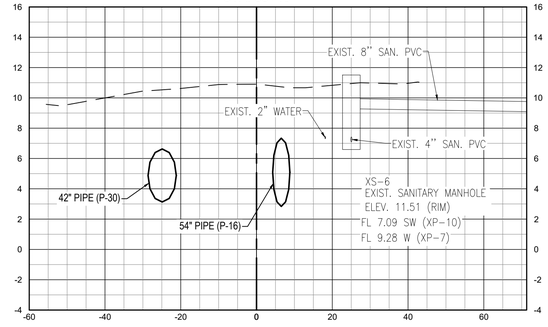
STA: 35+48



HORZ. SCALE: 1" = 20'

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Architects Engineers Surveyors
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Client

Okaloosa County
Board of County Commissioners

Title

6th Street Drainage Improvements

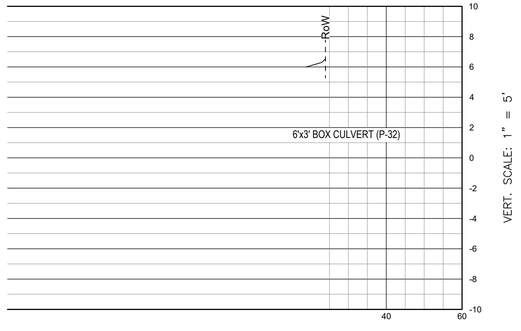
CROSS SECTIONS - 6TH STREET

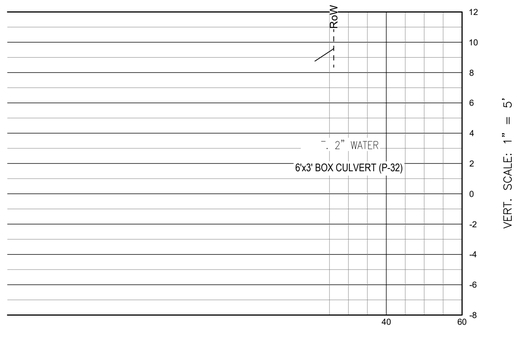
THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number			B/O	Total
390762			25	30
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev	Security
1:20	PRE		P1	STD

Drawing Number

C-025





Rev	Date	Drawn	Description	Ch'k'd	App'd

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Okaloosa County
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Title

6th Street Drainage Improvements

CROSS SECTIONS - 6TH STREET

THIS DRAWING IS
NOT FOR
CONSTRUCTION

Project Number	B/O	Total
390762	26	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
1:20	PRE	P1	STD

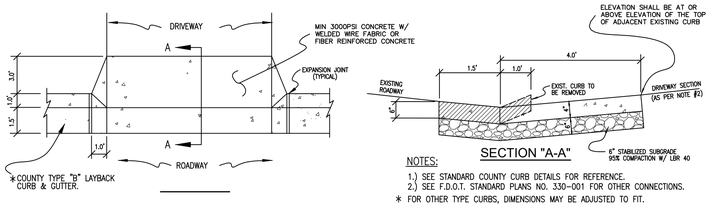
Drawing Number

C-026

NOTES:

1. DRIVEWAYS ABUTTING PAVED ROADS SHALL BE 1–1/2" ASPHALT WITH 6" STABILIZED SUBGRADE, 6" GRAVEL W/ 6" STABILIZED SUBGRADE OR 6" CONCRETE WITH 4" STABILIZED SUBGRADE ~ 95% COMPACTION (MODIFIED PROCTOR) WITH LBR 40 BETWEEN EDGE OF ROADWAY AND R/W LINE. STABILIZATION SHALL BE INCLUDED IN THE COST OF THE DRIVEWAY PAY ITEM.
2. DRIVEWAYS ABUTTING A DIRT ROAD SHALL BE MILLED ASPHALT, GRADED AGGREGATE BASE, OR WASHED CONCRETE (4" IN DEPTH) ON THE COUNTY MAINTAINED PORTION OF DRIVEWAY.
3. IF NECESSARY, REFER TO F.D.O.T. STANDARD PLANS AS REFERENCED BELOW.
4. RADIUS OR FLARE IS ACCEPTABLE FOR TYPE II OR TYPE III CONNECTIONS.
5. DRIVEWAYS WITHIN PROPERTY BOUNDARY SHALL PROVIDE A MINIMUM OF 2 PARKING SPACES.
6. TYPICAL DRIVEWAY SECTIONS ARE TO MATCH EXISTING WIDTH.

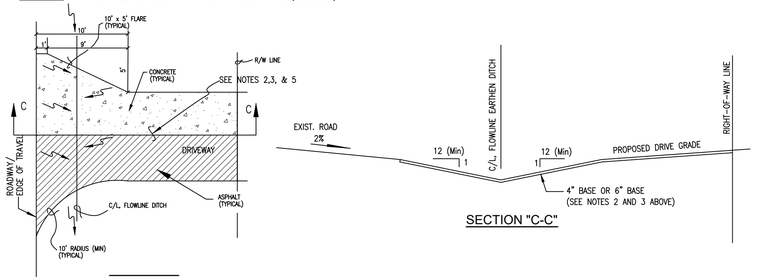
CURB CUT DRIVEWAY FOR COUNTY TYPE "B" LAYBACK CURBS.



SECTION "A-A"

NOTES:
1.) SEE STANDARD COUNTY CURB DETAILS FOR REFERENCE.
2.) SEE F.D.O.T. STANDARD PLANS NO. 330-001 FOR OTHER CONNECTIONS.
* FOR OTHER TYPE CURBS, DIMENSIONS MAY BE ADJUSTED TO FIT.

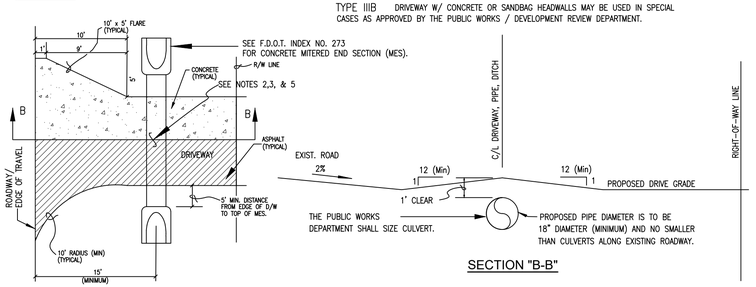
DIPPED DRIVEWAY WITHOUT CROSS PIPE (CULVERT)



SECTION "C-C"

CROSS PIPE (CULVERT) DRIVEWAY

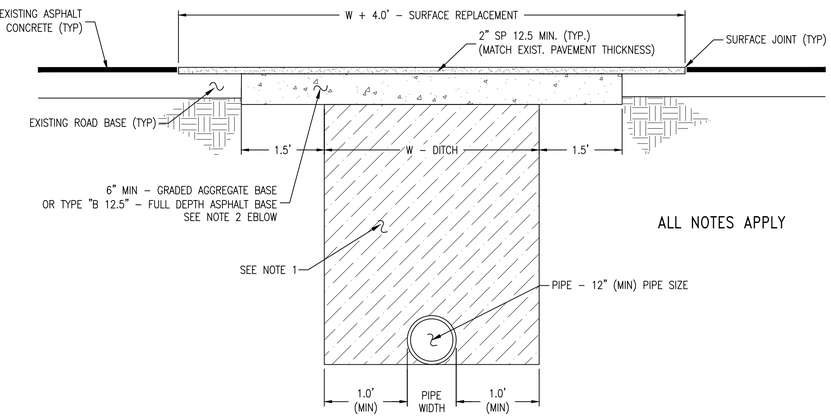
NOTE:
TYPE IIIB DRIVEWAY W/ CONCRETE OR SANDBAG HEADWALLS MAY BE USED IN SPECIAL CASES AS APPROVED BY THE PUBLIC WORKS / DEVELOPMENT REVIEW DEPARTMENT.



SECTION "B-B"

TYPICAL DRIVEWAY CONNECTION STANDARDS FOR EXISTING ROADWAY CONDITIONS

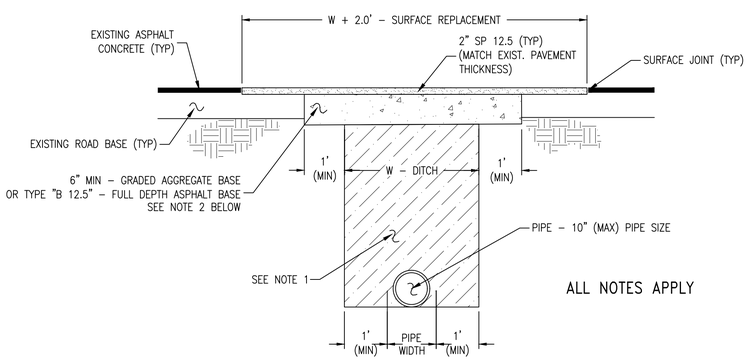
N.T.S.



ALL NOTES APPLY

PAVED ROAD (LARGE PATCH) DETAIL

FOR PATCHES 24" WIDE OR GREATER



ALL NOTES APPLY

PAVED ROAD (SMALL PATCH) DETAIL

FOR PATCHES LESS THAN 24" WIDE

NOTES:

1. SUB BASE MATERIAL SHALL BE PLACED IN NOT MORE THAN 8" LIFTS. EACH LAYER TO BE TAMPED TO A MINIMUM OF 40 LBR.
2. GRADED AGGREGATE BASE SHALL BE COMPACTED TO A MIN LBR 100.
3. ROAD CUTS SHALL BE MECHANICALLY SAW CUT TO FORM A SURFACE PAVEMENT JOINT AND TACK COATED ALONG THE FACE OF CUT JOINTS PRIOR TO ASPHALT PLACEMENT.
4. LONGITUDINAL ROAD CUTS THAT AFFECT ONE TRAVEL LANE SHALL REQUIRE MILLING AND REPAVING OF THE AFFECTED TRAVEL LANE 5.0' BEYOND THE CUT AND PATCHED WITH THE SAME BASE MATERIAL. LONGITUDINAL ROAD CUTS THAT AFFECT BOTH TRAVEL LANES SHALL REQUIRE MILLING AND REPAVING OF THE ENTIRE ROADWAY 5.0' BEYOND THE CUT AND PATCHED WITH THE SAME BASE MATERIAL.
5. PATCH SHALL BE INCLUDED IN THE COST OF THE PIPE.

ROADWAY PATCH DETAILS

N.T.S.

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Title
6th Street Drainage Improvements

DETAILS

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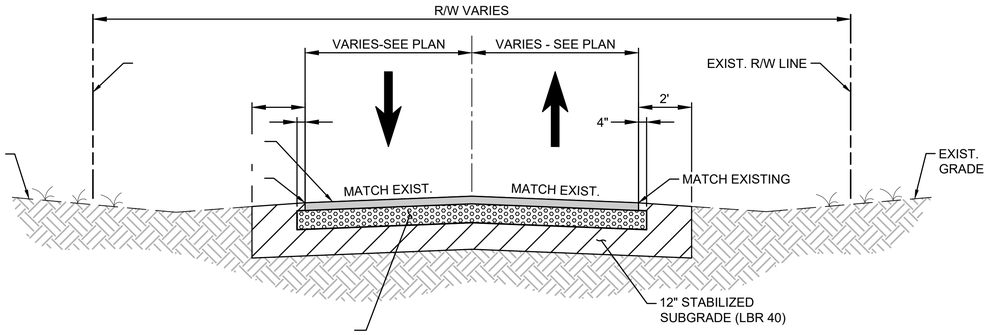
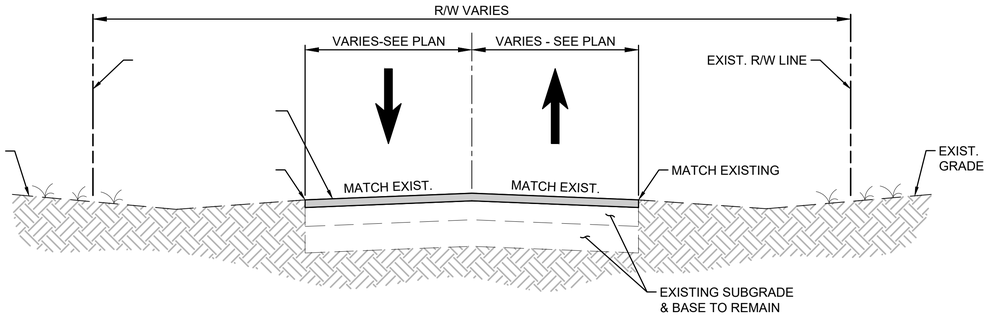
Project Number		B/O		Total	
390762		27		30	
Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	
Scale at ANSI D	Status		Rev	Security	
NTS	PRE		P1	STD	

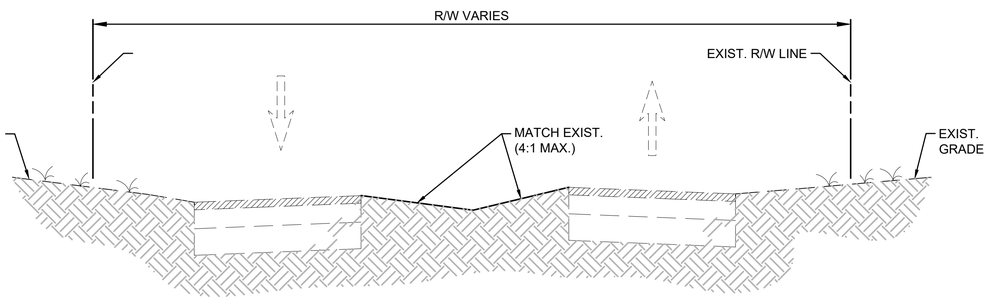
Drawing Number
C-027



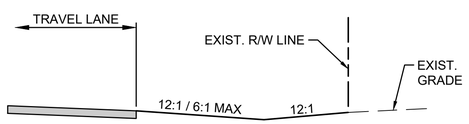
TYPICAL SECTION
FULL DEPTH RECONSTRUCTION



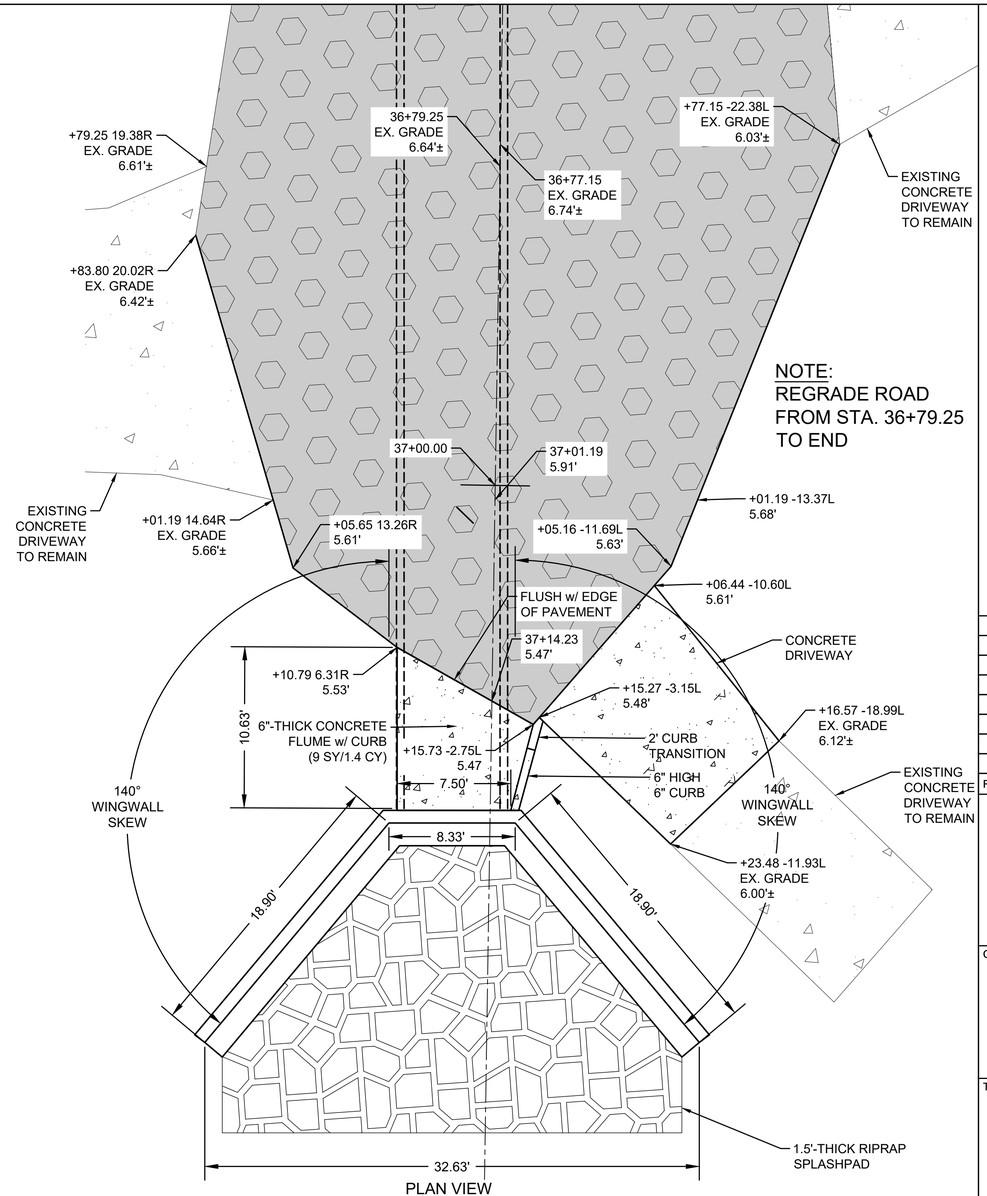
TYPICAL SECTION - MILL & OVERLAY



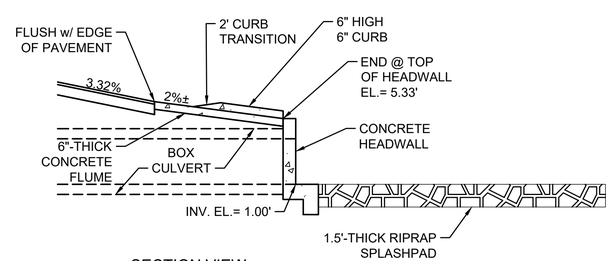
TYPICAL SECITON - 9TH AVE. SWALE GRADING
STA: 40+11 to 44+88



TYPICAL SECTION - 6TH ST. SWALE GRADING
STA: 11+00 to 13+90 (RT)
STA: 22+86 to 26+55 (RT)



PLAN VIEW



SECTION VIEW

CONCRETE SWALE & HEADWALL

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DETAILS

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Project Number	B/O	Total
390762	28	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
NTS	PRE	P1	STD

Drawing Number
C-028

eld expediency to resolve
'ied by relocation. For
ıse the construction shop

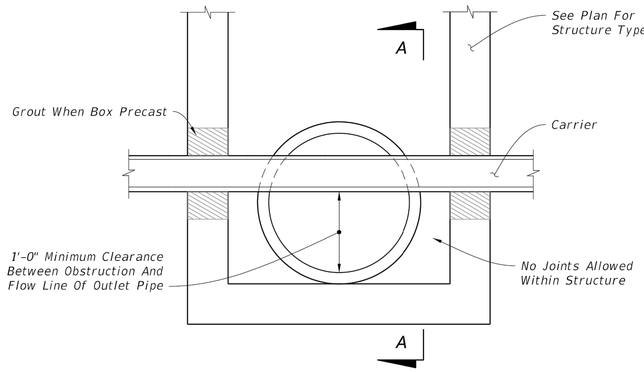
shall be as specified in
n lieu of Class I concrete.

ıe pipe OD plus 6". Mortar
ıg will be of such mix that
› or out of the structure.

there are multiple inlet or
ıould be reviewed for strength.

esign process it is determined
t pass though a storm drain
'ith Chapter 62-555.314 (3)
nstruction plans and submitted
ımental Protection (FDEP)
the respective FDEP District
and rule citation provide
nflicts when and where they
submitted along with the
ıing inordinate cost and the
ified, properly justified,
this index, approval is
gency Owner (UAO) must
relocation or adjustment to
See the following web site
ntacts:
ter/index.htm and click on
ht.

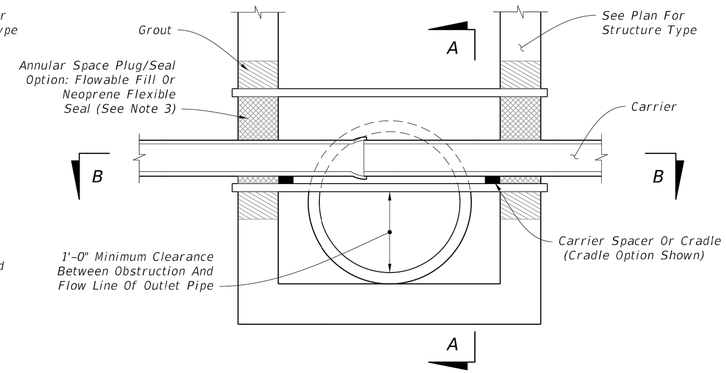
used unless the system is
ıe headloss generated if



SECTION LONGITUDINAL TO CARRIER PIPE

UTILITY CONFLICT CONDITION I

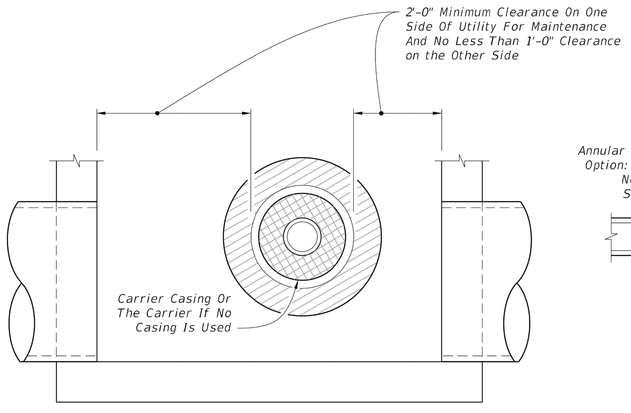
(Nonpressure Or Nonfluid Carrier Installations)



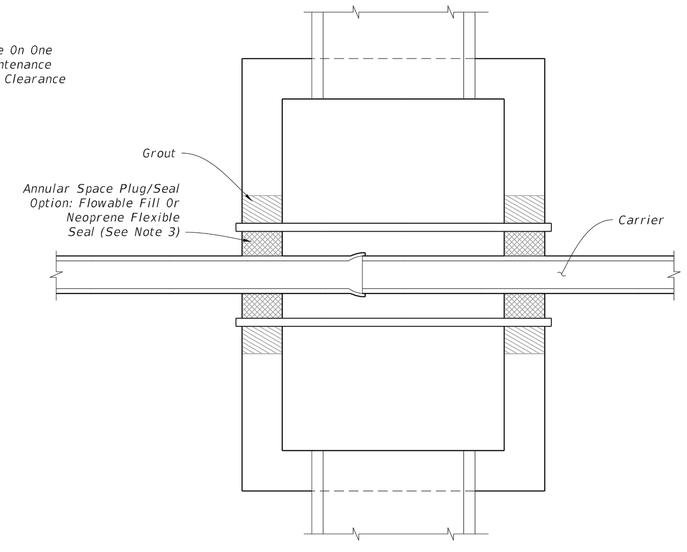
SECTION LONGITUDINAL TO CARRIER PIPE

UTILITY CONFLICT CONDITION II

(Pressure Or Fluid Carrier Installations)



SECTION A-A



SECTION B-B

UTILITY CONFLICT PIPES THRU STORM DRAIN STRUCTURES

FDOT FY 2019-20 STANDARD PLANS	UTILITY CONFLICTS THRU DRAINAGE STRUCTURES	INDEX 425-080	SHEET 1 of 1

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

DETAILS

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number	B/O	Total
390762	29	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
NTS	PRE	P1	STD

Drawing Number
C-029

GENERAL NOTES FOR SOIL EROSION AND SEDIMENT CONTROL:

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES TO BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.

2. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO STATE STANDARDS.

3. PERMANENT VEGETATION TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER GRADING. MULCH TO BE USED AS NECESSARY FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.

4. ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE FDOT "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", LATEST EDITION, SECTIONS 104, 570, 575 AND 980 TO 986.

*5. A BITUMINOUS CONCRETE BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE BITUMINOUS CONCRETE BASE SHALL BE INSTALLED WITHIN 15 DAYS OF THE PRELIMINARY GRADING.

*6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A THICKNESS OF TWO (2) TO FOUR (4) INCHES MIXED WITH THE TOP TWO (2) INCHES OF SOIL, ACCORDING TO STATE STANDARDS.

*7. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E. SLOPES GREATER THAN 3:1).

*8. A CRUSHED LIMEROCK, VEHICLE WHEEL-CLEANING BLANKET SHALL BE INSTALLED AT THE CONTRACTOR'S STAGING YARD AND/OR STOCKPILE AREAS TO PREVENT OFF-SITE TRACKING OF SEDIMENT BY CONSTRUCTION VEHICLES ONTO PUBLIC ROADS. BLANKET SHALL BE 15FT. X 50FT. X 6IN. (MINIMUM), CRUSHED LIMEROCK 2 1/2 INCHES IN DIAMETER. SAID BLANKET SHALL BE UNDERLAIN WITH A FDOT CLASS 3 SYNTHETIC FILTER FABRIC AND MAINTAINED IN GOOD ORDER.

9. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.

*10. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.

11. UNFILTERED DEWATERING IS NOT PERMITTED. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER.

12. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET, TEMPORARY VEGETATION COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED IN ACCORDANCE WITH STATE STANDARDS FOR EROSION CONTROL.

13. ALL SOIL WASHED, DROPPED, SPILLED OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHTS-OF-WAY WILL BE REMOVED IMMEDIATELY.

14. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

15. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE NUMBER 2 (ABOVE).

16. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORM WATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.

17. ALL SEDIMENTATION STRUCTURES SHALL BE INSPECTED AND MAINTAINED REGULARLY.

18. ALL CATCH BASIN INLETS SHALL BE PROTECTED WITH HAY BALES AS SHOWN ON DETAIL.

19. THE CONTRACTOR SHALL PREPARE A PLAN FOR THE PROPER DEWATERING AND DOWNSTREAM SILTATION PROTECTION OF EACH STREAM CROSSING PRIOR TO EXCAVATING THE STREAM BED. PLAN SHALL BE FORWARDED TO THE ENGINEER FOR APPROVAL. THE ENGINEER SHALL BE NOTIFIED FOR INSPECTION PRIOR TO EACH STREAM CROSSING CONSTRUCTION.

20. ANY AREAS USED FOR THE CONTRACTOR'S STAGING, INCLUDING BUT NOT LIMITED TO, TEMPORARY STORAGE OF STOCKPILED MATERIALS (E.G. CRUSHED STONE, QUARRY PROCESS STONE, SELECT FILL, EXCAVATED MATERIALS, ETC.), SHALL BE ENTIRELY PROTECTED BY A SILT FENCE ALONG THE LOW ELEVATION SIDE TO CONTROL SEDIMENT RUNOFF.

* WHERE APPLICABLE

SODDING:

1. SOD SHALL BE WELL ROOT MATTED CENTIPEDE OR BAHIA GRASS COMMERCIALLY CUT TO A MINIMUM DIMENSION OF 12" x 24" A MAXIMUM OF 72 HOURS PRIOR TO PLACEMENT. SOD SHALL BE LIVE, FRESH AND UNINJURED, REASONABLY FREE OF WEEDS AND OTHER GRASSES, WITH A HEAVY SOIL MAT ADHERING TO THE ROOT SYSTEM. SOD SHALL BE GROWN, CUT, AND SUPPLIED BY A STATE CERTIFIED GROWER.

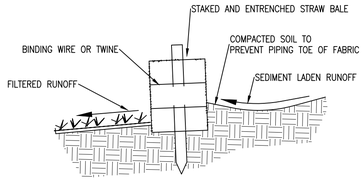
TEMPORARY SEEDING DETAILS

SEED BED PREPARATION

1. SOIL TO BE THOROUGHLY PULVERIZED BY DISK-HARROWING AND BE LOOSE AND REASONABLY SMOOTH. APPLY FERTILIZER AT A RATE OF 260 LBS/ACRE OF 16-16-16 OR EQUIVALENT, APPLY DOLOMITIC LIMESTONE AT A RATE OF 800 TO 1000 LBS./ACRE TO PROVIDE A SOIL pH OF 5.5 TO 6.5, LIME & FERTILIZER TO BE WORKED INTO THE TOPSOIL TO A DEPTH OF 4". ADD SANDY LOAM TOPSOIL TO A MINIMUM OF TWO (2) INCHES WHERE REQUIRED.

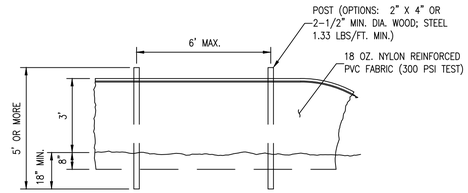
SEED MIXTURE

1. CONSISTING OF ANNUAL RYE (LOLIUM MULTIFLORUM) AT A RATE OF 174 LBS/ACRE.



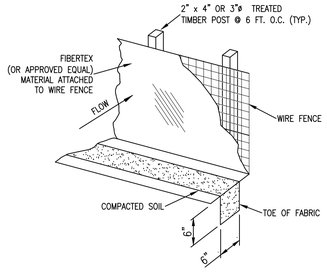
DETAIL OF PROPERLY INSTALLED STRAW BALE

N.T.S.



STAKED TURBIDITY BARRIER

N.T.S.



SILT FENCE DETAIL

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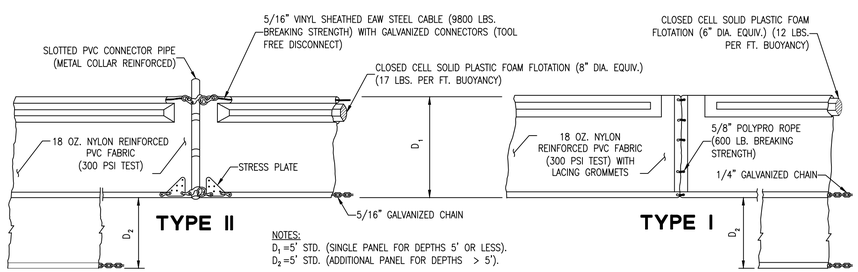


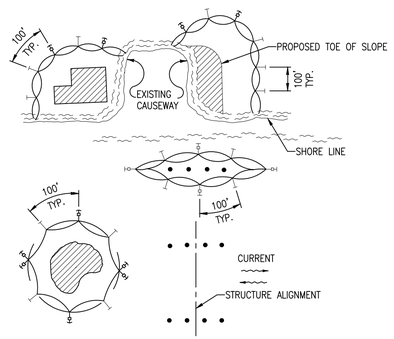
NOTES:
D_1 =5' STD. (SINGLE PANEL FOR DEPTHS 5' OR LESS).
D_2 =5' STD. (ADDITIONAL PANEL FOR DEPTHS > 5').

CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET. TWO (2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

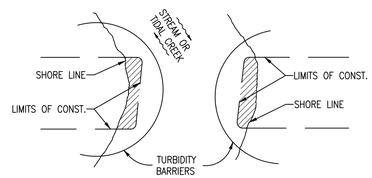
NOTICE: COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

FLOATING TURBIDITY BARRIERS

N.T.S.



LEGEND:
- PILE LOCATIONS
- DREDGE OR FILL AREA
- MOORING BUOY W/ANCHOR
- ANCHOR
- BARRIER MOVEMENT DUE TO CURRENT ACTION



1. TURBIDITY BARRIERS ARE TO BE USED IN ALL PERMANENT BODIES OF WATER REGARDLESS OF WATER DEPTH.
2. NUMBER AND SPACING OF ANCHORS DEPENDENT ON CURRENT VELOCITIES.
3. DEPLOYMENT OF BARRIER AROUND PILE LOCATIONS MAY VARY TO ACCOMMODATE CONSTRUCTION OPERATIONS.
4. NAVIGATION MAY REQUIRE SEGMENTING BARRIER DURING CONSTRUCTION OPERATIONS.
5. FOR ADDITIONAL INFORMATION SEE SECTION 104 OF THE STANDARD SPECIFICATIONS.

NOTE:
TURBIDITY BARRIERS FOR FLOWING STREAMS AND TIDAL CREEKS MAY BE EITHER FLOATING, OR STAKED TYPES OR ANY COMBINATIONS OF TYPES THAT WILL SUIT SITE CONDITIONS AND MEET EROSION CONTROL AND WATER QUALITY REQUIREMENTS. THE BARRIER TYPE(S) WILL BE AT THE CONTRACTORS OPTION UNLESS OTHERWISE SPECIFIED IN THE PLANS, HOWEVER PAYMENT WILL BE UNDER THE PAY ITEM(S) ESTABLISHED IN THE PLANS FOR FLOATING TURBIDITY BARRIER AND/OR STAKED TURBIDITY BARRIER. POSTS IN STAKED TURBIDITY BARRIERS TO BE INSTALLED IN VERTICAL POSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TURBIDITY BARRIER APPLICATIONS

N.T.S.

Rev	Date	Drawn	Description	Ch'k'd	App'd

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AA - C0000035 EB - 0000155 LB - 0006783

Client
Okaloosa County
Board of County Commissioners

Title
6th Street Drainage Improvements

EROSION CONTROL DETAILS

THIS DRAWING IS NOT FOR CONSTRUCTION

Project Number		B/O	Total
390762		30	30

Designed	B. CANNON		Eng check	S. WHITE	
Drawn	C. RILEY		Coordination	B. CANNON	
Dwg check	S. WHITE		Approved	K. MORGAN	

Scale at ANSI D	Status	Rev	Security
NTS	PRE	P1	STD

Drawing Number
C-030

Notes:

Date Created : 07/13/2020 10:39:54